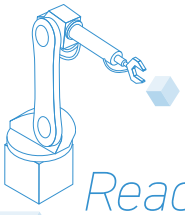
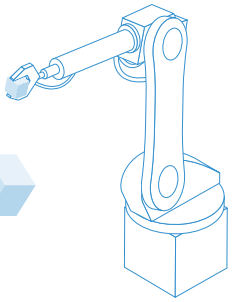
msi | IPC

Industrial Platform Solution

We Customize Your Business



Ready platforms for time-to-market integration in industrial applications



2026

ipc.msi.com

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Industrial Motherboard

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MSI reserves the right to change the specifications without prior notices.

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MSI AIoT and IPC Team

With over 30 years in motherboard design and manufacturing, MSI ranks among the world's top 3, renowned for quality and stability. Since 2006, MSI expanded into Embedded and Industrial markets, offering reliable, expandable products with longevity support.

Our high-quality embedded boards and systems cater to diverse applications including digital signage, medical electronics, ATM, POS, Kiosk, industrial automation, gaming, utility, and transportation. Backed by robust R&D and manufacturing capabilities, we deliver efficient DMS (Design & Manufacturing Services) solutions, poised to be the preferred partner in the Embedded and Industrial market worldwide.

We are a seasoned, cutting-edge department specializing in industrial/embedded motherboards and BOX IPC barebone/systems for discerning OEMs. With a wealth of experience, we offer both standard products and tailored design solutions.

Design & Manufacturing Services

Our Strengths

Our structured custom design process ensures seamless customer interaction with reasonable NRE costs and flexible project size parameters. Beyond meeting specifications, we streamline timelines, minimize costs, and mitigate risks in every ODM engagement.

The advantages of using MSI's DMS include

Customization

Tailoring embedded boards, systems and touch panel PCs to meet specific requirements ensures compatibility and optimized performance for each project.

Faster Development

Simplifying the design process accelerates project timelines, allowing clients to bring their products to market more quickly.

Reduced Design Risk

Leveraging off-the-shelf products as a foundation for development helps mitigate risks associated with designing components from scratch.

Prototype Delivery

Quick turnaround times for prototypes enable rapid iteration and testing, facilitating the refinement of products before full-scale production.

Scalability

MSI's solutions can be scaled to accommodate various project sizes and requirements, providing flexibility as needs evolve.

Revision Control & Management

MSI ensures long-term product availability with reliable components, typically lasting 5-7 years. They notify customers of revisions 6 months in advance, offering options and guidance for informed decisions.

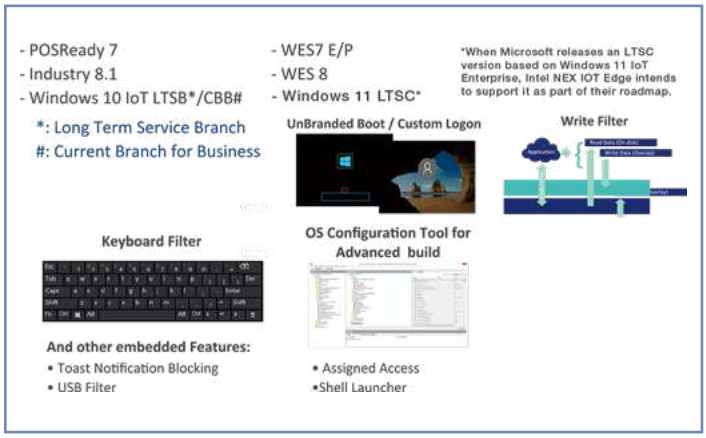
MSI reserves the right to change the specifications without prior notices.

Software

The customization service offers tailored embedded OS solutions for MSI IPC products to meet specific operational needs. It includes integrating Microsoft Embedded OS with device drivers and customer applications by request. Additionally, APIs and drivers for the HIDAC Utility can be provided to enhance system availability and simplify maintenance.

EMBEDDED OS CUSTOMIZATION

Windows Embedded OS (POS Ready 7, Industry 8.1, Windows 10 IoT LTSB/CBB) allow deep customization. Features include unbranded boot, custom logon screens, write filters for system integrity, keyboard filters for input control, toast notification blocking, USB filtering, and tools for assigned access and shell launcher customization to boost security and functionality.

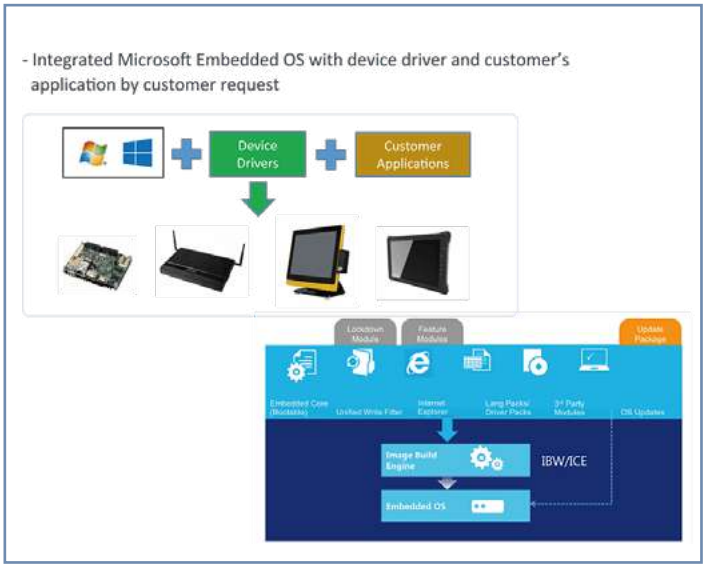


MSI HIDAC UTILITY & API/ DRIVERS

We provide extensive hardware management with device access control. Features include monitoring system info (utility, memory, disk), real-time data on temperature, voltage, fan speed, and alarm logs for issues. Device access control includes adjusting panel brightness, GPIO pin control, managing cash drawer via RJ11 port, and watchdog timer for stability.

EMBEDDED OS INTEGRATION

We integrate Microsoft's Embedded OS with tailored device drivers and customer applications, customized for various Windows Embedded systems using MSI HIDAC Utility & API/Drivers. Features include real-time system monitoring, adjustable hardware settings, and enhanced security, optimizing embedded system performance to meet specific customer needs.



Smart Factory

Automatic Material Replenishment

MS-C907
MS-C927

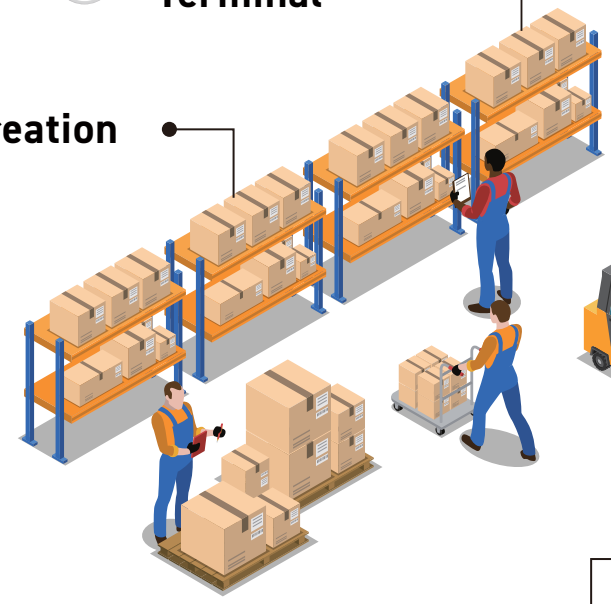
Vision Control System

MS-C906
MS-C936

IP Camera Terminal

RFID ID Creation

MS-C910
MS-C910E



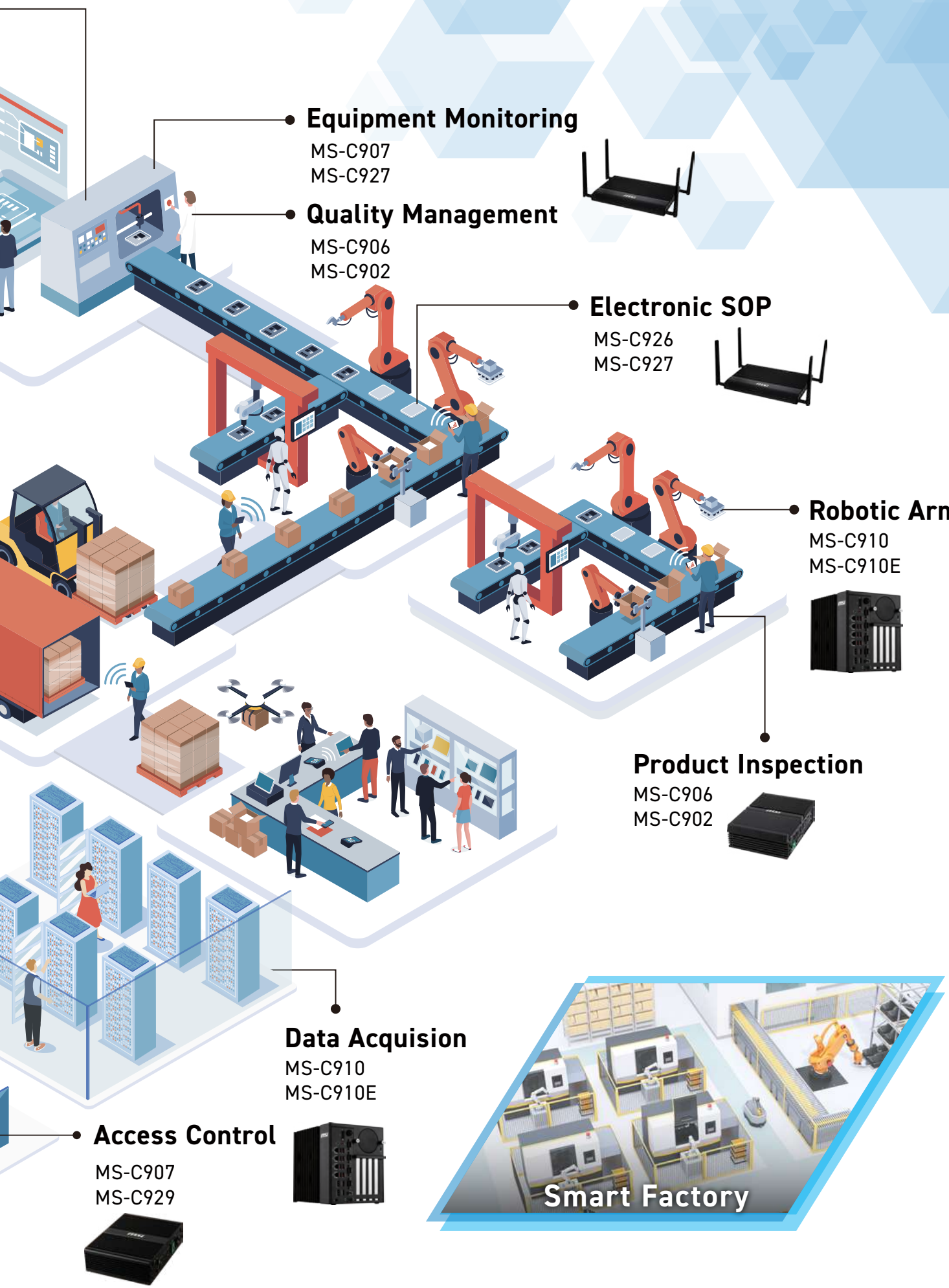
Information Analysis

MS-C906
MS-C902

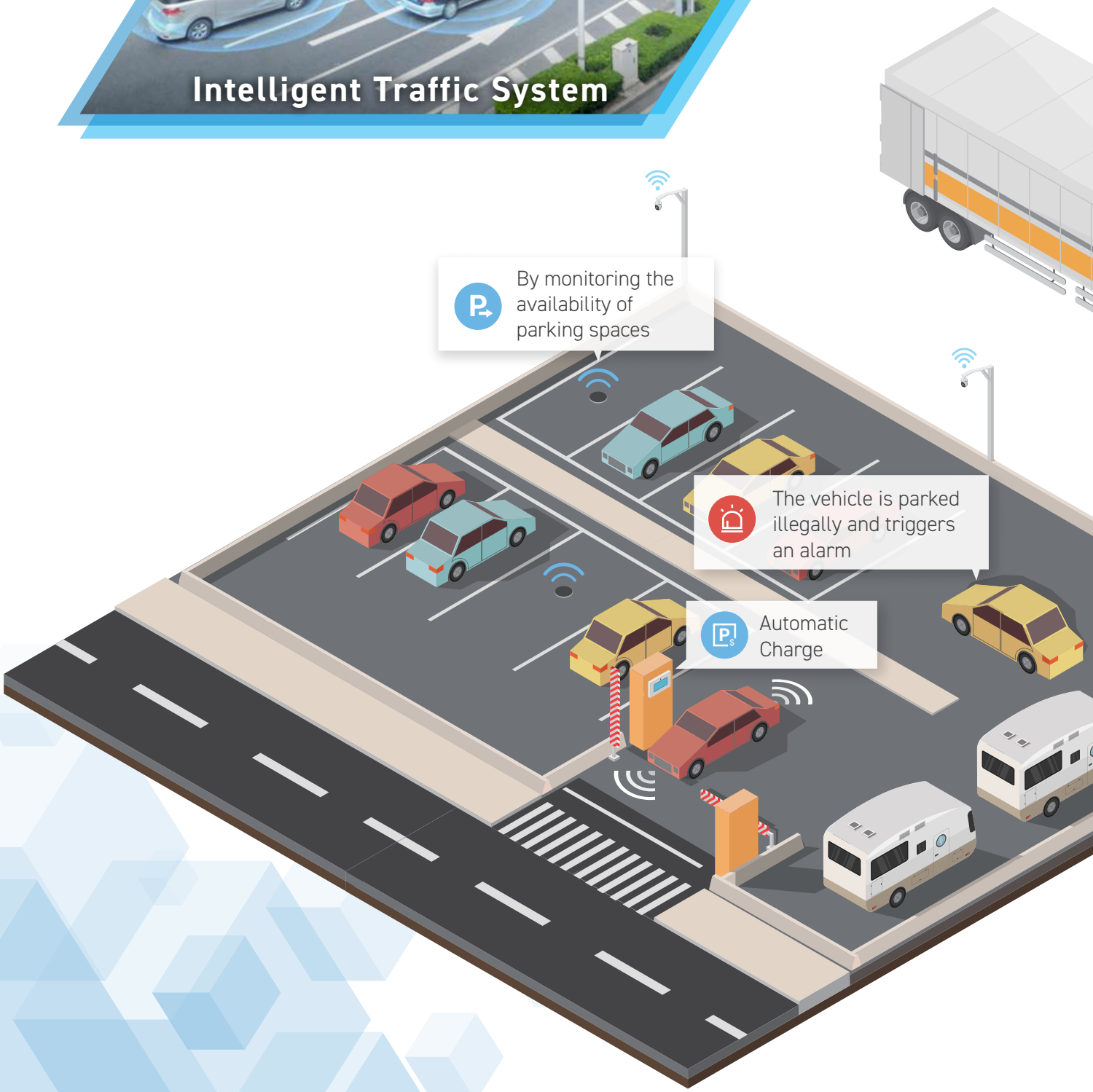
PPC for HMI (Operator Panel)

Panel PC

MSI reserves the right to change the specifications without prior notices.


Equipment Monitoring
MS-C907
MS-C927
Quality Management
MS-C906
MS-C902
Electronic SOP
MS-C926
MS-C927
Robotic Arm
MS-C910
MS-C910E
Product Inspection
MS-C906
MS-C902
Data Acquision
MS-C910
MS-C910E
Access Control
MS-C907
MS-C929
Smart Factory

Smart Parking



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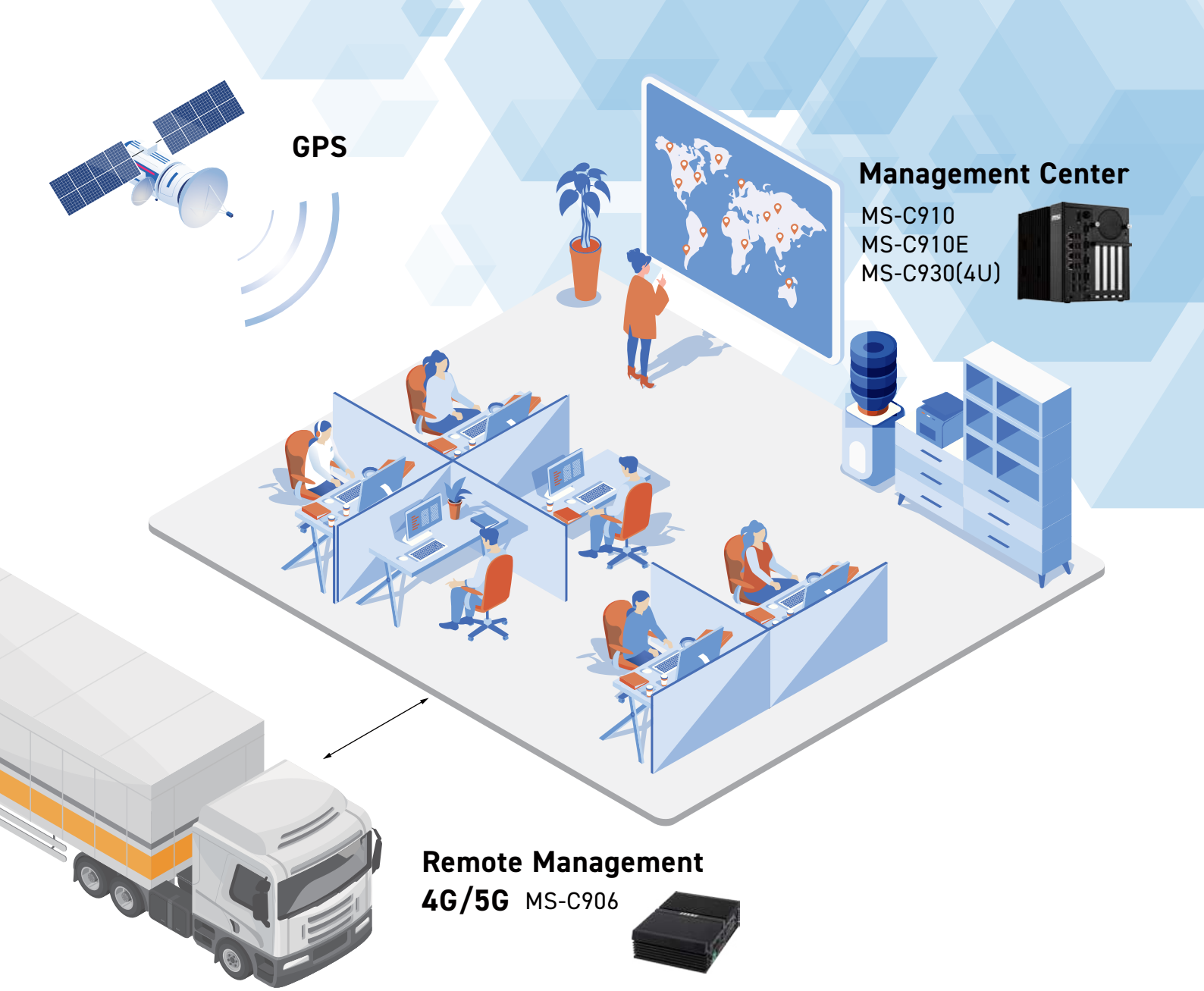
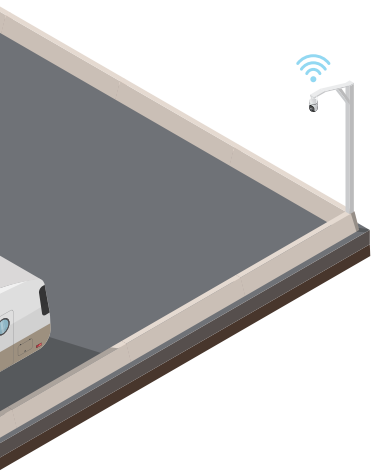

GPS
Management Center
MS-C910
MS-C910E
MS-C930(4U)
Remote Management
4G/5G MS-C906



SPACES AVAILABLE
C 0
B 12
A 6
Smart Parking

Smart Retail (KIOSK)

Smart Self-ordering Kiosk

MS-C907
MS-C929
MS-1P17

Smart Self-Checkout system

Panel PC

+

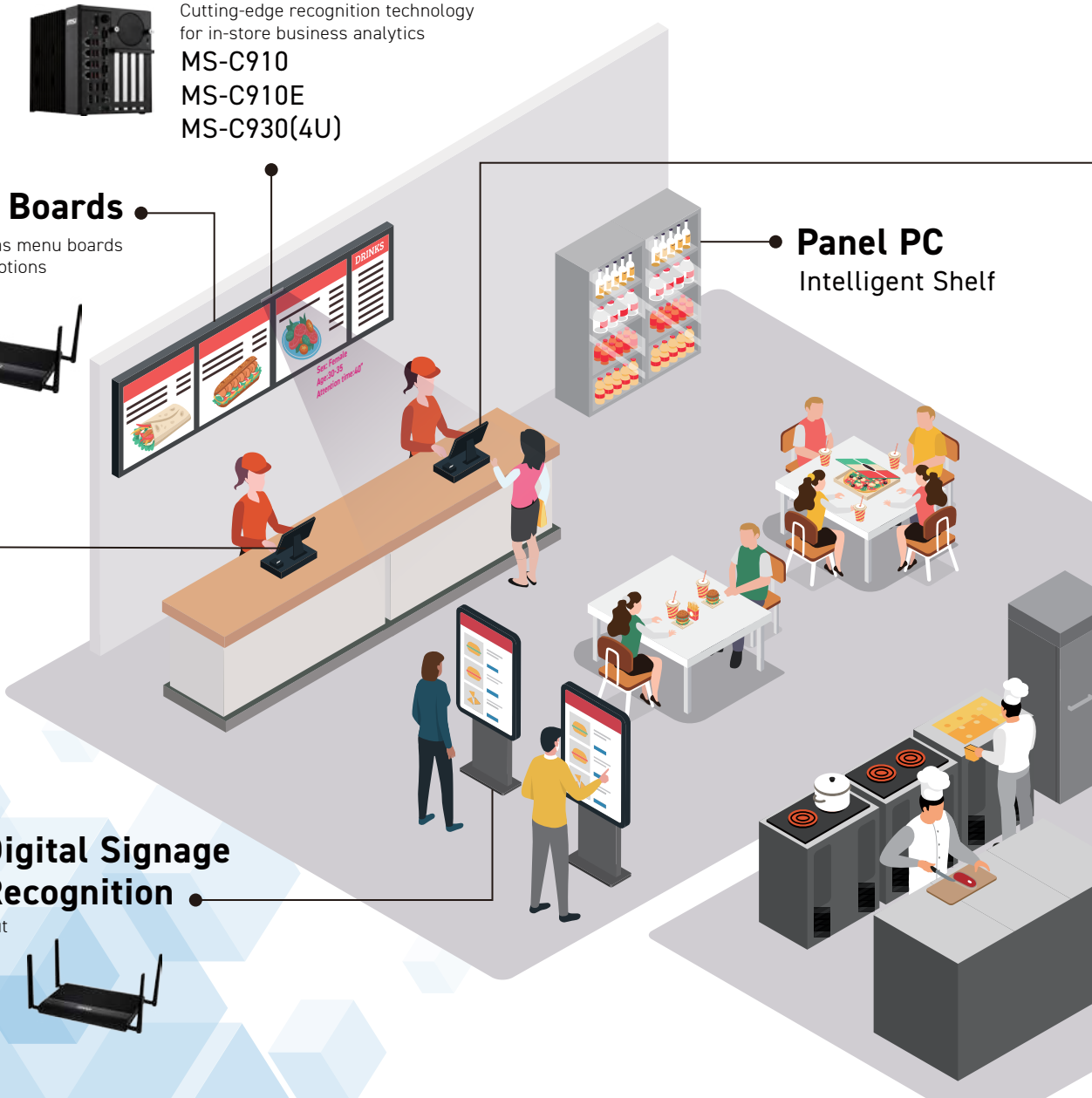
Cutting-edge recognition technology for in-store business analytics

MS-C910
MS-C910E
MS-C930(4U)

Digital Menu Boards

Digital signage solutions as menu boards displaying real-time promotions

MS-1P17
MS-C926



Panel PC

Intelligent Shelf

Panel PC

POS Terminal

Interactive Digital Signage with Facial Recognition

Self-ordering kiosks to cut customer queuing time

MS-C926
MS-C902

MSI reserves the right to change the specifications without prior notices.

Smart Shelf

MS-C907
MS-C929
MS-1P17

Instant Inventory Checking

MS-C907
MS-C929
MS-1P17

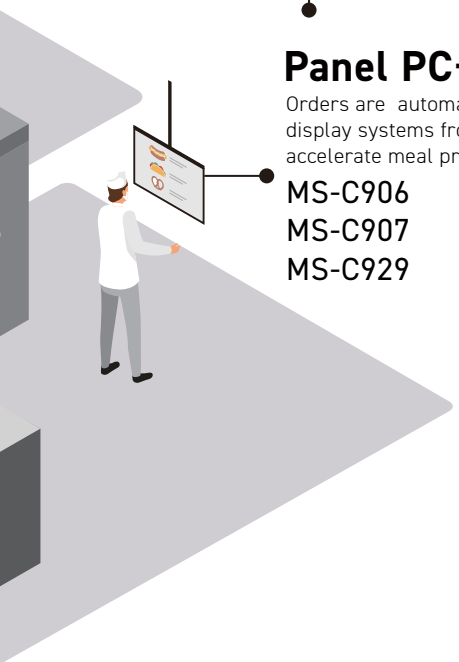
Bussiness Intelligence

Smart Retail Dashboard

MS-C926
MS-1P17
MS-C902

Data Collection Business Intelligence

MS-C910
MS-C910E
MS-C930



Panel PC+ MS-C910

Orders are automatically sent to kitchen display systems from POS terminals to accelerate meal preparation

MS-C906
MS-C907
MS-C929

	MS-1A91	MS-1A22	MS-1A32	MS-1A71	MS-1A81
	Panel PC				
LCD Size	10.1"	12.1"	15"	15.6"	21.5"
Resolution	1024 x 600	1024 x 768	1024 x 768	1920 x 1080	1920 x 1080
Brightness (cd/m2)	500	500	350	500	500
Contrast Ratio	500	700	800	1000	1000
Support Colors	16.7M	16.7M	16.2M	16.2M	16.7M
Pixel Pitch (H/Vmm)	0.217 x 0.208	0.24 x 0.24	0.297 x 0.297	0.17925 x 0.17925	247.95 x 247.95 (um)
Viewing Angle	70/70/60/60	80/80/70/70	80/80/70/80	89/89/89/89	89/89/89/89
Touch Panel	5-Wire Resistive	Projective Capacitive 5-Wire Resistive	Projective Capacitive 5-Wire Resistive	Projective Capacitive	Projective Capacitive
CPU	Intel® Alder Lake N Series Intel® processor N97 2.0GHz ,QC ,12W Intel® Atom X7425E 1.5GHz , QC, 12W	Intel® Alder Lake N Series Intel® processor N97 2.0GHz ,QC ,12W Intel® Atom X7425E 1.5GHz , QC, 12W Intel® Core i3-N305 1.8GHz , 8C, 15W			
Frequency	3.2 up to 3.80 GHz	3.2 up to 3.80 GHz	3.2 up to 3.80 GHz	3.2 up to 3.80 GHz	3.2 up to 3.80 GHz
L2 Cache	6MB	6MB	6MB	6MB	6MB
Chipset	SoC	SoC	SoC	SoC	SoC
Technology	Single-channel DDR5 MHz	Single-channel DDR5 MHz	Single-channel DDR5 MHz	Single-channel DDR5 MHz	Single-channel DDR5 MHz
Max. Capacity	Up to 16GB	Up to 16GB	Up to 16GB	Up to 16GB	Up to 16GB
Socket	1 x 262-pin SO-DIMM	1 x 262-pin SO-DIMM	1 x 262-pin SO-DIMM	1 x 262-pin SO-DIMM	1 x 262-pin SO-DIMM
Display Interface	HDMI up to 3840 x 2160 DP up to 4096 x 2160	HDMI up to 3840 x 2160 DP up to 4096 x 2160	HDMI up to 3840 x 2160 DP up to 4096 x 2160	HDMI up to 3840 x 2160 DP up to 4096 x 2160	HDMI up to 3840 x 2160 DP up to 4096 x 2160
Controller	2 x Intel® I226V Co-Lay Intel® I226LM PCIe 2.5GbE LAN	2 x Intel® I226V Co-Lay Intel® I226LM PCIe 2.5GbE LAN	2 x Intel® I226V Co-Lay Intel® I226LM PCIe 2.5GbE LAN	2 x Intel® I226V Co-Lay Intel® I226LM PCIe 2.5GbE LAN	2 x Intel® I226V Co-Lay Intel® I226LM PCIe 2.5GbE LAN
Mini-PCIe	N/A	N/A	N/A	N/A	N/A
M.2	1 M.2 E key (reserved for WiFi)	1 M.2 E key (reserved for WiFi)	1 M.2 E key (reserved for WiFi)	1 M.2 E key (reserved for WiFi)	1 M.2 E key (reserved for WiFi)
SATA	N/A	1 x 2.5" HDD (Option)	1 x 2.5" HDD (Option)	1 x 2.5" HDD (Option)	1 x 2.5" HDD (Option)
M.2	1 x M.2 B key (reserved for storage)	1 x M.2 B key (reserved for storage)	1 x M.2 B key (reserved for storage)	1 x M.2 B key (reserved for storage)	1 x M.2 B key (reserved for storage)
mSATA	N/A	N/A	N/A	N/A	N/A
CFast	N/A	N/A	N/A	N/A	N/A
CompactFlash	N/A	N/A	N/A	N/A	N/A
RJ-45	2	2	2	2	2
Audio	1 x Line-out 1 x MIC-in	1 x Line-out 1 x MIC-in	1 x Line-out 1 x MIC-in	1 x Line-out 1 x MIC-in	1 x Line-out 1 x MIC-in
USB	2 x Dual Stacked Type-A USB 3.1 2 x USB 2.0	2 x Dual Stacked Type-A USB 3.1 2 x USB 2.0	2 x Dual Stacked Type-A USB 3.1 2 x USB 2.0	2 x Dual Stacked Type-A USB 3.1 2 x USB 2.0	2 x Dual Stacked Type-A USB 3.1 2 x USB 2.0
Serial	1 x COM (1 x edge I/O) COM1: RS-232/422/485, 0V/5V/12V	3 x COM (1 x edge I/O, 2 x inter-nal) COM1~2: RS-232/422/485, 0V/5V/12V COM3: RS-232, 0V/5V/12V (COM2~3 Option with cable)	3 x COM (1 x edge I/O, 2 x inter-nal) COM1~2: RS-232/422/485, 0V/5V/12V COM3: RS-232, 0V/5V/12V (COM2~3 Option with cable)	3 x COM (1 x edge I/O, 2 x inter-nal) COM1~2: RS-232/422/485, 0V/5V/12V COM3: RS-232, 0V/5V/12V (COM2~3 Option with cable)	3 x COM (1 x edge I/O, 2 x internal) COM1~2: RS-232/422/485, 0V/5V/12V COM3: RS-232, 0V/5V/12V (COM2~3 Optionwith cable)
Parallel	N/A	N/A	N/A	N/A	N/A
PS/2	N/A	N/A	N/A	N/A	N/A
HDMI	1	1	1	1	1
DVI	N/A	N/A	N/A	N/A	N/A
DisplayPort	1	1	1	1	1
VGA	N/A	N/A	N/A	N/A	N/A
Antenna	Inside	Inside	Inside	Inside	Inside
DC Input	DC-in 12~24V	DC-in 12~24V	DC-in 12~24V	DC-in 12~24V	DC-in 12~24V
IP Rating	Front IP65 / Rear 41	Front IP65 / Rear 41	Front IP65 / Rear 41	Front IP65 / Rear 41	N/A
Operating Temperature	0°C ~ 40°C	0°C ~ 40°C	0°C ~ 40°C	0°C ~ 40°C	0°C ~ 40°C
Operating Humidity	20%~90% RH	20%~90% RH	20%~90% RH	20%~90% RH	20%~90% RH
Storage Temperature	-20°C ~ 60°C	-20°C ~ 60°C	-20°C ~ 60°C	-20°C ~ 60°C	-20°C ~ 60°C
Storage Humidity	10% ~ 90% non-condensing	10% ~ 90% non-condensing	10% ~ 90% non-condensing	10% ~ 90% non-condensing	10% ~ 90% non-condensing
Housing	Plastic / Metal	Plastic / Metal	Plastic / Metal	Plastic / Metal	Plastic / Metal
Dimensions (L x W x D)	272 x 178 x 42 mm	200.75 x 267.32 x 40.8 mm	291.5 x 359.50 x 38.1 mm	255.6 x 399.7 x 38.1 mm	333.01 x 538.55 x 41.95 mm
Weight	1.6kg (3.53lbs)	2kg (4.4lbs)	3kg (6.61lbs)	2.71kg (5.97lbs)	5.6kg (12.34lbs)
Mounting	VESA 75 x 75, 100 x 100 mm (Optional)	VESA 75 x 75, 100 x 100 mm (Optional)	VESA 75 x 75, 100 x 100 mm (Optional)	VESA 75 x 75, 100 x 100 mm (Optional)	VESA 75 x 75, 100 x 100 mm (Optional)
EMC	FCC, CE, BSMI, VCCI	FCC, CE, BSMI, VCCI	FCC, CE, BSMI, VCCI	FCC, CE, BSMI, VCCI	FCC, CE, BSMI, VCCI
Safety	PSE	PSE	PSE	PSE	PSE
OS Support	Windows 10 IoT Enterprise LTSC 2021 Windows 11 IoT Enterprise 2022 Windows 11 IoT Enterprise LTSC 2024				

	MS-N0T1 Tablet PC
Dimension	279 x 192.5 x 17.9 mm
Weight	990g
Display	10 inch, 16:10 ratio
Sealing	IP65
Drop/Shock	MIL-STD-810G 4-feet drop
Battery life	Up to 9 hours
Operating Temp	0~40 degree
Storage Temp	-20~60 degree
CPU	Intel Apollolake Pentium N4200
System Memory	Default DDR3L 4GB. Max 8GB
Storage	64GB (Min)/ 128GB (Max) M.2 3D TLC SSD
Display	10.1" 1280 x 800 Projected Capacitive Touch Screen. Multi touch 10 points Microsoft pen protocol (MPP) supported
Button	Power, Barcode Scanner
Power	AC: support 100~240V DC: support 12/19/24V
Audio	1w x 2, Stereo type Internal Microphone: Stereo (set with Camera module)
Sensors	Light Sensor, E-Compass Sensor, G-Sensor, Gyro Sensor
I/O ports	USB x2 (Ver.3.0) Headphone out x1 (headphone/ microphone combo jack, 3.5Ø, iPhone Type) Power jack x 1(19V & 24V) Mirco SD slot x1, SDXC type, (SD 4.0) SIM Slot Pogo pin: x1 RJ45: x1, Intel WGI211AT Micro HDMI (Output) x 1
Battery	Battery 1 Li-Polymer, 41W/h, 5550mAh, Pack swappable Battery Life: over: 9 hrs
Security	Kensington x1, TPM 2.0
Wireless LAN + BT	802.11 ac/a/b/g/n, Intel 8260 , Ver4.2
Camera	2M Pixel front camera w/ ALS and D-MIC *2 5M Pixel rear camera +Auto Focus
Smart card reader	Support
Option	NFC / Barcode scanner / LTE
OS	Microsoft® Windows 10 IoT / Ubunto
Office Docking I/O	USB 3.0 x 2, USB 2.0 x 2, Power Jack x 1, LAN Port x1, POGO Pin x 1, VGA output x1, RS232 x 1
Accessories Option	Protection cover Vesa mount Active Stylus Pen

NEW

NEW

Model		MS-C918	MS-C918S	MS-C906	
		Industrial Computer			
System Processor	CPU	Intel® Mobile Alder Lake-N N100 Processor, 6W Intel® Mobile Twin Lake-N N150 Processor, 6W	Intel® Mobile Alder Lake-N N100 Processor, 6W Intel® Mobile Twin Lake-N N150 Processor, 6W	**Embedded SKUs** Intel® Mobile 13th Gen Raptor Lake-P U Series Processors, Core™ i3-1315UE/i5-1335UE/i5-1345UE	**Industrial SKUs** Intel® Mobile 13th Gen Raptor Lake-P U Series Processors, Core™ i5-1345URE / i3-1315URE
	Frequency	0.8 GHz~3.4 GHz	0.8 GHz~3.4 GHz	3.30 GHz~4.6 GHz (Depends on CPU)	
	L2 Cache	6MB	6MB	6M~12M (Depends on CPU)	
	CPU Type	BGA	BGA	BGA	
	Chipset	Integrated in SoC Process	Integrated in SoC Process	Integrated in SoC Process	
	BIOS	AMI	AMI	AMI	
Memory	Technology	Single-channel LPDDR5 4800 MHz	Single-channel LPDDR5 4800 MHz	Single-channel DDR5 5200 MHz	
	Max. Capacity	Up to 4 GB	Up to 4 GB	Up to 32 GB	
	Socket	N/A	N/A	1 x 262-pin SO-DIMMs	
Graphic	Controller	Intel® UHD Graphics	Intel® UHD Graphics	Intel® UHD Graphics	
	Graphic Memory	Depends on CPU	Depends on CPU	Depends on CPU	
	Multiple Display	2 independent displays	2 independent displays	4 independent displays	
	Display Interface	HDMI 2.0b up to 4096 x 2160 @60Hz	HDMI 2.0b up to 4096 x 2160 @60Hz	HDMI 2.0 up to 4096 x 2340 @60Hz	
Ethernet	Controller	1 x Realtek® RTL8111H-CG	1 x Realtek® RTL8111H-CG	4 x Intel® I226-LM GbE LAN	4 x Intel® I226-IT 2.5 GbE LAN
Audio	Controller	N/A	N/A	Realtek® ALC897 HD Audio Codec (Co-lay ALC888S)	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	256-level Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	N/A	N/A	N/A	
TPM	Controller	N/A	N/A	Infineon SLB9672VU2.0	Infineon SLB9672XU2.0
Expansion Slot	PCIe x16	N/A	N/A	N/A	
	PCIe x8	N/A	N/A	N/A	
	PCIe x4	N/A	N/A	N/A	
	PCIe x1	N/A	N/A	N/A	
	PCI	N/A	N/A	N/A	
	M.2	N/A	N/A	1 x M.2 M key (PCIe Gen4 x4 NVMe), 2280 1 x M.2 B key (PCIe x1, USB 2.0, w/NANO SIM-Holder), 2242/3042 1 x M.2 E key (PCIe x1, USB 2.0, w/CNVi), 2230	
	Mini-PCIe	N/A	N/A	N/A	
Storage	SATA	N/A	N/A	1 x 2.5" SSD Bay	N/A
	mSATA	N/A	N/A	N/A	
	CFast	N/A	N/A	N/A	
	CompactFlash	N/A	N/A	N/A	
I/O Interface	RJ-45	1	1	4	
	PoE	N/A	N/A	N/A	
	Audio	N/A	N/A	1 x Mic-in 1 x Line-out	
	USB	1 x USB 2.0 2 x USB 10Gbps	1 x USB 2.0 2 x USB 10Gbps	4 x USB 2.0 4 x USB 3.2 Gen 2	
	Serial	N/A	N/A	4 x COM ports COM1~4 RS-232/422/485, 0V/5V/12V	
	Parallel	N/A	N/A	N/A	
	PS/2	N/A	N/A	N/A	
	GPIO	N/A	N/A	16-bit (Default 8 x GPI, 8 x GPO), 5V	
	CANbus	N/A	N/A	N/A	
	HDMI	2	2	4	
	LVDS	N/A	N/A	N/A	
	DVI	N/A	N/A	N/A	
	DisplayPort	N/A	N/A	N/A	
	VGA	N/A	N/A	N/A	
	Antenna	2 internal reserved for antennas	2 internal reserved for antennas	6 openings reserved for antennas	
Power Supply	DC Input	DC-in 12V	DC-in 12V	DC-in 12V~24V Wide-Range (OCP & OVP) Phoenix pluggable connectors with latch (V+, V-)	
	AC Input	N/A	N/A	N/A	
Environment	IP Rating	N/A	N/A	N/A	
	Operating Temperature	0 ~ 40°C	0 ~ 55°C Note: Thermal w/ Airflow:0.7m/s	0 ~ 50°C (w/ 2.5" SATA SSD(Ta: 85°C)) 0 ~ 45°C (w/ M.2 NVMe SSD(Ta: 85°C)) Note: Thermal w/ Airflow:0.7m/s	-20 ~ 70°C (w/ WT M.2 NVMe SSD (Ta: 85°C), w/ WT MEM(Ta: 95°C)) Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing	
	Storage Temperature	0 ~ 60°C	0 ~ 60°C	-20 ~ 80°C	
	Storage Humidity	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing	
	Vibration	Operating: 0.25 Grms, 5-300Hz, 3axes	Operating: 0.25 Grms, 5-300Hz, 3axes	Operating, IEC 60068-2-64: 2 Grms, random, 5 ~ 500Hz, 1hr/axis (w/ SSD) IEC61373 Category 1, Class B	
	Shock	Operating: 3 G, half sine 11 ms duration	Operating: 3 G, half sine 11 ms duration	Operating, IEC 60068-2-27: 50G, half sine, 11ms (w/ SSD) IEC61373 Category 1, Class B	
Physical haracteristics	Dimensions(W x D x H)	80 x 80 x 39.5 mm	80 x 78 x 48 mm	215 x 155 x 65 mm	
	Weight	0.22 kg	0.35 kg	2.25 kg	
	Mounting	VESA mount	VESA mount	Wall mount (STD)/DIN-rail mount(STD)/VESA mount(by BOM option)	
Certification	EMC	FCC Class B, CE, RCM, BSMI, VCCI, UKCA, IC	FCC Class B, CE, RCM, BSMI, VCCI, UKCA, IC	FCC Class B, CE, RCM, BSMI, VCCI, UKCA, IC	
	Safety	BSMI	BSMI	BSMI	
Software Platform	OS Support	Windows 11 IoT Enterprise 24H2 LTSC	Windows 11 IoT Enterprise 24H2 LTSC	Windows 10 IoT Enterprise 21H2 LTSC (64-bit) Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request)	

MSI reserves the right to change the specifications without prior notices.

TAIWAN EXCELLENCE 2018

Model		MS-9A89 Industrial Computer						
		MS-9A89-A1	MS-9A89-A2	MS-9A89-A3	MS-9A89-U1	MS-9A89-U2	MS-9A89-U3	MS-9A89-U4
System Processor	CPU	Intel® Atom™ x7 Processor E3950, QC, 12W	Intel® Atom™ x5 Processor E3940, QC, 9.5W	Intel® Celeron® Processor J3455, QC, 10W	Intel® Kaby Lake-U Core™ i3-7100U Processor, DC, 15W	Intel® Skylake-U Core™ i5-6300U Processor, DC, 15W	Intel® Skylake-U Core™ i3-6100U Processor, DC, 15W	Intel® Skylake-U Core™ i7-6600U Processor, DC, 15W
	Frequency	1.6 GHz up to 2.0 GHz	1.6 GHz up to 1.8 GHz	1.5 GHz, up to 2.3 GHz	2.4 GHz			2.6 GHz
	L2 Cache	2MB			3MB			
	CPU Type	BGA						
	Chipset	Integrated in SoC Process			Integrated in Process			
	BIOS	AMI						
Memory	Technology	Single-channel DDR3L 1866/1600 MHz			Single-channel DDR4 2133 MHz			
	Max. Capacity	Up to 8GB			Up to 16GB			
	Socket	1 x 204-pin SO-DIMMs			1 x 260-pin SO-DIMMs			
Graphic	Controller	Intel® HD Graphics						
	Graphic Memory	Depends on CPU						
	Multiple Display	3 independent displays						
	Display Interface	HDMI up to 3840 x 2160 @30Hz DP up to 4096 × 2160 @60Hz LVDS up to 1920 x 1200 @60Hz (optional by cable) DVI-I up to 1920 x 1200 @60Hz (optional by MS-99C0)			HDMI1.4 up to 4096 x 2160 @24Hz DP up to 3840 x 2160 @60Hz (Support DP++) LVDS up to 1920 x 1200 @60Hz (optional by cable) DVI-I up to 1920 x 1200 @60Hz (optional by MS-99C0)			
Ethernet	Controller	2 x Intel® I210-IT GbE LAN	2 x Intel® I210-AT GbE LAN		1 x Intel® I210-AT GbE LAN 1 x Intel® I219-LM GbE LAN PHY			
Audio	Controller	Realtek® ALC887-VD2-CG HD Audio Codec						
H/W Monitor	Watchdog Timer	256-level Watchdog Timer						
	Smart Fan	N/A						
TPM	Controller	N/A						
Expansion Slot	PCIe x16	N/A						
	PCIe x8	N/A						
	PCI	N/A						
	M.2	N/A						
	Mini-PCIe	2 x Full-size (Mini-PCIe1 Slot w/ NANO SIM-Holder) (Mini-PCIe2 Slot w/ mSATA)						
Storage	SATA	1 x 2.5" HDD/SSD Bay						
	mSATA	1 x Full-size						
	CFast	N/A						
I/O Interface	RJ-45	4 (LAN1/2 Standard, LAN3/4 by Option)						
	PoE	2 x 802.11af (Option by Request)						
	Audio	1 x Line-out, 1 x Mic-in						
	USB	4 x USB 2.0 2 x USB 3.2 Gen 1			4 x USB 2.0 4 x USB 3.2 Gen 1			
	Serial	6 x COM ports COM1: RS-232/422/485, 0V/5V/12V COM2~6: RS-232, 0V/5V/12V						
	PS/2	N/A						
	GPIO	16-bit (8*GPI; 8*GPO), 5V						
	CANbus	2 x CAN 2.0B (Option)						
	HDMI	1						
	LVDS	1 (optional)						
	DVI	1 (DVI-I by option)						
	DisplayPort	1						
	Antenna	4 openings reserved for antennas						
Power Supply	DC Input	DC-in 12V~24V						
Environment	IP Rating	N/A						
	Operating Temperature	-10~45°C (HDD) -20~70°C (w/ WT devices) Note: Thermal w/ Airflow:0.7m/s	-10~45°C (HDD) -10~60°C (w/ WT devices) Note: Thermal w/ Airflow:0.7m/s		-10~45°C (HDD) -10~60°C (w/ WT devices) Note: Thermal w/ Airflow:0.7m/s			
	Operating Humidity	10 ~ 90%, non-condensing						
	Storage Temperature	-20 ~ 80°C						
	Storage Humidity	10 ~ 90%, non-condensing						
	Vibration	IEC61373 Category 1, Class B						
	Shock	IEC61373 Category 1, Class B						
Physical haracteristics	Dimensions(W x D x H)	215 x 155 x 55 mm						
	Weight	1.55 kg						
	Mounting	Wall mount (STD)/DIN-rail mount(STD)/VESA mount(by BOM option)						
Certification	EMC	CE, FCC, VCCI, RCM, BSMI, EN50155						
	Safety	BSMI						
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)						

NEW

NEW

Model		MS-C927	MS-C907	
		Industrial Computer		
System Processor	CPU	Intel® Core™ Ultra Processor (Series 1) Meteor Lake- U Series Processors, Core™ Ultra 7 165U/155U, Core™ Ultra 5 135U/125U Intel® Core™ Ultra Processor (Series 2) Arrow Lake- U Series Processors, Core™ Ultra 7 265U/255U, Core™ Ultra 5 235U/225U	Intel® IOTG Alder Lake-N Processor N97, QC, 12W	Intel® IOTG Alder Lake-N Core i3-N305, OC, 12W up to 15W
	Frequency	P-Core: 4.3GHz~5.3GHz (Depends on CPU) E-Core: 3.6GHz~4.2GHz (Depends on CPU)	2 GHz, up to 3.6 GHz	1.8 GHz, up to 3.8 GHz
	L2 Cache	12MB	6MB	
	CPU Type	BGA	BGA	
	Chipset	Integrated in SoC Process	Integrated in SoC Process	
	BIOS	AMI	AMI	
Memory	Technology	Dual-channel DDR5 5600~6400MHz (Depends on CPU)	Single Channel DDR5 4800 MHz	
	Max. Capacity	Up to 96GB	Up to 16GB	
	Socket	2 x 262-pin SO-DIMM	1 x 262-pin SO-DIMM	
Graphic	Controller	Intel® Graphics	Intel® UHD Graphics	
	Graphic Memory	Depends on CPU	Depends on CPU	
	Multiple Display	2 independent displays	2 independent displays	
	Display Interface	DP up to 4096 x 2304 @60Hz	HDMI up to 3840 x 2160 @30Hz DP up to 4096 × 2304 @60Hz	
Ethernet	Controller	1 x Intel® I219-LM GbE LAN 1 x Intel® I226-V GbE LAN	2 x Intel® I226-V 2.5 GbE LAN	
Audio	Controller	Realtek® ALC897 HD Audio Codec	Realtek® ALC897 HD Audio Codec	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	N/A	N/A	
TPM	Controller	Infineon SLB9672VU2.0	Infineon SLB9672VU2.0	
Expansion Slot	PCIe x16	N/A	N/A	
	PCI	N/A	N/A	
	M.2	1 x M.2 M key (PCIe Gen4 x4 NVMe), 2280 1 x M.2 B key (PCIe x1, USB 2.0), 2242/3042 1 x M.2 E key (PCIe x1, USB 2.0, w/CNVi), 2230	1 x M.2 B key (SATA/PCIe x1), 2242/3042/2280 1 x M.2 E key (PCIe x1, USB 2.0), 2230	
	Mini-PCIe	N/A	N/A	
Storage	SATA	N/A	1 x 2.5" HDD/SSD Bay	
	mSATA	N/A	N/A	
	CFast	N/A	N/A	
I/O Interface	RJ-45	2	2	
	PoE	N/A	N/A	
	Audio	N/A	1 x Line-out 1 x Mic-in	
	USB	4 x USB 10 Gbps	6 x USB 2.0 2 x USB 3.2 Gen 2 2 x USB 3.2 Gen 1	
	Serial	2 x COM ports COM1~2: RS-232/422/485, 0V/5V/12V	4 x COM ports COM1: RS-232/422/485, 0V/5V/12V COM2: RS-232 COM3~4: Option by M.2 Module	
	PS/2	N/A	N/A	
	GPIO	8-bit (Default 4 x GPI, 4 x GPO), 5V	8-bit (4*GPI; 4*GPO), 5V	
	CANbus	N/A	2 (Option by M.2 Module)	
	HDMI	N/A	1	
	LVDS	N/A	N/A	
	DVI	N/A	N/A	
	DisplayPort	2	1	
	VGA	N/A	N/A	
	Antenna	2 openings reserved for antennas	4 openings reserved for antennas	
Power Supply	DC Input	DC-in 12~24V (OCP & OVP)	DC-in 9~36V with Lockable DC Jack Phoenix pluggable connectors with latch (V+, V-)	
	AC Input	N/A	N/A	
Environment	IP Rating	N/A	N/A	
	Operating Temperature	-10~60 °C (w/SSD) Note: Thermal w/ Airflow:0.7m/s	-10 ~ 40°C -10 ~ 55°C (w/ WT devices) Note: Thermal w/ Airflow:0.7m/s	
	Operating Humidity	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	-20 ~ 80°C	
	Storage Humidity	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing	
	Vibration	IEC61373 Category 1, Class B	IEC61373 Category 1, Class B	
	Shock	IEC61373 Category 1, Class B	IEC61373 Category 1, Class B	
Physical haracteristics	Dimensions (WxDxH)	130 x 155 x 40 mm	200 x 150 x 55 mm	
	Weight	1.1 kg	1.38 kg	
	Mounting	Wall mount (STD)/DIN-rail mount (STD)	Wall mount (STD)/DIN-rail mount(STD)/VESA mount (by option)	
Certification	EMC	CE, FCC, RCM, VCCI, BSMI, UKCA, IC	CE, FCC, RCM, VCCI, BSMI, UKCA, IC	
	Safety	IEC 62368: CE(LVD) / BSMI	BSMI	
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC (64-bit, 21H2) Windows 11 IoT Enterprise LTSC (64-bit, 24H2) Linux (Support by request)	Windows 10 IoT Enterprise 2021 LTSC (64-bit, 21H2) Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request)	

MSI reserves the right to change the specifications without prior notices.

Model		MS-C936	MS-C926
		Industrial Computer	
System Processor	CPU	Intel® Raptor Lake-P Refresh U Series Processor, Core™ 5 120U, 15W	Intel® Alder Lake-N Processor N97, QC, 12W Intel® Twin Lake Processor N150, QC, 6W Intel® Twin Lake Processor N250, QC, 6W Intel® Twin Lake Core 3-N355, OC, 15W
	Frequency	1.4 GHz, up to 5.0 GHz	1.0 GHz, up to 3.9 GHz (Depends on CPU)
	L2 Cache	12MB	6MB
	CPU Type	BGA	BGA
	Chipset	Integrated	Integrated in SoC Process
	BIOS	AMI	AMI
Memory	Technology	Dual-channel DDR5 5200 MHz	Single-channel DDR5 4800 MHz
	Max. Capacity	Up to 96GB	Up to 16GB
	Socket	2 x 262-pin SO-DIMMs	1 x 262-pin SO-DIMM
Graphic	Controller	Intel® Graphics	Intel® UHD Graphics
	Graphic Memory	1.25 GHz	Depends on CPU
	Multiple Display	4 independent displays	3 independent displays
	Display Interface	HDMI 2.0 up to 4096 x 2304 @60Hz DP up to to 7680 x 4320 @60Hz	HDMI 2.0 up to 4096 x 2304 @60Hz DP up to 4096 × 2304 @60Hz
Ethernet	Controller	2 x Intel® I226-LM 2.5 GbE LAN	2 x Intel® I226-V 2.5 GbE LAN
Audio	Controller	Realtek® ALC897 HD Audio Codec (Co-lay ALC888S)	Realtek® ALC897 HD Audio Codec
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	256-level Watchdog Timer
	Smart Fan	N/A	N/A
TPM	Controller	Infineon SLB9670VQ 2.0	Infineon SLB9672VU2.0
Expansion Slot	M.2	1 x M.2 M key (PCIe Gen4 x4 NVMe, SATA 3.0), 2242/2280 1 x M.2 B key (PCIe x1, USB 3.2, USB 2.0 w/NANO SIM-Holder), 2242/3042 1 x M.2 E key (PCIe x1, USB 2.0, w/CNVi), 2230	1 x M.2 B key (PCIe x1/SATA, USB 3.2 Gen 2 x 1, USB 2.0, w/NANO SIM-Holder), 2242/3042/2280 1 x M.2 E key (PCIe x1, USB 2.0), 2230
	Mini-PCIe	N/A	N/A
Storage	SATA	1 x 2.5" SSD (7mm)	1 x 2.5" HDD/SSD
	mSATA	N/A	N/A
	CFast	N/A	N/A
I/O Interface	RJ-45	2	2
	PoE	N/A	N/A
	Audio	1 x Line-out (Mic-in by AP driver)	1 x Line-out
	USB	2 x USB 3.2 Gen2, Type-A 2 x USB 3.2 Gen2, Type-C 6 x USB 2.0, Type-A	1 x USB 2.0 3 x USB 3.2 Gen 1
	Serial	2 x COM ports COM1~2: RS-232/422/485, 0V/5V/12V	1 x COM port COM1: RS-232/422/485, 0V/5V/12V
	GPIO	N/A	N/A
	CANbus	N/A	N/A
	HDMI	2	1
	DVI	N/A	N/A
	DisplayPort	2 via USB-C	2
	VGA	N/A	N/A
	Antenna	4 openings reserved for antennas	4 openings reserved for antennas
Power Supply	DC Input	DC-in 12V/19V with Lockable DC Jack	DC-in 12~24V Wide-Range with Lockable DC Jack
	AC Input	N/A	N/A
Environment	IP Rating	Full IP40	N/A
	Operating Temperature	-10 ~ 50°C (SSD) Note: Thermal w/ Airflow:0.7m/s	-10 ~ 50°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing
	Vibration	Operating: IEC 60068-2-64: 2 Grms, 5 ~ 500 Hz, 1hr/axis (w/ SSD)	Operating, IEC 60068-2-64: 2 Grms, 5~ 500 Hz, 1hr/axis (w/ SSD)
	Shock	Operating: IEC 60068-2-27: 50G, half sine, 11ms (w/ SSD)	Operating, IEC 60068-2-27: 50G, half sine, 11ms (w/ SSD)
Physical haracteristics	Dimensions (W x D x H)	196 x 285 x 29 mm	180 x 255 x 19 mm
	Weight	2.22 kg	1.3 kg
	Mounting	VESA/Wall mount	VESA mount Wall mount (STD)
Certification	EMC	FCC Class B, CE, RCM, BSMI, VCCI, UKCA, IC	CE, FCC, RCM, VCCI, BSMI, UKCA, IC
	Safety	BSMI	IEC 62368: CE(LVD) / BSMI
Software Platform	OS Support	Windows 10 IoT Enterprise 21H2 LTSC (64-bit) Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request)	Windows 10 IoT Enterprise LTSC (64-bit, 21H2, Only for ADL-N) Windows 11 IoT Enterprise LTSC (64-bit, 24H2) Linux (Support by request)

TAIWAN EXCELLENCE 2019

Model		MS-1P17			MS-C902	MS-9B05
		Industrial Computer				
System Processor	CPU	Intel® IOTG Alder Lake-N Processor N97, QC, 12W	Intel® IOTG Alder Lake-N Atom® X7425E, QC, 12W	Intel® IOTG Alder Lake-N Core i3-N305, OC, to 15W	Intel® 12th Gen Alder Lake-P U Series Processors, Core™ i5-1245UE/i5-1235U/i3-1215UE, 15W Intel® 13th Gen Raptor Lake-P U Series Processors, Core™ i5-1335UE, 15W	8th Gen Intel® Mobile Whiskey Lake-U Core™ i5 Processor, QC, 15W
	Frequency	2 GHz, up to 3.6 GHz	3.4 GHz	1.8 GHz, up to 3.8 GHz	1.3 GHz~4.5 GHz (Depends on CPU)	Depends on CPU
	L2 Cache	6MB			8MB~12MB (Depends on CPU)	Depends on CPU
	CPU Type	BGA			BGA	BGA
	Chipset	Integrated in SoC Process			Integrated	Integrated
	BIOS	AMI			AMI	AMI
Memory	Technology	Single-Channel DDR5 4800 MHz			Dual-channel DDR4 3200 MHz	Dual-channel DDR4 2400 MHz
	Max. Capacity	Up to 16 GB			Up to 64GB	Up to 32GB
	Socket	1 x 262-pin SO-DIMM			2 x 260-pin SO-DIMMs	2 x 260-pin SO-DIMMs
Graphic	Controller	Intel® UHD Graphics			Intel® Iris® Xe Graphics (For i5 SKUs) Intel® UHD Graphics (For i3/Celeron SKUs)	Intel® UHD Graphics 620
	Graphic Memory	Depends on CPU			Depends on CPU	Depends on CPU
	Multiple Display	2 independent displays			4 independent displays	3 independent displays
	Display Interface	HDMI up to 3840 x 2160 @30Hz DP up to 4096 × 2304 @60Hz			HDMI 2.0 up to 4096 x 2304 @60Hz DP up to to 7680 x 4320 @60Hz	HDMI 2.0 up to 4096 x 2160 @60Hz HDMI 1.4 up to 4096 x 2160 @24Hz
Ethernet	Controller	2 x Intel® I226-V 2.5 GbE LAN			2 x Intel® I226-LM 2.5 GbE LAN	1 x Intel® I219LM GbE LAN PHY 1 x Intel® I210-AT GbE LAN
Audio	Controller	Realtek® ALC256 HD Audio Codec			Realtek® ALC897 HD Audio Codec (Co-lay ALC888S)	Realtek® ALC887-VD2-CG HD Audio Codec
H/W Monitor	Watchdog Timer	256-level Watchdog Timer			256-level Watchdog Timer	256-level Watchdog Timer
	Smart Fan	N/A			N/A	N/A
TPM	Controller	Infineon SLB9672VU2.0			Infineon SLB9670VQ 2.0	Infineon SLB9665TT2.0 (by BOM option)
Expansion Slot	PCIe x16	N/A			N/A	N/A
	PCI	N/A			N/A	N/A
	M.2	1 x M.2 B key (SATA/PCIe x1), 2242/3042/2280 1 x M.2 E key (PCIe x1, USB 2.0), 2230			1 x M.2 M key (PCIe Gen4 x4 NVMe, SATA 3.0), 2242/2280 1 x M.2 B key (PCIe x1, USB 3.2, USB 2.0 w/NANO SIM-Holder), 2242/3042 1 x M.2 E key (PCIe x1, USB 2.0), 2230	1 x E key (2x PCIe x1, USB 2.0), 2230 1 x M key (PCIe x4), 2242
	Mini-PCIe	N/A			N/A	1 x Half/Full-size (w/ mSATA) 1 x Half/Full-size (w/ Nano-SIM holder)
Storage	SATA	N/A			1 x 2.5" SSD (7mm)	1 x 2.5" HDD/SSD
	mSATA	N/A			N/A	1 x Full-size (shared with mini-PCIe)
	CFast	N/A			N/A	N/A
I/O Interface	RJ-45	2 x 2.5GbE LAN			2	2
	PoE	N/A			N/A	N/A
	Audio	1 x Line-out 1 x Mic-in			1 x Line-out (Mic-in by AP driver)	1 x SPDIF-out/Line-out 1 x Mic-in/Line-in
	USB	4 x USB 3.1 2 x USB 2.0			2 x USB 3.2 Gen2, Type-A 1 x USB 3.2 Gen2, Type-C 2 x USB 2.0, Type-A	4 x USB 2.0 2 x USB 3.2 Gen 2
	Serial	1 x COM port COM1: RS-232/422/485, 0V/5V/12V			2 x COM ports COM1/2: RS-232/422/485, 0V/5V/12V	2 x COM ports COM1/2: RS-232/422/485, 0V/5V/12V
	HDMI	1			N/A	3
	LVDS	N/A			N/A	N/A
	DVI	N/A			N/A	N/A
	DisplayPort	1			2	N/A
	VGA	N/A			N/A	N/A
	Antenna	2 openings reserved for antennas			N/A	4 openings reserved for antennas
Power Supply	DC Input	DC-in 12~24V with Lockable DC Jack			DC-in 19V with Lockable DC Jack	DC-in 9~36V with Lockable DC Jack
	AC Input	N/A			N/A	N/A
Environment	IP Rating	N/A			Full IP40	Full IP40
	Operating Temperature	0~40 °C			-10 ~ 50°C (SSD) Note: Thermal w/ Airflow:0.7m/s	-10 ~ 40°C (HDD) -10 ~ 50°C (SSD) Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing			10 ~ 90%, non-condensing	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C			-20 ~ 80°C	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing			10 ~ 90%, non-condensing	10 ~ 90%, non-condensing
	Vibration	N/A			Operating: IEC 60068-2-64: 2 Grms, 5 ~ 500 Hz, 1hr/axis (w/ SSD)	IEC61373 Category 1, Class A Operating: IEC 60068-2-64: 2 Grms, 5 ~ 500 Hz, 1hr/axis (w/ SSD)
	Shock	N/A			Operating: IEC 60068-2-27: 50G, half sine, 11ms (w/ SSD)	IEC61373 Category 1, Class A Operating: IEC 60068-2-27: 50G, half sine, 11ms (w/ SSD)
Physical haracteristics	Dimensions (WxDxH)	197 x 162.8 x 25 mm			196 x 285 x 29 mm	260 x 185 x 27 mm
	Weight	0.91 kg			2.24 kg	1.77 kg
	Mounting	Stand/VESA mount (by BOM option)			VESA/Wall mount	VESA/DIN Rail(STD), Wall mount (by BOM option)
Certification	EMC	CE, FCC, RCM, VCCI, BSMI, UKCA			FCC Class B, CE, RCM, BSMI, VCCI, UKCA, IC	FCC, CE, RCM, VCCI, BSMI Class A
	Safety	BSMI			BSMI	BSMI
Software Platform	OS Support	Windows 10 IoT Enterprise 2021 LTSC (64-bit, 21H2) Windows 11 IoT Enterprise (64-bit, 22H2, Pre-scan) Linux (Support by request)			Windows 10 IoT Enterprise 21H2 LTSC (64-Bit) Windows 11 IoT Enterprise 24H2 LTSC (64-Bit) (Only Raptor Lake-P CPU has been verified) Linux (Support by request)	Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Windows 11 IoT Enterprise (64-bit, 22H2, Pre-scan) Linux (Support by request)

MSI reserves the right to change the specifications without prior notices.

NEW

Model		MS-C932
		In-Vehicle BOX
System Processor	CPU	Intel® Amston Lake Processor X7433RE, QC, 9W Intel® Amston Lake Processor X7835RE, OC, 12W Intel® Alder Lake-N Processor N97, QC, 12W Intel® Twin Lake Core 3-N355, OC, 15W
	Frequency	1.0 GHz, up to 3.9 GHz (Depends on CPU)
	L2 Cache	6MB
	CPU Type	BGA
	Chipset	Integrated in SoC Process
	BIOS	AMI
Memory	Technology	Single-channel DDR5 4800 MHz
	Max. Capacity	Up to 16GB
	Socket	1 x 262-pin SO-DIMM
Graphic	Controller	Intel® UHD Graphics
	Graphic Memory	Depends on CPU
	Multiple Display	2 independent displays
	Display Interface	HDMI 2.0 up to 4096 x 2304 @60Hz DP up to 4096 × 2304 @60Hz
Ethernet	Controller	4 x Intel® I226-IT 2.5 GbE LAN
Audio	Controller	Realtek® ALC897 HD Audio Codec
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	N/A
TPM	Controller	Infineon SLB9672VU2.0
Expansion Slot	M.2	1 x M.2 B key (USB 3.2 Gen 2 x 1, USB 2.0, w/NANO SIM-Holder), 2242/3052
	Mini-PCIe	1 x Mini-PCIe (PCIe x 1, USB 2.0, w/ NANO SIM-Holder)
Storage	SATA	2 x 2.5" HDD/SSD w/ Hot Swappable Tray
	mSATA	N/A
	CFast	N/A
I/O Interface	RJ-45	4 x M12 or 4 x RJ-45
	PoE	Support IEEE 802.3BT PoE++ with total 100W Power Budget
	Audio	1 x Line-out
	USB	1 x USB 2.0 3 x USB 3.2 Gen 1
	Serial	2 x COM ports COM1: RS-232/422/485, 0V/5V/12V COM2: RS-232/422/485
	GPIO	8-bit (4 x GPI, 4 x GPO), 5V, Isolated
	CANbus	2 x CAN FD via one DB-9 Connector
	HDMI	1
	DVI	N/A
	DisplayPort	1
	VGA	N/A
	Antenna	7 openings reserved for antennas
Power Supply	DC Input	DC-in 9~60V Wide-Range DC-in with 3-Pole Terminal Block combining w/ IGN
	AC Input	N/A
Environment	IP Rating	N/A
	Operating Temperature	20 ~ 70°C (TBC) Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
	Vibration	Operating, MIL-STD-810H, Method 514.8C Procedure 1, Category 4, w/ SSD
	Shock	Operating, MIL-STD-810H, Method 516.8, Procedure I, functional shock=40g w/ SSD
Physical haracteristics	Dimensions (W x D x H)	245 x 196 x 66.5 mm
	Weight	TBC
	Mounting	Wall mount (STD)
Certification	EMC	FCC Class B, CE, RCM, BSMI, VCCI, UKCA, E-Mark
	Safety	IEC 62368: CE(LVD) / BSMI
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC (64-bit, 21H2, Only for ADL-N) Windows 11 IoT Enterprise LTSC (64-bit, 24H2) Linux (Support by request)

NEW

NEW

Model		MS-C910E	MS-C910				
			Industrial Computer				
System Processor	CPU	Intel® 12th Gen IOTG Alder Lake-S Processor Core i9/i7/i5/i3, Pentium®, Celeron® Processor, Max. 65W Intel® 13th Gen IOTG Raptor Lake-S Processor Core i9/i7/i5/i3, Max. 65W Intel® 14th Gen IOTG Raptor Lake-S Refresh Processor Core i9/i7/i5/i3, Max. 65W Intel® Core Processors Series 2 Bartlett Lake-S Core 7/5/3, Max 65W	SKU1	SKU2	SKU3	SKU4	SKU5
			Intel® 12th Gen IOTG Alder Lake-S Processor Core i9/i7/i5/i3, Pentium®, Celeron® Processor, Max. 35W Intel® 13th Gen IOTG Raptor Lake-S Processor Core i9/i7/i5/i3, Max. 35W Intel® 14th Gen IOTG Raptor Lake-S Refresh Processor Core i9/i7/i5/i3, Max. 35W				
	Frequency	P-Core 1.1 GHz~5.5 GHz (Depends on CPU) E-Core 0.8 GHz~4.0 GHz (Depends on CPU)	P-Core 1.1 GHz~5.5 GHz (Depends on CPU) E-Core 0.8 GHz~4.0 GHz (Depends on CPU)				
	L2 Cache	4M~36M (Depends on CPU)	4M~36M (Depends on CPU)				
	CPU Type	Socket (LGA1700)	Socket (LGA1700)				
	Chipset	Intel® R680E chipset	Intel® R680E chipset				
	BIOS	AMI	AMI				
Memory	Technology	Dual-channel DDR5(ECC/non-ECC) 5600MHz (ECC support & Frequency will depend on CPU)	Dual-channel DDR5(ECC/non-ECC) 5600MHz (ECC support & Frequency will depend on CPU)				
	Max. Capacity	Up to 96GB	Up to 64GB				
	Socket	2 x 262-pin SO-DIMMs	2 x 262-pin SO-DIMMs				
Graphic	Controller	Intel® UHD Graphics	Intel® UHD Graphics				
	Graphic Memory	Depends on CPU	Depends on CPU				
	Multiple Display	4 Independent displays	4 independent displays				
	Display Interface	HDMI up to 4096 x 2304 @60Hz DP up to 4096 x 2304 @60Hz	HDMI up to 4096 x 2304 @60Hz DP up to 4096 x 2304 @60Hz				
Ethernet	Controller	1 x Intel® I226LM 2.5GbE LAN (Support Intel® AMT) 3 x Intel® I226V 2.5GbE LAN	1 x Intel® I226LM 2.5GbE LAN (Support Intel® AMT) 3 x Intel® I226V 2.5GbE LAN				
Audio	Controller	Realtek® ALC897 HD Audio Codec	Realtek® ALC897 HD Audio Codec				
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	256-level Watchdog Timer				
	Smart Fan	Yes	Yes				
TPM	Controller	Infineon SLB9672VU2.0	Infineon SLB9672VU2.0				
Expansion Slot	PCIe x16	1	1			N/A	
	PCIe x8	1	N/A			2	
	PCIe x1	1	N/A				
	PCI	N/A	3	1	N/A		
	M.2	1 x M.2 M key (PCIe Gen4 x4 NVMe & SATA 3.0), 2280	1 x M.2 M key (PCIe Gen4 x4 NVMe & SATA 3.0), 2280 1 x M.2 E key (PCIe Gen4 x1, USB2.0), 2230	1 x M.2 M key (PCIe Gen4 x4 NVMe & SATA 3.0), 2280			
	Mini-PCIe	N/A	N/A	1 x Full-size	N/A		
Storage	SATA	2 x 2.5" HDD/SSD	2 x 2.5" HDD/SSD			N/A	2 x 2.5" HDD/SSD (Customer-selected assembly — occupies 1 PCIe x8 slot)
	mSATA	N/A	N/A				
	CFast	N/A	N/A				
I/O Interface	RJ-45	4	4				
	Audio	1 x Mic-in 1 x Line-out	1 x Mic-in 1 x Line-out				
	USB	8 x USB 10 Gbps 2 x USB 2.0 (internal)	8 x USB 3.2 Gen 2 2 x USB 3.2 Gen 1 3 x USB 2.0 (internal, Type-A)				
	Serial	4 x COM ports COM1~2: RS232/422/485, 0V/5V/12V COM3~4: RS-232, 0V	4 x COM ports COM1~2: RS232/422/485, 0V/5V/12V COM3~4: RS-232, 0V				
	GPIO	8-bits (4 x GPI; 4 x GPO), 5~35V, isolation 1.3KV	8-bits (4 x GPI; 4 x GPO), 5~35V, isolation 1.3KV				
	HDMI	2	2				
	DisplayPort	2	2				
	Antenna	N/A	2 openings reserved for antennas	N/A			
Power Supply	DC Input	DC-In 12-48V Wide-Range Pluggable connectors with latch (V+, V-)	DC-in 8-48V Wide-Range Pluggable connectors with latch (V+, V-)				
	AC Input	N/A	N/A				
Environment	IP Rating	N/A	N/A				
	Operating Temperature	-10 ~ 40°C w/ industrial DC power, Up to 65W CPU with Fan and Graphic Card	-10 ~ 50°C w/ industrial DC power Up to 35W CPU Note: Thermal w/ Airflow:0.7m/s				
	Operating Humidity	10 ~ 90% , non-condensing	10 ~ 90% , non-condensing				
	Storage Temperature	-20 ~ 80°C	-20 ~ 80°C				
	Storage Humidity	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing				
	Vibration	Operating, IEC 60068-2-64: 2 Grms, random, 5 ~ 500Hz, 1hr/axis (w/ HDD/SSD)	Operating, IEC 60068-2-64: 2 Grms, random, 5 ~ 500 Hz, 1hr/axis (w/ HDD/SSD)				
	Shock	Operating, 6G, half sine, 11ms (w/ Graphic Card)	Operating, IEC 60068-2-27: 50G, half sine, 11ms (w/ HDD/SSD)				
Physical haracteristics	Dimensions (W x D x H)	285 x 217 x 431.1 mm	178 x 242 x 217 mm	142 x 240 x 217 mm	123 x 240 x 217 mm	127 x 240 x 217 mm	
	Weight	11 kg	5.0 kg	4.4 kg	4.3 kg	4.4 kg	
	Mounting	Wall mount	Wall mount				
Certification	EMC	FCC Class A, CE, RCM, BSMI, VCCI, UKCA, IC	FCC Class A, CE, RCM, BSMI, VCCI, UKCA, IC				
	Safety	IEC 62368: CE(LVD) / BSMI	IEC 62368: CE(LVD) / BSMI				
Software Platform	OS Support	Windows 10 IoT Enterprise 2021 LTSC (64-bit, 21H2) Windows 11 IoT Enterprise LTSC (64-bit, 24H2) Linux (Support by request)	Windows 10 IoT Enterprise 2021 LTSC (64-bit, 21H2) Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request)				

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NEW

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Model	EdgeXpert & Accessory	EdgeXpert Accessory	
	AI Supercomputer		
Architecture	NVIDIA® Grace Blackwell	P/N	956-C931-101
GPU	NVIDIA® Blackwell Architecture	Cable Type/Medium	SAS/Fiber Cable
CPU	Arm 20 core, 10 Cortex-X925 + 10 Cortex-A725	Data Rate	112G (per lane, enabling 400G total bandwidth)
CUDA Cores	Blackwell Generation	Bandwidth	Up to 400G
Tensor Cores	5th Generation	Application	Designed for Ethernet PAM-4 Applications
Tensor Core Supported Data Formats	TF32, FP16, BF16, INT8, FP8, FP6, FP4	Connector Type	QSFP112
RT Cores	4th Generation	Cable Length	400 mm
Tensor Performance	1 petaFLOP AI performance (FP4, Sparse)	Length Tolerance	± 15 mm
System Memory	128 GB LPDDR5x, unified system memory	Operating Mode	PAM-4 Modulation
Memory Interface	256-bit	Weight	95g
Memory Bandwidth	273 GB/s		
Storage	1 or 4 TB NVME.M2 with self-encryption		
USB	4x USB 3.2 Type C (up to 20Gb/s)		
Ethernet	1x RJ-45 connector 10 GbE		
NIC	ConnectX-7 Smart NIC		
Wi-Fi	WiFi 7		
Bluetooth	BT 5.4		
Audio-output	HDMI multichannel audio output		
System Weight	1.2 kg		
Display Connectors	1 x HDMI 2.1, 4x DP1.4a via USB-C		
NVENC | NVDEC	1x | 1x		
OS	NVIDIA® DGX™ OS		
System Dimensions	151 mm L x 151 mm W x 52 mm H (1.2L)		

Model		MS-98F7 COM Express Board
Processor	CPU	7th/6th Gen Intel® Embedded Mobile Kaby Lake-ULT/Skylake-ULT Core™ i7/i5/i3/Celeron® Processor, DC, 15W
	Frequency	2.0GHz~3.4GHz (Depends on CPU)
	L2 Cache	2MB~4MB (Depends on CPU)
	CPU Type	BGA
	Chipset	N/A
	BIOS	AMI
Memory	Technology	Dual-channel DDR4 2133MHz
	Max. Capacity	Up to 32GB
	Socket	2 x 260-pin SO-DIMMs
Display	Controller	Intel® HD Graphics
	Graphic Memory	Depends on CPU
	LVDS	Dual channel 24-bit
	eDP	N/A
	VGA	1 (Share with DDI1 Signal, by BOM option)
	DVI	N/A
	HDMI	N/A (2 DDI ports support HDMI/DP (DDI1 by BOM option, default is for VGA)
	DisplayPort	N/A
	Multiple Display	3 independent displays
	Display Interface	LVDS Resolution up to 1920x1200 @60Hz VGA Resolution up to 1920 x 1080 @60Hz 2 x DDI: HDMI1.4 up to 4096 x 2160 @24Hz DP up to 4096 x 2304 @60Hz
Ethernet	Controller	1 x Intel® I219LM GbE-PHY LAN (AMT 11.x supported)
Audio	Controller	Support HD audio interface to carrier board
Super I/O	Controller	N/A
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes
TPM	Controller	Yes (TPM2.0, by BOM option)
I/O Interface	USB	8 x USB 2.0 (to carrier board) 4 x USB 3.2 Gen 1 (to carrier board)
	Serial	2 x COM ports (to carrier board)
	Parallel	N/A
	PS/2	N/A
	GPIO	8-bits (4 x GPI; 4 x GPO), 5V
Expansion Slot	PCIe x16	N/A
	PCIe x8	N/A
	PCIe x1	8 x PCI Express GEN. 3.0 lanes (Configurable to 5 x PCIe x1 or 4 x PCIe x1 & 1 x PCIe x4)
	PCI	N/A
	M.2	N/A
	Mini-PCIe	N/A
Storage	SATA	3 x SATA 3.0
	mSATA	32GB eMMC 5.0 (by BOM option)
Power Supply	DC	N/A
	ATX	ATX +12 V and +5 VSB (standby power) AT: +12 V
Environment	Operating Temperature	-20 ~ 70°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
Form Factor	Dimensions (W x D x H)	95 x 95 mm (COM Express Type 6 compact module)
	Weight	0.105 kg
Certification	EMC	FCC, CE, RCM, VCCI, BSMI
Software Platform	OS Support	Windows 7 (32/64-bit) (Skylake-ULT Only) Windows 8.1 (64-bit) (Skylake-ULT Only) Windows 10 (64-bit) Linux (Support by request)

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Model		MS-CF16 V3.0			MS-CF16		MS-98I6	
		Pico-ITX Board						
Processor		Alder Lake-N SKU	Twin Lake SKU	Amston Lake SKU	Alder Lake -N SKUs	Amston Lake SKU	Apollo Lake SKUs	Apollo Lake-I SKU
	CPU	Intel® IOTG Alder Lake-N Processor N97, QC, 12W	Intel® Twin Lake-N Processor N150, QC, 6W	Intel® IOTG Amston Lake Atom, X7433RE, QC, 9W	Intel® IOTG Alder Lake-N Processor N97, QC, 12W Intel® IOTG Alder Lake-N Atom x7425E, QC, 12W	Intel® IOTG Amston Lake Atom, X7433RE, QC, 9W	Intel® Pentium® Processor N4200, QC, 6W Intel® Celeron® Processor N3350, DC, 6W Intel® Celeron® Processor J3455, QC, 10W	Intel® Atom™ x5 Processor E3940, QC, 9.5W Intel® Atom™ x5 Processor E3930, DC, 6.5W
	Frequency	N97, 2.0GHz, up to 3.6 GHz	N150, 0.8GHz, up to 3.6 GHz	X7433RE, 1.5GHz, up to 3.4 GHz	N97, 2.0GHz, up to 3.6 GHz x7425E, 1.5GHz, up to 3.4 GHz	X7433RE, 1.5GHz, up to 3.4 GHz	N4200, 1.1 GHz, up to 2.5 GHz N3350, 1.1 GHz, up to 2.4 GHz J3455, 1.5 GHz, up to 2.3 GHz	E3940, 1.6 GHz, up to 1.8 GHz E3930, 1.3 GHz, up to 1.8 GHz
	L2 Cache	6MB			6MB		2MB	
	CPU Type	BGA			BGA		BGA	
	Chipset	Integrated in SoC			Integrated in SoC		Integrated in SoC	
	BIOS	AMI			AMI		AMI	
Memory	Technology	Single-channel LPDDR5 4800 MHz			Single-channel LPDDR5 4800 MHz		Single-channel LPDDR4 2133MHz	
	Max. Capacity	Up to 16GB			Up to 16GB		Up to 4GB	
	Socket	Onboard			Onboard		Onboard	
Display	Controller	Intel® HD Graphics			Intel® HD Graphics		Intel® HD Graphics	
	Graphic Memory	Depends on CPU			Depends on CPU		Depends on CPU	
	LVDS	Dual Channel 18/24-bit (Connector shared with eDP)			Dual Channel 18/24-bit (Connector shared with eDP)		Dual Channel 18/24-bit	
	eDP	1 (Connector shared with LVDS)			1 (Connector shared with LVDS)		N/A	
	VGA	N/A			N/A		N/A	
	DVI	N/A			N/A		N/A	
	HDMI	1			1		1	
	DisplayPort	N/A			N/A		1 (Mini-DP)	
	Multiple Display	2 independent displays			2 independent displays		3 independent displays	
	Display Interface	LVDS up to 1920 x 1200 @60Hz eDP up to 1920 x 1080 @60Hz HDMI up to 3840 x 2160 @30Hz			LVDS up to 1920 x 1200 @60Hz eDP up to 1920 x 1080 @60Hz HDMI up to 3840 x 2160 @30Hz		LVDS up to 1920 x 1200 @60Hz HDMI up to 3840 x 2160 @30Hz Mini-DP up to 4096 x 2160 @60Hz	
Ethernet	Controller	1 x Realtek® RTL8125BG-CG 2.5GbE LAN 1 x Realtek® RTL8111K-CG 1GbE LAN		1 x Realtek® RTL8125BI-CG 2.5GbE LAN 1 x Realtek® RTL8111KI-CG 1GbE LAN	1 x Realtek® RTL8125BG-CG 2.5GbE LAN 1 x Realtek® RTL8111K-CG 1GbE LAN	1 x Realtek® RTL8125BI-CG 2.5GbE LAN 1 x Realtek® RTL8111KI-CG 1GbE LAN	2 x Intel® 211-AT GbE LAN	2 x Intel® I210-IT GbE LAN
Audio	Controller	Realtek® ALC897 High Definition Audio Codec			Realtek® ALC897 High Definition Audio Codec		Realtek® ALC887-VD2-CG HD Audio Codec	
Super I/O	Controller	Fintek F81966AB-I			Fintek F81966AB-I		Fintek F81866AD-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer			256-level Watchdog Timer		256-level Watchdog Timer	
	Smart Fan	N/A			N/A		N/A	
TPM	Controller	Infineon® SLB 9672VU2.0		Infineon® SLB 9672XU2.0	Infineon® SLB 9672VU2.0	Infineon® SLB 9672XU2.0	Pin header	
I/O Interface	USB	2 x USB 2.0 ports (internal) 2 x USB 3.2 ports (rear) (Bottom layer USB 3.2 Gen 2 x 1, Top layer USB 3.2 Gen 1)			2 x USB 2.0 ports (internal) 2 x USB 3.2 ports (rear) (Bottom layer USB 3.2 Gen 2 x 1, Top layer USB 3.2 Gen 1)		2 x USB 2.0 (internal) 2 x USB 3.2 Gen 1 (rear)	
	Serial	2 x COM ports (internal) COM1~2: RS-232/422/485, 0V/5V/12V			1 x COM port (internal) COM: RS-232/422/485, 0V/5V/12V		2 x COM ports (internal) COM1: RS-232/422/485, 0V/5V/12V COM2: RS-232/422/485, 0V/5V/12V	
	Parallel	N/A			N/A		N/A	
	PS/2	N/A			N/A		N/A	
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V			8-bits (4 x GPI; 4 x GPO), 5V		16-bits (8 x GPI; 8 x GPO), 5V	
Expansion Slot	PCIe x1	N/A			N/A		3	
	PCI	N/A			N/A		N/A	
	M.2	1 x E key 2230 (PCIe x1 + USB 2.0) 1 x B key 2242/3042 (PCIe x1/SATA 3.0 + USB 3.2 Gen 2 + USB 2.0)			1 x E key 2230 (PCIe x1 + USB 2.0) 1 x B key 2242/3042 (PCIe x1/SATA 3.0 + USB 3.2 Gen 2 + USB 2.0)		N/A	
	Mini-PCIe	N/A			1 x E key 2230 (PCIe x1 + USB 2.0) 1 x B key 2242/3042 (PCIe x1/SATA 3.0 + USB 3.2 Gen 2 + USB 2.0)		1 x Full-size (Mini-PCIe Full-size Slot w/ NANO SIM-Holder) 1 x Half-size (Mini-PCIe Half-size Slot w/ mSATA)	
Storage	SATA	1 x SATA 3.0			1 x SATA 3.0		1 x SATA 3.0	
	mSATA	N/A			N/A		1 (Shared with Mini-PCIe Half-size)	
Power Supply	DC	DC-in 12V			DC-in 12V		DC-in 12V	
	ATX	N/A			N/A		N/A	
Environment	Operating Temperature	-10 ~ 60°C Note: 1. Thermal w/ Airflow:0.7m/s 2. The standard thermal solution only supports TDP up to 12W.	-10 ~ 60°C Note: 1. Thermal w/ Airflow:0.7m/s 2. The standard thermal solution only supports TDP up to 6W.	-40 ~ 70°C Note: 1. Thermal w/ Airflow:0.7m/s 2. The standard thermal solution only supports TDP up to 9W.	-10 ~ 60°C Note: 1. Thermal w/ Air-flow:0.7m/s 2. The standard thermal solution only supports TDP up to 12W.	-40 ~ 70°C Note: 1. Thermal w/ Airflow:0.7m/s 2. The standard thermal solution only supports TDP up to 9W.	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	-40 ~ 85°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing			10 ~ 90%, non-condensing		10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	-20 ~ 80°C	-40 ~ 80°C	-20 ~ 80°C	-40 ~ 80°C	-20 ~ 80°C	-40 ~ 85°C
	Storage Humidity	10 ~ 90%, non-condensing			10 ~ 90%, non-condensing		10 ~ 90%, non-condensing	
Form Factor	Dimensions (W x D x H)	101 x 73 mm (Pico-ITX)			101 x 73 mm (Pico-ITX)		101 x 73 mm (Pico-ITX)	
	Weight	0.30 kg			0.30 kg		0.27 kg	
Certification	EMC	CE, FCC Class B, BSMI, VCCI, RCM, UKCA, IC			CE, FCC Class B, BSMI, VCCI, RCM, UKCA, IC		FCC, CE, RCM, VCCI, BSMI	
Software Platform	OS Support	Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request)			Windows 10 IoT Enterprise 21H2 LTSC (64-bit) Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request)		Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)	

NEW

NEW

Model		MS-CF19	MS-CF17	
		3.5" Board		
		Embedded SKUs	Embedded SKUs	Industrial SKUs
Processor	CPU	Intel® Core™ Ultra Processor (Series 1) Meteor Lake-U Series Processors, Core™ Ultra 7 165U/155U, Core™ Ultra 5 135U/125U Intel® Core™ Ultra Processor (Series 2) Arrow Lake-U Series Processors, Core™ Ultra 7 265U/255U, Core™ Ultra 5 235U/225U	Intel® Mobile 13th Gen Raptor Lake-P U Series Processors, Core™ i7-1365UE / i5-1345UE / i5-1335UE / i3-1315UE / U300E, 28W	Intel® Mobile 13th Gen Raptor Lake-P U Series Processors, Core™ i7-1365URE / i5-1345URE / i3-1315URE, 28W
	Frequency	P-Core: 4.3GHz~5.3GHz (Depends on CPU) E-Core: 3.6GHz~4.2GHz (Depends on CPU)	P-Core: 4.3GHz~4.9GHz (Depends on CPU) E-Core: 3.2GHz~3.7GHz (Depends on CPU)	
	L2 Cache	12MB	8M~12M (Depends on CPU)	
	CPU Type	BGA	BGA	
	Chipset	Integrated in SoC	Integrated in SoC	
	BIOS	AMI	AMI	
Memory	Technology	Dual-channel DDR5 5600~6400MHz (Depends on CPU)	Single-channel DDR5 5200MHz	
	Max. Capacity	Up to 96GB	Up to 32GB	
	Socket	2 x 262-pin SO-DIMM	1 x 262-pin SO-DIMM	
Display	Controller	Intel® Graphics	Intel® UHD Graphics	
	Graphic Memory	Depends on CPU	Depends on CPU	
	LVDS	2 x Dual Channel 18/24-bit (Connector shared with eDP)	1	
	eDP	2 x eDP (Connector shared with LVDS)	1 x eDP (Connector shared with LVDS)	
	VGA	N/A	N/A	
	DVI	N/A	N/A	
	HDMI	N/A	4	
	DisplayPort	2	N/A	
	Multiple Display	4 independent displays	4 independent displays	
	Display Interface	LVDS up to 1920 x 1200 @60 Hz eDP up to 4096 x 2160 @60 Hz DP up to 4096 x 2340 @60Hz	LVDS up to 1920 x 1200 @60 Hz eDP up to 4096 x 2160 @60 Hz HDMI 2.0 up to 4096 x 2340 @60Hz	
Ethernet	Controller	1 x Intel® I219-LM GbE LAN 1 x Intel® I226-V 2.5 GbE LAN	4 x Intel® I226-LM GbE LAN	4 x Intel® I226-IT 2.5 GbE LAN
Audio	Controller	Realtek® ALC897 HD Audio Codec	Realtek® ALC897 HD Audio Codec (Co-lay ALC888S)	
Super I/O	Controller	Fintek F81966AB-I	Fintek F81966AB-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	Yes	Yes	
TPM	Controller	Infineon SLB9672VU2.0	Infineon SLB9672VU2.0	Infineon SLB9672XU2.0
I/O Interface	USB	4 x USB 2.0 (internal) 4 x USB 3.2 Gen 2 (rear)	4 x USB 2.0 (internal) 4 x USB 3.2 Gen 2 (rear)	
	Serial	2 x COM ports (internal) COM1~2: RS-232/422/485, 0V/5V/12V	4 x COM ports (internal) COM1~4: RS-232/422/485, 0V/5V/12V, support auto flow control	
	Parallel	N/A	N/A	
	PS/2	N/A	N/A	
	GPIO	8-bit (4 x GPI; 4 x GPO), 5V	16-bits (8 x GPI; 8 x GPO), 5V	
Expansion Slot	PCIe x1	N/A	N/A	
	PCI	N/A	N/A	
	M.2	1 x M.2 M key (PCIe Gen4 x4 NVMe), 2280 1 x M.2 B key (PCIe x1, USB 2.0), 2242/3042 1 x M.2 E key (PCIe x1, USB 2.0, w/CNVi), 2230	1 x M.2 M key (PCIe Gen4 x4 NVMe), 2280 1 x M.2 B key (PCIe x1, USB 2.0, w/NANO SIM-Holder), 2242/3042 1 x M.2 E key (PCIe x1, USB 2.0, w/CNVi), 2230	
	Mini-PCIe	N/A	N/A	
Storage	SATA	1 x SATA 3.0	1 x SATA 3.0	
	mSATA	N/A	N/A	
Power Supply	DC	DC-in 12~24V (OCP & OVP)	DC-in 12~24V (OCP & OVP)	
	ATX	N/A	N/A	
Environment	Operating Temperature	-10 ~ 60°C Note: 1. Thermal w/ Airflow:0.7m/s 2. The standard thermal solution only supports TDP up to 15W.	0 ~ 60°C Note: 1. Thermal w/ Airflow:0.7m/s 2. The standard thermal solution only supports TDP up to 15W.	-40 ~ 70°C Note: 1. Thermal w/ Airflow:0.7m/s 2. The standard thermal solution only supports TDP up to 15W. 3. -40 ~ 85°C by request
	Operating Humidity	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	-20 ~ 80°C	-40 ~ 85°C
	Storage Humidity	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing	
Form Factor	Dimensions (W x D x H)	146 x 102 mm (3.5")	146 x 102 mm (3.5")	
	Weight	0.63 kg	0.67 kg	
Certification	EMC	CE, FCC, RCM, VCCI, BSMI, UKCA, IC	CE, FCC Class A, RCM, VCCI, BSMI, UKCA, IC	
Software Platform	OS Support	Windows 10 IoT Enterprise 2021 LTSC (64-bit, 21H2) Windows 11 IoT Enterprise LTSC (64-bit, 24H2) Linux (Support by request)	Windows 10 IoT Enterprise 2021 LTSC (64-bit, 21H2) Windows 11 IoT Enterprise LTSC (64-bit, 24H2) Linux (Support by request)	

MSI reserves the right to change the specifications without prior notices.

Model		MS-98M3		MS-98L3	MS-98H3
		3.5" Board			
Processor		Embedded SKUs	Industrial SKUs		
	CPU	11th Gen Intel® IoTG Mobile Tiger Lake-UP3 Core™ i7-1185G7E/i5-1145G7E, QC, 28W 11th Gen Intel® IoTG Mobile Tiger Lake-UP3 Core™ i3-1115G4E, DC, 28W 11th Gen Intel® IoTG Mobile Tiger Lake-UP3 Celeron® 6305E, DC, 15W	11th Gen Intel® IoTG Mobile Tiger Lake-UP3 Core™ i7-1185GRE/i5-1145GRE, QC, 28W 11th Gen Intel® IoTG Mobile Tiger Lake-UP3 Core™ i3-1115GRE, DC, 28W	8th Gen Intel® IOTG Mobile Whiskey Lake-U Core™ i7-8665UE/i5-8365UE, QC, 15W & i3-8145UE/Celeron® 4305UE, DC, 15W	7th/6th Gen Intel® Embedded Mobile Kaby Lake-U/Skylake-U Core™ i7/i5/i3/Celeron® Processor, DC, 15W
	Frequency	1.5GHz~4.4GHz (Depends on CPU)		1.8GHz~4.6GHz (Depends on CPU)	2.0GHz~3.4GHz (Depends on CPU)
	L2 Cache	4MB~12MB (Depends on CPU)	6MB~12MB (Depends on CPU)	4MB~8MB (Depends on CPU)	2MB~4MB (Depends on CPU)
	CPU Type	BGA		BGA	BGA
	Chipset	N/A		N/A	N/A
	BIOS	AMI		AMI	AMI
Memory	Technology	Dual-channel DDR4 3200MHz		Single-channel DDR4 2400MHz	Single-channel DDR4 2133MHz
	Max. Capacity	Up to 64GB		Up to 32GB	Up to 16GB
	Socket	2 x 260-pin SO-DIMMs		1 x 260-pin SO-DIMM	1 x 260-pin SO-DIMM
Display	Controller	Intel® Iris® Xe Graphics (For i7/i5 SKUs) Intel® UHD Graphics (For i3/Celeron SKUs)	Intel® Iris® Xe Graphics (For i7/i5 SKUs) Intel® UHD Graphics (For i3 SKU)	Intel® HD Graphics	Intel® HD Graphics
	Graphic Memory	Depends on CPU		Depends on CPU	Depends on CPU
	LVDS	2 x Dual Channel 18/24-bit (Connector shared with eDP)		Dual Channel 18/24-Bit	Dual Channel 18/24-bit
	eDP	2 x eDP (Connector shared with LVDS)		N/A	1 (Share with LVDS Singnal)
	HDMI	1		1	1 (HDMI1 Co-lay DP1 & HDMI2 Co-lay DP2 by option)
	DisplayPort	1		1 (Support DP++)	1 (Support DP++, DP1 Co-lay HDMI1 & DP2 Co-lay HDMI2 by option)
	Multiple Display	4 independent displays		3 independent displays	3 independent displays
	Display Interface	LVDS up to 1920 x 1200 @60 Hz eDP up to 4096 x 2160 @60 Hz HDMI up to 4096 x 2160 @30Hz DP up to 7680 x 4320 @60Hz		LVDS up to 1920 x 1200 @60 Hz HDMI up to 4096 x 2160 @24Hz DP up to 4096 x 2160 @60Hz	LVDS up to 1920 x 1200 @60Hz eDP up to 4096 x 2304 @60Hz HDMI1/HDMI2 HDMI1.4 up to 4096 x 2160 @24Hz DP1/DP2 up to 4096 x 2304 @60Hz
Ethernet	Controller	2 x Intel® I226-LM 2.5 GbE LAN	2 x Intel® I225-IT 2.5 GbE LAN (LAN Speed running at 1000/100/10Mbps when OP TEMP. over 70°C)	1 x Intel® I219LM GbE-PHY LAN (AMT 12.0 supported by i7/i5 SKUs) 3 x Intel® I210-AT GbE LAN	1 x Intel® I210-AT GbE LAN 1 x Intel® I219LM GbE-PHY LAN (AMT 11.x supported)
Audio	Controller	Realtek® ALC897 HD Audio Codec (Co-lay ALC888S)	Realtek® ALC888-VD2-GR HD Audio Codec	Realtek® ALC887-VD2-CG HD Audio Codec	Realtek® ALC887-VD2-CG HD Audio Codec
Super I/O	Controller	Fintek F81966AB-I		Fintek F81866AD-I	Fintek F81866AD-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer		256-level Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes		Yes	Yes
TPM	Controller	Infineon SLB9670VQ2.0	Infineon SLB9670XQ2.0	Infineon SLB9670TT2.0	Pin header
I/O Interface	USB	4 x USB 2.0 (internal) 4 x USB 3.2 Gen 2 (rear)		4 x USB 2.0 (internal) 4 x USB 3.2 Gen 2 (rear)	4 x USB 2.0 (internal) 4 x USB 3.2 Gen 1 (rear)
	Serial	4 x COM ports (internal) COM1~4: RS-232/422/485, 0V/5V/12V, support auto flow control		4 x COM ports (internal) COM1~4: RS-232/422/485, 0V/5V/12V, support auto flow control	6 x COM ports (internal) COM1: RS-232/422/485, 0V/5V/12V, support auto flow control COM2~6: RS-232, 0V/5V/12V (RS-422/485 Optional)
	PS/2	N/A		N/A	N/A
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V		16-bits (8 x GPI; 8 x GPO), 5V	16-bits (8 x GPI; 8 x GPO), 5V
Expansion Slot	PCIe x1	N/A		N/A	N/A
	PCI	N/A		N/A	N/A
	M.2	1 x M.2 M key (PCIe Gen4 x4 NVMe), 2280 1 x M.2 B key (SATA 3.0, PCIe x1, USB 2.0, w/NANO SIM-Holder), 2242/3042 1 x M.2 E key (PCIe x1, USB 2.0), 2230		1 x M.2 M key (SATA), 2242 1 x M.2 B key (PCIe x1, USB 3.2 Gen 2, USB 2.0 w/NANO SIM-Holder), 2242/3042 1 x M.2 E key (PCIe x1, USB 2.0, w/CNVi), 2230	N/A
	Mini-PCIe	N/A		N/A	2 x Full-size (one w/NANO SIM-Holder & one w/mSATA)
Storage	SATA	1 x SATA 3.0		2 x SATA 3.0 (RAID 0/1 supported by i7/i5 SKUs)	2 x SATA 3.0
	mSATA	N/A		N/A	1 (Shared with Mini-PCIe)
Power Supply	DC	DC-in 12~24V (OCP & OVP)		DC-in 12~24V (OCP & OVP)	DC-in 12~24V
	ATX	N/A		N/A	N/A
Environment	Operating Temperature	-10 ~ 60°C Note: 1. Thermal w/ Airflow:0.7m/s 2. The standard thermal solution only supports TDP up to 15W.	-40 ~ 70°C (w/Turbo disabled) Note: 1. Thermal w/ Airflow:0.7m/s 2. The standard thermal solution only supports TDP up to 15W. 3. -40 ~ 85°C by request	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing		10 ~ 90%, non-condensing	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C	-40 ~ 85°C	-20 ~ 80°C	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing		10 ~ 90%, non-condensing	10 ~ 90%, non-condensing
Form Factor	Dimensions (W x D x H)	146 x 102 mm (3.5")		146 x 102 mm (3.5")	146 x 102 mm (3.5")
	Weight	0.65 kg		0.64 kg	0.59 kg
Certification	EMC	FCC, CE, RCM, VCCI, BSMI, UKCA, IC		FCC, CE, RCM, VCCI, BSMI	FCC, CE, RCM, VCCI, BSMI
Software Platform	OS Support	Windows 10 IoT Enterprise 2019 LTSC (64-bit, RS5) Windows 10 IoT Enterprise 2021 LTSC (64-bit, 21H2) Windows 11 IoT Enterprise (64-bit, 21H2, Pre-scan) Linux (Support by request)		Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)	Windows 7 (32/64-bit) (Skylake-ULT Only) Windows 8.1 (64-bit) (Skylake-ULT Only) Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Windows 11 IoT Enterprise (64-bit, 22H2, Pre-scan) Linux (Support by request)

Model		MS-CF27	MS-CF03	MS-98J8
		3.5" Board		
Processor	CPU	Intel® Alder Lake-N Processor N97, QC, 12W Intel® Alder Lake-N Core i3-N305, OC, 9W up to 15W Intel® Amston Lake x7433RE, QC, 12W Intel® Twin Lake-N Processor N150, QC, 6W	Intel® Alder Lake-N Processor N97, QC, 12W Intel® Alder Lake-N Processor N200, QC, 6W Intel® Alder Lake-N Core i3-N305, OC, 9W up to 15W Intel® Alder Lake-N Atom x7425E, QC, 12W Intel® Twin Lake-N Processor N150, QC, 6W Intel® Twin Lake-N Core 3 N355, OC, 9W up to 15W	Intel® Pentium® Processor N4200 , QC, 6W Intel® Celeron® Processor N3350, DC, 6W Intel® Celeron® Processor J3455, QC, 10W Intel® Atom™ X5-E3940 Processor, QC, 9.5W Intel® Atom™ X5-E3930 Processor, DC, 6.5W
	Frequency	N97, 2.0GHz, up to 3.6GHz i3-N305, 1.8GHz, up to 3.8GHz x7433E, 1.5GHz, up to 3.4GHz N150, 0.8GHz, up to 3.6GHz	N97, 2.0GHz, up to 3.6GHz N200, 1.0GHz, up to 3.7GHz i3-N305, 1.8GHz, up to 3.8GHz x7425E, 1.5GHz, up to 3.4GHz N150, 0.8GHz, up to 3.6GHz N355, 1.9GHz, up to 3.9GHz	N4200, 1.1 GHz, up to 2.5 GHz N3350, 1.1 GHz, up to 2.4 GHz J3455, 1.5 GHz, up to 2.3 GHz E3940, 1.6 GHz, up to 1.8 GHz E3930, 1.3 GHz, up to 1.8 GHz
	L2 Cache	6MB	6MB	2M
	CPU Type	BGA	BGA	BGA
	Chipset	Integrated in SoC	Integrated in SoC	Integrated in SoC
	BIOS	AMI	AMI	AMI
Memory	Technology	Single-channel for DDR5 4800MT/s	Single Channel for DDR5 4800MT/s	Single Channel for DDR3L 1866/1600 MHz
	Max. Capacity	Up to 16GB (3-N305, N150) Up to 32GB (N97, X7433RE)	Up to 16GB	Up to 8GB
	Socket	1 x 262-pin SO-DIMM	1 x 262-pin SO-DIMM	1 x 204pin SO-DIMM
Display	Controller	Intel® UHD Graphics	Intel® UHD Graphics	Intel® HD Graphics
	Graphic Memory	Depends on CPU	Depends on CPU	Depends on CPU
	LVDS	1 x Dual Channel 18/24-bit	1 x Dual Channel 18/24-bit	Dual Channel 18/24-bit
	eDP	1 x eDP (Connector shared with LVDS)	1 x eDP	N/A
	VGA	N/A	N/A	N/A
	DVI	N/A	N/A	N/A
	HDMI	1	1	1
	DisplayPort	1	1	1
	Multiple Display	3 independent displays	3 independent displays	3 independent displays
	Display Interface	LVDS up to 1920 x 1200 @60Hz eDP up to 1920 x 1080 @ 60Hz HDMI up to 3840 x 2160 @30Hz DP up to 4096 × 2304 @60Hz	LVDS up to 1920 x 1200 @60Hz eDP up to 1920 x 1080 @ 60Hz; up to 4K @ 60Hz is supported only with Alder Lake-N N97 and Twin Lake Series. HDMI up to 3840 x 2160 @30Hz DP up to 4096 × 2304 @60Hz	LVDS up to 1920 x 1200 @60Hz HDMI up to 3840 x 2160 @30Hz DP up to 4096 × 2160 @60Hz
Ethernet	Controller	4 x Intel® I226-V 1 GbE LAN	2 x Intel® I226-V 2.5 GbE LAN	2 x Realtek® RTL8111H GbE LAN
Audio	Controller	Realtek® ALC897 HD Audio Codec	Realtek® ALC897 HD Audio Codec	Realtek® ALC887 HD Audio Codec
Super I/O	Controller	Fintek F81966AB-I	Fintek F81966AB-I	Fintek F81866AD-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	256-level Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes	Yes	Yes
TPM	Controller	Infineon SLB9672VU2.0	Infineon SLB9672VU2.0	Pin header (Default) Infineon SLB9665TT 2.0 (by BOM option)
I/O Interface	USB	4 x USB 2.0 (internal) 1 x USB 2.0 (rear) 1 x USB 3.2 Gen 2 (rear)	6 x USB 2.0 (internal) 2 x USB 3.2 Gen 2 (rear) 2 x USB 3.2 Gen 1 (rear)	2 x USB 2.0 (internal) 4 x USB 3.2 Gen 1 (rear)
	Serial	6 x COM ports (internal) COM1~2: RS-232/422/485 COM3~6: RS-232	2 x COM ports (internal) COM1: RS-232/422/485, 0V/5V/12V COM2: RS-232	4 x COM ports (internal) COM1: RS-232/422/485, 0V/5V/12V COM2~4: RS-232
	PS/2	N/A	N/A	1 (wafer connector)
	GPIO	8-bit (4 x GPI; 4 x GPO), 5V	8-bit (4 x GPI; 4 x GPO), 5V	8-Bit (4 x GPI, 4 x GPO), 5V
Expansion Slot	M.2	1 x M.2 M key (SATA), 2280 1 x M.2 B key (USB 3.2 Gen1), 3042 1 x M.2 E key (PCIe x1, USB 2.0), 2230	1 x M.2 B key (SATA/PCIe x1), 2242/3042/2280 1 x M.2 E key (PCIe x1, USB 2.0), 2230	1 x M.2 E key (PCIe x1, USB 2.0), 2230
	Mini-PCIe	N/A	N/A	1 x Full-size (w/ mSATA)
Storage	SATA	1 x SATA 3.0	1 x SATA 3.0	1 x SATA 3.0
	mSATA	N/A	N/A	1 (Shared with Mini-PCIe)
Power Supply	DC	DC-in 12~24V	DC-in 9~36V	DC-in 9~36V
	ATX	N/A	N/A	N/A
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C	-20 ~ 80°C	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing
Form Factor	Dimensions (W x D x H)	146 x 102 mm (3.5")	146 x 102 mm (3.5")	146 x 102 mm (3.5")
	Weight	0.58 kg	0.58 kg	0.33 kg
Certification	EMC	CE, FCC Class B, BSMI, VCCI, RCM, UKCA	CE, FCC Class B, BSMI, VCCI, RCM, UKCA	CE, FCC Class B, BSMI, VCCI, RCM
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC (64-bit, 21H2, only for ADL-N) Windows 11 IoT Enterprise LTSC (64-bit, 24H2) Linux (Support by request)	Windows 10 IoT Enterprise LTSC (64-bit, 21H2, only for ADL-N) Windows 11 IoT Enterprise LTSC (64-bit, 24H2) Linux (Support by request)	Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)

MSI reserves the right to change the specifications without prior notices.

Model		MS-98E6		MS-98I8	MS-98F6
		3.5" Board			
Processor		Apollo Lake SKUs	Apollo Lake-I SKUs		
	CPU	Intel® Pentium® Processor N4200, QC, 6W Intel® Celeron® Processor N3350, DC, 6W Intel® Celeron® Processor J3455, QC, 10W	Intel® Atom™ x7 Processor E3950, QC, 12W Intel® Atom™ x5 Processor E3940, QC, 9.5W Intel® Atom™ x5 Processor E3930, DC, 6.5W	Intel® Celeron® Processor N3160, QC, 6W Intel® Celeron® Processor N3010, DC, 4W	Intel® Celeron® Processor J1900, QC, 10W Intel® Celeron® Processor N2930, QC, 7.5W
	Frequency	N4200, 1.1 GHz, up to 2.5 GHz N3350, 1.1 GHz, up to 2.4 GHz J3455, 1.5 GHz, up to 2.3 GHz	3950, 1.6 GHz, up to 2.0 GHz E3940, 1.6 GHz, up to 1.8 GHz E3930, 1.3 GHz, up to 1.8 GHz	N3160, 1.6 GHz up to 2.24 GHz N3010, 1.04 GHz up to 2.24 GHz	J1900, 2 GHz N2930, 1.83 GHz
	L2 Cache	1M~2M (Depends on CPU)		2MB	2MB
	CPU Type	BGA		BGA	BGA
	Chipset	Integrated in SoC		Integrated in SoC	N/A
	BIOS	AMI		AMI	AMI
Memory	Technology	Single-channel DDR3L 1866/1600 MHz		Single-channel DDR3L 1600MHz	Single-channel DDR3L 1333 MHz
	Max. Capacity	Up to 8GB		Up to 8GB	Up to 8GB
	Socket	1 x 204-pin SO-DIMM		1 x 204-pin SO-DIMM	1 x 204-pin SO-DIMM
Display	Controller	Intel® HD Graphics		Intel® HD Graphics	Intel® HD Graphics
	Graphic Memory	Depends on CPU		Depends on CPU	Depends on CPU
	LVDS	2 x Dual Channel 18/24-bit (LVDS1 Share with eDP Signal, LVDS2 Share with DP1 Signal)		Dual Channel 18/24-bit	Dual Channel 18/24-bit
	VGA	N/A		N/A	1
	DVI	N/A		N/A	N/A
	HDMI	1 (HDMI1 Co-lay DP1/LVDS2 & HDMI2 Co-lay DP2 by option)		1	1
	DisplayPort	1 (DP1 Co-lay HDMI1/LVDS2 & DP2 Co-lay HDMI2 by option)		1	N/A
	Multiple Display	3 independent displays		3 independent displays	2 independent displays
	Display Interface	LVDS1/LVDS2 up to 1920 x 1200 @60Hz eDP up to 4096 x 2160 @60Hz HDMI1/HDMI2 up to 3840 x 2160 @30Hz DP1/DP2 up to 4096 × 2160 @60Hz		LVDS up to 1920 x 1200 @60Hz HDMI up to 2560 x 1600 @60Hz; up to 3840 x 2160 @30Hz DP1.1a up to 2560 x 1600 @60Hz; up to 3840 x 2160 @30Hz	VGA up to 2560 x 1600 @60Hz HDMI up to 1920 x 1080 @60Hz LVDS up to 1920 x 1200 @60Hz
Ethernet	Controller	2 x Intel® I211-AT GbE LAN	2 x Intel® I210-IT GbE LAN	2 x Realtek® RTL8111G GbE LAN	2 x Intel® I210-AT GbE LAN
Audio	Controller	Realtek® ALC887-VD2-CG HD Audio Codec		Realtek® ALC887-VD2-CG HD Audio Codec	Realtek® ALC887-VD2-CG HD Audio Codec
Super I/O	Controller	Fintek F81867AD-I		Fintek F81866AD-I	Fintek F81866AD-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer		256-level Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes		Yes	N/A
I/O Interface	USB	2 x USB 2.0 (internal) 4 x USB 3.2 Gen 1 (rear)		2 x USB 2.0 (internal) 4 x USB 3.2 Gen 1 (rear)	7 x USB 2.0 (4 x internal, 3 x rear) 1 x USB 3.2 Gen 1 (rear)
	Serial	6 x COM ports (Internal) COM1: RS-232/422/485, 0V/5V/12V, support auto flow control COM2~6: RS-232, 0V/5V/12V (RS-422/485 by Optional)		4 x COM ports (internal) COM1: RS-232/422/485, 0V/5V/12V COM2~4: RS-232	6 x COM ports (internal) COM1: RS-232/422/485, 0V/5V/12V COM2~6: RS-232, 0V/5V/12V
	PS/2	N/A		1 (box header)	1 (wafer connector)
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V		8-bits (4 x GPI; 4 x GPO), 5V	8-bits (4 x GPI; 4 x GPO), 5V
Expansion Slot	Mini-PCIe	2 x Full-size (Mini-PCIe1 Slot w/ NANO SIM-Holder) (Mini-PCIe2 Slot w/ mSATA)		2 x Full-size (one w/mSATA)	2 x Full-size (one w/ mSATA)
Storage	SATA	1 x SATA 3.0		1 x SATA 3.0	1 x SATA 2.0
	mSATA	1 (Shared with Mini-PCIe)		1 (Shared with Mini-PCIe)	1
Power Supply	DC	DC-in 12~24V (Box header with 4pin)	DC-in 12~24V (Phoenix connector with 2pin)	DC-in 9~36V	DC-in 12V/19V/24V
	ATX	N/A		N/A	N/A
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	-40 ~ 85°C Note: Thermal w/ Airflow:0.7m/s	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing		10 ~ 90%, non-condensing	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C	-40 ~ 85°C	-20 ~ 80°C	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing		10 ~ 90%, non-condensing	10 ~ 90%, non-condensing
Form Factor	Dimensions (W x D x H)	146 x 102 mm (3.5")		146 x 102 mm (3.5")	146 x 102 mm (3.5")
	Weight	0.34 kg	0.59 kg	0.33 kg	0.31 kg
Certification	EMC	FCC, CE, RCM, VCCI, BSMI		FCC, CE, RCM, VCCI, BSMI	FCC, CE, RCM, VCCI, BSMI
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)		Windows 7 (32/64-bit) Windows 8.1 (64-bit) Windows 10 (64-bit) Linux (Support by request)	Windows 7 (32/64-bit) Windows 8.1 (32/64-bit) Windows 10 (32/64-bit) Linux (Support by request)

NEW

Model		MS-CF13 Mini-ITX Board								
		SKU1	SKU2	SKU3	SKU4	SKU5	SKU6	SKU7	SKU8	SKU9
Processor	CPU	Intel® IOTG Alder Lake-N Processor N97, QC, 12W		Intel® IOTG Alder Lake-N Core i3-N305, QC, 9W up to 15W	Intel® IOTG Alder Lake-N Atom x7425E, QC, 12W	Intel® IOTG Alder Lake-N Core i3-N305, QC, 9W up to 15W	Intel® Twin Lake-N Processor N150, QC, 6W		Intel® Twin Lake-N Core 3 N355, OC, 9W up to 15W	
	Frequency	N97, 2.0GHz, up to 3.6GHz		i3-N305, 1.8GHz, up to 3.8GHz	x7425E, 1.5GHz, up to 3.4GHz	i3-N305, 1.8GHz, up to 3.8GHz	N150, 0.8GHz, up to 3.6GHz		N355, 1.9GHz, up to 3.9GHz	
	L2 Cache	6MB								
	CPU Type	BGA								
	Chipset	Integrated in SoC								
	BIOS	AMI UEFI								
Memory	Technology	Single Channel for DDR5 4800MHz								
	Max. Capacity	Up to 16GB								
	Socket	1 x 262-pin DDR5 SO-DIMM								
Display	Controller	Intel® UHD Graphics								
	Graphic Memory	Depends on CPU								
	LVDS	1 x Dual channel 18/24-bit (Connector shared with eDP)								
	eDP	1 (Connector shared with LVDS)								
	VGA	N/A								
	DVI	N/A								
	HDMI	N/A	1			N/A		1	N/A	1
	DisplayPort	2	1			2		1	2	1
	Multiple Display	3 independent displays								
	Display Interface	LVDS up to 1920 x 1200 @60Hz eDP up to 1920 x 1080 @60Hz DP up to 4096 × 2304 @60Hz	LVDS up to 1920 x 1200 @60Hz eDP up to 1920 x 1080 @60Hz HDMI up to 3840 x 2160 @30Hz DP up to 4096 × 2304 @60Hz			LVDS up to 1920 x 1200 @60Hz eDP up to 1920 x 1080 @60Hz DP up to 4096 × 2304 @60Hz		LVDS up to 1920 x 1200 @60Hz eDP up to 1920 x 1080 @60Hz HDMI up to 3840 x 2160 @30Hz DP up to 4096 × 2304 @60Hz	LVDS up to 1920 x 1200 @60Hz eDP up to 1920 x 1080 @60Hz DP up to 4096 × 2304 @60Hz	LVDS up to 1920 x 1200 @60Hz eDP up to 1920 x 1080 @60Hz HDMI up to 3840 x 2160 @30Hz DP up to 4096 × 2304 @60Hz
Ethernet	Controller	2 x Intel® I226-V 2.5GbE LAN								
Audio	Controller	Realtek® ALC897 Audio Codec (Co-lay ALC888S)								
Super I/O	Controller	Fintek F81966AB-I								
H/W Monitor	Watchdog Timer	256-level Watchdog Timer								
	Smart Fan	Yes								
TPM	Controller	Infineon® SLB 9672VU2.0								
I/O Interface	USB	2 x USB 3.2 Gen 2 (rear) 1 x USB 3.2 Gen 1 (rear) 1 x USB 2.0 (rear) 2 x USB 2.0 (internal)								
	Serial	6 x COM ports (internal) COM1: RS-232/422/485, 0V/5V/12V COM2~6: RS-232								
	PS/2	N/A								
	GPIO	8-bit (4 x GPI; 4 x GPO), 5V								
Expansion Slot	PCIe x 16	N/A								
	M.2	1 x M.2 B key (SATA/PCIe x1, USB 3.2 Gen 2 x 1, USB 2.0 w/NANO SIM-Holder), 2242/3042/2280 1 x M.2 E key (PCIe x1, USB 2.0), 2230								
	Mini-PCIe	N/A								
Storage	SATA	1 x SATA 3.0								
	mSATA	N/A								
Power Supply	DC	DC-in 12V								
	ATX	N/A								
Environment	Operating Temperature	0 ~ 60°C Note: Thermal w/ Airflow:0.7m/s								
	Operating Humidity	10 ~ 90%, non-condensing								
	Storage Temperature	-20 ~ 80°C								
	Storage Humidity	10 ~ 90%, non-condensing								
Form Factor	Dimensions (W x D x H)	170 x 170 mm (Mini-ITX)								
	Weight	0.51 kg								
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI, UKCA								
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC (64-bit, 21H2) Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request)								

MSI reserves the right to change the specifications without prior notices.

NEW

Model		MS-CF23 Mini-ITX Board	
Processor	CPU	15th Gen Intel® Arrow Lake-S Core Ultra 9/7/5 Series Processor, Max. TDP-65W	
	Frequency	Depends on CPU	
	L2 Cache	Depends on CPU	
	CPU Type	Socket (LGA 1851)	
	Chipset	Intel® H810	
	BIOS	AMI UEFI	
Memory	Technology	Dual-channel DDR5 (non-ECC) 5600MT/s	Dual-channel DDR5 CSODIMM 6400MT/s
	Max. Capacity	Up to 128GB	
	Socket	2 x 262-pin DDR5 SO-DIMMs	
Display	Controller	Intel® UHD Graphics	
	Graphic Memory	Depends on CPU	
	LVDS	1 x Dual channel 18/24-bit	
	eDP	N/A	
	VGA	N/A	
	DVI	N/A	
	HDMI	2	
	DisplayPort	1	
	Multiple Display	3 independent displays	
	Display Interface	HDMI up to 4096 x 2160 @30Hz DP up to 4096 x 2304 @60Hz LVDS up to 1920 x 1200 @60Hz	
Ethernet	Controller	1 x Intel® I219-LM GbE LAN PHY 1 x Intel® I226-V 2.5GbE LAN	
Audio	Controller	Realtek® ALC897 Audio Codec (Co-lay ALC888S)	
Super I/O	Controller	Fintek F81966D-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	Yes	
TPM	Controller	Infineon® SLB 9672VU2.0	
I/O Interface	USB	2 x USB 10Gbps (rear) 2 x USB 5Gbps (rear) 5 x USB 2.0 (5 x Internal with one Vertical Type-A)	
	Serial	4 x COM ports COM1: RS-232/422/485, Auto-flow Control COM2~4: RS-232	
	PS/2	N/A	
	GPIO	8-bits (4 x GPI; 4 x GPO), 5V	
Expansion Slot	PCIe x 16	1 x PCIe x16 (Gen 5)	
	M.2	1 x M key (PCIe x4 NVMe), 2280/2242 1 x E key (PCIe x1 & USB 2.0), 2230	
	Mini-PCIe	N/A	
Storage	SATA	3 x SATA 3.0 (AHCI Mode Supported)	
	mSATA	N/A	
Power Supply	DC	N/A	
	ATX	ATX-Power 24P, 12V-8P	
Environment	Operating Temperature	0 ~ 60°C Note: Thermal Test w/ Airflow:0.7m/s	
	Operating Humidity	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	
	Storage Humidity	10 ~ 90%, non-condensing	
Form Factor	Dimensions (W x D x H)	170 x 170 mm (Mini-ITX)	
	Weight	0.40 kg	
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI, UKCA	
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC (64-bit) Windows 11 IoT Enterprise LTSC (64-bit) Linux (Support by request)	

Model		MS-98N1				MS-9892	
		Mini-ITX Board					
		SKU1	SKU2	SKU3	SKU4	SKU1	SKU2
Processor	CPU	Intel® Celeron® Processor J6412, QC, 10W Intel® Celeron® Processor N6210, DC, 6.5W			Intel Atom® x6211E Processor, DC, 6W	Intel® Pentium® Processor N4200, QC, 6W Intel® Celeron® Processor N3350, DC, 6W Intel® Celeron® Processor J3455, QC, 10W Intel® Atom™ x5 Processor E3940, QC, 9W	Intel® Atom™ x5 Processor E3940, QC, 9W Intel® Atom™ x5 Processor E3930, DC, 6W
	Frequency	J6412, 2.0 GHz, up to 2.6 GHz N6210, 1.2 GHz, up to 2.6 GHz x6211E, 1.3 GHz, up to 3.0 GHz				N4200, 1.1 GHz, up to 2.5 GHz N3350, 1.1 GHz, up to 2.4 GHz J3455, 1.5 GHz, up to 2.3 GHz E3940, 1.6 GHz, up to 1.8 GHz	E3940, 1.6 GHz, up to 1.8 GHz E3930, 1.3 GHz, up to 1.8 GHz
	L2 Cache	1.5MB				1MB~2MB (Depends on CPU)	
	CPU Type	BGA				BGA	
	Chipset	Integrated in SoC				Integrated in SoC	
	BIOS	AMI				AMI	
Memory	Technology	Dual-channel DDR4 3200 MHz				Dual-channel DDR3L 1866 MHz	
	Max. Capacity	Up to 32 GB				Up to 8 GB	
	Socket	2 x 260-pin DDR4 SO-DIMMs				2 x 204-pin SO-DIMMs	
Display	Controller	Intel® UHD Graphics				Intel® HD Graphics	
	Graphic Memory	Depends on CPU				Depends on CPU	
	LVDS	1 x Dual channel 18/24-bit (Connector shared with eDP)				1 x Dual channel 18/24-bit	
	eDP	1 (Connector shared with LVDS)				1 (co-lay with LVDS)	
	VGA	N/A	1	N/A		N/A	
	DVI	N/A				N/A	
	HDMI	1				1 (co-lay with DP)	
	DisplayPort	1	N/A	1		1 (co-lay with HDMI)	
	Multiple Display	3 independent displays				3 independent displays	
	Display Interface	LVDS up to 1920 x 1200 @60 Hz eDP up to 4096 x 2160 @60 Hz DP up to 4096 x 2160 @60 Hz HDMI up to 4096 × 2160 @24 Hz VGA up to 1920 x 1200 @60 Hz				LVDS up to 1920 x 1200 @60 Hz eDP up to 4096 x 2160 @60Hz HDMI up to 3840 x 2160 @30Hz DP up to 4096 x 2160 @60Hz	
Ethernet	Controller	2 x Intel® I225-V 2.5 GbE LAN			2 x Intel® I225-IT 2.5 GbE LAN	2 x Intel® I211-AT GbE LAN	2 x Intel® I210-IT GbE LAN
Audio	Controller	Realtek® ALC897 Audio Codec (Co-lay ALC888S)				Realtek® ALC887-VD2-CG HD Audio Codec	
Super I/O	Controller	Fintek F81966D-I				Fintek F81867D-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer				256-level Watchdog Timer	
	Smart Fan	Yes				Yes	
TPM	Controller	Infineon® SLB9672VU 2.0				Infineon® SLB9665TT 2.0	Infineon® SLB9665XT 2.0
I/O Interface	USB	5 x USB 2.0 (1 x rear, 4 x internal) 3 x USB 3.2 Gen 1 (rear)				6 x USB 2.0 (internal) 4 x USB 3.2 Gen 1 (rear)	
	Serial	6 x COM ports (internal) COM1: RS-232/422/485, RI/0V/5V/12V COM2: RS-232/422/485, 0V/5V/12V COM3-6: RS-232, W/O Power				6 x COM ports (internal) COM1/2: RS-232/422/485, 0V/5V/12V COM3~6: RS-232, W/O Power	
	PS/2	1 (pin header)				1 (pin header)	
	GPIO	8-bits (4 x GPI, 4 x GPO), 5V				GPIO 1: 8-bits (4 x GPI; 4 x GPO), 3.3V GPIO 2: 8-bits (4 x GPI; 4 x GPO), 5V	
Expansion Slot	M.2	1 x M key (SATA), 2242 1 x B key (PCIe x1, USB 3.2 Gen 1 x 1, USB 2.0 w/NANO SIM-Holder), 2242/3042 1 x E key (PCIe x1, USB 2.0), 2230				N/A	
	Mini-PCIe	N/A				2 x Full-size (one w/SIM holder & one w/mSATA)	
Storage	SATA	1 x SATA 3.0				2 x SATA 3.0 (SATA2 share with mSATA)	
	mSATA	N/A				1 (shared w/SATA2)	
Power Supply	DC	DC-in 12/19/24V				DC-in 12V~24V	
	ATX	N/A				N/A	
Environment	Operating Temperature	0 ~ 60°C Note: Thermal w/ Airflow:0.7m/s			-20 ~ 70°C Note: Thermal w/ Airflow:0.7m/s	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	-40 ~ 85°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing				10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C				-20 ~ 80°C	-40 ~ 85°C
	Storage Humidity	10 ~ 90%, non-condensing				10 ~ 90%, non-condensing	
Form Factor	Dimensions (W x D x H)	170 x 170 mm (Mini-ITX)				170 x 170 mm (Mini-ITX)	
	Weight	0.50 kg				0.38 kg	0.45 kg
Certification	EMC	FCC, CE, RCM, VCCI, BSMI, UKCA, IC				FCC, CE, RCM, VCCI, BSMI	
Software Platform	OS Support	Windows 10 IoT Enterprise 2021 LTSC (64-bit, 21H2) Linux (Support by request)				Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)	

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Model		MS-98J0			MS-98F1		MS-98I0
		Mini-ITX Board					
Processor		SKU1	SKU2	SKU3			
	CPU	Intel® Celeron® Processor J3455, QC, 10W	Intel® Celeron® Processor N3350, DC, 6W	Intel® Atom™ x5 Processor E3940, QC, 9.5W	Intel® Pentium processor N3710, QC, 6W Intel® Celeron processor N3160, QC, 6W Intel® Celeron processor N3060, DC, 6W Intel® Celeron processor N3010, DC, 4W		Intel® Pentium processor N3710, QC, 6W Intel® Celeron processor N3160, QC, 6W Intel® Celeron processor N3060, DC, 6W Intel® Celeron processor N3010, DC, 4W
	Frequency	J3455, 1.5 GHz, up to 2.3 GHz	N3350, 1.1 GHz, up to 2.4 GHz	E3940, 1.6 GHz, up to 1.8 GHz	N3710, 1.6 GHz, up to 2.56 GHz N3160, 1.6 GHz, up to 2.24 GHz N3060, 1.6 GHz, up to 2.48 GHz N3010, 1.04 GHz, up to 2.24 GHz		N3710, 1.6 GHz, up to 2.56 GHz N3160, 1.6 GHz, up to 2.24 GHz N3060, 1.6 GHz, up to 2.48 GHz N3010, 1.04 GHz, up to 2.24 GHz
	L2 Cache	2MB			2MB		2MB
	CPU Type	BGA			BGA		BGA
	Chipset	Integrated in SoC			Integrated		Integrated
	BIOS	AMI			AMI		AMI
Memory	Technology	Dual-channel DDR3L 1866 MHz			Dual-channel DDR3L 1333/1600 MHz	Dual-channel DDR3L 1066/1333 MHz	Dual-channel DDR3L 1333/1600 MHz
	Max. Capacity	Up to 8 GB			Up to 8 GB		Up to 8 GB
	Socket	2 x 204-pin SO-DIMMs			2 x 204-pin SO-DIMMs		2 x 204-pin SO-DIMMs (1 slot for opt SKU)
Display	Controller	Intel® HD Graphics			Intel® HD Graphics		Intel® HD Graphics
	Graphic Memory	Depends on CPU			Depends on CPU		Depends on CPU
	LVDS	1 x Dual channel 18/24-bit			2 x Dual channel 18/24-bit		Dual channel 24-bit
	eDP	N/A (by option)			1 (colay with LVDS)		N/A
	VGA	1	N/A (by BOM option)		NA		N/A
	DVI	N/A			NA		1 (DVI-D)
	HDMI	1			NA		1 (co-lay with DP)
	DisplayPort	N/A(by option)	1		1		1 (co-lay with HDMI)
	Multiple Display	3 independent displays			3 independent displays		3 independent displays
	Display Interface	LVDS up to 1920 x 1200 @60 Hz eDP up to 4096 x 2160 @60Hz HDMI up to 3840 x 2160 @30Hz DP up to 4096 x 2160 @60Hz VGA up to 1920 x 1080 @60Hz			LVDS up to 1920 x 1200 @60 Hz DP up to 3840 x 2160 @30Hz eDP up to 2560 x 1600 @60Hz		LVDS up to 1920 x 1200 @60Hz DP up to 3840 x 2160 @30Hz HDMI up to 1920 x 1200 @60Hz DVI up to 1920 x 1200 @60Hz
Ethernet	Controller	2 x Realtek® RTL8111H-CG GbE LAN			2 x Intel® I210-AT GbE LAN	1 x Intel® I210-AT GbE LAN	2 or 1 x Realtek® RTL8111G-CG GbE LAN (depends on SKU)
Audio	Controller	Realtek® ALC887-VD2-CG HD Audio Codec			Realtek® ALC887 co-lay ALC888S		Realtek® ALC887 co-lay ALC888S
Super I/O	Controller	Fintek F81867D-I			Fintek F81866AD-I		Fintek F81866AD-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer			256-level Watchdog Timer		256-level Watchdog Timer
	Smart Fan	Yes			Yes		Yes
TPM	Controller	Pin header (default) Infineon® SLB9665TT 2.0 (by BOM option)			Pin header (default) Infineon® SLB9635TT 1.2 (by BOM option)		Pin header (default) Infineon® SLB9635TT 1.2 (by BOM option)
I/O Interface	USB	3 x USB 2.0 (internal) 4 x USB 3.2 Gen 1 (rear)			4 x USB 2.0 (internal) 4 x USB 3.1 Gen 1 (rear)	2 x USB 2.0 (internal) 4 x USB 3.1 Gen 1 (rear)	5 x USB 2.0 (internal) 2 x USB 3.1 Gen 1 (rear)
	Serial	6 x COM ports (internal) COM1: RS-232/422/485, 0V/5V/12V COM2~6: RS-232, w/o Power			6 x COM ports (COM1~3: rear, COM4~6: internal) COM1&5: RS-232/422/485, 0V/5V/12V COM2~4: RS-232, 0V/5V/12V COM6: RS-232 w/o power	4 x COM ports (COM1: rear, COM4~6: internal) COM1&5: RS-232/422/485, 0V/5V/12V COM4: RS-232, 0V/5V/12V COM6: RS-232 w/o power	6 x COM ports (COM1: rear, COM2~5: internal) COM1: RS-232/422/485, 0V/5V/12V COM2~6: RS-232, w/o power
	Parallel	1 (pin header)			1		1 (by BOM option)
	PS/2	1 (pin header)			1 (pin header)		1 (pin header)
	GPIO	8-bits (4 x GPI; 4 x GPO), 5V			8-bits (4 x GPI; 4 x GPO), 5V		8-bits (4 x GPI; 4 x GPO), 5V
Expansion Slot	M.2	1 x M key (SATA 3.0), 2242 1 x E key (PCIe x1, USB 2.0), 2230			N/A		N/A
	Mini-PCIe	N/A			2 x Full/Half-size (one w/ SIM holder & one w/mSATA)		1 x Full-size co-lay mSATA (support Half-size card)
Storage	SATA	1 x SATA 3.0			1 x SATA 3.0		1 x SATA 3.0
	mSATA	N/A			1 (support by Mini-PCIe slot)		1 (support by Mini-PCIe slot)
Power Supply	DC	DC-in 12V			DC-in 12/19/24V		DC-in 12V
	ATX	N/A			ATX Power 20P		N/A
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s			0 ~ 60°C Note: Thermal w/ Airflow:0.7m/s		0 ~ 60°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing			10 ~ 90%, non-condensing		10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C			-20 ~ 80°C		-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing			10 ~ 90%, non-condensing		10 ~ 90%, non-condensing
Form Factor	Dimensions (W x D x H)	170 x 170 mm (Mini-ITX)			170 x 170 mm (Mini-ITX)		170 x 170 mm (Mini-ITX)
	Weight	0.37 kg			0.37 kg		0.37 kg
Certification	EMC	FCC, CE, RCM, VCCI, BSMI			FCC, CE, RCM, VCCI, BSMI		FCC, CE, RCM, VCCI
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)			Windows 7 (32/64-bit) Windows 8.1 (64-bit) Windows 10 (64-bit) Linux (Support by request)		Windows 7 (32/64-bit) Windows 8.1 (64-bit) Windows 10 (64-bit) Linux (Support by request)

Model		MS-98E3	MS-98F5
		Mini-ITX Board	
Processor	CPU	Intel® Celeron® Processor J1900, QC, 10W Intel® Celeron® Processor N2930, QC, 7.5W	Intel® Celeron® Processor J1900, QC, 10W Intel® Celeron® Processor N2930, QC, 7.5W
	Frequency	J1900, 2.0 GHz, up to 2.42 GHz N2930, 1.83 GHz, up to 2.16 GHz	J1900, 2.0 GHz, up to 2.42 GHz N2930, 1.83 GHz, up to 2.16 GHz
	L2 Cache	2 MB	2 MB
	CPU Type	BGA	BGA
	Chipset	Integrated	Integrated
	BIOS	AMI	AMI
Memory	Technology	Dual-channel DDR3L 1333/1066 MHz	Dual-channel DDR3L 1333/1066 MHz
	Max. Capacity	Up to 8 GB	Up to 8 GB
	Socket	2 x 204-pin SO-DIMMs	2 or 1 x 204-pin SO-DIMMs (depends on SKU)
Display	Controller	Intel® HD Graphics	Intel® HD Graphics
	Graphic Memory	Depends on CPU	Depends on CPU
	LVDS	Dual Channel 24-bit (add chrontel 7511B chipset)	Dual Channel 24-bit (add chrontel 7511B chipset)
	VGA	1	1
	DVI	N/A	N/A
	HDMI	1	N/A
	Multiple Display	2 independent displays	2 independent displays
	Display Interface	VGA up to 2560 x 1600 @60Hz HDMI up to 1920 x 1080 LVDS up to 1920 x 1200	VGA up to 2560 x 1600 @60Hz LVDS up to 1920 x 1200 @60Hz
Ethernet	Controller	2 x Intel® i210-AT GbE LAN	2 or 1 x Realtek® RTL8111G-CG GbE LAN (depends on SKU)
Audio	Controller	Realtek® ALC887 HD Audio Codec	Realtek® ALC887 HD Audio Codec
Super I/O	Controller	Fintek F81866AD-I	Fintek F81866AD-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes	Yes
TPM	Controller	Pin header	Pin header
I/O Interface	USB	8 x USB 2.0 (4 x internal, 4 x rear) 1 x USB 3.1 Gen 1 (internal)	8 x USB 2.0 (4 x internal, 4 x rear)
	Serial	6 x COM ports (COM1~2: rear, COM3~6: internal) COM1: RS-232/422/485, 0V/5V/12V COM2~6: RS-232, 0V/5V/12V	6 x COM ports (COM1: rear, COM2~6: internal) COM1: RS-232, 0V/5V/12V COM2~6: RS-232, w/o power
	Parallel	N/A	1 (Pin header)
	PS/2	1 (Pin header)	1 (Pin header)
	GPIO	8-bits (4 x GPI, 4 x GPO), 5V	8-bits (4 x GPI, 4 x GPO), 3.3V
Expansion Slot	PCIe x16	N/A	N/A
	PCI	1	N/A
	M.2	N/A	N/A
	Mini-PCIe	1 x Full-size, mSATA	1 x Full-size, mSATA
Storage	SATA	1 x SATA 2.0	1 x SATA 2.0
	CFast	N/A	N/A
	mSATA	1	1
Power Supply	DC	DC-in 12/19/24V	DC-in 12V
	ATX	ATX-Power 20P	N/A
Environment	Operating Temperature	0 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	0 ~ 60°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing
Form Factor	Dimensions	170 x 170 mm (Mini-ITX)	170 x 170 mm (Mini-ITX)
	Weight	0.37 kg	0.37 kg
Certification	EMC	FCC, CE, RCM, VCCI, BSMI	FCC, CE, RCM, VCCI, BSMI
Software Platform	OS Support	Windows 7 (32/64-bit) Windows 8 (32/64-bit) Windows 10 (64-bit)	Windows 8 (32/64-bit) Windows 10 (64-bit)

MSI reserves the right to change the specifications without prior notices.

Model		MS-CF10			MS-CF02		
		Mini-ITX Board					
		SKU1	SKU2	SKU3	SKU1	SKU2	SKU3
Processor	CPU	14th Gen Intel® Raptor Lake-S Refresh i9/i7/i5/i3 IOTG Series Processor, Max 65W 13th Gen Intel® Raptor Lake-S i9/i7/i5/i3/Pentium®/Celeron® IOTG Series Processor, Max 65W 12th Gen Intel® Alder Lake-S i9/i7/i5/i3/Pentium®/Celeron® IOTG Series Processor, Max 65W			12th Gen Intel® Alder Lake-S i9/i7/i5/i3/Pentium®/Celeron® IOTG Series Processor, Max 65W 13th Gen Intel® Raptor Lake-S i9/i7/i5/i3/Pentium®/Celeron® IOTG Series Processor, Max 65W 14th Gen Intel® Raptor Lake-S Refresh i9/i7/i5/i3/Pentium®/Celeron® IOTG Series Processor, Max 65W		
	Frequency	1.6GHz~5.1GHz (Depends on CPU)			1.6GHz~5.1GHz (Depends on CPU)		
	L2 Cache	2MB~30MB (Depends on CPU)			2MB~30MB (Depends on CPU)		
	CPU Type	Socket (LGA 1700)			Socket (LGA 1700)		
	Chipset	Intel® R680E	Intel® Q670E	Intel® H610E	Intel® R680E	Intel® Q670E	Intel® H610E
	BIOS	AMI UEFI			AMI UEFI		
Memory	Technology	Dual-channel DDR5 (ECC/non-ECC) 5200MT/s	Dual-channel DDR5 (non-ECC) 5200MT/s		Dual-channel DDR4 (ECC/non-ECC) 3200MT/s	Dual-channel DDR4 (non-ECC) 3200MT/s	
	Max. Capacity	Up to 64GB			Up to 64GB		
	Socket	2 x 262-pin DDR5 SO-DIMMs			2 x 260-pin DDR4 SO-DIMMs		
Display	Controller	Intel® UHD Graphics			Intel® UHD Graphics		
	Graphic Memory	Depends on CPU			Depends on CPU		
	LVDS	1 x Dual channel 18/24-bit (Connector shared with eDP)			1 x Dual channel 18/24-bit (Connector shared with eDP)		
	eDP	1 (Connector shared with LVDS)			1 (Connector shared with LVDS)		
	VGA	N/A			N/A		
	DVI	N/A			N/A		
	HDMI	2			1		
	DisplayPort	2			2		
	Multiple Display	4 independent displays		3 independent displays	4 independent displays		3 independent displays
	Display Interface	LVDS up to 1920 x 1200 @60Hz eDP up to 4096 x 2304 @60Hz HDMI 2.0 up to 4096 x 2304 @60Hz DP up to 4096 x 2304 @60Hz			LVDS up to 1920 x 1200 @60Hz eDP up to 4096 x 2304 @60Hz HDMI up to 4096 x 2160 @24Hz DP up to 4096 x 2304 @60Hz		
Ethernet	Controller	3 x Intel® I226-LM 2.5GbE LAN	1 x Intel® I226-LM 2.5GbE LAN 2 x Intel® I226-V 2.5GbE LAN	3 x Intel® I226-V 2.5GbE LAN	3 x Intel® I226-LM 2.5GbE LAN		2 x Intel® I226-V 2.5GbE LAN
Audio	Controller	Realtek® ALC897 Audio Codec (Co-lay ALC888S)			Realtek® ALC897 Audio Codec (Co-lay ALC888S)		
Super I/O	Controller	Fintek F81966D-I			Fintek F81966AB-I		
H/W Monitor	Watchdog Timer	256-level Watchdog Timer			256-level Watchdog Timer		
	Smart Fan	Yes			Yes		
TPM	Controller	Infineon® SLB 9672VU2.0			Infineon® SLB 9670VQ2.0		
I/O Interface	USB	6 x USB 3.2 Gen 2 (rear) 2 x USB 3.2 Gen 1 (internal) 3 x USB 2.0 (internal with one Vertical Type-A)		2 x USB 3.2 Gen2 (rear) 2 x USB 3.2 Gen1 (rear) 2 x USB 2.0 (rear) 3 x USB 2.0 (internal with one Vertical Type-A)	6 x USB 3.2 Gen 2 (rear) 2 x USB 3.2 Gen 1 (internal) 2 x USB 2.0 (internal)		2 x USB 3.2 Gen2 (rear) 2 x USB 3.2 Gen1 (rear) 2 x USB 2.0 (rear) 2 x USB 2.0 (internal)
	Serial	4 x COM ports COM1: RS-232/422/485, RI/5V/12V, Auto-flow Control COM2~4: RS-232/422/485, 0V/5V/12V, Auto-flow Control	4 x COM ports COM1: RS-232/422/485, RI/5V/12V, Auto-flow Control COM2~4: RS-232, 0V/5V/12V		4 x COM ports COM1: RS-232/422/485, RI/5V/12V, Auto-flow Control COM2~4: RS-232/422/485, 0V/5V/12V, Auto-flow Control		4 x COM ports COM1: RS-232/422/485, RI/5V/12V, Auto-flow Control COM2: RS-232/422/485, 0V/5V/12V, Auto-flow Control COM3~4: RS-232, 0V/5V/12V (RS-232/422/485 by option)
	Parallel	N/A			N/A		
	PS/2	N/A			N/A		
	GPIO	16-bits (8 x GPI; 8 x GPO), 3.3V			16-bits (8 x GPI; 8 x GPO), 5V		
Expansion Slot	PCI	N/A			N/A		
	M.2	1 x M key (PCIe x4 NVMe, SATA-3.0), 2242/2280 1 x E key (PCIe x1, USB 2.0, CNVi), 2230 1 x B key (PCIe x1, USB 3.2 Gen 2 x 1, USB 2.0), 3042 (with SIM Holder)		1 x M key (PCIe x4 NVMe, SATA-3.0), 2242/2280 1 x E key (PCIe x1, USB 2.0, CNVi), 2230	1 x M key (PCIe x4 NVMe), 2242/2280 1 x E key (PCIe x1, USB 2.0, CNVi), 2230 1 x B key (PCIe x1, USB 3.2 Gen 2 x 1, USB 2.0), 3042 (with SIM Holder		1 x M key (PCIe x4 NVMe), 2242/2280 1 x E key (PCIe x1, USB 2.0, CNVi), 2230
	Mini-PCIe	N/A			N/A		
Storage	SATA	2 x SATA 3.0 (Support RAID 0/1/5, RAID 5 with M.2 M Key) (Support AHCI Mode)		2 x SATA 3.0 (Support AHCI Mode)	3 x SATA 3.0 (Support RAID 0/1/5)		3 x SATA 3.0 (Support AHCI Mode)
	mSATA	N/A			N/A		
Power Supply	DC	DC-in 8-48V			N/A		
	ATX	N/A			ATX-Power 24P, 12V-4P		
Environment	Operating Temperature	0 ~ 60°C Note: Thermal Test w/ Airflow:0.7m/s			-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s		
	Operating Humidity	10 ~ 90%, non-condensing			10 ~ 90%, non-condensing		
	Storage Temperature	-20 ~ 80°C			-20 ~ 80°C		
	Storage Humidity	10 ~ 90%, non-condensing			10 ~ 90%, non-condensing		
Form Factor	Dimensions (W x D x H)	170 x 170 mm (Mini-ITX)			170 x 170 mm (Mini-ITX)		
	Weight	0.42 kg			0.43 Kg		0.41 Kg
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI, UKCA			CE, FCC Class B, BSMI, RCM, VCCI, UKCA		
Software Platform	OS Support	Windows 10 IoT Enterprise 2021 LTSC (64-bit, 21H2) Windows 11 IoT Enterprise (64-bit, 23H2, Pre-scan) Linux (Support by request)			Windows 10 IoT Enterprise 2021 LTSC (64-bit) Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request)		

Model		MS-98L1				MS-98K1			MS-98E1	
		Mini-ITX Board								
		SKU1	SKU2	SKU3	SKU4	SKU1	SKU2	SKU3	C236 SKU	H110 SKU
Processor	CPU	8th Gen Intel® Coffee Lake-S Xeon®/i7/i5/i3/ Pentium®/Celeron® Series Processor, Max 95W 9th Gen Intel® Coffee Lake Refresh-S Xeon®/i7/i5/i3/ Pentium®/Celeron® IOTG Processor, Max 65W	8th Gen Intel® Coffee Lake-S i7/i5/i3/Pentium®/ Celeron® Series Processor, Max 95W 9th Gen Intel® Coffee Lake Refresh-S i7/i5/i3/ Pentium®/Celeron® IOTG Processor, Max 65W			7th Gen Intel® Desktop Kaby Lake-S i7-7700/i7-7700T/ i5-7500/i5-7500T/i3-7101E/i3-7101TE, Max 65W 6th Gen Intel® Desktop Skylake-S i7-6700/i7-6700TE/i5-6500/i5-6500TE/i3-6100/i3-6100TE/G4400/G4400TE/ G3900/G3900TE, Max 65W			7th/6th Gen Intel® Desktop Kaby Lake/Skylake Xeon/i7/i5/i3/ Pentium®/Celeron® Series Processor, Max. 95W	7th/6th Gen Intel® Desktop Kaby Lake/Skylake Core™ i7/i5/i3/ Pentium®/Celeron® Series Processor, Max. 95W
	Frequency	2.4GHz~4.0GHz (Depends on CPU)				2.3GHz~4.0GHz (Depends on CPU)			2.3GHz~4.0GHz (Depends on CPU)	
	L2 Cache	2M~8M (Depends on CPU)				2M ~ 8M (Depends on CPU)			2M ~ 8M (Depends on CPU)	
	CPU Type	Socket (LGA 1150)				Socket (LGA 1151)			Socket (LGA 1151)	
	Chipset	Intel® C246 Express	Intel® Q370 Express	Intel® H310 Express		Intel® Q170 Express	Intel® H110 Express		Intel® C236 Express	Intel® H110 Express
	BIOS	AMI UEFI				AMI			AMI	
Memory	Technology	Dual-channel DDR4 (ECC/non-ECC) 2666MHz	Dual-channel DDR4 (non-ECC) 2666MHz			Dual-channel DDR4 (non-ECC) 2133/2400MHz			Dual-channel DDR4 (ECC) 2133/2400MHz (7th Gen)	Dual-channel DDR4 (non-ECC) 2133/2400MHz (7th Gen)
	Max.Capacity	Up to 64 GB				Up to 32 GB			Up to 32GB	
	Socket	2 x 240-pin UDIMMs				2 x 260-pin SO-DIMMs			2 x 260-pin SO-DIMMs	
Display	Controller	Intel® UHD Graphics				Intel® HD Graphics			Intel® HD Graphics	
	Graphic Memory	Depends on CPU				Depends on CPU			Depends on CPU	
	LVDS	1 x Dual channel 18/24-bit		N/A		1 x Dual channel 18/24-bit			1 x Dual channel 18/24-bit	
	VGA	N/A				N/A			1	
	DVI	N/A				2 (DVI-D)			1 (DVI-D)	
	HDMI	1 (Co-lay with DP by Optional)				1 (Co-lay with DP by Optional)			1	
	DisplayPort	1				1			N/A	
	Multiple Display	3 independent displays		2 independent displays		3 independent displays	2 independent displays		3 independent displays	2 independent displays
	Display Interface	LVDS up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @24Hz DP up to 4096 x 2304 @60Hz		HDMI up to 4096 x 2160 @24Hz DP up to 4096 x 2304 @60Hz		LVDS up to 1920 x 1200 @60Hz DVI-D up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @24Hz DP up to 4096 x 2160 @60Hz			LVDS up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @24Hz DVI-D up to 1920 x 1200 @60Hz VGA up to 1920 x 1200 @60Hz	
Ethernet	Controller	1 x Intel® I219-LM GbE LAN PHY 3 x Intel® I210-AT GbE LAN	1 x Intel® I219-LM GbE LAN PHY 1 x Intel® I210-AT GbE LAN	1 x Intel® I219-LM GbE LAN PHY 3 x Intel® I211-AT GbE LAN	1 x Intel® I219-LM GbE LAN PHY 1 x Intel® I211-AT GbE LAN	4 x Intel® I210-AT GbE LAN (Front LAN LED Supported)	4 x Intel® I211-AT GbE LAN (Front LAN LED Supported)	2 x Intel® I211-AT GbE LAN (Front LAN LED Supported)	1 x Intel® I219-LM GbE-PHY 1 x Intel® I211-AT PCIe GbE LAN(Co-lay I210-AT)	
Audio	Controller	Realtek® ALC887 Audio Codec (Co-lay ALC888S)				Realtek® ALC887 HD Audio Codec			Realtek® ALC887 HD Audio Codec	
Super I/O	Controller	Fintek F81866AD-I				Fintek F81866AD-I			Fintek F81866AD-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer				256-level Watchdog Timer			256-level Watchdog Timer	
	Smart Fan	Yes				Yes			Yes	
TPM	Controller	Infineon® SLB9665TT2.0		Box header (Default) Infineon® SLB9665TT2.0 (by BOM option)		Infineon® SLB9665TT 2.0	Pin header (Default) Infineon® SLB9665TT 2.0 (by BOM option)		Pin header	
I/O Interface	USB	2 x USB 2.0 (internal) 6 x USB 3.2 Gen 1 (4 x rear, Signal Share with Internal Box Header; 2 x internal) 4 x USB 3.2 Gen 2 (rear)		4 x USB 2.0 (rear) 4 x USB 3.2 Gen1 (rear)		3 x USB 2.0 (internal) 8 x USB 3.2 Gen 1 (rear)	5 x USB 2.0 (4 x rear, 1 x internal) 4 x USB 3.2 Gen 1 (rear)		5 x USB 2.0 (2 x rear, 3 x internal with one Vertical Type-A) 4 x USB 3.2 Gen 1 (rear)	
	Serial	6 x COM ports COM1: RS-232/422/485, RI/5V/12V, Auto-flow Control COM2: RS-232/422/485, 0V/5V/12V, Auto-flow Control COM3~6: RS-232, 0V/5V/12V (RS-232/422/485 by option)		4 x COM ports COM1: RS-232/422/485, RI/5V/12V, Auto-flow Control COM2~4: RS-232, 0V/5V/12V (RS-232/422/485 by option)	2 x COM ports COM1: RS-232/422/485, RI/5V/12V, Auto-flow Control COM2: RS-232, 0V/5V/12V (RS-232/422/485 by option)	4 x COM ports (internal) COM1: RS-232/422/485, RI/5V/12V COM2~4: RS-232/422/485, 0V/5V/12V	4 x COM ports (internal) COM1: RS-232/422/485, RI/5V/12V COM2~4: RS-232, 0V/5V/12V		5 x COM ports (COM1: rear, COM2~4: internal) COM1: RS-232/422/485, 0V/5V/12V COM2~5: RS-232, 0V/5V/12V	
	Parallel	N/A				N/A			N/A	
	PS/2	N/A				N/A			1	
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V				16-bits (8 x GPI; 8 x GPO), 5V			8-bits (4 x GPI, 4 x GPO), 5V	
Expansion Slot	PCI	N/A				N/A			1	
	M.2	1 x M Key (PCIe x4 NVMe, SATA), 2242/2280 1 x E Key (PCIe x1, USB 2.0, CNVi), 2230		1 x M Key (SATA), 2242/2280		1 x M Key (PCIe x4, SATA3.0), 2242/2280	1 x M Key (SATA3.0), 2242/2280		1 x M Key (PCIe x4, SATA3.0), 2242	N/A
	Mini-PCIe	1 x Full-size (w/SIM holder)		1 x Full-size		1 x Full-size (w/ SIM holder)			1 x Full-size (mSATA)	
Storage	SATA	3 x SATA 3.0 (Support RAID 0/1/5/10, AHCI Mode, RAID 10 Configured with M.2 M Key)		3 x SATA 3.0 (Support AHCI Mode)		2 x SATA 3.0			4 x SATA 3.0	3 x SATA 3.0
	mSATA	N/A				N/A			1 (shared w/ Mini-PCIe)	
Power Supply	DC	N/A				DC-in 12 ~24V			N/A	
	ATX	ATX-Power 24P, 12V-8P				N/A			ATX-Power 24P, 12V-4P	
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s				-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s			0 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	
	Operating Humidity	10 ~ 90%, non-condensing				10 ~ 90%, non-condensing			10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C				-20 ~ 80°C			-20 ~ 80°C	
	Storage Humidity	10 ~ 90%, non-condensing				10 ~ 90%, non-condensing			10 ~ 90%, non-condensing	
Form Factor	Dimensions (W x D x H)	170 x 170 mm (Mini-ITX)				170 x 170 mm (Mini-ITX)			170 x 170 mm (Mini-ITX)	
	Weight	0.405 kg	0.375 kg	0.39 kg	0.375 kg	0.42 kg	0.42 kg	0.39 kg	0.37 kg	
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI				FCC, CE , RCM, VCCI, BSMI (Class A)			FCC, CE, RCM, VCCI, BSMI	
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)				Windows 7 (32/64-bit) (Skylake-S Series CPU Only) Windows 8.1 (64-bit) (Skylake-S Series CPU Only) Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)			Windows 7 (32/64-bit) Windows 8.1 (64-bit) Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)	

MSI reserves the right to change the specifications without prior notices.

NEW

Model		MS-CF09					MS-98L2			MS-98E2	
		Micro-ATX Board									
		SKU1	SKU2	SKU5	SKU3	SKU4	SKU1	SKU2	SKU3	C236 SKU	H110 SKU
Processor	CPU	12th Gen Intel® IOTG Alder Lake-S Processor Core i9/i7/i5/i3, Pentium, Celeron, Max 125W 13th Gen Intel® IOTG Raptor Lake-S Processor Core i9/i7/i5/i3, Pentium, Celeron, Max 125W 14th Gen Intel® Raptor Lake-S Refresh i9/i7/i5/i3/Pentium®/Celeron® IOTG Series Processor, Max 125W Intel® Bartlett Lake-S i7/i5/i3/300 IOTG Series Processor, Max 125W					8th Gen Intel® Desktop Coffee Lake-S Xeon®/ Core™ i7/i5/i3/ Pentium®/Celeron® Series Processor, Max 95W	8th Gen Intel® Desktop Coffee Lake-S Core™ i7/i5/i3/Pentium®/ Celeron® Series Processor, Max 95W		1.1GHz~3.7 GHz (Depends on CPU)	7th/6th Gen Intel® Desktop Kaby Lake/ Skylake Core™ i7/i5/i3/Pentium®/ Celeron® Series Processor, Max 95W
	Frequency	P-Core 1.1GHz~5.0GHz (Depends on CPU) E-Core 0.9GHz~3.8GHz (Depends on CPU)					2.1GHz~4.7GHz(Depends on CPU)			2.3GHz~4.0GHz (Depends on CPU)	
	L2 Cache	4MB~30MB (Depends on CPU)					2MB~12MB (Depends on CPU)			2M ~ 8M (Depends on CPU)	
	CPU Type	Socket (LGA1700)					Socket (LGA 1151)			Socket (LGA 1151)	
	Chipset	Intel® R680E Express	Intel® Q670E Express		Intel® H610E Express		Intel® C246 Express	Intel® Q370 Express		Intel® C236 Express	Intel® H110 Express
	BIOS	AMI UEFI					AMI UEFI			AMI	
Memory	Technology	Dual-channel DDR5 (ECC/non-ECC) 4400 MHz	Dual-channel DDR5 (non-ECC) 4400 MHz				Dual-channel DDR4 (ECC/non-ECC) 2666MHz	Dual-channel DDR4 (non-ECC) 2666MHz		Dual-channel DDR4 (ECC) 2133MHz/ 2400MHz (7th Gen)	Dual-channel DDR4 (non-ECC) 2133MHz/ 2400MHz (7th Gen)
	Max. Capacity	Up to 128GB			Up to 64GB		Up to 128 GB			Up to 64 GB	Up to 32 GB
	Socket	4 x 288-pin UDIMMs			2 x 288-pin UDIMMs		4 x 288-pin UDIMMs			4 x 288-pin UDIMMs	4 x 288-pin UDIMMs
Display	Controller	Intel® UHD Graphics					Intel® HD Graphics			Intel® HD Graphics	
	Graphic Memory	Depends on CPU					Depends on CPU			Depends on CPU	
	LVDS	N/A					N/A			1	N/A
	eDP	1					N/A			N/A	
	VGA	N/A					N/A			1	
	DVI	N/A					1			1 (DVI-D)	
	HDMI	2					N/A			N/A	
	DisplayPort	1					1			1	
	Multiple Display	4 independent displays			3 independent displays		3 independent displays			3 independent displays	2 independent displays
	Display Interface	HDMI up to 4096 x 2160 @60Hz DP up to 4096 x 2304 @60Hz eDP up to 4096 x 2160 @60Hz					VGA up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @24Hz DP up to 4096 x 2304 @60Hz			LVDS up to 1920 x 1200 @ 60Hz DP up to 4096 x 2304 @ 60Hz DVI-D up to 1920 x 1200 @ 60Hz VGA up to 1920 x 1200 @ 60Hz	DP up to 4096 x 2304 @ 60Hz DVI-D up to 1920 x 1200 @ 60Hz VGA up to 1920 x 1200 @ 60Hz
Ethernet	Controller	4 x Intel® i226-LM 2.5GbE LAN	2 x Intel® i226-LM 2.5GbE LAN	1 x Intel® i226-LM 2.5GbE LAN 3 x Intel® i226-V 2.5GbE LAN	4 x Intel® i226-V 2.5GbE LAN	2 x Intel® i226-V 2.5GbE LAN	1 x Intel® I219-LM GbE LAN PHY 3 x Intel® I210-AT GbE LAN		1 x Intel® I219-LM GbE LAN PHY 1 x Intel® I211-AT GbE LAN	1 x Intel® I219-LM GbE-PHY 1 x Intel® I210-AT PCIe GbE LAN	1 x Intel® I219-LM GbE-PHY 1 x Intel® I211-AT PCIe GbE LAN
Audio	Controller	Realtek® ALC897 Audio Codec					Realtek® ALC887 HD Audio Codec			Realtek® ALC887 HD Audio Codec	
Super I/O	Controller	Fintek F81966D-I					Fintek F81866AD-I			Fintek F81866AD-I + F81216H	Fintek F81866AD-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer					256-level Watchdog Timer			256-level Watchdog Timer	
	Smart Fan	Yes					Yes			Yes	
TPM	Controller	Infineon® SLB9672VU2.0					Box header (Default) Infineon SLB9665TT2.0 (by BOM option)			Pin header	
I/O Interface	USB	8 x USB 3.2 Gen 2 x1 Ports (8 x rear) 2 x USB 3.2 Gen 1 Ports (2 x internal) 4 x USB 2.0 Ports (2 x internal, 2 x Vertical Type-A Connector)			2 x USB 3.2 Gen 2 x1 Ports (2 x rear) 2 x USB 3.2 Gen 1 Ports (2 x rear) 6 x USB 2.0 Ports (4 x rear, 2 x internal)		5 x USB 2.0 (5 x internal with one Vertical Type-A) 4 x USB 3.2 Gen 1 Type-A (rear) 4 x USB 3.2 Gen 2 Type-A (rear)			6 x USB 2.0 (2 x rear, 4 x internal) 6 x USB 3.2 Gen 1 (4 x rear, 2 x internal)	6 x USB 2.0 (2 x rear, 4 x internal) 4 x USB 3.2 Gen 1 (rear)
	Serial	6 x COM ports (internal) COM1~2: RS-232/422/485 with Ring/0V/5V/12V Auto-flow Control COM3~6: RS-232/422/485 with 0V/5V/12V Auto-flow Control	6 x COM ports (internal) COM1~2: RS-232/422/485 with Ring/0V/5V/12V Auto-flow Control COM3~6: RS-232 with 0V/5V/12V		4 x COM ports (internal) COM1: RS-232/422/485 with Ring/0V/5V/12V Auto-flow Control COM2~4: RS-232 with 0V/5V/12V		6 x COM ports (COM1: rear, COM2~6: internal) COM1: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control COM2: RS-232/422/485, 0V/5V/12V, Auto-flow Control COM3~6: RS-232, 0V/5V/12V		6 x COM ports (COM1: rear, COM2~6: internal) COM1: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control COM2~6: RS-232, 0V/5V/12V	10 x COM ports (COM1: rear, COM2~9: internal) COM1: RS-232/422/485, 0V/5V/12V COM2~6: RS-232, 0V/5V/12V COM7~10: RS-232, without power	6 x COM ports (COM1: rear, COM2~5: internal) COM1: RS-232/422/485, 0V/5V/12V COM2~6: RS-232, 0V/5V/12V
	Parallel	Yes					1			N/A	
	PS/2	1 x PS/2 port by Y-cable for keyboard and mouse					1 x PS/2 port by Y-cable for keyboard and mouse			1	
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V					16-bits (8 x GPI; 8 x GPO), 5V			8-bits (4 x GPI, 4 x GPO), 5V	
Expansion Slot	PCIe x16	1					1			1	
	PCIe x8	N/A					N/A			1*PCIe x8 (x4 signal)	1*PCIe x8 (x1 signal)
	PCIe x1	N/A					N/A			1	
	PCI	N/A					N/A			1	
	M.2	1 x M.2 M key (PCIe x4 NVMe; Signal from CPU), 2280/22110 2 x M.2 M key (PCIe x4 NVMe; Signal from PCH), 2242/2280	1 x M.2 M key (PCIe x4 NVMe; Signal from CPU), 2280/22110 1 x M.2 M key (PCIe x4 NVMe; Signal from PCH), 2242/2280		N/A		1 x M Key (PCIe x4 NVMe, SATA 3.0), 2242/2260/2280			1 x M Key (PCIe x4, SATA3.0), 2242/2260/2280	N/A
	Mini-PCIe	N/A					1 x Full-size/Half-size			1 x Full-size (mSATA)	
Storage	SATA	4 x SATA 3.0 (RAID 0/1/5/10)			4 x SATA 3.0		4 x SATA 3.0			6 x SATA 3.0	3 x SATA 3.0
	CFast	N/A					N/A			1 (shared w/ Mini-PCIe)	
Power Supply	DC	N/A					N/A			N/A	
	ATX	ATX-Power 24P, 12V-8P					ATX-Power 24P, 12V-8P			ATX-Power 24P, 12V-8P	
Environment	Operating Temperature	0 ~ 60°C Note: Thermal Test w/ Airflow:0.7m/s					-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s			0 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	
	Operating Humidity	10 ~ 90%, non-condensing					10 ~ 90%, non-condensing			10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C					-20 ~ 80°C			-20 ~ 80°C	
	Storage Humidity	10 ~ 90%, non-condensing					10 ~ 90%, non-condensing			10 ~ 90%, non-condensing	
Form Factor	Dimensions	244 x 244mm (uATX)					244 x 244 mm (uATX)			244 x 244 mm (uATX)	
	Weight	0.659 kg					0.625 kg		0.600 kg	0.73 kg	
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI, UKCA					CE, FCC Class B, BSMI, RCM, VCCI			FCC, CE, RCM, VCCI, BSMI	
Software Platform	OS Support	Windows 10 IoT Enterprise 2021 LTSC (64-bit, 21H2) Windows 11 IoT Enterprise LTSC 24H2 (64-bit) Linux (Support by request)					Windows 10 IoT Enterprise 2019 SAC (64-bit, RS5) Linux (Support by request)			Windows 7 (32/64-bit) Windows 8.1 (64-bit) Windows 10 IoT Enterprise LTSC/ SAC 1809 (64-bit, RS5) Linux (Support by request)	

NEW

NEW

Model		MS-CF20 V2.0		MS-CF20	
		ATX Board			
		SKU1	SKU2	SKU1	SKU2
Processor	CPU	Intel® Arrow Lake-S Core™ Ultra 9/7/5, Max 125W		Intel® Arrow Lake-S Core™ Ultra 9/7/5, Max 125W	
	Frequency	P-Core 1.4GHz~5.6GHz (Depends on CPU) E-Core 1.2GHz~4.6GHz (Depends on CPU)		P-Core 1.4GHz~5.6GHz (Depends on CPU) E-Core 1.2GHz~4.6GHz (Depends on CPU)	
	L2 Cache	3MB~36MB (Depends on CPU)		3MB~36MB (Depends on CPU)	
	CPU Type	Socket (LGA1851)		Socket (LGA1851)	
	Chipset	Intel® W880		Intel® W880	
	BIOS	AMI UEFI		AMI UEFI	
Memory	Technology	Dual-channel DDR5 (ECC/non-ECC) 5600 MT/s (ECC support will depend on CPU)		Dual-channel DDR5 (ECC/non-ECC) 5600 MT/s (ECC support will depend on CPU)	
	Max. Capacity	Up to 256GB		Up to 192GB	
	Socket	4 x 288-pin UDIMMs		4 x 288-pin UDIMMs	
Display	Controller	Intel® UHD Graphics		Intel® UHD Graphics	
	Graphic Memory	Depends on CPU		Depends on CPU	
	VGA	1		1	
	HDMI	1		1	
	DisplayPort	1		1	
	Multiple Display	3 independent displays		3 independent displays	
	Display Interface	VGA up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @60Hz DP up to 4096 x 2304 @60Hz		VGA up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @60Hz DP up to 4096 x 2304 @60Hz	
Ethernet	Controller	4 x Intel® I226-LM 2.5GbE LAN	2 x Intel® I226-LM 2.5GbE LAN	4 x Intel® I226-LM 2.5GbE LAN	2 x Intel® I226-LM 2.5GbE LAN
Audio	Controller	Realtek® ALC897 Audio Codec		Realtek® ALC897 Audio Codec	
Super I/O	Controller	FINTEK F81967D-I		FINTEK F81967D-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer		256-level Watchdog Timer	
	Smart Fan	Yes		Yes	
TPM	Controller	Infineon® SLB9672VU2.0		Infineon® SLB9672VU2.0	
I/O Interface	USB	8 x USB 3.2 Gen 2 x1 (8 x rear) 2 x USB 3.2 Gen 1 (2 x internal) 3 x USB 2.0 (3 x internal with one Right Angle Type-A Connector)		8 x USB 3.2 Gen 2 x1 (8 x rear) 2 x USB 3.2 Gen 1 (2 x internal) 3 x USB 2.0 (3 x internal with one Right Angle Type-A Connector)	
	Serial	10 x COM ports (1 x rear, 9 x internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control (Default set to Ring) COM3~6: RS-232, 0V/5V/12V COM7~10: RS-232, 0V/5V/12V	6 x COM ports (1 x rear, 5 x internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control (Default set to Ring) COM3~6: RS-232, 0V/5V/12V	10 x COM ports (1 x rear, 9 x internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control (Default set to Ring) COM3~6: RS-232, 0V/5V/12V COM7~10: RS-232, 0V/5V/12V	6 x COM ports (1 x rear, 5 x internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control (Default set to Ring) COM3~6: RS-232, 0V/5V/12V
	Parallel	N/A		N/A	
	PS/2	1 x PS/2 port by Y-cable for keyboard and mouse		1 x PS/2 port by Y-cable for keyboard and mouse	
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V		16-bits (8 x GPI; 8 x GPO), 5V	
Expansion Slot	PCIe x16	2 (Signal configured as 1 PCIe x16 or 2 PCIe x8)		2 (Signal configured as 1 PCIe x16 or 2 PCIe x8)	
	PCIe x4	5		4	
	PCIe x1	N/A		N/A	
	PCI	N/A		1	
	M.2	1 x M key (Signal from CPU) 2280, 1 x M key (Signal Shared by PCIe Slot5) 2280		1 x M key (Signal from CPU) 2280, 1 x M key (Signal Shared by PCIe Slot5) 2280 1 x E key (PCIe x1), 2230	
Storage	SATA	4 x SATA 3.0 (RAID 0/1/5/10)		4 x SATA 3.0 (RAID 0/1/5/10)	
Power Supply	ATX	ATX-Power 24P, 12V-8P		ATX-Power 24P, 12V-8P	
Environment	Operating Temperature	0 ~ 60°C		0 ~ 60°C	
	Operating Humidity	10 ~ 90%, non-condensing		10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C		-20 ~ 80°C	
	Storage Humidity	10 ~ 90%, non-condensing		10 ~ 90%, non-condensing	
Form Factor	Dimensions	305 x 244 mm (ATX)			
	Weight	0.766 kg	0.738 kg	0.777 Kg	0.744 Kg
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI, UKCA, CN		CE, FCC Class B, BSMI, RCM, VCCI, UKCA, CN	
Software Platform	OS Support	Windows 10 IoT Enterprise 2021 LTSC (64-bit) Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request) Noted : All driver base on Intel & chip vendor supported		Windows 10 IoT Enterprise 2021 LTSC (64-bit) Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request) Noted : All driver base on Intel & chip vendor supported	

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NEW

Model		MS-CF05 V2.0	MS-CF05	
		ATX Board		
			SKU1	SKU2
Processor	CPU	12th Gen Intel® Alder Lake-S i9/i7/i5/i3/Pentium®/Celeron® IOTG Series Processor, Max 125W 13th Gen Intel® Raptor Lake-S i9/i7/i5/i3/Pentium®/Celeron® IOTG Series Processor, Max 125W 14th Gen Intel® Raptor Lake-S Refresh i9/i7/i5/i3/Pentium®/Celeron® IOTG Series Processor, Max 125W Intel® Bartlett Lake-S i7/i5/i3/300 IOTG Series Processor, Max 125W	12th Gen Intel® Alder Lake-S i9/i7/i5/i3/Pentium®/Celeron® IOTG Series Processor, Max 125W 13th Gen Intel® Raptor Lake-S i9/i7/i5/i3/Pentium®/Celeron® IOTG Series Processor, Max 125W 14th Gen Intel® Raptor Lake-S Refresh i9/i7/i5/i3/Pentium®/Celeron® IOTG Series Processor, Max 125W Intel® Bartlett Lake-S i7/i5/i3/300 IOTG Series Processor, Max 125W	
	Frequency	P-Core 1.1GHz~5.0GHz (Depends on CPU) E-Core 0.9GHz~3.8GHz (Depends on CPU)	P-Core 1.1GHz~5.0GHz (Depends on CPU) E-Core 0.9GHz~3.8GHz (Depends on CPU)	
	L2 Cache	4MB~30MB (Depends on CPU)	4MB~30MB (Depends on CPU)	
	CPU Type	Socket (LGA 1700)	Socket (LGA1700)	
	Chipset	Intel® Q670E Express	Intel® R680E Express	Intel® Q670E Express
	BIOS	AMI UEFI	AMI UEFI	
Memory	Technology	Dual-channel DDR5 (ECC/non-ECC) 4400 MT/s (ECC support will depend on CPU)	Dual-channel DDR5 (ECC/non-ECC) 4400 MT/s (ECC support will depend on CPU)	Dual-channel DDR5 (non-ECC) 4400 MT/s
	Max. Capacity	Up to 128GB	Up to 128GB	
	Socket	4 x 288-pin UDIMMs	4 x 288-pin UDIMMs	
Display	Controller	Intel® UHD Graphics	Intel® UHD Graphics	
	Graphic Memory	Depends on CPU	Depends on CPU	
	VGA	1	1	
	HDMI	1	1	
	DisplayPort	1	1	
	Multiple Display	3 independent displays	3 independent displays	
	Display Interface	VGA up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @60Hz DP up to 4096 x 2304 @60Hz	VGA up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @60Hz DP up to 4096 x 2304 @60Hz	
Ethernet	Controller	2 x Intel® I226-LM 2.5GbE LAN	4 x Intel® I226-LM 2.5GbE LAN	2 x Intel® I226-LM 2.5GbE LAN
Audio	Controller	Realtek® ALC897 Audio Codec (Co-lay ALC888S)	Realtek® ALC897 Audio Codec (Co-lay ALC888S)	
Super I/O	Controller	FINTEK F81966D-I	FINTEK F81966D-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	Yes	Yes	
TPM	Controller	Infineon® SLB9672VU2.0	Infineon® SLB9672VU2.0	
I/O Interface	USB	8 x USB 3.2 Gen 2 x1 (8 x rear) 2 x USB 3.2 Gen 1 Ports (2 x internal) 3 x USB 2.0 (3 x internal with one Vertical Type-A Connector)	8 x USB 3.2 Gen 2 x1 (8 x rear) 2 x USB 3.2 Gen 1 Ports (2 x internal) 3 x USB 2.0 (3 x internal with one Vertical Type-A Connector)	
	Serial	6 x COM ports (1 x rear, 5 x internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control (Default set to Ring) COM3~6: RS-232, 0V/5V/12V	6 x COM ports (1 x rear, 5 x internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control (Default set to Ring) COM3~6: RS-232/422/485, 0V/5V/12V, Auto-flow Control	6 x COM ports (1 x rear, 5 x internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control (Default set to Ring) COM3~6: RS-232, 0V/5V/12V
	Parallel	Yes	Yes	
	PS/2	1 x PS/2 port by Y-cable for keyboard and mouse	1 x PS/2 port by Y-cable for keyboard and mouse	
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V	16-bits (8 x GPI; 8 x GPO), 5V	
Expansion Slot	PCIe x16	2 (Signal configured as 1 PCIe x16 or 2 PCIe x8)	2 (Signal configured as 1 PCIe x16 or 2 PCIe x8)	
	PCIe x4	4	4	
	PCIe x1	N/A	1	N/A
	PCI	1	N/A	
	M.2	1 x M key (Signal from CPU) 2280/22110, 1 x M key (Signal Shared by PCIe Slot5) 2242/2280 1 x B key (PCIe x1), 2242/2280	1 x M key (Signal from CPU) 2280/22110, 1 x M key (Signal Shared by PCIe Slot5) 2242/2280 1 x E key (PCIe x1), 2230 1 x B key (PCIe x2), 2242/2280	1 x M key (Signal from CPU) 2280/22110, 1 x M key (Signal Shared by PCIe Slot5) 2242/2280
Storage	SATA	4 x SATA 3.0 (RAID 0/1/5/10)	4 x SATA 3.0 (RAID 0/1/5/10)	
Power Supply	ATX	ATX-Power 24P, 12V-8P	ATX-Power 24P, 12V-8P	
Environment	Operating Temperature	0 ~ 60°C	0 ~ 60°C	
	Operating Humidity	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	-20 ~ 80°C	
	Storage Humidity	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing	
Form Factor	Dimensions	305 x 244 mm (ATX)	305 x 244 mm (ATX)	
	Weight	0.779 Kg	0.779 Kg	
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI	CE, FCC Class B, BSMI, RCM, VCCI, UKCA, CN	
Software Platform	OS Support	Windows 10 IoT Enterprise 2021 LTSC (64-bit) Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request) Noted : All driver base on Intel & chip vendor supported		

NEW

Model		MS-CF06 V2.0	MS-98N9	
		ATX Board		
Processor			SKU1	SKU2
	CPU	12th Gen Intel® Alder Lake-S i9/i7/i5/i3/Pentium®/Celeron® IOTG Series Processor, Max 65W 13th Gen Intel® Raptor Lake-S i9/i7/i5/i3/Pentium®/Celeron® IOTG Series Processor, Max 65W 14th Gen Intel® Raptor Lake-S Refresh i9/i7/i5/i3/Pentium®/Celeron® IOTG Series Processor, Max 65W Intel® Bartlett Lake-S i7/i5/i3/300 IOTG Series Processor, Max 65W	10th Gen Intel® Comet Lake-S Xeon®, Core™ i9/i7/i5/i3, Pentium®, Celeron® Processor, Max 125W	10th Gen Intel® Comet Lake-S Core™ i9/i7/i5/i3, Pentium®, Celeron® Processor, Max 125W
	Frequency	P-Core 1.1GHz~5.6GHz (Depends on CPU) E-Core 0.9GHz~4.4GHz (Depends on CPU)	1.8GHz~4.8GHz (Depends on CPU)	
	L2 Cache	4MB~36MB (Depends on CPU)	2MB~20MB (Depends on CPU)	
	CPU Type	Socket (LGA1700)	Socket (LGA 1200)	
	Chipset	Intel® H610E Express	Intel® W480E Express	Intel® Q470E Express
	BIOS	AMI UEFI	AMI UEFI	
Memory	Technology	Dual-channel DDR5 (non-ECC) 5600 MT/s	Dual-channel DDR4 (ECC/non-ECC) 2933 MHz	Dual-channel DDR4 (non-ECC) 2933 MHz
	Max. Capacity	Up to 64GB	Up to 128GB	
	Socket	2 x 288-pin UDIMMs	4 x 288-pin UDIMMs	
Display	Controller	Intel® UHD Graphics	Intel® UHD Graphics	
	Graphic Memory	Depends on CPU	Depends on CPU	
	eDP	N/A	1	
	VGA	1	1	
	HDMI	1	1	
	DisplayPort	N/A	1	
	Multiple Display	2 independent displays	3 independent displays	
	Display Interface	VGA up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @24Hz	VGA up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @30Hz DP up to 4096 x 2304 @60Hz eDP up to 4096 x 2304 @60Hz	
Ethernet	Controller	1 x Intel® I219LM GbE LAN PHY 1 x Intel® I226-V 2.5GbE LAN	1 x Intel® I219-LM GbE LAN PHY 3 x Intel® I210-AT GbE LAN	1 x Intel® I219-LM GbE LAN PHY 1 x Intel® I210-AT GbE LAN
Audio	Controller	Realtek® ALC897 Audio Codec (Co-lay ALC888S)	Realtek® ALC888S-VD2-GR Audio Codec	
Super I/O	Controller	FINTEK F81966D-I	Fintek F81966D-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	Yes	Yes	
TPM	Controller	Infineon® SLB9672VU2.0	Infineon SLB 9670VQ2.0	
I/O Interface	USB	2 x USB 3.2 Gen 2 x1 (2 x rear) 2 x USB 3.2 Gen 1 x1 (2 x rear) 5 x USB 2.0 (2 x rear, 3 x internal with one Vertical Type-A)	6 x USB 3.2 Gen 2 (6 x rear) 2 x USB 3.2 Gen 1 (2 x internal) 5 x USB 2.0 (2 x rear, 3 x internal with one Vertical Type-A Connector)	
	Serial	6 x COM ports (2 rear, 4 x internal) COM1: RS-232/422/485 0V/5V/12V, Auto-flow Control COM2: RS-232, 0V/5V/12V COM3~6: RS-232	10 x COM ports (1 x rear, 9 x internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control COM3~6: RS-232/422/485 with 0V/5V/12V Auto-flow Control COM7~10: RS-232, 0V/5V/12V	6 x COM ports (1 x rear, 5 x internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control COM3~6: RS-232/422/485 with 0V/5V/12V Auto-flow Control
	Parallel	N/A	Yes	
	PS/2	1 x PS/2 port by Y-cable for keyboard and mouse	1 (wafer Connector)	
	GPIO	8-bits (4 x GPI; 4 x GPO), 5V	16-bits (8 x GPI; 8 x GPO), 5V	
Expansion Slot	PCIe x16	1	1 (Signal configured as 1 PCIe x16 or 2 PCIe x8)	
	PCIe x4	1	3	
	PCIe	5	2	
	M.2	1 x M.2 M key (SATA 3.0, signal shared with SATA port 1), 2242/2280	3 x M.2 M key (PCIe x4 NVMe, signal shared with PCIe Slot 1 & 3 & 5), 2 with 2242/2260/2280, 1 with 2242/2260/2280/22110	
	Mini-PCIe	N/A	1 x Full/Half-size (mSATA)	
Storage	SATA	4 x SATA 3.0 (SATA port 1 shared with M.2 M Key)	4 x SATA 3.0 (RAID 0/1/5/10)	
	ATX	ATX-Power 24P, 12V-8P	ATX-Power 24P, 12V-8P	
Environment	Operating Temperature	0 ~ 60°C	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	
	Operating Humidity	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	-20 ~ 80°C	
	Storage Humidity	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing	
Form Factor	Dimensions	305 x 244 mm (ATX)	305 x 244 mm (ATX)	
	Weight	0.728 Kg	0.735 Kg	
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI, UKCA, CN	CE, FCC Class B, BSMI, RCM, VCCI	
Software Platform	OS Support	Windows 10 IoT Enterprise 21H2 LTSC (64-bit) Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request) Noted : All driver base on Intel & chip vendor supported	Windows 10 IoT Enterprise 2019 SAC (64-bit, RS5) Windows 10 Enterprise LTSC (64-bit, RS5) Windows 11 IoT Enterprise LTSC (64-bit) Linux (Support by request)	

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Model		MS-98K9 V2.1		MS-98K9		
		ATX Board				
		SKU1	SKU2	SKU1	SKU2	SKU3
Processor	CPU	9th/8th Gen Intel® Coffee Lake Refresh-S/Coffee Lake-S Xeon®, Core™ i7/ i5/i3, Pentium®, Celeron® Processor, Max 95W	9th/8th Gen Intel® Coffee Lake Refresh-S/Coffee Lake-S , Core™ i7/i5/i3, Pentium®, Celeron® Processor, Max 95W	8th Gen Intel® Desktop Coffee Lake-S Xeon®/i7/ i5/i3/Pentium®/Celeron® Series Processor, Max 95W	8th Gen Intel® Desktop Coffee Lake-S i7/i5/i3/Pentium®/ Celeron® Series Processor, Max 95W	
	Frequency	2.1GHz~4.7GHz (Depends on CPU)		2.1GHz~4.7GHz (Depends on CPU)		
	L2 Cache	2MB~12MB (Depends on CPU)		2MB~12MB (Depends on CPU)		
	CPU Type	Socket (LGA 1151)		Socket (LGA 1151)		
	Chipset	Intel® C246 Express	Intel® Q370 Express	Intel® C246 Express	Intel® Q370 Express	Intel® Q370 Express
	BIOS	AMI UEFI		AMI UEFI		
Memory	Technology	Dual-channel DDR4 (ECC/ non-ECC) 2666 MHz	Dual-channel DDR4 (non-ECC) 2666 MHz	Dual-channel DDR4 (ECC/non-ECC) 2666 MHz	Dual-channel DDR4 (non-ECC) 2666 MHz	
	Max. Capacity	Up to 128GB		Up to 64GB		
	Socket	4 x 288-pin UDIMMs		4 x 288-pin UDIMMs		
Display	Controller	Intel® UHD Graphics		Intel® UHD Graphics		
	Graphic Memory	Depends on CPU		Depends on CPU		
	LVDS	N/A		N/A		
	eDP	N/A		N/A		
	VGA	1		1		
	DVI	N/A		1		N/A
	HDMI	1		1		
	DisplayPort	2		2		
	Multiple Display	3 independent displays		3 independent displays		
	Display Interface	VGA up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @24Hz DP up to 4096 x 2304 @60Hz		VGA up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @24Hz DP up to 4096 x 2304 @60Hz		HDMI up to 4096 x 2160 @24Hz DP up to 4096 x 2304 @60Hz
Ethernet	Controller	1 x Intel® I219-LM GbE LAN PHY 2 x Intel® I210-AT GbE LAN		1 x Intel® I219-LM GbE LAN PHY 2 x Intel® I210-AT GbE LAN		1 x Intel® I219-LM GbE LAN PHY 1 x Intel® I210-AT GbE LAN
Audio	Controller	Realtek® ALC887-VD2-CG Audio Codec		Realtek® ALC887-VD2-CG Audio Codec		
Super I/O	Controller	Fintek F81866AD-I		Fintek F81866AD-I		
H/W Monitor	Watchdog Timer	256-level Watchdog Timer		256-level Watchdog Timer		
	Smart Fan	Yes		Yes		
TPM	Controller	Infineon SLB 9665TT2.0		Infineon SLB 9665TT2.0 TPM 2.0		Box header (Default) Infineon SLB9665TT2.0 (by BOM option)
I/O Interface	USB	7 x USB 2.0 (2 x rear, 5 x internal with one Vertical Type-A) 6 x USB 3.2 Gen 2 (rear)		7 x USB 2.0 (2 x rear, 5 x internal with one Vertical Type-A) 6 x USB 3.2 Gen 2 (rear)		7 x USB 2.0 (2 x rear, 5 x internal with one Vertical Type-A) 4 x USB 3.2 Gen 2 (rear)
	Serial	6 x COM ports (internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control COM3~6: RS-232, 0V/5V/12V		10 x COM ports (internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control COM3~10: RS-232, 0V/5V/12V		6 x COM ports (internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control COM3~6: RS-232, 0V/5V/12V
	Parallel	Yes		Yes		
	PS/2	1 x PS/2 port by Y-cable for keyboard and mouse		1 x PS/2 port by Y-cable for keyboard and mouse		
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V		16-bits (8 x GPI; 8 x GPO), 5V		
Expansion Slot	PCIe x16	2 (Signal configured as 1 PCIe x16 or 2 PCIe x8)		3 (Signal configred as 1 PCIe x16 or 2 PCIe x8 or 1 PCIe x8 + 2 PCIe x4)		
	PCIe x8	N/A		N/A		
	PCIe x4	3 (PCIe x16 Slot Type; 2*PCIe x4 NVMe)		2 (PCIe x16 Slot Type)		
	PCIe x1	N/A		2		
	PCI	2		N/A		
	M.2	1 x M.2 M key (PCIe x4 NVMe, Intel® Optane™ Memory Support, SATA 3.0), 2242/2260/2280		1 x M key (PCIe x4 NVMe, SATA 3.0), 2242/2260/2280 1 x E key (PCIe x1, USB 2.0), 2230		
	Mini-PCIe	N/A		N/A		
Storage	SATA	4 x SATA 3.0 (RAID 0/1/5/10, SATA port 4 share with M.2 M Key)		6 x SATA 3.0 (RAID 0/1/5/10, SATA port 6 share with M.2 M Key)		
	mSATA	N/A		N/A		
Power Supply	DC	N/A		N/A		
	ATX	ATX-Power 24P, 12V-8P		ATX-Power 24P, 12V-8P		
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s		-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s		
	Operating Humidity	10 ~ 90%, non-condensing		10 ~ 90%, non-condensing		
	Storage Temperature	-20 ~ 80°C		-20 ~ 80°C		
	Storage Humidity	10 ~ 90%, non-condensing		10 ~ 90%, non-condensing		
Form Factor	Dimensions	305 x 244 mm (ATX)		305 x 244 mm (ATX)		
	Weight	0.70 kg		0.70 kg		
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI		CE, FCC Class B, BSMI, RCM, VCCI		
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)		Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)		

Model		MS-98L9 V2.0	MS-98L9
		ATX Board	
Processor	CPU	7th/6th Gen Intel® Desktop Kaby Lake/Skylake i7/i5/i3/Pentium®/Celeron® Series Processor, Max 95W	7th/6th Gen Intel® Desktop Kaby Lake/Skylake i7/i5/i3/Pentium®/Celeron® Series Processor, Max 65W
	Frequency	2.3GHz~4.2GHz (Depends on CPU)	2.3GHz~4.2GHz (Depends on CPU)
	L2 Cache	2MB~8MB (Depends on CPU)	2MB~8MB (Depends on CPU)
	CPU Type	Socket (LGA 1151)	Socket (LGA 1151)
	Chipset	Intel® H110 Express	Intel® H110 Express
	BIOS	AMI UEFI	AMI UEFI
Memory	Technology	Dual-channel DDR4 2133/2400 MHz	Dual-channel DDR4 2133/2400 MHz
	Max. Capacity	Up to 32GB	Up to 32GB
	Socket	2 x 288-pin UDIMMs	2 x 288-pin UDIMMs
Display	Controller	Intel® HD Graphics	Intel® HD Graphics
	Graphic Memory	Depends on CPU	Depends on CPU
	LVDS	N/A	N/A
	eDP	N/A	N/A
	VGA	1	1
	DVI	N/A	N/A
	HDMI	1	1
	DisplayPort	N/A	1
	Multiple Display	2 independent dislays	2 independent dislays
	Display Interface	VGA up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @24Hz	VGA up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @24Hz
Ethernet	Controller	1 x Intel® I219-LM GbE LAN PHY 1 x Intel® I211-AT GbE LAN	1 x Intel® I219-LM GbE LAN PHY 1 x Intel® I211-AT GbE LAN
Audio	Controller	Realtek® ALC887-VD2-CG Audio Codec	Realtek® ALC887-VD2-CG Audio Codec
Super I/O	Controller	Fintek F81866AD-I	Fintek F81866AD-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes	Yes
TPM	Controller	Box header	Box header
I/O Interface	USB	5 x USB 2.0 (2 x rear, 3 x internal with one Vertical Type-A) 4 x USB 3.2 Gen 1 (rear)	6 x USB 2.0 (2 x rear, 4 x internal) 6 x USB 3.2 Gen 1 (4 x rear, 2 x internal)
	Serial	6 x COM ports (2 x rear, 4 x internal) COM1: RS-232/422/485, 0V/5V/12V, Auto-flow Control COM2~6: RS-232, COM2: 0V/5V/12V	6 x COM ports (2 x rear, 4 x Internal) COM1: RS-232/422/485, 0V/5V/12V, Auto-flow Control COM2~6: RS-232, COM2: 0V/5V/12V
	Parallel	N/A	N/A
	PS/2	1 x PS/2 port by Y-cable for keyboard and mouse	1 x PS/2 port by Y-cable for keyboard and mouse
	GPIO	GPIO 1: 8-bits (4 x GPI; 4 x GPO by default), 5V GPIO 2 : 8-bits (8 x GPI or 8 x GPO by request), 5V	8-bits (4 x GPI; 4 x GPO by default), 5V 8-bits (8 x GPI or 8 x GPO by request), 5V
Expansion Slot	PCIe x16	1	1
	PCIe x8	N/A	N/A
	PCIe x4	1 (PCIe x16 Slot Type)	1
	PCIe x1	N/A	N/A
	PCI	5	5
	M.2	N/A	N/A
	Mini-PCIe	N/A	N/A
Storage	SATA	4 x SATA 3.0	4 x SATA 3.0
	mSATA	N/A	N/A
Power Supply	DC	N/A	N/A
	ATX	ATX-Power 24P, 12V-8P	ATX-Power 24P, 12V-8P
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing
Form Factor	Dimensions	305 x 244 mm (ATX)	305 x 244 mm (ATX)
	Weight	0.70 kg	0.70 kg
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI	CE, FCC Class B, BSMI, RCM, VCCI
Software Platform	OS Support	Windows 7 (32/64-bit) (Skylake-S Series CPU Only) Windows 8.1 (64-bit) (Skylake-S Series CPU Only) Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)	Windows 7 (32/64-bit) (Skylake-S Series CPU Only) Windows 8.1 (64-bit) (Skylake-S Series CPU Only) Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)

MSI reserves the right to change the specifications without prior notices.

Model		MS-98H9 V2.0	MS-98H9			MS-98M9	
		ATX Board					
			C236 SKU	Q170 SKU	H110 SKU	SKU1	SKU2
Processor	CPU	7th/6th Gen Intel® Desktop Kaby Lake/Skylake i7/i5/i3/Pentium®/ Celeron® Series Processor, Max 95W	7th/6th Gen Intel® Desktop Kaby Lake/ Skylake Xeon/ i7/ i5/i3/Pentium®/ Celeron® Series Processor, Max 95W	7th/6th Gen Intel® Desktop Kaby Lake/ Skylake i7/i5/i3/Pentium®/Celeron® Series Processor, Max 95W		2nd/1st Gen Intel® Cascade Lake/ Skylake Xeon® Scalable Processors, Max 205W	
	Frequency	2.6GHz~4.5GHz(Depends on CPU)	2.6 GHz~4.5 GHz (Depends on CPU)			1.9GHz~2.5GHz (Depends on CPU)	
	L2 Cache	2MB~8MB (Depends on CPU)	2MB~8MB (Depends on CPU)			11MB~27.5MB (Depends on CPU)	
	CPU Type	Socket (LGA 1151)	Socket (LGA 1151)			Socket (LGA 3647)	
	Chipset	Intel® Q170 Express	Intel® C236 Express	Intel® Q170 Express	Intel® H110 Express	Intel® C622 Express	Intel® C621 Express
	BIOS	AMI UEFI	AMI UEFI			AMI UEFI	
Memory	Technology	Dual-channel DDR4 (non-ECC) 2133 MHz	Dual-channel DDR4 (ECC) 2133 MHz		Dual-channel DDR4 (non-ECC) 2133 MHz	Six-channel DDR4 (ECC) 2666 MHz	
	Max. Capacity	Up to 64 GB	Up to 64 GB		Up to 32 GB	Up to 192GB	
	Socket	4 x 288-pin UDIMMs	4 x 288-pin UDIMMs		2 x 288-pin UDIMMs	6 x 288-pin RDIMMs	
Display	Controller	Intel® HD Graphics	Intel® HD Graphics			N/A	
	Graphic Memory	Depends on CPU	Depends on CPU			N/A	
	VGA	1 (Non PnP)	1 (Non PnP)			N/A	
	DVI	1 (DVI-D)	1 (DVI-D)			N/A	
	DisplayPort	2	2			N/A	
	Multiple Display	3 independent displays	3 independent displays		2 independent displays	N/A	
	Display Interface	VGA up to 1920 x 1080 @ 60Hz DVI-D up to 1920 x 1200 @ 60Hz DP up to 4096 x 2304 @ 60Hz	VGA up to 1920 x 1080 @ 60Hz DVI-D up to 1920 x 1200 @ 60Hz DP up to 4096 x 2304 @ 60Hz			N/A	
Ethernet	Controller	1 x Intel® I219-LM GbE LAN PHY 1 x Intel® I210-AT GbE LAN	1 x Intel® I219-LM GbE LAN PHY 1 x Intel® I210-AT GbE LAN			1 x Intel® PHY X557-AT2 GbE LAN 2 x Intel® I210-AT GbE LAN	2 x Intel® I210-AT GbE LAN
Audio	Controller	Realtek® ALC887 HD Audio Codec	Realtek® ALC887 HD Audio Codec			Realtek® ALC887-VD2-CG HD Audio Codec	
Super I/O	Controller	Fintek F81866AD-I	Fintek F81866AD-I			Fintek F81866AD-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	256-level Watchdog Timer			256-level Watchdog Timer	
	Smart Fan	Yes	Yes			Yes	
TPM	Controller	Box header	Box header			Infineon SLB9665TT2.0	
I/O Interface	USB	6 x USB 2.0 (2 x rear, 4 x internal) 6 x USB 3.2 Gen 1 (4 x rear, 2 x internal)	6 x USB 2.0 (2 x rear, 4 x internal) 6 x USB 3.2 Gen 1 (4 x rear, 2 x internal)		4 x USB 2.0 (2 x rear, 2 x internal) 4 x USB 3.2 Gen 1 (rear)	7 x USB 2.0 (7 x internal with one Vertical Type-A) 6 x USB 3.2 Gen 1 (rear)	
	Serial	6 x COM ports (internal) COM1~2: RS-232/422/485, 0V/5V/12V COM3~6: RS-232, 0V/5V/12V	6 x COM ports (internal) COM1~2: RS-232/422/485, 0V/5V/12V COM3~6: RS-232, 0V/5V/12V			6 x COM ports (2 x rear, 4 x internal) COM1: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control COM2: RS-232/422/485, 0V/5V/12V, Auto-flow Control COM3~6: RS-232, 0V/5V/12V	
	Parallel	Yes	1			N/A	
	PS/2	1 x PS/2 port by Y-cable for keyboard and mouse	1 x PS/2 port by Y-cable for keyboard and mouse			1 x PS/2 port by Y-cable for keyboard and mouse	
	GPIO	8-bits (4 x GPI; 4 x GPO), 5V	8-bits (4 x GPI; 4 x GPO), 5V			16-bits (8 x GPI; 8 x GPO), 5V	
Expansion Slot	PCIe x16	1	1			2 (Signal configured as 2 PCIe x16 or 4 PCIe x8 or 1 PCIe x16 + 2 PCIe x8)	
	PCIe x8	N/A	N/A			3 (Slot3&5 single shared with PCIe x16)	
	PCIe x4	N/A	2		1	2	
	PCIe x1	N/A	N/A			N/A	
	PCI	6	4			N/A	
	M.2	N/A	N/A			N/A	
	Mini-PCIe	2 x Full-size (one w/ mSATA)	2 x Full-size (one w/ mSATA)		N/A	1 x Full/Half-size (mSATA)	
Storage	SATA	5 x SATA 3.0 (RAID 0/1/5/10)	5 x SATA 3.0 (RAID 0/1/5/10)		4 x SATA 3.0	8 x SATA 3.0 (RAID 0/1/5/10)	
	mSATA	1	1		N/A	1 (shared w/ Mini-PCIe)	
Power Supply	DC	N/A	N/A			N/A	
	ATX	ATX-Power 24P, 12V-8P	ATX-Power 24P, 12V-8P			ATX-Power 24P, 12V-8P	
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s			0 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	
	Operating Humidity	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing			10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	-20 ~ 80°C			-20 ~ 80°C	
	Storage Humidity	10 ~ 90%, non-condensing	10 ~ 90%, non-condensing			10 ~ 90%, non-condensing	
Form Factor	Dimensions	305 x 244 mm (ATX)	305 x 244 mm (ATX)			305 x 244mm (ATX)	
	Weight	0.70 kg	0.70 kg			0.90 kg	
Certification	EMC	FCC, CE, RCM, VCCI, BSMI (Class B)	FCC, CE, RCM, VCCI, BSMI (Class B)			CE, FCC Class B, BSMI, RCM, VCCI	
Software Platform	OS Support	Windows 7 (32/64-bit) (Skylake-S Series CPU Only) Windows 8.1 (64-bit) (Skylake-S Series CPU Only) Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)	Windows 7 (32/64-bit) (Skylake-S Series CPU Only) Windows 8.1 (64-bit) (Skylake-S Series CPU Only) Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)			Windows Server 2012 (64-bit) (Skylake-SP Series CPU Only) Windows Server 2016 (64-bit) (Skylake-SP & Cascade Lake Series CPU) Windows Server 2019 (64-bit) (Cascade Lake Series CPU) Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) (by request) Linux (Support by request)	

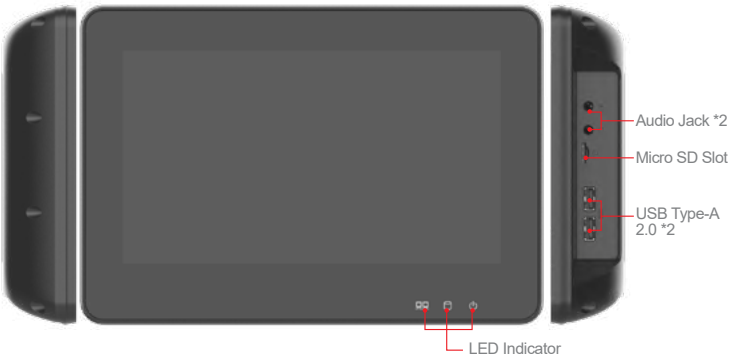
NOTE

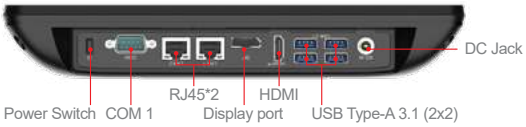
MSI reserves the right to change the specifications without prior notices.

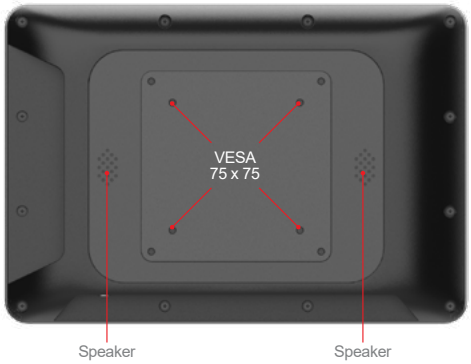
MS-1A91

10.1" Front IP65 Fanless HMI Panel PC with Intel® Alder Lake N Series

NEW







Features

- Intel® Alder Lake N CPU
- Panel Size: 10.1”
- Fully Flat Panel / Fanless & Ultra Slim Design
- Resistive Type Touch
- IP65 Front Panel and IP41 for Rear
- Rich I/O
- Intel® WLAN Support

Stand (Optional)

Vesa Mount (Optional)

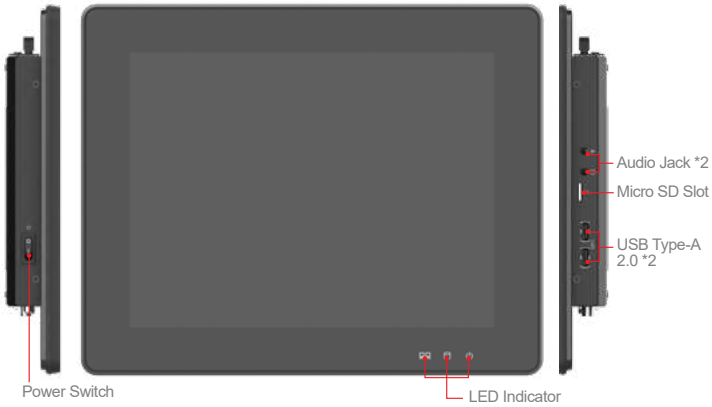
Specifications

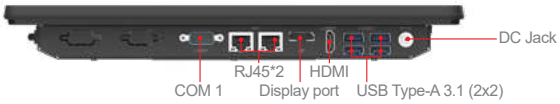
Display	LCD Size	10.1"
	Resolution	1024 x 600
	Brightness (cd/m2)	500
	Contrast Ratio	500
	Support Colors	16.7M
	Pixel Pitch (H/Vmm)	0.217 x 0.208
	Viewing Angle	70/70/60/60
Touch Panel		5-Wire Resistive
System Processor	CPU	Intel® Alder Lake N Series Intel® processor N97 2.0GHz ,QC ,12W Intel® Atom X7425E 1.5GHz , QC, 12W
	Frequency	3.2 up to 3.80 GHz
	L2 Cache	6MB
	Chipset	SoC
Memory	Technology	Single-channel DDR5 MHz
	Max. Capacity	Up to 16GB
	Socket	1 x 262-pin SO-DIMM
Graphic	Display Interface	HDMI up to 3840 x 2160 DP up to 4096 x 2160
Ethernet	Controller	2 x Intel® I226V Co-Lay Intel® I226LM PCIe 2.5GbE LAN
Expansion Slot	Mini-PCIe	N/A
	M.2	1 M.2 E key (reserved for WiFi)
Storage	SATA	N/A
	M.2	1 x M.2 B key (reserved for storage)
	mSATA	N/A
	CFast	N/A
	CompactFlash	N/A
I/O Interface	RJ-45	2
	Audio	1 x Line-out 1 x MIC-in
	USB	2 x Dual Stacked Type-A USB 3.1 2 x USB 2.0
	Serial	1 x COM (1 x edge I/O) COM1: RS-232/422/485, 0V/5V/12V
	Parallel	N/A
	PS/2	N/A
	HDMI	1
	DVI	N/A
	DisplayPort	1
	VGA	N/A
	Antenna	Inside
Power Supply	DC Input	DC-in 12~24V
Environment	IP Rating	Front IP65 / Rear 41
	Operating Temperature	0°C ~ 40°C
	Operating Humidity	20%~90% RH
	Storage Temperature	-20°C ~ 60°C
	Storage Humidity	10% ~ 90% non-condensing
Physical haracteristics	Housing	Plastic / Metal
	Dimensions (L x W x D)	272 x 178 x 42 mm
	Weight	1.6kg (3.53lbs)
	Mounting	VESA 75 x 75, 100 x 100 mm (Optional)
Certification	EMC	FCC, CE, BSMI, VCCI
	Safety	PSE
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC 2021 Windows 11 IoT Enterprise 2022 Windows 11 IoT Enterprise LTSC 2024

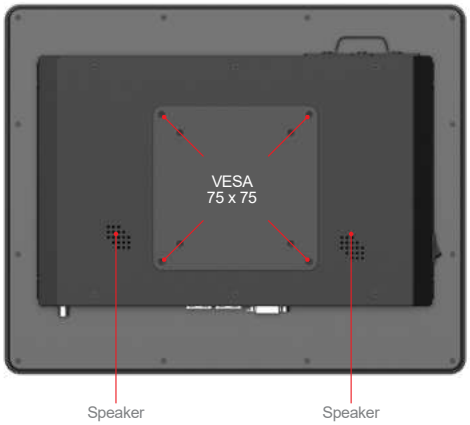
MS-1A22

12.1" Front IP65 Fanless HMI Panel PC with Intel® Alder Lake N Series

NEW







Features

- Intel® Alder Lake N CPU
- Panel Size: 12.1”
- Fully Flat Panel / Fanless & Ultra Slim Design
- Capacitive / Resistive Type Touch
- IP65 Front Panel and IP41 for Rear
- Backup Battery for 60 mins at idle state (Option)
- Rich I/O
- Dual Storage: HDD+SSD (Optional)
- Intel® WLAN Support

Stand (Optional)

Vesa Mount (Optional)

Specifications

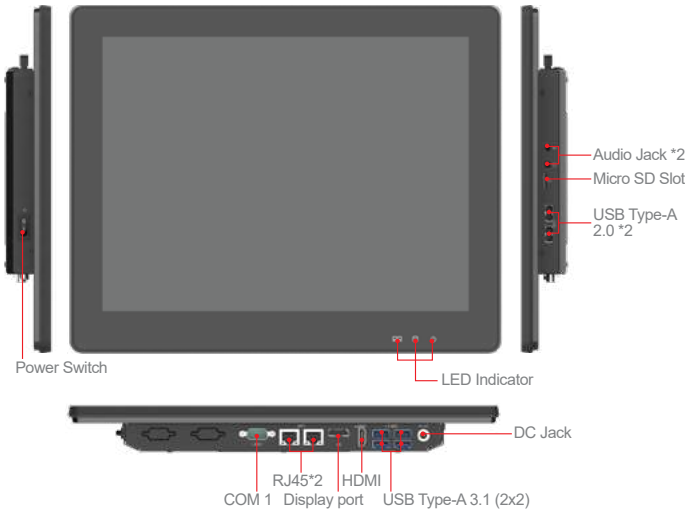
Display	LCD Size	12.1"
	Resolution	1024 x 768
	Brightness (cd/m2)	500
	Contrast Ratio	700
	Support Colors	16.7M
	Pixel Pitch (H/Vmm)	0.24 x 0.24
	Viewing Angle	80/80/70/70
Touch Panel		Projective Capacitive 5-Wire Resistive
System Processor	CPU	Intel® Alder Lake N Series Intel® processor N97 2.0GHz ,QC ,12W Intel® Atom X7425E 1.5GHz , QC, 12W Intel® Core I3-N305 1.8GHz , 8C, 15W
	Frequency	3.2 up to 3.80 GHz
	L2 Cache	6MB
	Chipset	SoC
Memory	Technology	Single-channel DDR5 MHz
	Max. Capacity	Up to 16GB
	Socket	So-DIMM Slot (262-Pin)
Graphic	Display Interface	HDMI up to 3840 x 2160 DP up to 4096 x 2160
Ethernet	Controller	2 x Intel® I226V Co-Lay Intel® I226LM PCIe 2.5GbE LAN
Expansion Slot	Mini-PCIe	N/A
	M.2	1 M.2 E key (reserved for WiFi)
Storage	SATA	1 x 2.5" HDD (Option)
	M.2	1 x M.2 B key (reserved for storage)
	mSATA	N/A
	CFast	N/A
	CompactFlash	N/A
I/O Interface	RJ-45	2
	Audio	1 x Line-out 1 x MIC-in
	USB	2 x Dual Stacked Type-A USB 3.1 2 x USB 2.0
	Serial	3 x COM (1 x edge I/O, 2 x internal) COM1~2: RS-232/422/485, 0V/5V/12V COM3: RS-232, 0V/5V/12V (COM2~3 Option with cable)
	Parallel	N/A
	PS/2	N/A
	HDMI	1
	DVI	N/A
	DisplayPort	1
	Antenna	Inside
Power Supply	DC Input	DC-in 12~24V
Environment	IP Rating	Front IP65 / Rear 41
	Operating Temperature	0°C ~ 40°C
	Operating Humidity	20%~90% RH
	Storage Temperature	-20°C ~ 60°C
	Storage Humidity	10% ~ 90% non-condensing
Physical haracteristics	Housing	Plastic / Metal
	Dimensions (L x W x D)	251 x 313 x 13.45 mm
	Weight	2.3kg (5.07lbs)
	Mounting	VESA 75 x 75, 100 x 100 mm (Optional)
Certification	EMC	FCC, CE, BSMI, VCCI
	Safety	PSE
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC 2021 Windows 11 IoT Enterprise 2022 Windows 11 IoT Enterprise LTSC 2024

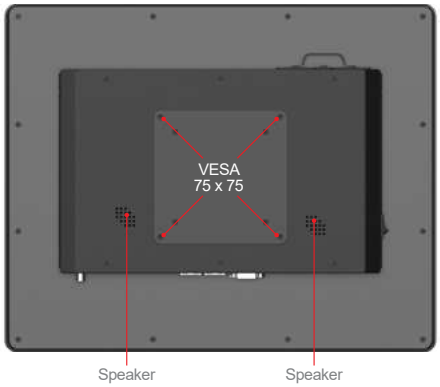
MSI reserves the right to change the specifications without prior notices.

MS-1A32

15" Front IP65 Fanless HMI Panel PC with Intel® Alder Lake N Series

NEW





Features

- Intel® Alder Lake N CPU
- Panel Size: 15”
- Fully Flat Panel / Fanless & Ultra Slim Design
- Capacitive / Resistive Type Touch
- IP65 Front Panel and IP41 for Rear
- Backup Battery for 60 mins at idle state (Option)
- Rich I/O
- Dual Storage: HDD+SSD (Optional)
- Intel® WLAN Support

Stand (Optional)

Vesa Mount (Optional)

Rear Cover(Optional)

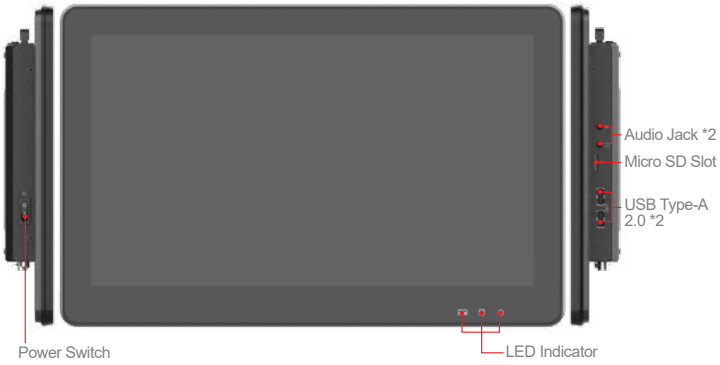
Specifications

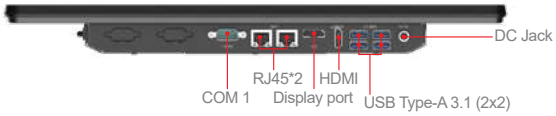
Display	LCD Size	15"
	Resolution	1024 x 768
	Brightness (cd/m2)	350
	Contrast Ratio	800
	Support Colors	16.2M
	Pixel Pitch (H/Vmm)	0.297 x 0.297
	Viewing Angle	80/80/70/80
Touch Panel		Projective Capacitive 5-Wire Resistive
System Processor	CPU	Intel® Alder Lake N Series Intel® processor N97 2.0GHz ,QC ,12W Intel® Atom X7425E 1.5GHz , QC, 12W Intel® Core I3-N305 1.8GHz , 8C, 15W
	Frequency	3.2 up to 3.80 GHz
	L2 Cache	6MB
	Chipset	SoC
Memory	Technology	Single-channel DDR5 MHz
	Max. Capacity	Up to 16GB
	Socket	So-DIMM Slot (262-Pin)
Graphic	Display Interface	HDMI up to 3840 x 2160 DP up to 4096 x 2160
Ethernet	Controller	2 x Intel® I226V Co-Lay Intel® I226LM PCIe 2.5GbE LAN
Expansion Slot	Mini-PCIe	N/A
	M.2	1 M.2 E key (reserved for WiFi)
Storage	SATA	1 x 2.5" HDD (Option)
	M.2	1 x M.2 B key (reserved for storage)
	mSATA	N/A
	CFast	N/A
	CompactFlash	N/A
I/O Interface	RJ-45	2
	Audio	1 x Line-out 1 x MIC-in
	USB	2 x Dual Stacked Type-A USB 3.1 2 x USB 2.0
	Serial	3 x COM (1 x edge I/O, 2 x internal) COM1~2: RS-232/422/485, 0V/5V/12V COM3: RS-232, 0V/5V/12V (COM2~3 Option with cable)
	Parallel	N/A
	PS/2	N/A
	HDMI	1
	DVI	N/A
	DisplayPort	1
	Antenna	Inside
Power Supply	DC Input	DC-in 12~24V
Environment	IP Rating	Front IP65 / Rear 41
	Operating Temperature	0°C ~ 40°C
	Operating Humidity	20%~90% RH
	Storage Temperature	-20°C ~ 60°C
	Storage Humidity	10% ~ 90% non-condensing
Physical haracteristics	Housing	Plastic / Metal
	Dimensions (L x W x D)	291.5 x 359.50 x 38.1 mm
	Weight	3kg (6.61lbs)
	Mounting	VESA 75 x 75, 100 x 100 mm (Optional)
Certification	EMC	FCC, CE, BSMI, VCCI
	Safety	PSE
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC 2021 Windows 11 IoT Enterprise 2022 Windows 11 IoT Enterprise LTSC 2024

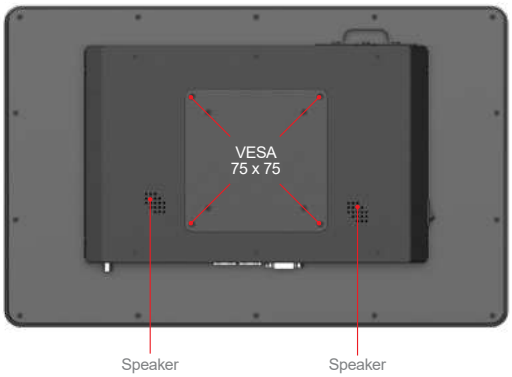
MS-1A71

15.6" Front IP65 Fanless HMI Panel PC with Intel® Alder Lake N Series

NEW







Features

- Intel® Alder Lake N CPU
- Panel Size: 15.6”
- Fully Flat Panel / Fanless & Ultra Slim Design
- Capacitive Type Touch
- IP65 Front Panel and IP41 for Rear
- Backup Battery for 60 mins at idle state (Option)
- Rich I/O
- Dual Storage: HDD+SSD (Optional)
- Intel® WLAN Support

Stand (Optional)

Vesa Mount (Optional)

Specifications

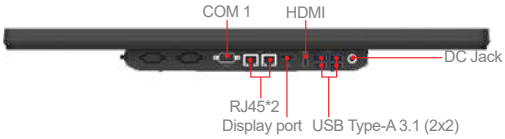
Display	LCD Size	15.6"
	Resolution	1920 x 1080
	Brightness (cd/m2)	500
	Contrast Ratio	1000
	Support Colors	16.2M
	Pixel Pitch (H/Vmm)	0.17925 x 0.17925
	Viewing Angle	89/89/89/89
Touch Panel		Projective Capacitive
System Processor	CPU	Intel® Alder Lake N Series Intel® processor N97 2.0GHz ,QC ,12W Intel® Atom X7425E 1.5GHz , QC, 12W Intel® Core I3-N305 1.8GHz , 8C, 15W
	Frequency	3.2 up to 3.80 GHz
	L2 Cache	6MB
	Chipset	SoC
Memory	Technology	Single-channel DDR5 MHz
	Max. Capacity	Up to 16GB
	Socket	So-DIMM Slot (262-Pin)
Graphic	Display Interface	HDMI up to 3840 x 2160 DP up to 4096 x 2160
Ethernet	Controller	2 x Intel® I226V Co-Lay Intel® I226LM PCIe 2.5GbE LAN
Expansion Slot	Mini-PCIe	N/A
	M.2	1 M.2 E key (reserved for WiFi)
Storage	SATA	1 x 2.5" HDD (Option)
	M.2	1 x M.2 B key (reserved for storage)
	mSATA	N/A
	CFast	N/A
	CompactFlash	N/A
I/O Interface	RJ-45	2
	Audio	1 x Line-out 1 x MIC-in
	USB	2 x Dual Stacked Type-A USB 3.1 2 x USB 2.0
	Serial	3 x COM (1 x edge I/O, 2 x internal) COM1~2: RS-232/422/485, 0V/5V/12V COM3: RS-232, 0V/5V/12V (COM2~3 Option with cable)
	Parallel	N/A
	PS/2	N/A
	HDMI	1
	DVI	N/A
	DisplayPort	1
	Antenna	Inside
Power Supply	DC Input	DC-in 12~24V
Environment	IP Rating	Front IP65 / Rear 41
	Operating Temperature	0°C ~ 40°C
	Operating Humidity	20%~90% RH
	Storage Temperature	-20°C ~ 60°C
	Storage Humidity	10% ~ 90% non-condensing
Physical haracteristics	Housing	Plastic / Metal
	Dimensions (L x W x D)	255.6 x 399.7 x 38.1 mm
	Weight	2.71kg (5.97lbs)
	Mounting	VESA 75 x 75, 100 x 100 mm (Optional)
Certification	EMC	FCC, CE, BSMI, VCCI
	Safety	PSE
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC 2021 Windows 11 IoT Enterprise 2022 Windows 11 IoT Enterprise LTSC 2024

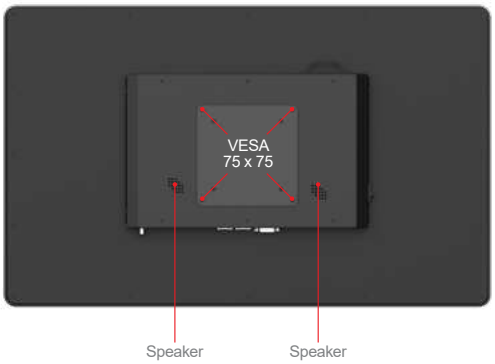
MSI reserves the right to change the specifications without prior notices.

MS-1A81

21.5" Front IP65 Fanless HMI Panel PC with Intel® Alder Lake N Series

NEW





Features

- Intel® Alder Lake N CPU
- Panel Size: 21.5”
- Fully Flat Panel / Fanless & Ultra Slim Design
- Capacitive Type Touch
- IP65 Front Panel and IP41 for Rear
- Backup Battery for 60 mins at idle state (Option)
- Rich I/O
- Dual Storage: HDD+SSD (Option)
- Intel® WLAN Support

Stand (Optional)

Vesa Mount (Optional)

Specifications

Display	LCD Size	21.5"
	Resolution	1920 x 1080
	Brightness (cd/m2)	500
	Contrast Ratio	1000
	Support Colors	16.7M
	Pixel Pitch (H/Vmm)	247.95 x 247.95 (um)
	Viewing Angle	89/89/89/89
Touch Panel		Projective Capacitive
System Processor	CPU	Intel® Alder Lake N Series Intel® processor N97 2.0GHz ,QC ,12W Intel® Atom X7425E 1.5GHz , QC, 12W Intel® Core I3-N305 1.8GHz , 8C, 15W
	Frequency	3.2 up to 3.80 GHz
	L2 Cache	6MB
	Chipset	SoC
Memory	Technology	Single-channel DDR5 MHz
	Max. Capacity	Up to 16GB
	Socket	So-DIMM Slot (262-Pin)
Graphic	Display Interface	HDMI up to 3840 x 2160 DP up to 4096 x 2160
Ethernet	Controller	2 x Intel® I226V Co-Lay Intel® I226LM PCIe 2.5GbE LAN
Expansion Slot	Mini-PCIe	N/A
	M.2	1 M.2 E key (reserved for WiFi)
Storage	SATA	1 x 2.5" HDD (Option)
	M.2	1 x M.2 B key (reserved for storage)
	mSATA	N/A
	CFast	N/A
	CompactFlash	N/A
I/O Interface	RJ-45	2
	Audio	1 x Line-out 1 x MIC-in
	USB	2 x Dual Stacked Type-A USB 3.1 2 x USB 2.0
	Serial	3 x COM (1 x edge I/O, 2 x internal) COM1~2: RS-232/422/485, 0V/5V/12V COM3: RS-232, 0V/5V/12V (COM2~3 Optionwith cable)
	Parallel	N/A
	PS/2	N/A
	HDMI	1
	DVI	N/A
	DisplayPort	1
	Antenna	Inside
Power Supply	DC Input	DC-in 12~24V
Environment	IP Rating	N/A
	Operating Temperature	0°C ~ 40°C
	Operating Humidity	20%~90% RH
	Storage Temperature	-20°C ~ 60°C
	Storage Humidity	10% ~ 90% non-condensing
Physical haracteristics	Housing	Plastic / Metal
	Dimensions (L x W x D)	333.01 x 538.55 x 41.95 mm
	Weight	5.6kg (12.34lbs)
	Mounting	VESA 75 x 75, 100 x 100 mm (Optional)
Certification	EMC	FCC, CE, BSMI, VCCI
	Safety	PSH11:H69
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC 2021 Windows 11 IoT Enterprise 2022 Windows 11 IoT Enterprise LTSC 2024

MS-NOT1

IP65 Semi-Rugged tablet with Intel® Apollo Lake N4200

NEW

Docking with Battery Charger

Protection Jacket with Handstrap and Stylus Pen(MPP1.51)

Features

- Intel® Apollo lake Pentium N4200
- 1 x DDR3L SO-DIMM slot Up to 8GB
- 10.1" 1280 x 800 w/Pcap touch +MPP1.51 pen soultion
- 2 x USB 3.0 , 1 x Micro HDMI , 1 Audio combo jack , 1 x RJ-45 LAN
- 1 x Smart card reader, 1 x SD card reader
- 2M Pixel front camera, 5M Pixel rear camera
- Option for Office Docking I/O : 2 x USB 3.0, 2 x USB 2.0, 1 x LAN , 1 x VGA , 1 X RS232 (Option for NFC, Barcode Scanner)
- DC-IN 12~24V
- Accessories (Option) : Protection cover, VESA mount , Active Pen
- Detachable Battery design

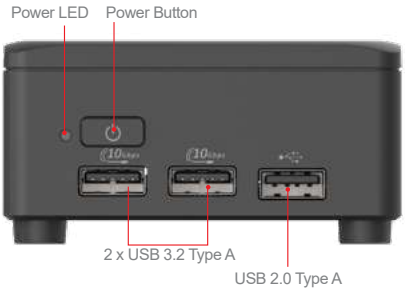
Specifications

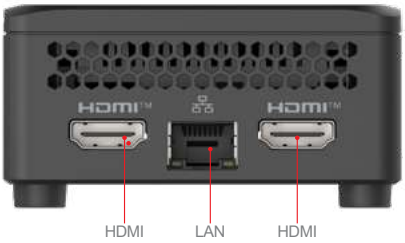
Key features	Dimension	279 x 192.5 x 17.9 mm
	Weight	990g
	Display	10 inch, 16:10 ratio
	Sealing	IP65
	Drop/Shock	MIL-STD-810G 4-feet drop
	Battery life	Up to 9 hours
	Operating Temp	0~40 degree
	Storage Temp	-20~60 degree
Specification	CPU	Intel Apollolake Pentium N4200
	System Memory	Default DDR3L 4GB. Max 8GB
	Storage	64GB (Min)/ 128GB (Max) M.2 3D TLC SSD
	Display	10.1" 1280 x 800 Projected Capacitive Touch Screen. Multi touch 10 points Microsoft pen protocol (MPP) supported
	Button	Power, Barcode Scanner
	Power	AC: support 100~240V DC: support 12/19/24V
	Audio	1w x 2, Stereo type Internal Microphone: Stereo (set with Camera module)
	Sensors	Light Sensor, E-Compass Sensor, G-Sensor, Gyro Sensor
	I/O ports	USB x2 (Ver.3.0) Headphone out x1 (headphone/ microphone combo jack, 3.5Ø, iPhone Type) Power jack x 1(19V & 24V) Mirco SD slot x1, SDXC type, (SD 4.0) SIM Slot Pogo pin: x1 RJ45: x1, Intel WGI211AT Micro HDMI (Output) x 1
	Battery	Battery 1 Li-Polymer, 41W/h, 5550mAh, Pack swappable Battery Life: over: 9 hrs
	Security	Kensington x1, TPM 2.0
	Wireless LAN + BT	802.11 ac/a/b/g/n, Intel 8260 , Ver4.2
Data collection	Camera	2M Pixel front camera w/ ALS and D-MIC *2 5M Pixel rear camera +Auto Focus
	Smart card reader	Support
	Option	NFC / Barcode scanner / LTE
	OS	Microsoft® Windows 10 IoT / Ubunto
	Office Docking I/O	USB 3.0 x 2, USB 2.0 x 2, Power Jack x 1, LAN Port x1, POGO Pin x 1, VGA output x1, RS232 x 1
	Accessories Option	Protection cover Vesa mount Active Stylus Pen

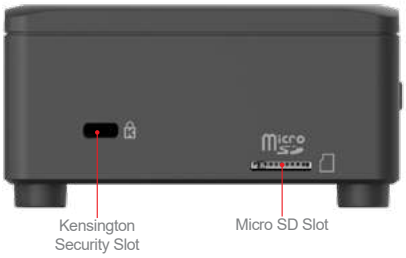
MSI reserves the right to change the specifications without prior notices.

MS-C918

Palm-Size Box PC with Intel® Alder Lake-N N100 & Twin Lake-N N150 Processor for Ultra Low-Power Fanless Solution







NEW

Specifications

System Processor	CPU	Intel® Mobile Alder Lake-N N100 Processor, 6W Intel® Mobile Twin Lake-N N150 Processor, 6W
	Frequency	0.8 GHz~3.4 GHz
	L2 Cache	6MB
	CPU Type	BGA
	Chipset	Integrated in SoC Process
	BIOS	AMI
Memory	Technology	Single-channel LPDDR5 4800 MHz
	Max. Capacity	Up to 4 GB
	Socket	N/A
Graphic	Controller	Intel® UHD Graphics
	Graphic Memory	Depends on CPU
	Multiple Display	2 independent displays
	Display Interface	HDMI 2.0b up to 4096 x 2160 @60Hz
Ethernet	Controller	1 x Realtek® RTL8111H-CG
Audio	Controller	N/A
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	N/A
I/O Interface	RJ-45	1
	Audio	N/A
	USB	1 x USB 2.0 2 x USB 10Gbps
	Serial	N/A
	GPIO	N/A
	HDMI	2
	DisplayPort	N/A
	Antenna	2 internal reserved for antennas
Power Supply	DC Input	DC-in 12V
	AC Input	N/A
Environment	Operating Temperature	0 ~ 40°C
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	0 ~ 60°C
	Storage Humidity	10 ~ 90%, non-condensing
	Vibration	Operating: 0.25 Grms, 5-300Hz, 3axes
	Shock	Operating: 3 G, half sine 11 ms duration
Physical Characteristics	Dimensions (WxDxH)	80 x 80 x 39.5 mm
	Weight	0.22 kg
	Mounting	VESA mount
Certification	EMC	FCC Class B, CE, RCM, BSMI, VCCI, UKCA, IC
	Safety	BSMI
Software Platform	OS Support	Windows 11 IoT Enterprise 24H2 LTSC

* SD Slot

Features

- Intel® Alder Lake-N N100 Processor & Twin Lake-N N150 Processor
- LPDDR5 4800 MHz up to 4GB
- Dual independent displays: 2 HDMI (1 HDMI 2.0 output support CEC Power On/Off)
- 1 GbE LAN with RJ-45
- eMMC 128G storage
- 2 USB 10Gbps Type-A, 1 USB 2.0
- fTPM 2.0
- Palm-Sized 80 x 80 x 39.5 mm for easy handling and easily concealed behind your monitor
- SD Slot for external storage (Max. 2TB)
- WiFi 6E & BT 5.2 inside

Ordering Information

Part Number	Description
9S6-C91812-001	MS-C918, Black, FAN, Intel Alder Lake-N N100, HDMI*2, USB3.2*2, USB2.0*1, WIFI 6E, 1Gb LAN, SD slot, DC-IN 12V,MS-C918-ADL-N1,BAN, 8in1 w/Pallet, ROHS SINGLE, W/O MSI LOGO,
9S6-C91812-003	MS-C918, Black, FAN, Intel Alder Lake-N N100, HDMI*2, USB3.2*2, USB2.0*1, WIFI 6E, 1Gb LAN, SD slot, DC-IN 12V, MS-C918-ADL-N1,BAN, 2in1 W/O Pallet, ROHS SINGLE, W/O MSI LOGO
9S6-C91812-011	MS-C918, Black, FAN, Intel Alder Lake-N N100, HDMI*2, USB3.2*2, USB2.0*1, WIFI 6E, 1Gb LAN, SD slot, DC-IN 12V, MS-C918-ADL-N1,BAN, 2in1 W/O Pallet, ROHS SINGLE, W/O MSI LOGO, MSI TY
9S6-C91812-013	MS-C918, Black, FAN, Intel Twin Lake-N N150, HDMI*2, USB3.2*2, USB2.0*1, WIFI 6E, 1Gb LAN, SD slot, DC-IN 12V, MS-C918-TWL1,BAN, 2in1 W/O Pallet, ROHS SINGLE, W/O MSI LOGO
9S6-C91812-014	MS-C918, Black, FAN, Intel Twin Lake-N N150, HDMI*2, USB3.2*2, USB2.0*1, WIFI 6E, 1Gb LAN, SD slot, DC-IN 12V, MS-C918-TWL1,BAN, 8in1 W/O Pallet, ROHS SINGLE, W/O MSI LOGO

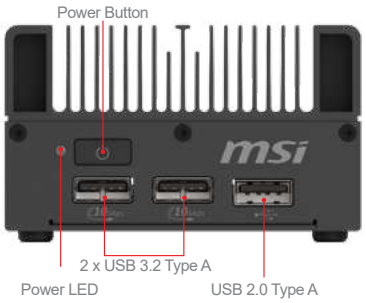
Packing List

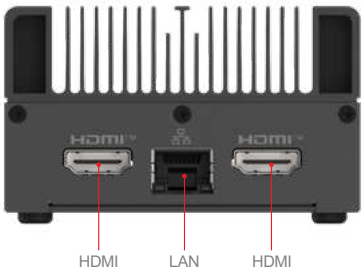
Part Number	Description	Quantity
E43-1303022-P65	MS-C918 VESA (WALL) SCREW	2
S93-0405900-AA0	24W/2A ADAPTOR	1
E22-C918010-D79	VESA MOUNT	1

MS-C918S

Palm-Size Box PC with Intel® Alder Lake-N N100 & Twin Lake-N N150 Processor for Ultra Low-Power Fanless Solution

NEW





Features

- Intel® Alder Lake-N N100 Processor & Twin Lake-N N150 Processor
- LPDDR5 4800 MHz up to 4GB
- Dual independent displays: 2 HDMI (1 HDMI 2.0 output support CEC Power On/Off)
- 1 GbE LAN with RJ-45
- eMMC 128G storage
- 2 USB 10Gbps Type-A, 1 USB 2.0
- fTPM 2.0
- Palm-Sized 80 x 78 x 48 mm for easy handling and easily concealed behind your monitor
- SD Slot for external storage (Max. 2TB)
- WiFi 6E & BT 5.2 inside

Specifications

System Processor	CPU	Intel® Mobile Alder Lake-N N100 Processor, 6W Intel® Mobile Twin Lake-N N150 Processor, 6W
	Frequency	0.8 GHz~3.4 GHz
	L2 Cache	6MB
	CPU Type	BGA
	Chipset	Integrated in SoC Process
	BIOS	AMI
Memory	Technology	Single-channel LPDDR5 4800 MHz
	Max. Capacity	Up to 4 GB
Graphic	Controller	Intel® UHD Graphics
	Graphic Memory	Depends on CPU
	Multiple Display	2 independent displays
	Display Interface	HDMI 2.0b up to 4096 x 2160 @60Hz
Ethernet	Controller	1 x Realtek® RTL8111H-CG
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	N/A
I/O Interface	RJ-45	1
	Audio	N/A
	USB	1 x USB 2.0 2 x USB 10Gbps
	Serial	N/A
	GPIO	N/A
	HDMI	2
	DisplayPort	N/A
	Antenna	2 internal reserved for antennas
Power Supply	DC Input	DC-in 12V
	AC Input	N/A
Environment	Operating Temperature	0 ~ 55°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	0 ~ 60°C
	Storage Humidity	10 ~ 90%, non-condensing
	Vibration	Operating: 0.25 Grms, 5-300Hz, 3axes
	Shock	Operating: 3 G, half sine 11 ms duration
Physical Characteristics	Dimensions (WxDxH)	80 x 78 x 48 mm
	Weight	0.35 kg
	Mounting	VESA mount
Certification	EMC	FCC Class B, CE, RCM, BSMI, VCCI, UKCA, IC
	Safety	BSMI
Software Platform	OS Support	Windows 11 IoT Enterprise 24H2 LTSC

* SD Slot

Ordering Information

Part Number	Description
9S6-C91822-005	MS-C918S, Black, FANLess, Intel Alder Lake-N N100, HDMI*2, USB3.2*2, USB2.0*1, WIFI 6E, 1Gb LAN, SD slot, DC-IN 12V,MS-C918S-ADL-N1,BAN, 8in1 W/ Pallet, ROHS SINGLE, W/O MSI LOGO
9S6-C91822-007	MS-C918S, Black, FANLess, Intel Alder Lake-N N100, HDMI*2, USB3.2*2, USB2.0*1, WIFI 6E, 1Gb LAN, SD slot, DC-IN 12V, MS-C918S-ADL-N1,BAN, 2in1 W/O Pallet, ROHS SINGLE, W/O MSI LOGO
9S6-C91822-012	MS-C918S, Black, FANLess, Intel Alder Lake-N N100, HDMI*2, USB3.2*2, USB2.0*1, WIFI 6E, 1Gb LAN, SD slot, DC-IN 12V, MS-C918S-ADL-N1,BAN, 2in1 W/O Pallet, ROHS SINGLE, W/O MSI LOGO, MSI TY
9S6-C91822-016	MS-C918S, Black, FANLess, Intel Twin Lake-N N150, HDMI*2, USB3.2*2, USB2.0*1, WIFI 6E, 1Gb LAN, SD slot, DC-IN 12V, MS-C918S-TWL3,BAN, 2in1 W/O Pallet, ROHS SINGLE, W/O MSI LOGO
9S6-C91822-017	MS-C918S, Black, FANLESS, Intel TwinLake-N150, HDMI*2, USB3.2*2, USB2.0*1, WIFI 6E, 1Gb LAN, SD slot, DC-IN 12V,MS-C918-TWL3, MSIS MVT, 8in1 W/O Pallet, W/O MSI LOGO, RoHS

Packing List

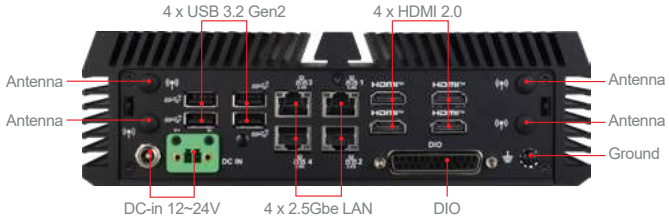
Part Number	Description	Quantity
E49-1302501-P65	MS-C918S VESA (WALL) SCREW	2
S93-0405900-AA0	24W/2A ADAPTOR	1
E22-C918010-D79	VESA MOUNT	1

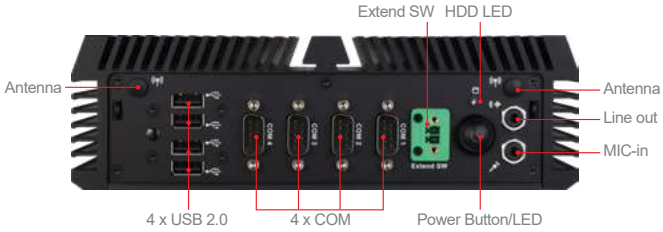
MSI reserves the right to change the specifications without prior notices.

MS-C906

Compact-Size Box PC with Intel® Raptor Lake-P U Series Processor for Ultra Low-Power Fanless Solution

NEW





Features

- Intel® 13th Gen Raptor Lake-P Embedded/Industrial SKU Series
- 1 DDR5 5200 MHz SODIMM Slots up to 32GB
- Quadruple independent displays: 4 HDMI
- 4 2.5GbE LAN with RJ-45
- 1 M.2 B key (with NANO SIM-holder) support 5G/LTE, 1 M.2 E key
- 1 M.2 M key, 1 SATA 3.0 for storage (2.5" SSD for Embedded SKUs)
- 4 USB 3.2 Gen 2, 4 USB 2.0, 4 COM, Audio
- Onboard TPM 2.0
- 6 opening resrved for antennas
- Anti-Vibration & Shockproof Design to Compliance IEC 61373
- Wide Voltage DC-IN 12~24V (OCP & OVP)
- Ultra-Compact with fanless design
- Support EDID Lock Display Function

Ordering Information

Part Number	Description
936-C906-015	MS-C906\706-C906-110\826-C906-010 VER 11, Barebone, Fanless, Intel Raptor Lake-P i3-1315UE, 19V/90W ADAPTER, 1*SATA CABLE, 1*WALL MOUNT, 1*DIN-RAIL, 2*TERMINAL BLOCK, BLACK w/o LOGO msi, SINGLE 6-PACK
936-C906-016	MS-C906\706-C906-120\826-C906-011 VER 11, Barebone, Fanless, Intel Raptor Lake-P i5-1345UE, 19V/90W ADAPTER, 1*SATA CABLE, 1*WALL MOUNT, 1*DIN-RAIL, 2*TERMINAL BLOCK, BLACK w/o LOGO msi, SINGLE 6-PACK
936-C906-023	MS-C906\706-C906-160\826-C906-021 VER 11, Barebone, Fanless, Intel Raptor Lake-P i5-1335UE, 19V/90W ADAPTER, 1*SATA CABLE, 1*WALL MOUNT, 1*DIN-RAIL, 2*TERMINAL BLOCK, BLACK w/o LOGO msi, SINGLE 6-PACK For Channel
936-C906-017	MS-C906\706-C906-130\826-C906-014 VER 11, Barebone, Fanless, Intel Raptor Lake-P i3-1315URE, 1*SATA CABLE, 1*WALL MOUNT, 1*DIN-RAIL, 2*TERMINAL BLOCK, BLACK w/o LOGO msi, SINGLE 6-PACK
936-C906-018	MS-C906\706-C906-140\826-C906-015 VER 11, Barebone, Fanless, Intel Raptor Lake-P i5-1345URE, 1*SATA CABLE, 1*WALL MOUNT, 1*DIN-RAIL, 2*TERMINAL BLOCK, BLACK w/o LOGO msi, SINGLE 6-PACK

Optional Item

Part Number	Description
E22-9A95080-C22	VESA Mounting
S93-0403630-S14	Adaptor 19V/120W for Industrial SKUs

Specifications

		Embedded SKUs	Industrial SKUs
System Processor	CPU	Intel® Mobile 13th Gen Raptor Lake-P U Series Processors, Core™ i3-1315UE/i5-1335UE/i5-1345UE	Intel® Mobile 13th Gen Raptor Lake-P U Series Processors, Core™ i5-1345URE / i3-1315URE
	Frequency	3.30 GHz~4.6 GHz (Depends on CPU)	
	L2 Cache	6M~12M (Depends on CPU)	
	CPU Type	BGA	
	Chipset	Integrated in SoC Process	
	BIOS	AMI	
Memory	Technology	Single-channel DDR5 5200 MHz	
	Max. Capacity	Up to 32 GB	
	Socket	1 x 262-pin SO-DIMMs	
Graphic	Controller	Intel® UHD Graphics	
	Graphic Memory	Depends on CPU	
	Multiple Display	4 independent displays	
	Display Interface	HDMI 2.0 up to 4096 x 2340 @60Hz	
Ethernet	Controller	4 x Intel® I226-LM GbE LAN	4 x Intel® I226-IT 2.5 GbE LAN
Audio	Controller	Realtek® ALC897 HD Audio Codec (Co-lay ALC888S)	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	
TPM	Controller	Infineon SLB9672VU2.0	Infineon SLB9672XU2.0
Expansion Slot	M.2	1 x M.2 M key (PCIe Gen4 x4 NVMe), 2280 1 x M.2 B key (PCIe x1, USB 2.0, w/NANO SIM-Holder), 2242/3042 1 x M.2 E key (PCIe x1, USB 2.0, w/CNVi), 2230	
Storage	SATA	1 x 2.5" SSD Bay	N/A
I/O Interface	RJ-45	4	
	Audio	1 x Mic-in 1 x Line-out	
	USB	4 x USB 2.0 4 x USB 3.2 Gen 2	
	Serial	4 x COM ports COM1~4: RS-232/422/485, 0V/5V/12V	
	GPIO	16-bit (Default 8 x GPI, 8 x GPO), 5V	
	HDMI	4	
	Antenna	6 openings reserved for antennas	
Power Supply	DC Input	DC-in 12V~24V Wide-Range (OCP & OVP) Phoenix pluggable connectors with latch (V+, V-)	
Environment	Operating Temperature	0 ~ 50°C (w/ 2.5" SATA SSD(Ta: 85°C)) 0 ~ 45°C (w/ M.2 NVMe SSD(Ta: 85°C)) Note: Thermal w/ Airflow:0.7m/s	-20 ~ 70°C (w/ WT M.2 NVMe SSD(Ta: 85°C), w/ WT MEM(Ta: 95°C)) Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	
	Storage Humidity	10 ~ 90%, non-condensing	
	Vibration	Operating, IEC 60068-2-64: 2 Grms, random, 5 ~ 500Hz, 1hr/axis (w/ SSD) IEC61373 Category 1, Class B	
	Shock	Operating, IEC 60068-2-27: 50G, half sine, 11ms (w/ SSD) IEC61373 Category 1, Class B	
Physical haracteristics	Dimensions (WxDxH)	215 x 155 x 65 mm	
	Weight	2.25 kg	
	Mounting	Wall mount (STD)/DIN-rail mount(STD)/ VESA mount(by BOM option)	
Certification	EMC	FCC Class B, CE, RCM, BSMI, VCCI, UKCA, IC	
	Safety	BSMI	
Software Platform	OS Support	Windows 10 IoT Enterprise 21H2 LTSC (64-bit) Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request)	

Packing List

Part Number	Description	Quantity
S93-0406700-S14	Adaptor 19V/90W for Embedded SKUs	1
K1D-3011007-V03	SATA Cable with Power, 300mm for Embedded SKUs	1
E49-1303007-P65	Screw for 2.5" SSD for Embedded SKUs	4
E26-C906010-Z36	Memory Thermal PAD for Embedded SKUs	1
E27-C906020-Z36	Memory Thermal PAD for Industrial SKUs	1
E27-C906010-Z36	M.2 SSD Thermal PAD for Industrial SKUs	1
E22-9A59010-LA2	Wall Mounting Bracket	2
E49-1065009-P65	Screw for Wall Mounting	4
E25-9B01030-K23	Rubber for Wall Mounting	4
E24-9B02010-P09	DIN Rail	2
E41-1356002-P65	Screw for DIN Rail	4
NA1-1020141-SR2	Phoenix Terminal Plugged	2

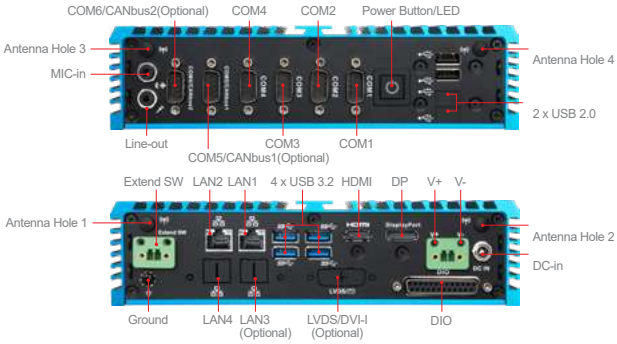
MS-9A89

Compact-Size Box PC with Intel® Kaby Laby-U/Skylake-U or Apollo Lake-I Series Processor for Ultra Low-Power Fanless Solution

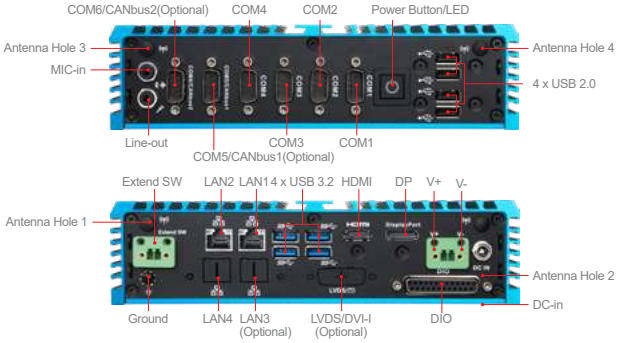
TAIWAN EXCELLENCE 2018

EN50155

A1/A2/A3



U1/U2/U3/U4



Features

- Intel® Apollo Lake/Apollo Lake-I Series SoC
- DDR3L 1866/1600 MHz SODIMM Slot up to 8GB
- Triple independent displays: DP++, HDMI, LVDS/DVI-I (by option)
- 2 GbE LAN with RJ-45, 2 GbE LAN by Mini-PCIe expansion card with RJ-45 (by option)
- Mini-PCIe (Full size, with mSATA), Mini-PCIe (Full size, with Nano SIM Holder) Slots
- SATA 3.0 storage (2.5" SSD/HDD) , micro SD for storage
- 4 USB 3.2 Gen 1, 2 USB 2.0, 6 COM (1 RS-485), GPIO, Audio
- 4 opening reserved for antennas
- Anti-Vibration & Shockproof Design to Compliance IEC 61373
- Railway design to Compliance EN50155 TX Class
- Wide operating temperature: -20~70°C
- Wide Voltage DC-IN 12~24V
- Ultra-Compact with fanless design

- Intel® 7th/6th Gen Kaby Lake-U/Skylake-U Series
- DDR4 2133 MHz SODIMM Slot up to 16GB
- Triple independent displays: DP++, HDMI, LVDS/DVI-I (by option)
- 2 GbE LAN with RJ-45, 2 GbE LAN by Mini-PCIe expansion card with RJ-45 (by option)
- Mini-PCIe (Full size, with mSATA), Mini-PCIe (Full size, with Nano SIM Holder) Slots
- 2 SATA 3.0 storage (2.5" SSD/HDD) , micro SD for storage SATA RAID 0/1
- 4 USB 3.2 Gen 1, 4 USB 2.0, 6 COM (1 RS-485), GPIO, Audio
- 4 opening reserved for antennas
- Anti-Vibration & Shockproof Design to Compliance IEC 61373
- Railway design to Compliance EN50155 TX Class
- Wide Voltage DC-IN 12~24V
- Ultra-Compact with fanless design

Specifications

		MS -9A89-A1	MS -9A89-A2	MS -9A89-A3	MS -9A89-U1	MS -9A89-U2	MS -9A89-U3	MS -9A89-U4
Processor	CPU	Intel® Atom™ x7 Processor E3950, QC, 12W	Intel® Atom™ x5 Processor E3940, QC, 9.5W	Intel® Celeron® Processor J3455, QC, 10W	Intel® Kaby Lake-U Core™ i3-7100U Processor, DC, 15W	Intel® Skylake-U Core™ i5-6300U Processor, DC, 15W	Intel® Skylake-U Core™ i3-6100U Processor, DC, 15W	Intel® Skylake-U Core™ i7-6600U Processor, DC, 15W
	Frequency	1.6 GHz up to 2.0 GHz	1.6 GHz up to 1.8 GHz	1.5 GHz, up to 2.3 GHz	2.4 GHz			2.6 GHz
	L2 Cache	2MB			3MB			
	CPU Type	BGA						
	Chipset	Integrated in SoC Process			Integrated in Process			
	BIOS	AMI						
Memory	Technology	Single-channel DDR3L 1866/1600 MHz			Single-channel DDR4 2133 MHz			
	Max. Capacity	Up to 8GB			Up to 16GB			
	Socket	1 x 204-pin SO-DIMMs			1 x 260-pin SO-DIMMs			
Display	Controller	Intel® HD Graphics						
	Graphic Memory	Depends on CPU						
	Multiple Display	3 independent displays						
	Display Interface	HDMI up to 3840 x 2160 @30Hz DP up to 4096 × 2160 @60Hz LVDS up to 1920 x 1200 @60Hz (optional by cable) DVI-I up to 1920 x 1200 @60Hz (optional by MS-99C0)			HDMI1.4 up to 4096 x 2160 @24Hz DP up to 3840 x 2160 @60Hz (Support DP++) LVDS up to 1920 x 1200 @60Hz (optional by cable) DVI-I up to 1920 x 1200 @60Hz (optional by MS-99C0)			
Ethernet	Controller	2 x Intel® I210-IT GbE LAN	2 x Intel® I210-AT GbE LAN		1 x Intel® I210-AT GbE LAN 1 x Intel® I219-LM GbE LAN PHY			
Audio	Controller	Realtek® ALC887-VD2-CG HD Audio Codec						
H/W Monitor	Watchdog Timer	256-level Watchdog Timer						
TPM	Controller	N/A						
Expansion Slot	Mini-PCIe	2 x Full-size (Mini-PCIe1 Slot w/ NANO SIM-Holder) (Mini-PCIe2 Slot w/ mSATA)						
Storage	SATA	1 x 2.5" HDD/SSD Bay						
	mSATA	1 x Full-size						
I/O Interface	RJ-45	4 (LAN1/2 Standard, LAN3/4 by Option)						
	PoE	2 x 802.11af (Option by Request)						
	Audio	1 x Line-out 1 x Mic-in						
	USB	4 x USB 2.0 2 x USB 3.2 Gen 1			4 x USB 2.0 4 x USB 3.2 Gen 1			
	Serial	6 x COM ports COM1: RS-232/422/485, 0V/5V/12V COM2~6: RS-232, 0V/5V/12V						
	GPIO	16-bit (8*GPI; 8*GPO), 5V						
	CANbus	2 x CAN 2.0B (Option)						
	HDMI	1						
	LVDS	1 (optional)						
	DVI	1 (DVI-I by option)						
	DisplayPort	1						
	Antenna	4 openings reserved for antennas						
Power Supply	DC Input	DC-in 12V~24V						
Environment	Operating Temperature	-10~45°C (HDD) -20~70°C (w/ WT devices) Note: Thermal w/ Airflow:0.7m/s	-10~45°C (HDD) -10~60°C (w/ WT devices) Note: Thermal w/ Airflow:0.7m/s		-10~45°C (HDD) -10~60°C (w/ WT devices) Note: Thermal w/ Airflow:0.7m/s			
	Operating Humidity	10 ~ 90%, non-condensing						
	Storage Temperature	-20 ~ 80°C						
	Storage Humidity	10 ~ 90%, non-condensing						
	Vibration	IEC61373 Category 1, Class B						
	Shock	IEC61373 Category 1, Class B						
Form Factor	Dimensions (Wx DxH)	215 x 155 x 55 mm						
	Weight	1.55 kg						
	Mounting	Wall mount (STD)/DIN-rail mount(STD)/VESA mount(by BOM option)						
Certification	EMC	CE, FCC, VCCI, RCM, BSMI, EN50155						
	Safety	BSMI						
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)						

Ordering Information

Part Number	Description
Please check MSI IPC website at http://ipc.msi.com for details.	

Packing List

Part Number	Description
Please check MSI IPC website at http://ipc.msi.com for details.	

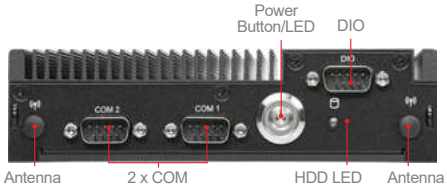
Optional Item

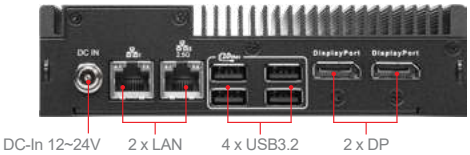
Part Number	Description
Please check MSI IPC website at http://ipc.msi.com for details.	

MSI reserves the right to change the specifications without prior notices.

MS-C927

Compact-Size Box PC with Intel® Meteor Lake-U/Arrow Lake-U Series Processor for Ultra Low-Power Fanless Solution





Features

- Intel® Meteor Lake-U/Arrow Lake-U Series
- 2 DDR5 5600 MHz SODIMM/6400 MHz CSODIMM Slots up to 96GB
- Dual independent displays: 2 DP
- 1 2.5GbE and 1 GbE LAN with RJ-45
- 1 M.2 B key, M.2 E key Slot
- 1 M.2 M key for storage
- 4 USB 10 Gbps, 2 COM
- Onboard TPM 2.0
- 2 opening reserved for antennas
- Anti-Vibration & Shockproof Design to Compliance IEC 61373
- Wide operating temperature: -10~60°C
- Wide Voltage DC-IN 12~24V (OCP & OVP)
- Ultra-Compact with fanless design

Ordering Information

Part Number	Description
Coming Soon	

Packing List

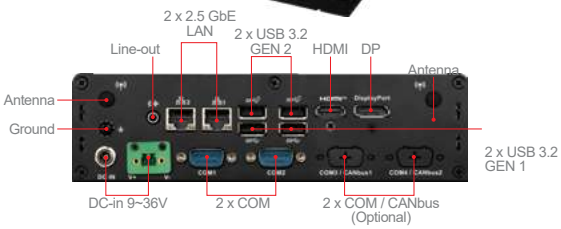
Part Number	Description
Coming Soon	

Specifications

Processor	CPU	Intel® Core™ Ultra Processor (Series 1) Meteor Lake-U Series Processors, Core™ Ultra 7 165U/155U, Core™ Ultra 5 135U/125U Intel® Core™ Ultra Processor (Series 2) Arrow Lake-U Series Processors, Core™ Ultra 7 265U/255U, Core™ Ultra 5 235U/225U
	Frequency	P-Core: 4.3GHz~5.3GHz (Depends on CPU) E-Core: 3.6GHz~4.2GHz (Depends on CPU)
	L2 Cache	12MB
	CPU Type	BGA
	Chipset	Integrated in SoC Process
	BIOS	AMI
Memory	Technology	Dual-channel DDR5 5600~6400MHz (Depends on CPU)
	Max. Capacity	Up to 96GB
	Socket	2 x 262-pin SO-DIMM
Display	Controller	Intel® Graphics
	Graphic Memory	Depends on CPU
	Multiple Display	2 independent displays
	Display Interface	DP up to 4096 x 2304 @60Hz
Ethernet	Controller	1 x Intel® I219-LM GbE LAN 1 x Intel® I226-V GbE LAN
Audio	Controller	Realtek® ALC897 HD Audio Codec
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	N/A
TPM	Controller	Infineon SLB9672VU2.0
Expansion Slot	PCIe x16	N/A
	PCIe x8	N/A
	PCIe x4	N/A
	PCIe x1	N/A
	PCI	N/A
	M.2	1 x M.2 M key (PCIe Gen4 x4 NVMe), 2280 1 x M.2 B key (PCIe x1, USB 2.0), 2242/3042 1 x M.2 E key (PCIe x1, USB 2.0, w/CNVi), 2230
	Mini-PCIe	N/A
Storage	SATA	N/A
	mSATA	N/A
	CFast	N/A
	CompactFlash	N/A
I/O Interface	RJ-45	2
	PoE	N/A
	Audio	N/A
	USB	4 x USB 10 Gbps
	Serial	2 x COM ports COM1~2: RS-232/422/485, 0V/5V/12V
	PS/2	N/A
	GPIO	8-bit (Default 4 x GPI, 4 x GPO), 5V
	CANbus	N/A
	HDMI	N/A
	LVDS	N/A
	DVI	N/A
	DisplayPort	2
	Antenna	2 openings reserved for antennas
Power Supply	DC Input	DC-in 12~24V (OCP & OVP)
Environment	IP Rating	N/A
	Operating Temperature	-10~60 °C (w/SSD) Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
	Vibration	IEC61373 Category 1, Class B
	Shock	IEC61373 Category 1, Class B
Form Factor	Dimensions (Wx DxH)	130 x 155 x 40 mm
	Weight	1.1 kg
	Mounting	Wall mount (STD)/DIN-rail mount (STD)
Certification	EMC	CE, FCC, RCM, VCCI, BSMI, UKCA, IC
	Safety	IEC 62368: CE(LVD) / BSMI
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC (64-bit, 21H2) Windows 11 IoT Enterprise LTSC (64-bit, 24H2) Linux (Support by request)

MS-C907

Compact-Size Box PC with Intel® IOTG Alder Lake-N Processor for Ultra Low-Power Fanless Solution



Features

- Intel® Alder Lake-N PC Client Series SoC
- DDR5 4800 MHz SODIMM Slot up to 16GB
- Dual independent displays: DP, HDMI
- 2 2.5 GbE LAN with RJ-45
- 1 M.2 B Key, 1 M.2 E Key Slot
- SATA 3.0 for storage (2.5" SSD/HDD)
- 2 USB 3.2 Gen 2, 2 USB 3.2 Gen 1, 6 USB 2.0, 2 COM (1 RS-485), GPIO, Audio
- 2 COM or 2 CANbus (Option by M.2 Module)
- 4 opening resrved for antennas
- Anti-Vibration & Shockproof Design to Compliance IEC 61373
- Wide Voltage DC-IN 9~36V
- Ultra-Compact with fanless design

Ordering Information

Part Number	Description
936-C907-006	MS-C907\706-C907-010\826-C907-013 10 STD, Intel Alder Lake-N N97, HDMI, DP, COM*2, USB3.2*4, USB2.0*6, DUAL INTEL 2.5GbE LAN, DIO, MIC-In, Line-out, ROHS, SINGLE, W/O MSI LOGO
936-C907-007	MS-C907\706-C907-020\826-C907-014 10 OPT:A, Intel Alder Lake-N Core i3-N305, HDMI, DP, COM*2, USB3.2*4, USB2.0*6, DUAL INTEL 2.5GbE LAN, DIO, MIC-In, Line-out, ROHS, SINGLE, W/O MSI LOGO
936-C907-008	"MS-C907\706-C907-010\826-C907-015, 10 STD, Intel Alder Lake-N N97, HDMI, DP, COM*2, USB3.2*4, USB2.0*6, DUAL INTEL 2.5GbE LAN, DIO, MIC-In, Line-out, ROHS, SINGLE, W/ USA POWER CORD, W/O MSI LOGO,
936-C907-009	"MS-C907\706-C907-020\826-C907-016, 10 OPT:A, Intel Alder Lake-N Core i3-N305, HDMI, DP, COM*2, USB3.2*4, USB2.0*6, DUAL INTEL 2.5GbE LAN, DIO, MIC-In, Line-out, ROHS, SINGLE, W/ USA POWER CORD, W/O MSI LOGO,

Packing List

Part Number	Description	Quantity
S93-0401780-S14	Adaptor (19V/65W)	1
K1D-1012115-V03	SATA Cable with Power, 230mm	1
NA1-1020141-SR2	Phoenix Terminal Plugged	2
E22-9A69040-815	Wall Mounting Bracket	2
E24-9B02010-P09	DIN Rail	2
E41-1356002-P65	Screw for DIN Rail	4
E31-0005930-K08	M.2 SSD Heat Spreader	1
E26-C907020-Z36	M.2 SSD Thermal Pad	1
E26-C907020-Z36	M.2 SSD Thermal Pad	1

NEW

Specifications

System Processor	CPU	Intel® IOTG Alder Lake-N Processor N97, QC, 12W	Intel® IOTG Alder Lake-N Core i3-N305, OC, 12W up to 15W
	Frequency	2 GHz, up to 3.6 GHz	1.8 GHz, up to 3.8 GHz
	L2 Cache	6MB	
	CPU Type	BGA	
	Chipset	Integrated in SoC Process	
	BIOS	AMI	
Memory	Technology	Single Channel DDR5 4800 MHz	
	Max. Capacity	Up to 16GB	
	Socket	1 x 262-pin SO-DIMM	
Display	Controller	Intel® UHD Graphics	
	Graphic Memory	Depends on CPU	
	Multiple Display	2 independent displays	
	Display Interface	HDMI up to 3840 x 2160 @30Hz DP up to 4096 × 2304 @60Hz	
Ethernet	Controller	2 x Intel® I226-V 2.5 GbE LAN	
Audio	Controller	Realtek® ALC897 HD Audio Codec	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	N/A	
TPM	Controller	Infineon SLB9672VU2.0	
Expansion Slot	M.2	1 x M.2 B key (SATA/PCIe x1), 2242/3042/2280 1 x M.2 E key (PCIe x1, USB 2.0), 2230	
Storage	SATA	1 x 2.5" HDD/SSD Bay	
	mSATA	N/A	
	CFast	N/A	
	CompactFlash	N/A	
I/O Interface	RJ-45	2	
	PoE	N/A	
	Audio	1 x Line-out 1 x Mic-in	
	USB	6 x USB 2.0 2 x USB 3.2 Gen 2 2 x USB 3.2 Gen 1	
	Serial	4 x COM ports COM1: RS-232/422/485, 0V/5V/12V COM2: RS-232 COM3~4: Option by M.2 Module	
	Parallel	N/A	
	PS/2	N/A	
	GPIO	8-bit (4*GPI; 4*GPO), 5V	
	CANbus	2 (Option by M.2 Module)	
	HDMI	1	
	LVDS	N/A	
	DVI	N/A	
	DisplayPort	1	
	VGA	N/A	
	Antenna	4 openings reserved for antennas	
Power Supply	DC Input	DC-in 9~36V with Lockable DC Jack Phoenix pluggable connectors with latch (V+, V-)	
	AC Input	N/A	
Environment	IP Rating	N/A	
	Operating Temperature	-10 ~ 40°C -10 ~ 55°C (w/ WT devices) Note: Thermal w/ Airflow:0.7m/s	
	Operating Humidity	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	
	Storage Humidity	10 ~ 90%, non-condensing	
	Vibration	IEC61373 Category 1, Class B	
	Shock	IEC61373 Category 1, Class B	
Form Factor	Dimensions (W x D x H)	200 x 150 x 55 mm	
	Weight	1.38 kg	
	Mounting	Wall mount (STD)/DIN-rail mount(STD)/VESA mount (by option)	
Certification	EMC	CE, FCC, RCM, VCCI, BSMI, UKCA, IC	
	Safety	BSMI	
Software Platform	OS Support	Windows 10 IoT Enterprise 2021 LTSC (64-bit, 21H2) Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request)	

Optional Item

Part Number	Description
E22-9A95080-C22	VESA Mounting

MSI reserves the right to change the specifications without prior notices.

MS-C936

Slim Fanless Box PC with Intel® Raptor Lake-P Refresh Platform U-Series, High Performance & Low-Power for 4K2K Digital Signage, KIOSK, Automation & AIoT Edge Computer

Features

- Intel® Raptor Lake-P Refresh U-series
- 2 DDR5 5200 MHz SODIMM slots up to 96GB
- Quadruple independent displays: 2 HDMI, 2 DP
- 2 2.5GbE LAN with RJ-45
- 1 M.2 B key (with NANO SIM-holder), 1 M.2 E key
- 1 M.2 M key, 1 SATA 3.0 (2.5" SSD, 7mm) for storage
- 4 USB 3.2 Gen 2, 6 USB 2.0, 2 COM, Line-out
- Onboard TPM 2.0
- Easy access all on bottom side for 2 Memory, 3 M.2, 2.5"SSD
- Cableless design with proprietary board
- DC-IN 12V/19V
- Slim & fanless design with thinness 29mm
- Anti-Vibration & Shockproof Design to Compliance IEC 60068-2

Ordering Information

Part Number	Description
Coming Soon	

Packing List

Part Number	Description
Coming Soon	

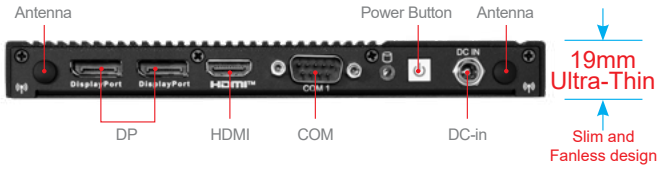
NEW

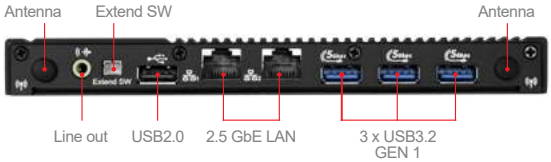
Specifications

Processor	CPU	Intel® Raptor Lake-P Refresh U Series Processor, Core™ 5 120U, 15W
	Frequency	1.4 GHz, up to 5.0 GHz
	L2 Cache	12MB
	CPU Type	BGA
	Chipset	Integrated
	BIOS	AMI
Memory	Technology	Dual-channel DDR5 5200 MHz
	Max. Capacity	Up to 96GB
	Socket	2 x 262-pin SO-DIMMs
Display	Controller	Intel® Graphics
	Graphic Memory	1.25 GHz
	DisplayPort	1
	Multiple Display	4 independent displays
	Display Interface	HDMI 2.0 up to 4096 x 2304 @60Hz DP up to to 7680 x 4320 @60Hz
Ethernet	Controller	2 x Intel® I226-LM 2.5 GbE LAN
Audio	Controller	Realtek® ALC897 HD Audio Codec (Co-lay ALC888S)
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	N/A
TPM	Controller	Infineon SLB9670VQ 2.0
	M.2	1 x M.2 M key (PCIe Gen4 x4 NVMe, SATA 3.0), 2242/2280 1 x M.2 B key (PCIe x1, USB 3.2, USB 2.0 w/NANO SIM-Holder), 2242/3042 1 x M.2 E key (PCIe x1, USB 2.0, w/ CNVi), 2230
	Mini-PCIe	N/A
Storage	SATA	1 x 2.5" SSD (7mm)
I/O Interface	RJ-45	2
	PoE	N/A
	Audio	1 x Line-out (Mic-in by AP driver)
	USB	2 x USB 3.2 Gen2, Type-A 2 x USB 3.2 Gen2, Type-C 6 x USB 2.0, Type-A
	Serial	2 x COM ports COM1~2: RS-232/422/485, 0V/5V/12V
	HDMI	2
	LVDS	N/A
	DVI	N/A
	DisplayPort	2 via USB-C
	VGA	N/A
	Antenna	4 openings reserved for antennas
Power Supply	DC	DC-in 12V/19V with Lockable DC Jack
	AC Input	N/A
Environment	IP Rating	Full IP40
	Operating Temperature	-10 ~ 50°C (SSD) Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
	Vibration	Operating: IEC 60068-2-64: 2 Grms, 5 ~ 500 Hz, 1hr/axis (w/ SSD)
	Shock	Operating: IEC 60068-2-27: 50G, half sine, 11ms (w/ SSD)
Physical Characteristics	Dimensions (W x D x H)	196 x 285 x 29 mm
	Weight	2.22 kg
	Mounting	VESA/Wall mount
Certification	EMC	FCC Class B, CE, RCM, BSMI, VCCI, UKCA, IC
	Safety	BSMI
Software Platform	OS Support	Windows 10 IoT Enterprise 21H2 LTSC (64-bit) Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request)

MS-C926

Ultra-Slim & Featherweight Fanless Box PC with Intel® Alder Lake-N/Twin Lake Platform, Low-Power for Digital Signage





Features

- Intel® Alder Lake-N/Twin Lake PC Client Series SoC
- DDR5 4800 MHz SODIMM Slot up to 16GB
- Triple independent displays: 2 DP, 1 HDMI 2.0
- 2 GbE LAN with RJ-45
- 1 M.2 B key (with NANO SIM-holder) support 5G/LTE, 1 M.2 E key
- 3 USB 3.2 Gen 1, 1 USB 2.0, 1 COM(RS485), Audio
- Onboard TPM 2.0
- Easy access HDD, Memory, SIM Card, M.2 slots
- DC-IN 12~24V
- Ultra-slim, cableless & low power fanless design with thinness 19mm
- Anti-Vibration & Shockproof Design to Compliance IEC 60068-2

Ordering Information

Part Number	Description
936-C92612-001	MS-C92612 VER 10 INTEL ALDER LAKE-N N97, W/O LOGO MSI, BLACK, WITH ADAPTER 19V/65W, WALL MOUNT, VESA MOUNT
936-C92612-002	MS-C92612 VER 10 OPT A INTEL TWIN LAKE N250, W/O LOGO MSI, BLACK, WITH ADAPTER 19V/65W, WALL MOUNT, VESA MOUNT
936-C92612-003	MS-C92612 VER 10 OPT B INTEL TWIN LAKE CORE 3-N355, W/O LOGO MSI, BLACK, WITH ADAPTER 19V/65W, WALL MOUNT, VESA MOUNT
936-C92612-004	MS-C92612 VER 10 OPT C INTEL TWIN LAKE N150, W/O LOGO MSI, BLACK, WITH ADAPTER 19V/65W, WALL MOUNT, VESA MOUNT

Packing List

Part Number	Description	Quantity
S93-0401780-S14	Adaptor 19V/65W	1
E22-9A69040-815	Wall Mount Bracket	2
E22-9A95080-C22	VESA Mount Bracket	1
K1L-3001190-V03	COAXIAL CABLE, 120mm	1
K1L-3001191-V03	COAXIAL CABLE, 140mm	1
K1L-3001192-V03	COAXIAL CABLE, 370mm	1
K1L-3001193-V03	COAXIAL CABLE, 220mm	1
K1L-3001194-V03	COAXIAL CABLE, 110mm	1
K1L-3001195-V03	COAXIAL CABLE, 260mm	1

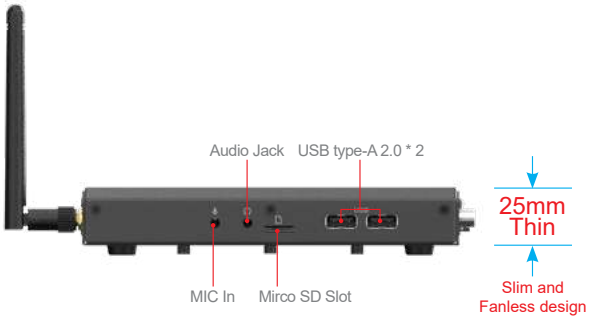
Specifications

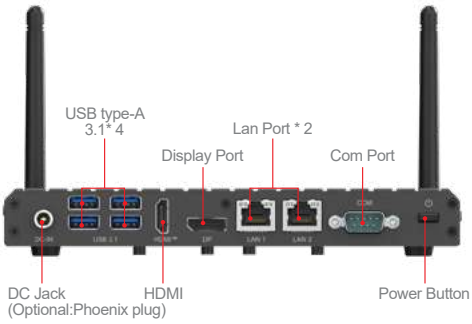
Processor	CPU	Intel® Alder Lake-N Processor N97, QC, 12W Intel® Twin Lake Processor N150, QC, 6W Intel® Twin Lake Processor N250, QC, 6W Intel® Twin Lake Core 3-N355, OC, 15W
	Frequency	1.0 GHz, up to 3.9 GHz (Depends on CPU)
	L2 Cache	6MB
	CPU Type	BGA
	Chipset	Integrated in SoC Process
	BIOS	AMI
Memory	Technology	Single-channel DDR5 4800 MHz
	Max. Capacity	Up to 16GB
	Socket	1 x 262-pin SO-DIMM
Display	Controller	Intel® UHD Graphics
	Graphic Memory	Depends on CPU
	Multiple Display	3 independent displays
	Display Interface	HDMI 2.0 up to 4096 x 2304 @60Hz DP up to 4096 × 2304 @60Hz
Ethernet	Controller	2 x Intel® I226-V 2.5 GbE LAN
Audio	Controller	Realtek® ALC897 HD Audio Codec
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	N/A
TPM	Controller	Infineon SLB9672VU2.0
Expansion Slot	PCIe x16	N/A
	PCIe x8	N/A
	PCIe x4	N/A
	PCIe x1	N/A
	PCI	N/A
	M.2	1 x M.2 B key (PCIe x1/SATA, USB 3.2 Gen 2 x 1, USB 2.0, w/NANO SIM-Holder), 2242/3042/2280 1 x M.2 E key (PCIe x1, USB 2.0), 2230
	Mini-PCIe	N/A
Storage	SATA	1 x 2.5" HDD/SSD
	mSATA	N/A
	CFast	N/A
	CompactFlash	N/A
I/O Interface	RJ-45	2
	PoE	N/A
	Audio	1 x Line-out
	USB	1 x USB 2.0 3 x USB 3.2 Gen 1
	Serial	1 x COM port COM1: RS-232/422/485, 0V/5V/12V
	PS/2	N/A
	GPIO	N/A
	CANbus	N/A
	HDMI	1
	LVDS	N/A
	DVI	N/A
	DisplayPort	2
	Antenna	4 openings reserved for antennas
Power Supply	DC Input	DC-in 12~24V Wide-Range with Lockable DC Jack
Environment	IP Rating	N/A
	Operating Temperature	-10 ~ 50°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
	Vibration	Operating, IEC 60068-2-64: 2 Grms, 5~ 500 Hz, 1hr/axis (w/ SSD)
	Shock	Operating, IEC 60068-2-27: 50G, half sine, 11ms (w/ SSD)
Form Factor	Dimensions (Wx DxH)	180 x 255 x 19 mm
	Weight	1.3 kg
	Mounting	VESA mount Wall mount (STD)
Certification	EMC	CE, FCC, RCM, VCCI, BSMI, UKCA, IC
	Safety	IEC 62368: CE(LVD) / BSMI
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC (64-bit, 21H2, Only for ADL-N) Windows 11 IoT Enterprise LTSC (64-bit, 24H2) Linux (Support by request)

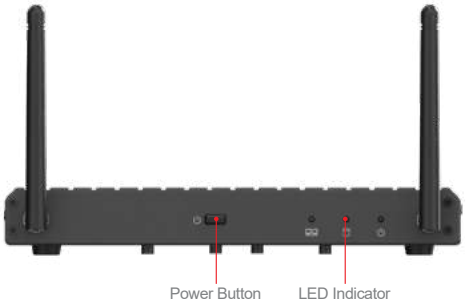
MSI reserves the right to change the specifications without prior notices.

MS-1P17

Ultra Slim Size Box PC with Intel® IOTG Alder Lake-N Processor for Ultra Low-Power Fanless Solution







Features

- Intel® Alder Lake-N PC Client Series SoC
- DDR5 4800 MHz SODIMM Slot up to 16GB
- Dual independent displays: DP, HDMI
- 2 2.5 GbE LAN with RJ-45
- 1 M.2 B Key, 1 M.2 E Key Slot
- 4 USB 3.1 , 2 USB 2.0, 2 COM (1 RS-485), Audio
- 2 opening reserved for antennas
- DC-IN 12~24V
- Ultra Slim with fanless design

NEW

Specifications

System Processor	CPU	Intel® IOTG Alder Lake-N Processor N97, QC, 12W	Intel® IOTG Alder Lake-N Atom® X7425E, QC, 12W	Intel® IOTG Alder Lake-N Core i3-N305, OC, to 15W
	Frequency	2 GHz, up to 3.6 GHz	3.4 GHz	1.8 GHz, up to 3.8 GHz
	L2 Cache	6MB		
	CPU Type	BGA		
	Chipset	Integrated in SoC Process		
	BIOS	AMI		
Memory	Technology	Single-Channel DDR5 4800 MHz		
	Max. Capacity	Up to 16 GB		
	Socket	1 x 262-pin SO-DIMM		
Graphics	Controller	Intel® UHD Graphics		
	Graphic Memory	Depends on CPU		
	Multiple Display	2 independent displays		
	Display Interface	HDMI up to 3840 x 2160 @30Hz DP up to 4096 × 2304 @60Hz		
Ethernet	Controller	2 x Intel® I226-V 2.5 GbE LAN		
Audio	Controller	Realtek® ALC256 HD Audio Codec		
H/W Monitor	Watchdog Timer	256-level Watchdog Timer		
	Smart Fan	N/A		
TPM	Controller	Infineon SLB9672VU2.0		
Expansion Slot	M.2	1 x M.2 B key (SATA/PCIe x1), 2242/3042/2280 1 x M.2 E key (PCIe x1, USB 2.0), 2230		
I/O Interface	RJ-45	2 x 2.5GbE LAN		
	PoE	N/A		
	Audio	1 x Line-out 1 x Mic-in		
	USB	4 x USB 3.1 2 x USB 2.0		
	Serial	1 x COM port COM1: RS-232/422/485, 0V/5V/12V		
	GPIO	N/A		
	HDMI	1		
	DisplayPort	1		
	Antenna	2 openings reserved for antennas		
Environment	Operating Temperature	0~40 °C		
	Operating Humidity	10 ~ 90%, non-condensing		
	Storage Temperature	-20 ~ 80°C		
	Storage Humidity	10 ~ 90%, non-condensing		
Power Supply	DC Input	DC-in 12~24V with Lockable DC Jack		
Physical Characteristics	Dimensions (W x D x H)	197 x 162.8 x 25 mm		
		Weight		
	Weight	0.91 kg		
	Mounting	Stand/VESA mount (by BOM option)		
Certification	EMC	CE, FCC, RCM, VCCI, BSMI		
	Safety	BSMI		
Software Platform	OS Support	Windows 10 IoT Enterprise 2021 LTSC (64-bit, 21H2) Windows 11 IoT Enterprise (64-bit, 22H2, Pre-scan) Linux (Support by request)		

* SD card reader X 1

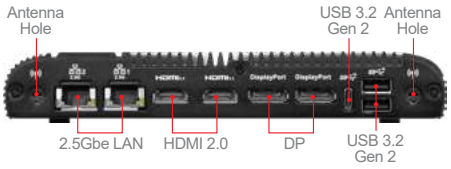
Accessories

Stand
Dimension: 199.8 x 64 x 28 mm
Material: ABS+PC

MS-C902

Slim Fanless Box PC with Intel® Alder Lake-P/Raptor Lake-P Platform U-Series, High Performance & Low-Power for 4K2K Digital Signage, KIOSK, Automation & AIoT Edge Computer

Left IO



29mm Thin

Slim and Fanless design

Right IO

Features

- Intel® 13th Gen Raptor Lake-P U-series
- Intel® 12th Gen Alder Lake-P U-series
- 2 DDR4 3200 MHz SODIMM slots up to 64GB
- Quadruple independent displays: 2 HDMI, 2 DP
- 2 2.5GbE LAN with RJ-45
- 1 M.2 B key (with NANO SIM-holder), 1 M.2 E key
- 1 M.2 M key, 1 SATA 3.0 (2.5" SSD, 7mm) for storage
- 3 USB 3.2 Gen 2, 2 USB 2.0, 2 COM, Line-out
- Onboard TPM 2.0
- Easy access all on bottom side for 2 Memory, 3 M.2, 2.5"SSD
- Cableless design with proprietary board
- DC-IN 19V
- Slim & fanless design with thinness 29mm

Ordering Information

Part Number	Description
936-C902-001	MS-C902 VER 1.0, WINDBOX, Barebone, Fanless, Intel Alder Lake i5-1235U, LOGO msi, BLACK, 2*ANTENNA, VESA MOUNT, POWER CORD USA
936-C902-002	MS-C902 VER 1.0 WINDBOX, Barebone, Fanless, Intel Alder Lake i5-1235U, LOGO msi, BLACK, 2*ANTENNA, VESA MOUNT, POWER CORD EU
936-C902-003	MS-C902 VER 1.0 WINDBOX, Barebone, Fanless, Intel Alder Lake i5-1245UE, LOGO msi, BLACK, 2*ANTENNA, VESA MOUNT, POWER CORD USA
936-C902-004	MS-C902 VER 1.0 WINDBOX, Barebone, Fanless, Intel Alder Lake i5-1245UE, LOGO msi, BLACK, 2*ANTENNA, VESA MOUNT, POWER CORD EU
936-C902-005	MS-C902 VER 1.0 WINDBOX, Barebone, Fanless, Intel Alder Lake i3-1215UE, LOGO msi, BLACK, 2*ANTENNA, VESA MOUNT, POWER CORD USA
936-C902-006	MS-C902 VER 1.0 WINDBOX, Barebone, Fanless, Intel Alder Lake i3-1215UE, LOGO msi, BLACK, 2*ANTENNA, VESA MOUNT, POWER CORD EU
936-C902-008	MS-C902 VER 1.0 WINDBOX, Barebone, Fanless, Intel Raptor Lake-P i5-1335UE, LOGO msi, BLACK, 2*ANTENNA, VESA MOUNT, POWER CORD USA
936-C902-009	MS-C902 VER 1.0 WINDBOX, Barebone, Fanless, Intel Raptor Lake-P i5-1335UE, LOGO msi, BLACK, 2*ANTENNA, VESA MOUNT, POWER CORD EU

Specifications

System Processor	CPU	Intel® 12th Gen Alder Lake-P U Series Processors, Core™ i5-1245UE/i5-1235U/ i3-1215UE, 15W Intel® 13th Gen Raptor Lake-P U Series Processors, Core™ i5-1335UE, 15W
	Frequency	1.3 GHz~4.5 GHz (Depends on CPU)
	L2 Cache	8MB~12MB (Depends on CPU)
	CPU Type	BGA
	Chipset	Integrated
	BIOS	AMI
Memory	Technology	Dual-channel DDR4 3200 MHz
	Max. Capacity	Up to 64GB
	Socket	2 x 260-pin SO-DIMMs
Graphic	Controller	Intel® Iris® Xe Graphics (For i5 SKUs) Intel® UHD Graphics (For i3/Celeron SKUs)
	Graphic Memory	Depends on CPU
	Multiple Display	4 independent displays
	Display Interface	HDMI 2.0 up to 4096 x 2304 @60Hz DP up to to 7680 x 4320 @60Hz
Ethernet	Controller	2 x Intel® I226-LM 2.5 GbE LAN
Audio	Controller	Realtek® ALC897 HD Audio Codec (Co-lay ALC888S)
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
TPM	Controller	Infineon SLB9670VQ 2.0
Expansion Slot	M.2	1 x M.2 M key (PCIe Gen4 x4 NVMe, SATA 3.0), 2242/2280 1 x M.2 B key (PCIe x1, USB 3.2, USB 2.0 w/NANO SIM-Holder), 2242/3042 1 x M.2 E key (PCIe x1, USB 2.0), 2230
Storage	SATA	1 x 2.5" SSD (7mm)
I/O Interface	RJ-45	2
	Audio	1 x Line-out (Mic-in by AP driver)
	USB	2 x USB 3.2 Gen2, Type-A 1 x USB 3.2 Gen2, Type-C 2 x USB 2.0, Type-A
	Serial	2 x COM ports COM1/2: RS-232/422/485, 0V/5V/12V
	HDMI	2
	DisplayPort	2
	Antenna	4 openings reserved for antennas
Power Supply	DC Input	DC-in 19V with Lockable DC Jack
Environment	IP Rating	Full IP40
	Operating Temperature	-10 ~ 50°C (SSD) Note: Thermal Test w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
	Vibration	Operating: IEC 60068-2-64: 2 Grms, 5 ~ 500 Hz, 1hr/axis (w/ SSD)
	Shock	Operating: IEC 60068-2-27: 50G, half sine, 11ms (w/ SSD)
Physical haracteristics	Dimensions (W x D x H)	196 x 285 x 29mm
	Weight	2.24 kg
	Mounting	VESA/Wall mount
Certification	EMC	FCC Class B, CE, RCM, BSMI, VCCI, UKCA, IC
	Safety	BSMI
Software Platform	OS Support	Windows 10 IoT Enterprise 21H2 LTSC (64-Bit) Windows 11 IoT Enterprise 24H2 LTSC (64-Bit) (Only Raptor Lake-P CPU has been verified) Linux (Support by request)

Packing List

Part Number	Description	Quantity
S93-0406700-S14	Adaptor 19V/90W	1
K33-3001020-I45 K33-3001021-I45	Power Cord, USA, 1800mm Power Cord, EU, 1800mm	1
E22-9A95080-C22	VESA Mounting Bracket	1
E41-1406003-P65	VESA Mounting Screw	4
E43-1304047-P65	2.5" HDD/SSD Screw	2
S79-0000360-V03	ANTENNA	2

MSI reserves the right to change the specifications without prior notices.

MS-9B05

Slim Fanless Box PC with Intel® Whiskey Lake ULT, 3 Display Outputs & Easy Maintenance for Digital Signage & Automation

TAIWAN EXCELLENCE 2019

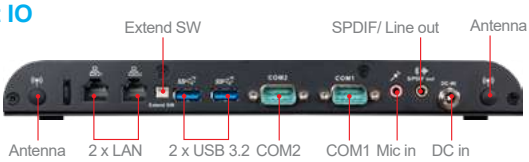
ANTI-VIBRATION tested according to IEC 61373 SHOCKPROOF

Left IO

SKU 1

SKU 2

Right IO



Features

- Intel® 8th Gen Whiskey Lake-U Series
- 2 DDR4 2400 MHz (by option) SODIMM slots up to 32GB
- Triple independent displays: HDMI(DVI-D by option), 2 HDMI(DP by option)
- HDMI 2.0
- 2 GbE LAN with RJ-45
- Expansion slots: 1 M.2 E Key, 1 M.2 M Key, 1 Mini-PCIe (Full/ Half size, with SIM Holder), 1 Mini-PCIe (Full/Half size, with mSATA) slots
- mSATA, M.2 M key, SATA 3.0 (2.5" SSD/HDD, 7mm) for storage
- 2 USB 3.2 Gen 2 (by option), 4 USB 2.0, 2 COM(2 RS485), Audio
- Onboard TPM 2.0 (by option)
- ESD: Contact 8KV/ Air 15KV
- Easy access:
  Only 2 screws to fix/remove bottom cover within 6 secs
- Quick Assembly all on bottom side: 2 x Memory, 2 x Mini-PCIe, 2 x M.2, 1 x 2.5" HDD/SSD, SIM Card Slot
- 4 openings reserved for WiFi/BT/LTE antennas
- Compliance IEC 61373
- Wide Voltage DC-IN 9~36V
- Ultra-Slim & fanless design with thinness 27mm

Ordering Information

Part Number	Description
Please check MSI IPC website at http://ipc.msi.com for details.	

Specifications

System Processor	CPU	8th Gen Intel® Mobile Whiskey Lake-U Core™ i5 Processor, QC, 15W
	Frequency	Depends on CPU
	L2 Cache	Depends on CPU
	CPU Type	BGA
	Chipset	Integrated
	BIOS	AMI
Memory	Technology	Dual-channel DDR4 2400 MHz
	Max. Capacity	Up to 32GB
	Socket	2 x 260-pin SO-DIMMs
Display	Controller	Intel® UHD Graphics 620
	Graphic Memory	Depends on CPU
	Multiple Display	3 independent displays
	Display Interface	HDMI 2.0 up to 4096 x 2160 @60Hz HDMI 1.4 up to 4096 x 2160 @24Hz
Ethernet	Controller	1 x Intel® I219LM GbE LAN PHY 1 x Intel® I210-AT GbE LAN
Audio	Controller	Realtek® ALC887-VD2-CG HD Audio Codec
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	N/A
TPM	Controller	Infineon SLB9665TT2.0 (by BOM option)
Expansion Slot	PCI	N/A
	M.2	1 x E key (2x PCIe x1, USB 2.0), 2230 1 x M key (PCIe x4), 2242
	Mini-PCIe	1 x Half/Full-size (w/ mSATA) 1 x Half/Full-size (w/ Nano-SIM holder)
Storage	SATA	1 x 2.5" HDD/SSD
	mSATA	1 x Full-size (shared with mini-PCIe)
	CFast	N/A
	CompactFlash	N/A
I/O Interface	RJ-45	2
	PoE	N/A
	Audio	1 x SPDIF-out/Line-out 1 x Mic-in/Line-in
	USB	4 x USB 2.0 2 x USB 3.2 Gen 2
	Serial	2 x COM ports COM1/2: RS-232/422/485, 0V/5V/12V
	Parallel	N/A
	PS/2	N/A
	GPIO	N/A
	CANbus	N/A
	HDMI	3
	LVDS	N/A
	DVI	N/A
	DisplayPort	N/A
	VGA	N/A
	Antenna	4 openings reserved for antennas
Power Supply	DC Input	DC-in 9~36V with Lockable DC Jack
	AC Input	N/A
Environment	IP Rating	Full IP40
	Operating Temperature	-10 ~ 40°C (HDD) -10 ~ 50°C (SSD) Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
	Vibration	IEC61373 Category 1, Class A Operating: IEC 60068-2-64: 2 Grms, 5 ~ 500 Hz, 1hr/axis (w/ SSD)
	Shock	IEC61373 Category 1, Class A Operating: IEC 60068-2-27: 50G, half sine, 11ms (w/ SSD)
Form Factor	Dimensions (W x D x H)	260 x 185 x 27 mm
	Weight	1.77 kg
	Weight	VESA/DIN Rail(STD), Wall mount (by BOM option)
Certification	EMC	FCC, CE, RCM, VCCI, BSMI Class A
	Safety	BSMI
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Windows 11 IoT Enterprise (64-bit, 22H2, Pre-scan) Linux (Support by request)

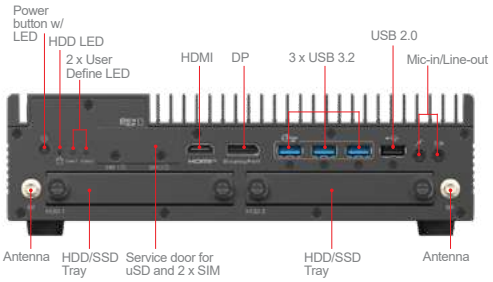
Packing List

Part Number	Description
Please check MSI IPC website at http://ipc.msi.com for details.	

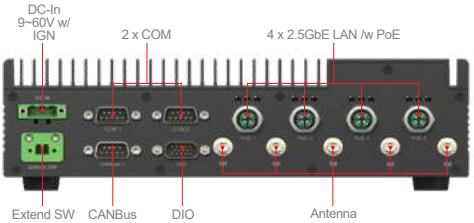
MS-C932

In-Vehicle Box PC with Intel® Amston Lake & Twin Lake Platform for Fanless Solution

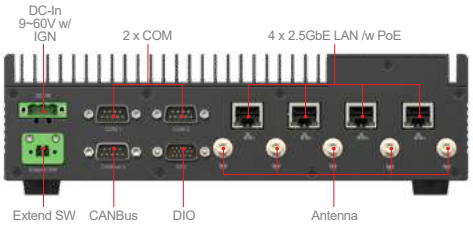
NEW



SKU 1 & 2



SKU 3 & 4



Features

- Intel® Amston/Twin Lake ATOM platform
- 1 DDR5 4800 MHz SODIMM slot up to 16GB
- Dual independent displays: 1 HDMI, 1 DP
- 4 2.5GbE w/ PoE function (up to PoE++) Intel® I226-IT (M12/RJ-45)
- 3 USB 3.2 Gen 1, 1 USB 2.0, 2 COM
- Onboard GNSS, G-sensor, Gyroscope, CANBus FD (backward compatible)
- Ignition power on/off control
- Isolated DIO (4-in/4-out)
- 2 removable SSD/HDD tray
- SD Card Support
- 1 M.2 B-key for 5G (USB3.0 only) w/ SIM
- 1 mini-PCIe for LTE w/ SIM
- Wide operating temperature: -20~70°C
- Wide Voltage DC-IN 9~60V

Ordering Information

Part Number	Description
Coming Soon	

Packing List

Part Number	Description
Coming Soon	

Specifications

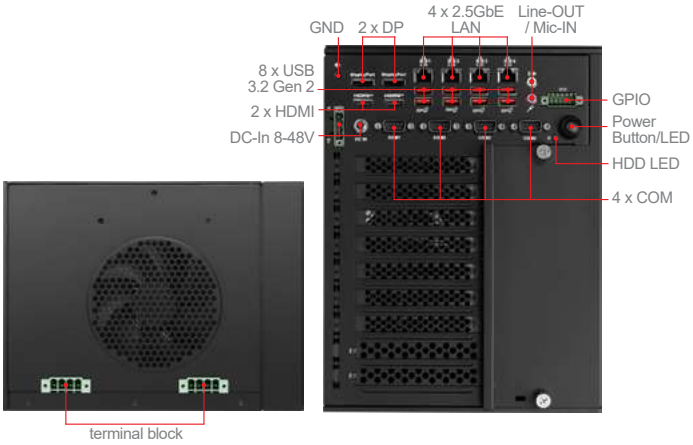
Processor	CPU	Intel® Amston Lake Processor X7433RE, QC, 9W Intel® Amston Lake Processor X7835RE, OC, 12W Intel® Alder Lake-N Processor N97, QC, 12W Intel® Twin Lake Core 3-N355, OC, 15W
	Frequency	1.0 GHz, up to 3.9 GHz (Depends on CPU)
	L2 Cache	6MB
	CPU Type	BGA
	Chipset	Integrated in SoC Process
	BIOS	AMI
Memory	Technology	Single-channel DDR5 4800 MHz
	Max. Capacity	Up to 16 GB
	Socket	1 x 262-pin SO-DIMM
Graphic	Controller	Intel® UHD Graphics
	Graphic Memory	Depends on CPU
	Multiple Display	2 independent displays
	Display Interface	HDMI 2.0 up to 4096 x 2304 @60Hz DP up to 4096 × 2304 @60Hz
Ethernet	Controller	4 x Intel® I226-IT 2.5 GbE LAN
Audio	Controller	Realtek® ALC897 HD Audio Codec
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	N/A
TPM	Controller	Infineon SLB9672VU2.0
Expansion Slot	M.2	1 x M.2 B key (USB 3.2 Gen 2 x 1, USB 2.0, w/NANO SIM-Holder), 2242/3052
	Mini-PCIe	1 x Mini-PCIe (PCIe x 1, USB 2.0, w/ NANO SIM-Holder)
Storage	SATA	2 x 2.5" HDD/SSD w/ Hot Swappable Tray
I/O Interface	RJ-45	4 x M12 or 4 x RJ-45
	PoE	Support IEEE 802.3BT PoE++ with total 100W Power Budget
	Audio	1 x Line-out
	USB	1 x USB 2.0 3 x USB 3.2 Gen 1
	Serial	2 x COM ports COM1: RS-232/422/485, 0V/5V/12V COM2: RS-232/422/485
	GPIO	8-bit (4 x GPI, 4 x GPO), 5V, Isolated
	CANbus	2 x CAN FD via one DB-9 Connector
	HDMI	1
	DisplayPort	1
	VGA	N/A
	Antenna	7 openings reserved for antennas
Power Supply	DC	DC-in 9~60V Wide-Range DC-in with 3-Pole Terminal Block combining w/ IGN
	AC Input	N/A
Environment	IP Rating	N/A
	Operating Temperature	20 ~ 70°C (TBC) Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
	Vibration	Operating, MIL-STD-810H, Method 514.8C Procedure 1, Category 4, w/ SSD
	Shock	Operating, MIL-STD-810H, Method 516.8, Procedure I, functional shock=40g w/ SSD
Physical Characteristics	Dimensions (W x D x H)	245 x 196 x 66.5 mm
	Weight	TBC
	Mounting	Wall mount (STD)
Certification	EMC	FCC Class B, CE, RCM, BSMI, VCCI, UKCA, E-Mark
	Safety	IEC 62368: CE(LVD) / BSMI
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC (64-bit, 21H2, Only for ADL-N) Windows 11 IoT Enterprise LTSC (64-bit, 24H2) Linux (Support by request)

MSI reserves the right to change the specifications without prior notices.

MS-C910E

High Performance Box PC with 12th/13th/14th Gen Intel® Core™ i Processor & Core Processors Series 2 for Rugged, Scalable & Versatile Solution

NEW



Features

- Intel® 12th/13th/14th Gen Alder Lake-S/Raptor Lake-S/Raptor Lake-S Refresh/Bartlett Lake-S Series with R680E
- 2 DDR5 5600 MHz ECC/non-ECC SODIMM slots up to 96GB
- Quadruple independent displays: 2 HDMI, 2 DP
- 4 2.5 GbE LAN with RJ-45
- 1 PCIe x16 (Gen 5), 1 PCIe x8, 1 PCIe x1
- 1200W dual graphic card supported by DC-in 12~48V
- 2 SATA 3.0 (2.5" SSD/HDD, 7mm) for storage
- SATA RAID 0/1
- 8 USB 10 Gbps, 2 USB 2.0, 4 COM, Audio, GPIO, CPU FAN, System FAN
- Onboard TPM 2.0
- GPIO 8-bit supports, 5~35V, Isolation 1.3KV
- Easy access CPU, HDD, memory, expansion slots
- Anti-Vibration Design to Compliance IEC 60068-2
- Wide Voltage DC-IN 12~48V
- Fan design

Ordering Information

Part Number	Description
Please check MSI IPC website at http://ipc.msi.com for details.	

Packing List

Part Number	Description
Please check MSI IPC website at http://ipc.msi.com for details.	

Optional Item

Part Number	Description
Please check MSI IPC website at http://ipc.msi.com for details.	

Specifications

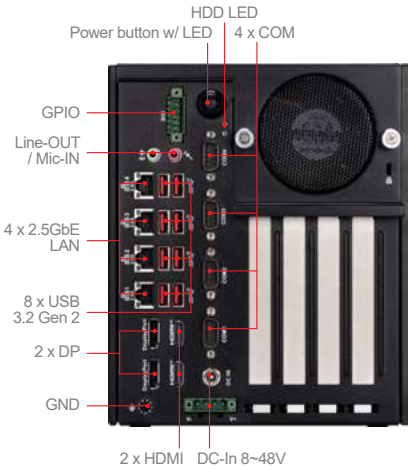
Processor	CPU	Intel® 12th Gen IOTG Alder Lake-S Processor Core i9/i7/i5/i3, Pentium®, Celeron® Processor, Max. 65W Intel® 13th Gen IOTG Raptor Lake-S Processor Core i9/i7/i5/i3, Max. 65W Intel® 14th Gen IOTG Raptor Lake-S Refresh Processor Core i9/i7/i5/i3, Max. 65W Intel® Core Processors Series 2 Bartlett Lake-S Core 7/5/3, Max 65W
	Frequency	P-Core 1.1 GHz~5.6 GHz (Depends on CPU) E-Core 0.8 GHz~4.4 GHz (Depends on CPU)
	L2 Cache	4M~36M (Depends on CPU)
	CPU Type	Socket (LGA1700)
	Chipset	Intel® R680E chipset
	BIOS	AMI
Memory	Technology	Dual-channel DDR5(ECC/non-ECC) 5600MHz (ECC support & Frequency will depend on CPU)
	Max. Capacity	Up to 96GB
	Socket	2 x 262-pin SO-DIMMs
Display	Controller	Intel® UHD Graphics
	Graphic Memory	Depends on CPU
	Multiple Display	4 Independent displays
	Display Interface	HDMI up to 4096 x 2304 @60Hz DP up to 4096 x 2304 @60Hz
Ethernet	Controller	1 x Intel® I226LM 2.5GbE LAN (Support Intel® AMT) 3 x Intel® I226V 2.5GbE LAN
Audio	Controller	Realtek® ALC897 HD Audio Codec
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes
TPM	Controller	Infineon SLB9672VU2.0
Expansion Slot	PCIe x16	1
	PCIe x8	1
	PCIe x4	N/A
	PCIe x1	1
	PCI	N/A
	M.2	1 x M.2 M key (PCIe Gen4 x4 NVMe & SATA 3.0), 2280
	Mini-PCIe	N/A
Storage	SATA	2 x 2.5" HDD/SSD
	mSATA	N/A
	CFast	N/A
	CompactFlash	N/A
I/O Interface	RJ-45	4
	PoE	N/A
	Audio	1 x Mic-in 1 x Line-out
	USB	8 x USB 10 Gbps 2 x USB 2.0 (internal)
	Serial	4 x COM ports COM1~2: RS232/422/485, 0V/5V/12V COM3~4: RS-232, 0V
	PS/2	N/A
	GPIO	8-bits (4 x GPI; 4 x GPO), 5~35V, isolation 1.3KV
	CANbus	N/A
	HDMI	2
	LVDS	N/A
	DVI	N/A
	DisplayPort	2
	Antenna	N/A
Power Supply	DC Input	DC-In 12-48V Wide-Range Pluggable connectors with latch (V+, V-)
Environment	IP Rating	N/A
	Operating Temperature	-10 ~ 40°C w/ industrial DC power, Up to 65W CPU with Fan and Graphic Card
	Operating Humidity	10 ~ 90% , non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
	Vibration	Operating, IEC 60068-2-64: 2 Grms, random, 5 ~ 500 Hz, 1hr/axis (w/ HDD/SSD)
	Shock	Operating, 6G, half sine, 11ms (w/ Graphic Card)
Form Factor	Dimensions (Wx DxH)	285 x 217 x 431.1 mm
	Weight	11 kg
	Mounting	Wall mount
Certification	EMC	FCC Class A, CE, RCM, BSMI, VCCI, UKCA, IC
	Safety	IEC 62368: CE(LVD) / BSMI
Software Platform	OS Support	Windows 10 IoT Enterprise 2021 LTSC (64-bit, 21H2) Windows 11 IoT Enterprise LTSC (64-bit, 24H2) Linux (Support by request)

MS-C910

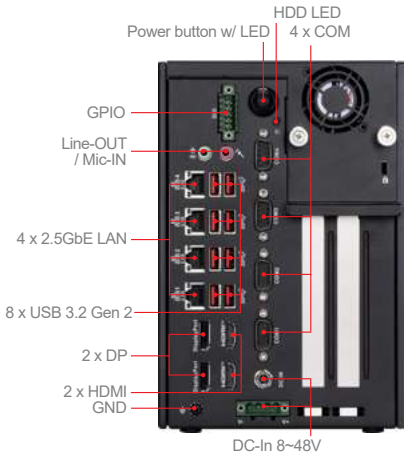
Outperform Fanless Box PC with 12th/13th/14th Gen Intel® Core™ i Processor for Rugged, Scalable & Versatile Solution

NEW

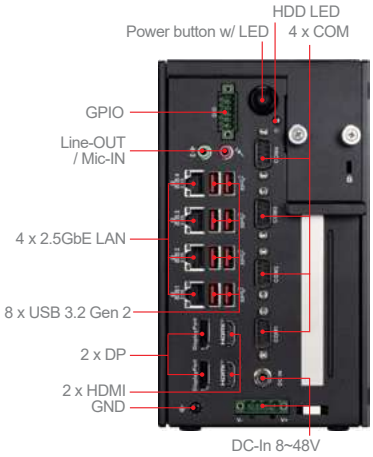
SKU1 – 4 Slots



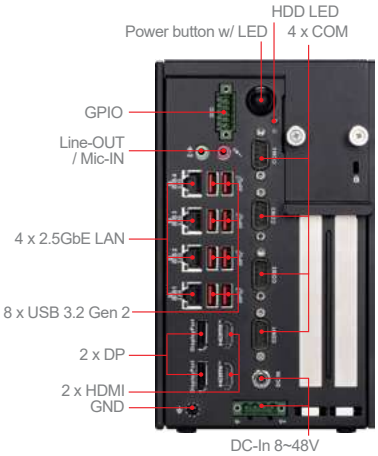
SKU2 – 2 Slots



SKU3 – 1 Slot



SKU4/5 – 2 Slots



MSI reserves the right to change the specifications without prior notices.

Specifications

		SKU1	SKU2	SKU3	SKU4	SKU5
Processor	CPU	Intel® 12th Gen IOTG Alder Lake-S Processor Core i9/i7/i5/i3, Pentium®, Celeron® Processor, Max. 35W Intel® 13th Gen IOTG Raptor Lake-S Processor Core i9/i7/i5/i3, Max. 35W Intel® 14th Gen IOTG Raptor Lake-S Refresh Processor Core i9/i7/i5/i3, Max. 35W				
	Frequency	P-Core 1.1 GHz~5.5 GHz (Depends on CPU) E-Core 0.8 GHz~4.0 GHz (Depends on CPU)				
	L2 Cache	4M~36M (Depends on CPU)				
	CPU Type	Socket (LGA1700)				
	Chipset	Intel® R680E chipset				
	BIOS	AMI				
Memory	Technology	Dual-channel DDR5(ECC/non-ECC) 5600MHz (ECC support & Frequency will depend on CPU)				
	Max. Capacity	Up to 64GB				
	Socket	2 x 262-pin SO-DIMMs				
Display	Controller	Intel® UHD Graphics				
	Graphic Memory	Depends on CPU				
	Multiple Display	4 independent displays				
	Display Interface	HDMI up to 4096 x 2304 @60Hz DP up to 4096 x 2304 @60Hz				
Ethernet	Controller	1 x Intel® I226LM 2.5GbE LAN (Support Intel® AMT) 3 x Intel® I226V 2.5GbE LAN				
Audio	Controller	Realtek® ALC897 HD Audio Codec				
H/W Monitor	Watchdog Timer	256-level Watchdog Timer				
	Smart Fan	Yes				
TPM	Controller	Infineon SLB9672VU2.0				
Expansion Slot	PCIe x16	1			N/A	
	PCIe x8	N/A			2	
	PCIe x4	N/A				
	PCIe x1	N/A				
	PCI	3	1	N/A		
	M.2	1 x M.2 M key (PCIe Gen4 x4 NVMe & SATA 3.0), 2280 1 x M.2 E key (PCIe Gen4 x1, USB2.0), 2230	1 x M.2 M key (PCIe Gen4 x4 NVMe & SATA 3.0), 2280			
	Mini-PCIe	N/A	1 x Full-size	N/A		
Storage	SATA	2 x 2.5" HDD/SSD			N/A	2 x 2.5" HDD/SSD (Customer-selected assembly — occupies 1 PCIe x8 slot)
	mSATA	N/A				
	CFast	N/A				
	CompactFlash	N/A				
I/O Interface	RJ-45	4				
	PoE	N/A				
	Audio	1 x Mic-in 1 x Line-out				
	USB	8 x USB 3.2 Gen 2 2 x USB 3.2 Gen 1 3 x USB 2.0 (internal, Type-A)				
	Serial	4 x COM ports COM1~2: RS232/422/485, 0V/5V/12V COM3~4: RS-232, 0V				
	PS/2	N/A				
	GPIO	8-bits (4 x GPI; 4 x GPO), 5~35V, isolation 1.3KV				
	CANbus	N/A				
	HDMI	2				
	LVDS	N/A				
	DVI	N/A				
	DisplayPort	2				
	Antenna	2 openings reserved for antennas	N/A			
Power Supply	DC Input	DC-in 8-48V Wide-Range Pluggable connectors with latch (V+, V-)				
Environment	IP Rating	N/A				
	Operating Temperature	-10 ~ 50°C w/ industrial DC power Up to 35W CPU Note: Thermal w/ Airflow:0.7m/s				
	Operating Humidity	10 ~ 90% , non-condensing				
	Storage Temperature	-20 ~ 80°C				
	Storage Humidity	10 ~ 90%, non-condensing				
	Vibration	Operating, IEC 60068-2-64: 2 Grms, random, 5 ~ 500 Hz, 1hr/axis (w/ HDD/SSD)				
	Shock	Operating, IEC 60068-2-27: 50G, half sine, 11ms (w/ HDD/SSD)				
Form Factor	Dimensions (Wx DxH)	178 x 242 x 217 mm	142 x 240 x 217 mm	123 x 240 x 217 mm	127 x 240 x 217 mm	
	Weight	5.0 kg	4.4 kg	4.3 kg	4.4 kg	
	Mounting	Wall mount				
Certification	EMC	FCC Class A, CE, RCM, BSMI, VCCI, UKCA, IC				
	Safety	IEC 62368: CE(LVD) / BSMI				
Software Platform	OS Support	Windows 10 IoT Enterprise 2021 LTSC (64-bit, 21H2) Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request)				

Features

- Intel® 12th/13th/14th Gen Alder Lake-S/Raptor Lake-S/Raptor Lake-S Refresh Series with R680E
- 2 DDR5 5600 MHz ECC/non-ECC SODIMM slots up to 64GB
- Quadruple independent displays: 2 HDMI, 2 DP
- 4 2.5 GbE LAN with RJ-45
- SKU1: 1 PCIe x16 (Gen 4), 3 PCI, PCIe E Key (Gen 4) x1
  SKU2: 1 PCIe x16 (Gen 4), 1 PCI, 1 x Mini-PCIe (Full-size)
  SKU3: 1 PCIe x16 (Gen 4)
  SKU4: 2 PCIe x8 (Gen 4)
  SKU5: 2 PCIe x8 (Gen 4)
- 2 SATA 3.0 (2.5" SSD/HDD, 7mm) for storage
- SATA RAID 0/1
- 8 USB 3.2 Gen 2, 2 USB 3.2 Gen 1, 3 USB 2.0, 4 COM, Audio, GPIO, System FAN
- Onboard TPM 2.0
- GPIO 8-bit supports, 5~35V, Isolation 1.3KV
- Easy access CPU, HDD, memory, expansion slots
- Anti-Vibration & Shockproof Design to Compliance IEC 60068-2
- Wide Voltage DC-IN 8~48V
- Fanless design

Ordering Information

Part Number	Description
936-C910-001	Intel Alder Lake-S/Raptor Lake-S/Raptor Lake-S Refresh Series with R680E, 4 SLOTS (SKU 1), PCIex16*1, PCI*3, HDMI*2, DP*2, COM*4, USB3.2 Gen2 *8, USB3.2 Gen1 *2, Intel 2.5GbE LAN*4, GPIO, DC-IN 8-48V
936-C910-002	Intel Alder Lake-S/Raptor Lake-S/Raptor Lake-S Refresh Series with R680E, 2 SLOTS (SKU 2), PCIex16*1, PCI*1, HDMI*2, DP*2, COM*4, USB3.2 Gen2 *8, USB3.2 Gen1 *2, Intel 2.5GbE LAN*4, GPIO, DC-IN 8-48V
936-C910-003	Intel Alder Lake-S/Raptor Lake-S/Raptor Lake-S Refresh Series with R680E, 1 SLOT (SKU 3), PCIex16*1, HDMI*2, DP*2, COM*4, USB3.2 Gen2 *8, USB3.2 Gen1 *2, Intel 2.5GbE LAN*4, GPIO, DC-IN 8-48V
936-C910-004	Intel Alder Lake-S/Raptor Lake-S/Raptor Lake-S Refresh Series with R680E, 2 SLOTS (SKU 4), PCIex8*2, HDMI*2, DP*2, COM*4, USB3.2 Gen2 *8, USB3.2 Gen1 *2, Intel 2.5GbE LAN*4, GPIO, DC-IN 8-48V
936-C910-005	Intel Alder Lake-S/Raptor Lake-S/Raptor Lake-S Refresh Series with R680E, 2 SLOTS (SKU 5), PCIex8*2, HDMI*2, DP*2, COM*4, USB3.2 Gen2*8, USB3.2 Gen1*2, Intel 2.5GbE LAN*4, GPIO, ,2.5 inch drive bay*2(option), DC-IN 8-48V

Packing List

Part Number	Description	936-C910-001	936-C910-002	936-C910-003	936-C910-004	936-C910-005
NA1-2060011-SR2	Phoenix Terminal Plug for DIO, 2*6pin	1	1	1	1	1
NA1-1040063-SR2	Phoenix Terminal Plug for DC-in, 1*4pin	1	1	1	1	1
E22-9A66200-LA2	Wall Mount Bracket	2	2	2	2	2
E22-C910020-LA2	PCI/PCIe Bracket	4	2	1	2	1
E26-C910010-F49	Thermal Pad for CPU	1	1	1	1	1
E26-C910030-Z36	Thermal Pad for M.2 SSD, 7.5mm	1	1	1	1	1
E26-C910020-Z36	Thermal Pad for M.2 SSD, 6.25mm	1	1	1	1	1
E26-9A66031-F49	Thermal Pad for HDD	2	2	2	0	2
309-9A51214-MF1	HDD Plastic Support Kit	2	2	2	0	2
E22-9A66290-LA2	HDD Support Tray	2	2	2	0	2
K1D-1008318-V03	SATA Cable, 410mm	1	1	1	0	1
K1D-1008317-V03	SATA Cable, 315mm	1	1	1	0	1
K1D-3008049-V03	SATA Power Cable, 130/350mm	1	1	1	0	1
E22-9A66280-LA2	ROTATE Bracket	0	0	0	0	2
E43-1304016-P65	SCREW	0	0	0	0	4

Optional Item

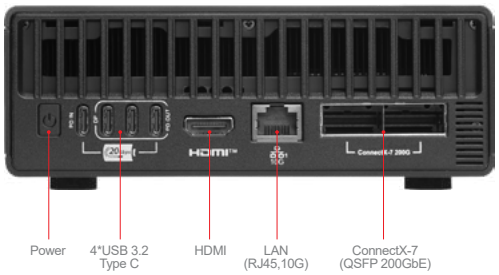
Part Number	Description
S93-0404420-S14	Adaptor 19V/180W
K33-3001020-I45	Power cord (TWN type)

EdgeXpert

AI Supercomputer Based on NVIDIA® DGX™ Spark Platform for Deep Learning

NEW

EDGEXPERT SYSTEM CONNECTION



Features

GB10 Grace Blackwell Superchip (1petaFLOP AI performance Blackwell GPU, 20-core Arm CPU)
- Accelerates AI, Data Science, compute, rendering, and visualization

workloads 128GB coherent unified system memory
- Work with large AI models of up to 200 billion parameters, fine-tune models of up to 70 billion parameters
- ~100GB of system memory available for user workloads

ConnectX-7 networking
- Connect two EdgeXpert systems together to work with models of up to 405 billion parameters
- A maximum of 2 DGX Spark systems can be clustered together

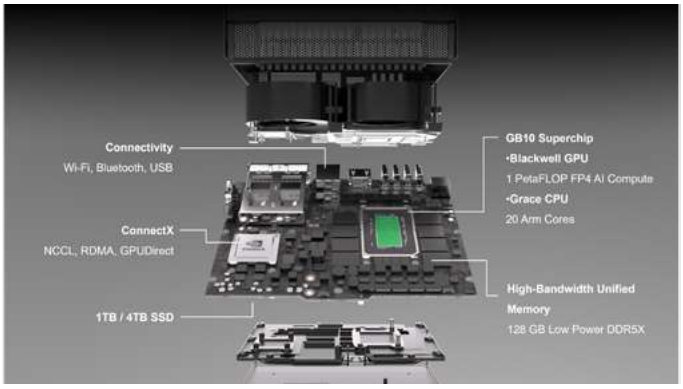
DGX OS & NVIDIA AI software stack
- Seamlessly move workloads from EdgeXpert to DGX Cloud or any accelerated data center or cloud infrastructure

Flexible deployment configurations
- Configure as an AI Workstation or network connected personal AI cloud

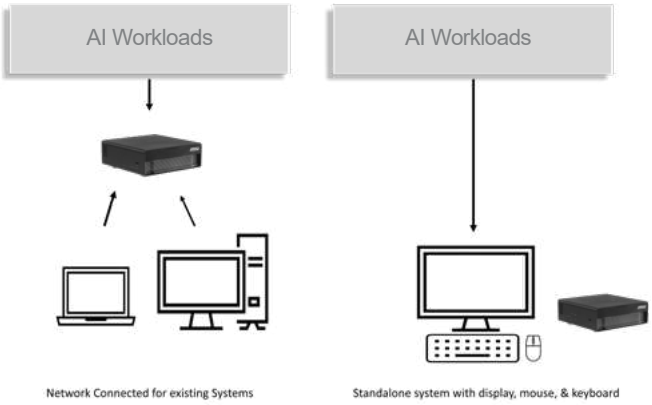
Compact, power efficient design
- Easily fits on any desk, powered by standard wall outlet

Specifications

Architecture	NVIDIA® Grace Blackwell
GPU	NVIDIA® Blackwell Architecture
CPU	Arm 20 core, 10 Cortex-X925 + 10 Cortex-A725
CUDA Cores	Blackwell Generation
Tensor Cores	5th Generation
Tensor Core Supported Data Formats	TF32, FP16, BF16, INT8, FP8, FP6, FP4
RT Cores	4th Generation
Tensor Performance	1 petaFLOP AI performance (FP4, Sparse)
System Memory	128 GB LPDDR5x, unified system memory
Memory Interface	256-bit
Memory Bandwidth	273 GB/s
Storage	1 or 4 TB NVME.M2 with self-encryption
USB	4x USB 3.2 Type C (up to 20Gb/s)
Ethernet	1x RJ-45 connector 10 GbE
NIC	ConnectX-7 Smart NIC
Wi-Fi	WiFi 7
Bluetooth	BT 5.4
Audio-output	HDMI multichannel audio output
System Weight	1.2 kg
Display Connectors	1 x HDMI 2.1, 4x DP1.4a via USB-C
NVENC | NVDEC	1x | 1x
OS	NVIDIA® DGX™ OS
System Dimensions	151 mm L x 151 mm W x 52 mm H (1.2L)



EdgeXpert - Personal AI Cloud



MSI reserves the right to change the specifications without prior notices.

EdgeXpert Accessory

NEW

QSFP CABLE: Sold Separately

Specifications

P/N	956-C931-101
Cable Type/Medium	SAS/Fiber Cable
Data Rate	112G (per lane, enabling 400G total bandwidth)
Bandwidth	Up to 400G
Application	Designed for Ethernet PAM-4 Applications
Connector Type	QSFP112
Cable Length	400 mm
Length Tolerance	± 15 mm
Operating Mode	PAM-4 Modulation
Weight	95g

Stack 2 EdgeXpert systems via ConnectX for Larger AI models & Performance

MS-98F7

COM Express SBC with 7th/6th Gen Intel® Kaby Lake-U/ Skylake-U Platform for Type6-Compact Solution

Features

- Intel® 7th/6th Gen Kaby Lake-U/Skylake-U Series
- 2 DDR4 2133/1866 MHz SODIMM slots up to 32GB
- Triple independent displays: VGA, LVDS, 2 DDI
- GbE LAN
- 8 PCIe x1 (Gen 3)
- 3 SATA 3.0, 32GB eMMC 5.0 for storage
- SATA RAID 0/1/5
- 4 USB 3.2 Gen 1, 8 USB 2.0, 2 UART
- Onboard TPM 2.0
- iAMT 11.x

Ordering Information

Part Number	Description
919-98F7-001	MS-98F7 10 COM Express Compact M/B Intel Kabylake-U I7-7600U, 2*DDR4 SO-DIMM, DDI /VGA/ LVDS signal, 1*eMMC, 1*TPM2.0, 2*COM Express type 6 connector
919-98F7-002	MS-98F7 10 OPT:A COM Express Compact M/B Intel Kabylake-U I5-7300U, 2*DDR4 SO-DIMM, 2*DDI / LVDS signal, 2*COM Express type 6 connector
919-98F7-003	MS-98F7 10 OPT:B COM Express Compact M/B Intel Kabylake-U I3-7100U, 2*DDR4 SO-DIMM, 2*DDI / LVDS signal, 2*COM Express type 6 connector
919-98F7-004	MS-98F7 10 OPT:C COM Express Compact M/B Intel Skylake-U I7-6600U, 2*DDR4 SO-DIMM, DDI /VGA/ LVDS signal, 1*eMMC, 1*TPM2.0, 2*COM Express type 6 connector

Packing List

Part Number	Description	Quantity
E31-2100190-K08	Heat spreader	1

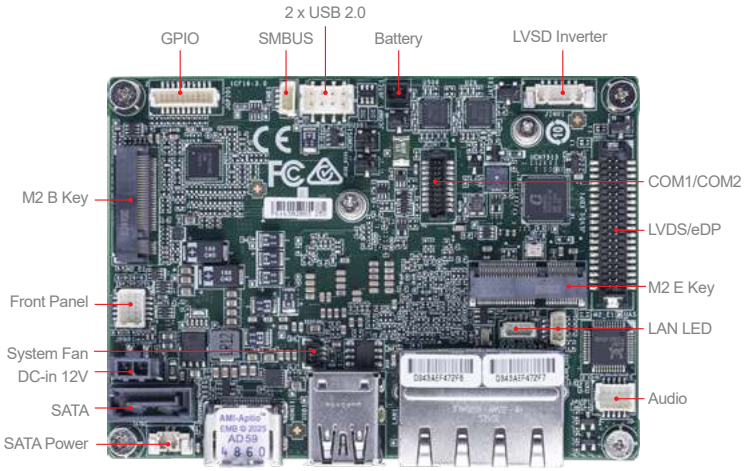
Specifications

Processor	CPU	7th/6th Gen Intel® Embedded Mobile Kaby Lake-ULT/Skylake-ULT Core™ i7/i5/i3/Celeron Processor, DC, 15W
	Frequency	2.0GHz~3.4GHz (Depends on CPU)
	L2 Cache	2MB~4MB (Depends on CPU)
	CPU Type	BGA
	Chipset	N/A
	BIOS	AMI
Memory	Technology	Dual-channel DDR4 2133MHz
	Max. Capacity	Up to 32GB
	Socket	2 x 260-pin SO-DIMMs
Display	Controller	Intel® HD Graphics
	Graphic Memory	Depends on CPU
	LVDS	Dual channel 24-bit
	eDP	N/A
	VGA	1 (Share with DDI1 Signal, by BOM option)
	DVI	N/A (2 DDI ports support HDMI/DP (DDI1 by BOM option, default is for VGA)
	HDMI	
	DisplayPort	
	Multiple Display	3 independent displays
	Display Interface	LVDS Resolution up to 1920x1200 @60Hz VGA Resolution up to 1920 x 1080 @60Hz 2 x DDI: HDMI1.4 up to 4096 x 2160 @24Hz DP up to 4096 x 2304 @60Hz
Ethernet	Controller	1 x Intel® I219LM GbE-PHY LAN (AMT 11.x supported)
Audio	Controller	Support HD audio interface to carrier board
Super I/O	Controller	N/A
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes
TPM	Controller	Yes (TPM2.0, by BOM option)
I/O Interface	USB	8 x USB 2.0 (to carrier board) 4 x USB 3.2 Gen 1 (to carrier board)
	Serial	2 x COM ports (to carrier board)
	Parallel	N/A
	PS/2	N/A
	GPIO	8-bits (4 x GPI; 4 x GPO), 5V
Expansion Slot	PCIe x16	N/A
	PCIe x4	N/A
	PCIe x1	8 x PCI Express GEN. 3.0 lanes (Configurable to 5 x PCIe x1 or 4 x PCIe x1 & 1 x PCIe x4)
	PCI	N/A
	M.2	N/A
	Mini-PCIe	N/A
Storage	SATA	3 x SATA 3.0
	mSATA	32GB eMMC 5.0 (by BOM option)
Power Supply	DC	N/A
	ATX	ATX +12 V and +5 VSB (standby power) AT: +12 V
Environment	Operating Temperature	-20 ~ 70°C
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
Form Factor	Dimensions (W x D x H)	95 x 95mm (COM Express compact module)
	Weight	0.105 kg
Certification	EMC	FCC, CE,RCM, VCCI, BSMI
Software Platform	OS Support	Windows 7 (32/64-bit) (Skylake-ULT Only) Windows 8.1 (64-bit) (Skylake-ULT Only) Windows 10 (64-bit) Linux (Support by request)

MSI reserves the right to change the specifications without prior notices.

MS-CF16 V3.0

Pico-ITX SBC with Intel® Alder Lake-N/Amston Lake/Twin Lake for Fanless, Low-Power, High-Performance, Wide Temperature & Harsh environment Solution



Features

- Intel® Alder Lake-N/ Amston Lake/Twin Lake Series SoC
- LPDDR5 4800 MHz onboard memory up to 16GB
- Dual independent displays: HDMI, LVDS/eDP
- 1 2.5 GbE/1 GbE LAN with RJ-45
- 2 USB 3.2 (Bottom layer USB 3.2 Gen 2 x 1, Top layer USB 3.2 Gen 1), 2 USB 2.0, 2 COM (RS-232/422/485), GPIO, Audio
- 1 M.2 B Key, 1 M.2 E Key Slot
- SATA 3.0 for storage
- Wide operating temperature : -40~70°C
- DC-IN 12V

Ordering Information

Part Number	Description
916-CF16-011	MS-CF16/606-CF16-210/806-CF16-026 30 ADL-N N97,LPDDR5 8GB,1*HDMI,1*LVDS/eDP,1*M.2 E key,1*M.2 B key,1*2.5GbE LAN,1*GbE LAN PHY,1*SATA 3.0,1*USB 3.2 Gen 2 x 1,1*USB 3.2 Gen 1,2*USB2.0,GPIO,2*COM,TPM2.0,DC-in 12V,Non-WT,SINGLE
916-CF16-012	MS-CF16/606-CF16-220/806-CF16-027 30 OPT:AASL X7433RE,LPDDR5 8GB,1*HDMI,1*LVDS/eDP,1*M.2 E key,1*M.2 B key,1*2.5GbE LAN,1*GbE LAN PHY,1*SATA 3.0,1*USB 3.2 Gen 2 x 1,1*USB 3.2 Gen 1,2*USB2.0,GPIO,2*COM,TPM2.0,DC-in 12V,WT,SINGLE
916-CF16-013	MS-CF16/606-CF16-230/806-CF16-026 30 OPT:B TWL N150,LPDDR5 8GB,1*HDMI,1*LVDS/eDP,1*M.2 E key,1*M.2 B key,1*2.5GbE LAN,1*GbE LAN PHY,1*SATA 3.0,1*USB 3.2 Gen 2 x 1,1*USB 3.2 Gen 1,2*USB2.0,GPIO,2*COM,TPM2.0,DC-in 12V,Non-WT,SINGLE

Specifications

Processor	CPU	Alder Lake-N SKU	Twin Lake SKU	Amston Lake SKU
		Intel® IOTG Alder Lake-N Processor N97, QC, 12W	Intel® Twin Lake-N Processor N150, QC, 6W	Intel® IOTG Amston Lake Atom, X7433RE, QC, 9W
	Frequency	N97, 2.0GHz, up to 3.6 GHz	N150, 0.8GHz, up to 3.6 GHz	X7433RE, 1.5GHz, up to 3.4 GHz
	L2 Cache	6MB		
	CPU Type	BGA		
	Chipset	Integrated in SoC		
	BIOS	AMI		
Memory	Technology	Single-channel LPDDR5 4800 MHz		
	Max. Capacity	Up to 16GB		
	Socket	Onboard		
Display	Controller	Intel® HD Graphics		
	Graphic Memory	Depends on CPU		
	LVDS	Dual Channel 18/24-bit (Connector shared with eDP)		
	eDP	1 (Connector shared with LVDS)		
	HDMI	1		
	Multiple Display	2 independent displays		
	Display Interface	LVDS up to 1920 x 1200 @60Hz eDP up to 1920 x 1080 @60Hz HDMI up to 3840 x 2160 @30Hz		
Ethernet	Controller	1 x Realtek® RTL8125BG-CG 2.5GbE LAN 1 x Realtek® RTL8111K-CG 1GbE LAN		1 x Realtek® RTL8125BI-CG 2.5GbE LAN 1 x Realtek® RTL8111KI-CG 1GbE LAN
Audio	Controller	Realtek® ALC897 High Definition Audio Codec		
Super I/O	Controller	Fintek F81966AB-I		
H/W Monitor	Watchdog Timer	256-level Watchdog Timer		
TPM	Controller	Infineon® SLB 9672VU2.0		Infineon® SLB 9672XU2.0
I/O Interface	USB	2 x USB 2.0 ports (internal) 2 x USB 3.2 ports (rear) (Bottom layer USB 3.2 Gen 2 x 1, Top layer USB 3.2 Gen 1)		
	Serial	2 x COM ports (internal) COM1~2: RS-232/422/485, 0V/5V/12V		
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V		
	M.2	1 x E key 2230 (PCIe x1 + USB 2.0) 1 x B key 2242/3042 (PCIe x1/SATA 3.0 + USB 3.2 Gen 2 + USB 2.0)		
Storage	SATA	1 x SATA 3.0		
Power Supply	DC	DC-in 12V		
	ATX	N/A		
Environment	Operating Temperature	-10 ~ 60°C Note: 1. Thermal w/ Airflow:0.7m/s 2. The standard thermal solution only supports TDP up to 12W.	-10 ~ 60°C Note: 1. Thermal w/ Airflow:0.7m/s 2. The standard thermal solution only supports TDP up to 6W.	-40 ~ 70°C Note: 1. Thermal w/ Airflow:0.7m/s 2. The standard thermal solution only supports TDP up to 9W.
	Operating Humidity	10 ~ 90%, non-condensing		
	Storage Temperature	-20 ~ 80°C	-20 ~ 80°C	-40 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing		
Form Factor	Dimensions	101 x 73 mm (Pico-ITX)		
	Weight	0.30 kg		
Certification	EMC	CE, FCC Class B, BSMI, VCCI, RCM, UKCA, IC		
Software Platform	OS Support	Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request)		

Packing List

Part Number	Description	Quantity
K10-3004466-V03	LAN LED Cable, 150mm	2
K1B-3008067-V03	USB Cable, 150mm	1
K1D-3010008-V03	SATA Cable with Power, 150mm	1
K1G-3002069-V03	DC Power Cable, 150mm	1
K14-3018001-V03	COM PORT Cable, 150mm	1

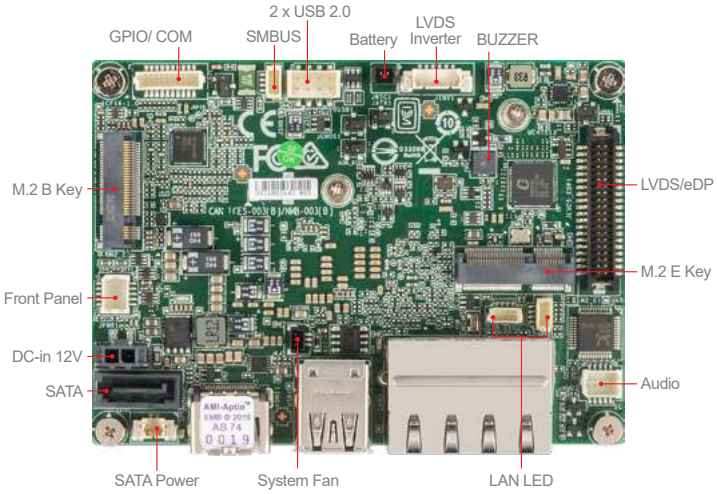
Optional Item

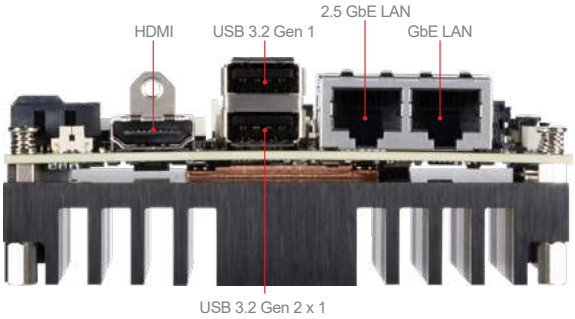
Part Number	Description
E31-0807850-K08	Heatspreader

MS-CF16

Pico-ITX SBC with Intel® Alder Lake-N/Amston Lake for Fanless, Low-Power, High-Performance, Wide Temperature & Harsh environment Solution

NEW





Features

- Intel® Alder Lake-N/ Amston Lake Series SoC
- LPDDR5 4800 MHz onboard memory up to 16GB
- Dual independent displays: HDMI, LVDS/eDP
- 1 2.5 GbE/1 GbE LAN with RJ-45
- 2 USB 3.2 (Bottom layer USB 3.2 Gen 2 x 1, Top layer USB 3.2 Gen 1), 2 USB 2.0, 1 COM (RS-232/422/485), GPIO, Audio
- 1 M.2 B Key, 1 M.2 E Key Slot
- SATA 3.0 for storage
- Wide operating temperature : -40~70°C
- DC-IN 12V

Ordering Information

Part Number	Description
916-CF16-002	MS-CF16\606-CF16-090\806-CF16-015 13 INTEL ADL-N N97, LPDDR5 4GB,1*HDMI,1*LVDS/eDP,1*M.2 E key,1*M.2 B key,1*2.5GbE LAN,1*GbE LAN,1*SATA 3.0,1*USB 3.2 Gen 2,1*USB 3.2 Gen 1,2*USB2.0,GPIO,1*COM,TPM2.0,DC-in 12V,Non-WT, Single 12-PACK For Channel
916-CF16-003	MS-CF16\606-CF16-100\806-CF16-016 13 INTEL ADL-N N97, LPDDR5 8GB,1*HDMI,1*LVDS/eDP,1*M.2 E key,1*M.2 B key,1*2.5GbE LAN,1*GbE LAN,1*SATA 3.0,1*USB 3.2 Gen 2,1*USB 3.2 Gen 1,2*USB2.0,GPIO,1*COM,TPM2.0,DC-in 12V,Non-WT, Single 12-PACK For Channel
916-CF16-004	MS-CF16\606-CF16-110\806-CF16-017 13 INTEL ADL-N N97, LPDDR5 16GB,1*HDMI,1*LVDS/eDP,1*M.2 E key,1*M.2 B key,1*2.5GbE LAN,1*GbE LAN,1*SATA 3.0,1*USB 3.2 Gen 2,1*USB 3.2 Gen 1,2*USB2.0,GPIO,1*COM,TPM2.0,DC-in 12V,Non-WT, Single 12-PACK For Channel
916-CF16-005	MS-CF16\606-CF16-120\806-CF16-018 13 INTEL ADL X7425E, LPDDR5 8GB,1*HDMI,1*LVDS/eDP,1*M.2 E key,1*M.2 B key,1*2.5GbE LAN,1*GbE LAN,1*SATA 3.0,1*USB 3.2 Gen 2,1*USB 3.2 Gen 1,2*USB2.0,GPIO,1*COM,TPM2.0,DC-in 12V,Non-WT, Single 12-PACK For Channel
916-CF16-006	MS-CF16\606-CF16-130\806-CF16-019 13 INTEL ASL X7433RE, LPDDR5 8GB,1*HDMI,1*LVDS/eDP,1*M.2 E key,1*M.2 B key,1*2.5GbE LAN,1*GbE LAN,1*SATA 3.0,1*USB 3.2 Gen 2,1*USB 3.2 Gen 1,2*USB2.0,GPIO,1*COM,TPM2.0,DC-in 12V,WT, Single 12-PACK For Channel
916-CF16-007	MS-CF16\606-CF16-140\806-CF16-020 13 INTEL ASL X7433RE, LPDDR5 16GB,1*HDMI,1*LVDS/eDP,1*M.2 E key,1*M.2 B key,1*2.5GbE LAN,1*GbE LAN,1*SATA 3.0,1*USB 3.2 Gen 2,1*USB 3.2 Gen 1,2*USB2.0,GPIO,1*COM,TPM2.0,DC-in 12V,WT, Single 12-PACK For Channel

Specifications

		Alder Lake -N SKUs	Amston Lake SKU
Processor	CPU	Intel® IOTG Alder Lake-N Processor N97, QC, 12W Intel® IOTG Alder Lake-N Atom x7425E, QC, 12W	Intel® IOTG Amston Lake Atom, X7433RE, QC, 9W
	Frequency	N97, 2.0GHz, up to 3.6 GHz x7425E, 1.5GHz, up to 3.4 GHz	X7433RE, 1.5GHz, up to 3.4 GHz
	L2 Cache	6MB	
	CPU Type	BGA	
	Chipset	Integrated in SoC	
	BIOS	AMI	
Memory	Technology	Single-channel LPDDR5 4800 MHz	
	Max. Capacity	Up to 16GB	
	Socket	Onboard	
Display	Controller	Intel® HD Graphics	
	Graphic Memory	Depends on CPU	
	LVDS	Dual Channel 18/24-bit (Connector shared with eDP)	
	eDP	1 (Connector shared with LVDS)	
	HDMI	1	
	Multiple Display	2 independent displays	
	Display Interface	LVDS up to 1920 x 1200 @60Hz eDP up to 1920 x 1080 @60Hz HDMI up to 3840 x 2160 @30Hz	
Ethernet	Controller	1 x Realtek® RTL8125BG-CG 2.5GbE LAN 1 x Realtek® RTL8111K-CG 1GbE LAN	1 x Realtek® RTL8125BI-CG 2.5GbE LAN 1 x Realtek® RTL8111KI-CG 1GbE LAN
Audio	Controller	Realtek® ALC897 High Definition Audio Codec	
Super I/O	Controller	Fintek F81966AB-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	
TPM	Controller	Infineon® SLB 9672VU2.0	Infineon® SLB 9672XU2.0
I/O Interface	USB	2 x USB 2.0 ports (internal) 2 x USB 3.2 ports (rear) (Bottom layer USB 3.2 Gen 2 x 1, Top layer USB 3.2 Gen 1)	
	Serial	1 x COM port (internal) COM: RS-232/422/485, 0V/5V/12V	
	GPIO	8-bits (4 x GPI; 4 x GPO), 5V	
	M.2	1 x E key 2230 (PCIe x1 + USB 2.0) 1 x B key 2242/3042 (PCIe x1/SATA 3.0 + USB 3.2 Gen 2 + USB 2.0)	
Storage	SATA	1 x SATA 3.0	
Power Supply	DC	DC-in 12V	
	ATX	N/A	
Environment	Operating Temperature	-10 ~ 60°C Note: 1. Thermal w/ Airflow:0.7m/s 2. The standard thermal solution only supports TDP up to 12W.	-40 ~ 70°C Note: 1. Thermal w/ Airflow:0.7m/s 2. The standard thermal solution only supports TDP up to 9W.
	Operating Humidity	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	-40 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing	
Form Factor	Dimensions	101 x 73 mm (Pico-ITX)	
	Weight	0.30 kg	
Certification	EMC	CE, FCC Class B, BSMI, VCCI, RCM, UKCA, IC	
Software Platform	OS Support	Windows 10 IoT Enterprise 21H2 LTSC (64-bit) Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request)	

Packing List

Part Number	Description	Quantity
K14-3018013-V03	COM PORT Cable, 150mm	1
K1B-3008067-V03	USB Cable, 150mm	1
K1D-3010008-V03	SATA Cable with Power, 150mm	1
K1G-3002069-V03	DC Power Cable, 150mm	1
K10-3004466-V03	LAN LED Cable, 150mm	2

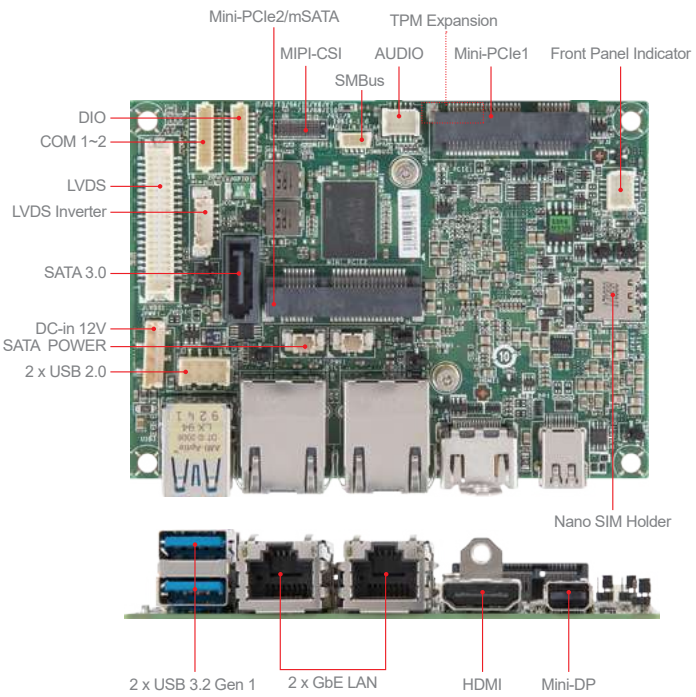
Optional Item

Part Number	Description
E31-0807850-K08	Heatspreader

MSI reserves the right to change the specifications without prior notices.

MS-98I6

Pico-ITX SBC with Intel® Apollo Lake/Apollo Lake-I for Fanless, Low-Power, High-Performance, Wide Temperature & Harsh environment Solution



Features

- Intel® Apollo Lake/Apollo Lake-I Series SoC
- LPDDR4 2133 MHz onboard memory up to 4GB
- Triple independent displays: Mini-DP, HDMI, LVDS
- 2 GbE LAN with RJ-45
- 2 USB 3.2 Gen 1, 2 USB 2.0, 2 COM (RS-485), DIO, Audio
- 1 Mini-PCIe (Full size with NANO SIM-Holder), 1 Mini-PCIe (Half size with mSATA) Slots
- SATA 3.0 for storage
- Wide operating temperature : -40~85°C
- DC-IN 12V

Ordering Information

Part Number	Description
919-98I6-006	MS-98I6 10, Apollo Lake-I E3940 F1 Stepping, Onboard LPDDR4 4GB, 1*HDMI, 1*LVDS, 1*Mini-DP, 1*MIPI,2*Mini-Pcie, 2*USB3.0,2*USB2.0, 1*SATA3.0, 2*COM, 2*LAN, DC 12V, SINGLE
919-98I6-007	MS-98I6 10, Apollo Lake-I E3930 F1 Stepping, Onboard LPDDR4 4GB, 1*HDMI, 1*LVDS, 1*Mini-DP, 1*MIPI, 2*Mini-Pcie, 2*USB3.0, 2*USB2.0, 1*SATA3.0, 2*COM, 2*LAN, DC 12V, SINGLE
919-98I6-009	MS-98I6 10, Apollo Lake N4200 F1 Stepping, Onboard LPDDR4 4GB, 1*HDMI, 1*LVDS, 1*Mini-DP, 1*MIPI,2*Mini-Pcie, 2*USB3.0,2*USB2.0, 1*SATA3.0, 2*COM, 2*LAN, DC 12V, SINGLE
919-98I6-010	MS-98I6 10, Apollo Lake N3350 F1 Stepping, Onboard LPDDR4 4GB, 1*HDMI, 1*LVDS, 1*Mini-DP, 1*MIPI, 2*Mini-Pcie, 2*USB3.0, 2*USB2.0, 1*SATA3.0, 2*COM, 2*LAN, DC 12V, SINGLE

Packing List

Part Number	Description	Quantity
K14-3018001-V03	COM PORT Cable, 150mm	1
K1B-3008067-V03	USB Cable, 150mm	1
K1D-3010008-V03	SATA Cable with Power, 150mm	1
K1G-3004057-V03	DC Power Cable, 150mm	1

Specifications

		Apollo Lake SKUs	Apollo Lake-I SKUs
Processor	CPU	Intel® Pentium® Processor N4200, QC, 6W Intel® Celeron® Processor N3350, DC, 6W Intel® Celeron® Processor J3455, QC, 10W	Intel® Atom™ x5 Processor E3940, QC, 9.5W Intel® Atom™ x5 Processor E3930, DC, 6.5 W
	Frequency	N4200, 1.1 GHz, up to 2.5 GHz N3350, 1.1 GHz, up to 2.4 GHz J3455, 1.5 GHz, up to 2.3 GHz	E3940, 1.6 GHz, up to 1.8 GHz E3930, 1.3 GHz, up to 1.8 GHz
	L2 Cache	2M	
	CPU Type	BGA	
	Chipset	Integrated in SoC	
	BIOS	AMI	
Memory	Technology	Single-channel LPDDR4 2133MHz	
	Max. Capacity	Up to 4GB	
	Socket	Onboard	
Display	Controller	Intel® HD Graphics	
	Graphic Memory	Depends on CPU	
	LVDS	Dual Channel 18/24-bit	
	eDP	N/A	
	VGA	N/A	
	DVI	N/A	
	HDMI	1	
	DisplayPort	1 (Mini-Displayport)	
	Multiple Display	3 independent displays	
	Display Interface	LVDS up to 1920 x 1200 @60Hz HDMI up to 3840 x 2160 @30Hz Mini-DP up to 4096 x 2160 @60Hz	
Ethernet	Controller	2 x Intel® I211-AT GbE LAN	2 x Intel® I210-IT GbE LAN
Audio	Controller	Realtek® ALC887-VD2-CG HD Audio Codec	
Super I/O	Controller	Fintek F81866AD-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	N/A	
TPM	Controller	Pin header	
I/O Interface	USB	2 x USB 2.0 (internal) 2 x USB 3.2 Gen 1 (rear)	
	Serial	2 x COM ports (internal) COM1: RS-232/422/485, 0V/5V/12V COM2: RS-232/422/485, 0V/5V/12V	
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V	
Expansion Slot	Mini-PCIe	1 x Full-size 1 x Half-size (Mini-PCIe Full-size Slot w/ NANO SIM-Holder) (Mini-PCIe Half-size Slot w/ mSATA)	
Storage	SATA	1 x SATA 3.0	
	mSATA	1 (Shared with Mini-PCIe Half-size)	
Power Supply	DC	DC-in 12V	
	ATX	N/A	
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	-40 ~ 85°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	-40 ~ 85°C
	Storage Humidity	10 ~ 90%, non-condensing	
Form Factor	Dimensions	101 x 73 mm (Pico-ITX)	
	Weight	0.27 kg	
Certification	EMC	FCC, CE, RCM, VCCI, BSMI	
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)	

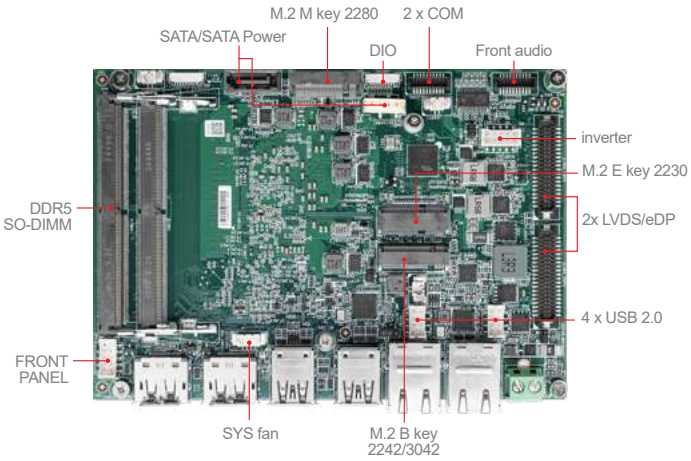
Optional Item

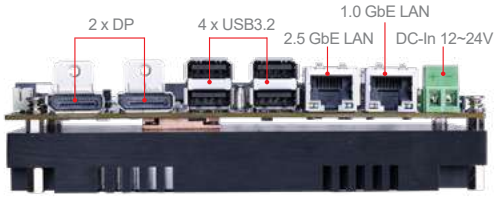
Part Number	Description
E31-0805900-K08	Heatspreader for Apollo Lake-I
E31-0805910-K08	Heatspreader for Apollo Lake

MS-CF19

3.5" SBC with Intel® Meteor Lake-U/Arrow Lake-U for Fanless, Ultra Low-Power, High-Performance Solution

NEW





Features

- Intel® Core Ultra Processors (Series 1) Meteor Lake- U / Core Ultra Processors (Series 2) Arrow Lake- U Series Processors
- 2 DDR5 5600 MHz SODIMM/6400 MHz CSODIMM Slots up to 96GB
- Quadruple independent displays: 2 DP, 2 LVDS/eDP
- 1 GbE LAN, 1 2.5GbE Lan with RJ-45
- 1 M.2 B key, 1 M.2 E key
- 1 M.2 M key, 1 SATA 3.0 for storage
- 4 USB 3.2 Gen 2, 4 USB 2.0, 2 COM (2 RS-485), DIO, Audio, Amplifier-R/L 3W each
- Onboard TPM 2.0
- Wide Voltage DC-IN 12~24V (OCP & OVP)

Ordering Information

Part Number	Description
Coming Soon	

Packing List

Part Number	Description
Coming Soon	

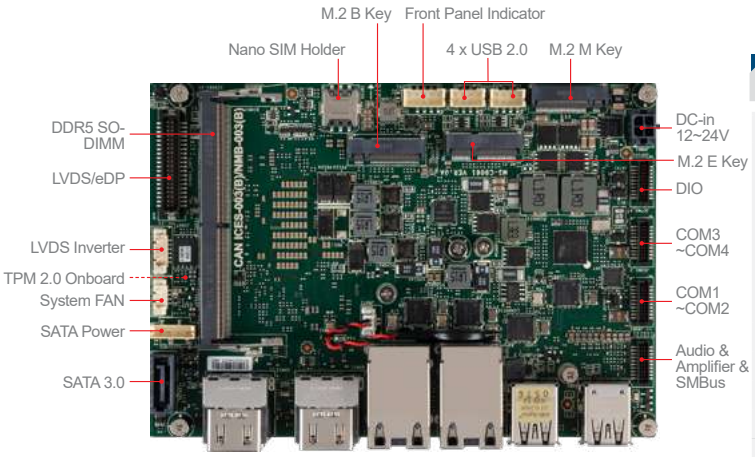
Specifications

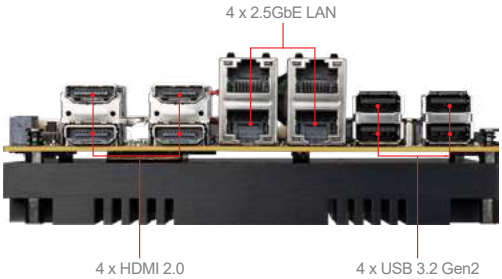
Processor	CPU	Intel® Core™ Ultra Processor (Series 1) Meteor Lake-U Series Processors, Core™ Ultra 7 165U/155U, Core™ Ultra 5 135U/125U Intel® Core™ Ultra Processor (Series 2) Arrow Lake-U Series Processors, Core™ Ultra 7 265U/255U, Core™ Ultra 5 235U/225U
	Frequency	P-Core: 4.3GHz~5.3GHz (Depends on CPU) E-Core: 3.6GHz~4.2GHz (Depends on CPU)
	L2 Cache	12MB
	CPU Type	BGA
	Chipset	Integrated in SoC
	BIOS	AMI
Memory	Technology	Dual-channel DDR5 5600~6400MHz (Depends on CPU)
	Max. Capacity	Up to 96GB
	Socket	2 x 262-pin SO-DIMM
Display	Controller	Intel® Graphics
	Graphic Memory	Depends on CPU
	LVDS	2 x Dual Channel 18/24-bit (Connector shared with eDP)
	eDP	2 x eDP (Connector shared with LVDS)
	VGA	N/A
	DVI	N/A
	HDMI	N/A
	DisplayPort	2
	Multiple Display	4 independent displays
	Display Interface	LVDS up to 1920 x 1200 @60 Hz eDP up to 4096 x 2160 @60 Hz DP up to 4096 x 2340 @60Hz
Ethernet	Controller	1 x Intel® I219-LM GbE LAN 1 x Intel® I226-V 2.5 GbE LAN
Audio	Controller	Realtek® ALC897 HD Audio Codec
Super I/O	Controller	Fintek F81966AB-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes
TPM	Controller	Infineon SLB9672VU2.0
I/O Interface	USB	4 x USB 2.0 (internal) 4 x USB 3.2 Gen 2 (rear)
	Serial	2 x COM ports (internal) COM1~2: RS-232/422/485, 0V/5V/12V
	Parallel	N/A
	PS/2	N/A
	GPIO	8-bit (4 x GPI; 4 x GPO), 5V
Expansion Slot	PCIe x16	N/A
	PCIe x4	N/A
	PCI	N/A
	M.2	1 x M.2 M key (PCIe Gen4 x4 NVMe), 2280 1 x M.2 B key (PCIe x1, USB 2.0), 2242/3042 1 x M.2 E key (PCIe x1, USB 2.0, w/CNVi), 2230
Storage	SATA	1 x SATA 3.0
Power Supply	DC	DC-in 12~24V (OCP & OVP)
	ATX	N/A
Environment	Operating Temperature	-10 ~ 60°C Note: 1. Thermal w/ Airflow:0.7m/s 2. The standard thermal solution only supports TDP up to 15W.
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
Form Factor	Dimensions	146 x 102 mm (3.5")
	Weight	0.63 kg
Certification	EMC	CE, FCC, RCM, VCCI, BSMI, UKCA, IC
Software Platform	OS Support	Windows 10 IoT Enterprise 2021 LTSC (64-bit, 21H2) Windows 11 IoT Enterprise LTSC (64-bit, 24H2) Linux (Support by request)

MSI reserves the right to change the specifications without prior notices.

MS-CF17

3.5" SBC with Intel® Raptor Lake-P for Fanless, Ultra Low-Power, High-Performance & Wide Temperature Solution





Features

- Intel® 13th Gen Raptor Lake-P Embedded/Industrial SKU Series
- 1 DDR5 5200 MHz SODIMM Slot up to 32GB
- Quadruple independent displays: 4HDMI, 1 LVDS/eDP
- 4 2.5GbE LAN with RJ-45
- 1 M.2 B key (with NANO SIM-holder), 1 M.2 E key
- 1 M.2 M key, 1 SATA 3.0 for storage
- 4 USB 3.2 Gen 2, 4 USB 2.0, 4 COM (4 RS-485), DIO, Audio
- Onboard TPM 2.0
- Wide Voltage DC-IN 12~24V (OCP & OVP)
- Wide operating temperature supported

Ordering Information

Part Number	Description
916-CF17-001	MS-CF17\606-CF17-010\806-CF17-009 VER 12 Intel Raptor Lake-P,i7-1365UE,1*DDR5 SO DIMM+4*HDMI+1*LVDS/eDP+3*M.2+4*2.5GbE LAN+1*SATA3.0+4*USB3.2+4*USB2.0+4*COM,DC 12~24V,Non-WT,SINGLE
916-CF17-002	MS-CF17\606-CF17-020\806-CF17-010 VER 12 Intel Raptor Lake-P,i5-1345UE,1*DDR5 SO DIMM+4*HDMI+1*LVDS/eDP+3*M.2+4*2.5GbE LAN+1*SATA3.0+4*USB3.2+4*USB2.0+4*COM,DC 12~24V,Non-WT,SINGLE
916-CF17-003	MS-CF17\606-CF17-030\806-CF17-011 VER 12 Intel Raptor Lake-P,i5-1335UE,1*DDR5 SO DIMM+4*HDMI+1*LVDS/eDP+3*M.2+4*2.5GbE LAN+1*SATA3.0+4*USB3.2+4*USB2.0+4*COM,DC 12~24V,Non-WT,SINGLE
916-CF17-004	MS-CF17\606-CF17-040\806-CF17-012 VER 12 Intel Raptor Lake-P,i3-1315UE,1*DDR5 SO DIMM+4*HDMI+1*LVDS/eDP+3*M.2+4*2.5GbE LAN+1*SATA3.0+4*USB3.2+4*USB2.0+4*COM,DC 12~24V,Non-WT,SINGLE
916-CF17-005	MS-CF17\606-CF17-050\806-CF17-013 VER 12 Intel Raptor Lake-P,U300E,1*DDR5 SO DIMM+4*HDMI+1*LVDS/eDP+3*M.2+4*2.5GbE LAN+1*SATA3.0+4*USB3.2+4*USB2.0+4*COM,DC 12~24V,Non-WT,SINGLE
916-CF17-006	MS-CF17\606-CF17-060\806-CF17-014 VER 12 Intel Raptor Lake-P,i7-1365URE,1*DDR5 SO DIMM+4*HDMI+1*LVDS/eDP+3*M.2+4*2.5GbE LAN+1*SATA3.0+4*USB3.2+4*USB2.0+4*COM,DC 12~24V,WT,SINGLE
916-CF17-007	MS-CF17\606-CF17-070\806-CF17-015 VER 12 Intel Raptor Lake-P,i5-1345URE,1*DDR5 SO DIMM+4*HDMI+1*LVDS/eDP+3*M.2+4*2.5GbE LAN+1*SATA3.0+4*USB3.2+4*USB2.0+4*COM,DC 12~24V,WT,SINGLE
916-CF17-008	MS-CF17\606-CF17-080\806-CF17-016 VER 12 Intel Raptor Lake-P,i3-1315URE,1*DDR5 SO DIMM+4*HDMI+1*LVDS/eDP+3*M.2+4*2.5GbE LAN+1*SATA3.0+4*USB3.2+4*USB2.0+4*COM,DC 12~24V,WT,SINGLE

Packing List

Part Number	Description	Quantity
K1G-3004116-V03	DC Power Cable, 200mm	1
K14-3018001-V03	COM Port Cable, 150mm	1
K1B-3008067-V03	USB Cable, 150mm	1
K1D-3012023-V03	SATA Cable with Power, 230mm	1

NEW

Specifications

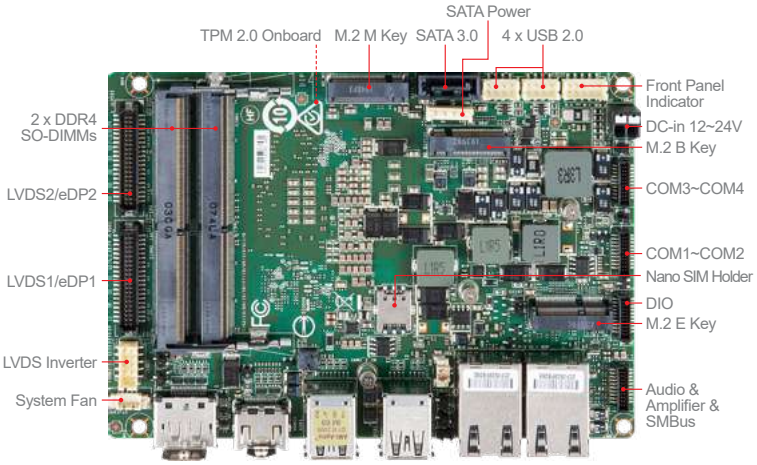
		Embedded SKUs	Industrial SKUs
System Processor	CPU	Intel® Mobile 13th Gen Raptor Lake-P U Series Processors, Core™ i7-1365UE / i5-1345UE / i5-1335UE / i3-1315UE / U300E, 28W	Intel® Mobile 13th Gen Raptor Lake-P U Series Processors, Core™ i7-1365URE / i5-1345URE / i3-1315URE, 28W
	Frequency	P-Core: 4.3GHz~4.9GHz (Depends on CPU) E-Core: 3.2GHz~3.7GHz (Depends on CPU)	
	L2 Cache	8M~12M (Depends on CPU)	
	CPU Type	BGA	
	Chipset	Integrated in SoC	
	BIOS	AMI	
Memory	Technology	Single-channel DDR5 5200MHz	
	Max. Capacity	Up to 32GB	
	Socket	1 x 262-pin SO-DIMM	
Graphic	Controller	Intel® UHD Graphics	
	Graphic Memory	Depends on CPU	
	LVDS	1	
	eDP	1 x eDP (Connector shared with LVDS)	
	HDMI	4	
	DisplayPort	N/A	
	Multiple Display	4 independent displays	
	Display Interface	LVDS up to 1920 x 1200 @60Hz eDP up to 4096 x 2160 @60Hz HDMI 2.0 up to 4096 x 2340 @60Hz	
Ethernet	Controller	4 x Intel® I226-LM GbE LAN	4 x Intel® I226-IT 2.5 GbE LAN
Audio	Controller	Realtek® ALC897 HD Audio Codec (Co-lay ALC888S)	
Super I/O	Controller	Fintek F81966AB-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	Yes	
TPM	Controller	Infineon SLB9672VU2.0	Infineon SLB9672XU2.0
Expansion Slot	PCIe x16	N/A	
	M.2	1 x M.2 M key (PCIe Gen4 x4 NVMe), 2280 1 x M.2 B key (PCIe x1, USB 2.0, w/NANO SIM-Holder), 2242/3042 1 x M.2 E key (PCIe x1, USB 2.0, w/CNVi), 2230	
Storage	SATA	1 x SATA 3.0	
I/O Interface	USB	4 x USB 2.0 (internal) 4 x USB 3.2 Gen 2 (rear)	
	Serial	4 x COM ports (internal) COM1~4: RS-232/422/485, 0V/5V/12V, support auto flow control	
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V	
Power Supply	DC Input	DC-in 12~24V (OCP & OVP)	
	AC Input	N/A	
Environment	Operating Temperature	0 ~ 60°C Note: 1. Thermal w/ Airflow:0.7m/s 2. The standard thermal solution only supports TDP up to 15W.	-40 ~ 70°C Note: 1. Thermal w/ Airflow:0.7m/s 2. The standard thermal solution only supports TDP up to 15W. 3. -40 ~ 85°C by request
	Operating Humidity	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	-40 ~ 85°C
	Storage Humidity	10 ~ 90%, non-condensing	
Physical haracteristics	Dimensions (WxDxH)	146 x 102 mm (3.5")	
	Weight	0.67 kg	
Certification	EMC	CE, FCC Class A, RCM, VCCI, BSMI, UKCA, IC	
Software Platform	OS Support	Windows 10 IoT Enterprise 2021 LTSC (64-bit, 21H2) Windows 11 IoT Enterprise LTSC (64-bit, 24H2) Linux (Support by request)	

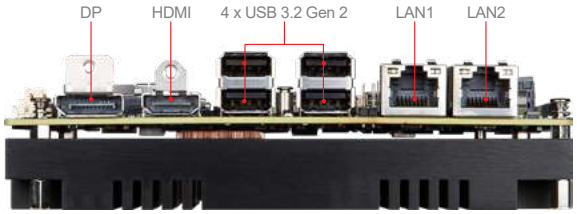
Optional Item

Part Number	Description
E31-0807750-K08	Heatspreader

MS-98M3

3.5" SBC with Intel® Tiger Lake-UP3 for Fanless, Ultra Low-Power, High-Performance & Wide Temperature Solution





Features

- Intel® 11th Gen Tiger Lake-UP3 Embedded/Industrial SKU Series
- DDR4 3200 MHz SODIMM Slot up to 64GB
- Quadruple independent displays: DP++ , HDMI, 2 LVDS/eDP
- 2 2.5GbE LAN with RJ-45
- 1 M.2 B key (with NANO SIM-holder), 1 M.2 E key
- 1 M.2 M key, 1 SATA 3.0 for storage
- SATA RAID 0/1 (Supported by i7/i5 SKUs)
- 4 USB 3.2 Gen 2, 4 USB 2.0, 4 COM (4 RS-485), DIO, Audio
- Onboard TPM 2.0
- Wide Voltage DC-IN 12~24V (OCP & OVP)
- Wide operating temperature supported

Ordering Information

Part Number	Description
919-98M3-023	MS-98M3\609-98M3-380\809-98M3-034 VER12 Intel Tiger Lake-UP3, i7-1185GRE,2*DDR4,1*DP,1*HDMI,2*LVDS/eDP,3*M.2,2*2.5GbE LAN,1*SATA3, 4*USB3.2 Gen2,4*USB2,4*COM,DC 12~24V,WT,SINGLE for Channel w/o H/S
919-98M3-024	MS-98M3\609-98M3-390\809-98M3-035 VER12 Intel Tiger Lake-UP3, i5-1145GRE,2*DDR4,1*DP,1*HDMI,2*LVDS/eDP,3*M.2,2*2.5GbE LAN,1*SATA3, 4*USB3.2 Gen2,4*USB2,4*COM,DC 12~24V,WT,SINGLE for Channel w/o H/S
919-98M3-025	MS-98M3\609-98M3-400\809-98M3-026 VER12 Intel Tiger Lake-UP3, i3-1115GRE,2*DDR4,1*DP,1*HDMI,2*LVDS/eDP,3*M.2,2*2.5GbE LAN, 1*SATA3.0, 4*USB3.2 Gen2,4*USB 2.0,4*COM,DC 12~24V,WT,SINGLE for Channel
919-98M3-018	MS-98M3\609-98M3-330\809-98M3-027 12 Intel Tiger Lake-UP3, i7-1185G7E,2 *DDR4,1*DP,1*HDMI,2*LVDS/eDP,3*M.2,2*2.5GbE LAN,1*SATA3.0,4*USB3.2 Gen2,4*USB 2.0,4*COM,DC 12~24V,Non-WT
919-98M3-019	MS-98M3\609-98M3-340\809-98M3-028 12 Intel Tiger Lake-UP3, i5-1145G7E,2 *DDR4,1*DP,1*HDMI,2*LVDS/eDP,3*M.2,2*2.5GbE LAN,1*SATA3.0,4*USB3.2 Gen2,4*USB 2.0,4*COM,DC 12~24V,Non-WT
919-98M3-020	MS-98M3\609-98M3-350\809-98M3-029 12 Intel Tiger Lake-UP3, i3-1115G4E,2 *DDR4,1*DP,1*HDMI,2*LVDS/eDP,3*M.2,2*2.5GbE LAN,1*SATA3.0,4*USB3.2 Gen2,4*USB 2.0,4*COM,DC 12~24V,Non-WT
919-98M3-021	MS-98M3\609-98M3-360\809-98M3-030 12 Intel Tiger Lake-UP3, Celeron 6305E,2*DDR4,1*DP,1*HDMI,2*LVDS/eDP,3*M.2,2*2.5GbE LAN,1*SATA3.0,4*USB3.2 Gen2,4*USB 2.0,4*COM,DC 12~24V,Non-WT

Packing List

Part Number	Description	Quantity
K1G-3002057-V03	DC Power Cable, 200mm	1
K14-3018001-V03	COM Port Cable, 150mm	1
K1B-3008067-V03	USB Cable, 150mm	1
K1D-3012023-V03	SATA Cable with Power, 230mm	1

Optional Item

Part Number	Description
E31-0806800-K08	Heatspreader

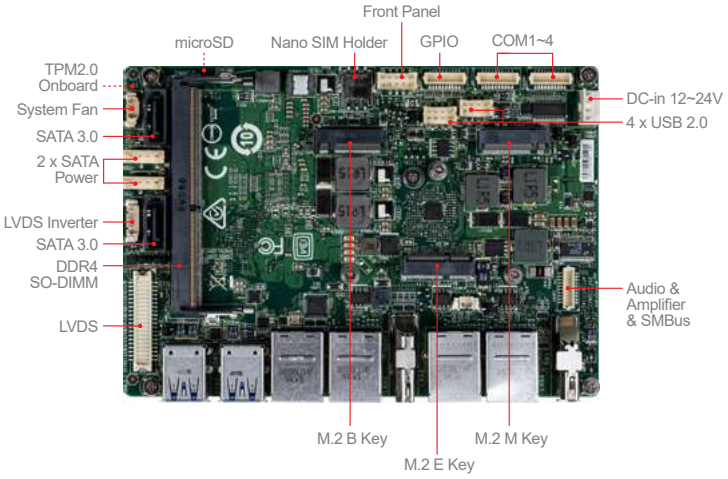
Specifications

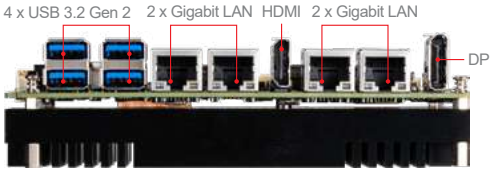
		Embedded SKUs	Industrial SKUs
Processor	CPU	11th Gen Intel® IoTG Mobile Tiger Lake-UP3 Core™ i7-1185G7E/i5-1145G7E, QC, 28W 11th Gen Intel® IoTG Mobile Tiger Lake-UP3 Core™ i3-1115G4E, DC, 28W 11th Gen Intel® IoTG Mobile Tiger Lake-UP3 Celeron® 6305E, DC, 15W	11th Gen Intel® IoTG Mobile Tiger Lake-UP3 Core™ i7-1185GRE/i5-1145GRE, QC, 28W 11th Gen Intel® IoTG Mobile Tiger Lake-UP3 Core™ i3-1115GRE, DC, 28W
	Frequency	1.5GHz~4.4GHz (Depends on CPU)	
	L2 Cache	4MB~12MB (Depends on CPU)	6MB~12MB (Depends on CPU)
	CPU Type	BGA	
	Chipset	N/A	
	BIOS	AMI	
Memory	Technology	Dual-channel DDR4 3200MHz	
	Max. Capacity	Up to 64GB	
	Socket	2 x 260-pin SO-DIMMs	
Display	Controller	Intel® Iris® Xe Graphics (For i7/i5 SKUs) Intel® UHD Graphics (For i3/Celeron SKUs)	Intel® Iris® Xe Graphics (For i7/i5 SKUs) Intel® UHD Graphics (For i3 SKU)
	Graphic Memory	Depends on CPU	
	LVDS	2 x Dual Channel 18/24-bit (Connector shared with eDP)	
	eDP	2 x eDP (Connector shared with LVDS)	
	VGA	N/A	
	DVI	N/A	
	HDMI	1	
	DisplayPort	1	
	Multiple Display	4 independent displays	
	Display Interface	LVDS up to 1920 x 1200 @60 Hz eDP up to 4096 x 2160 @60 Hz HDMI up to 4096 x 2160 @30Hz DP up to 7680 x 4320 @60Hz	
Ethernet	Controller	2 x Intel® I226-LM 2.5 GbE LAN	2 x Intel® I225-IT 2.5 GbE LAN (LAN Speed running at 1000/100/10Mbps when OP TEMP. over 70°C)
Audio	Controller	Realtek® ALC897 HD Audio Codec (Co-lay ALC888S)	Realtek® ALC888-VD2-GR HD Audio Codec
Super I/O	Controller	Fintek F81966AB-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	Yes	
TPM	Controller	Infineon SLB9670VQ2.0	Infineon SLB9670XQ2.0
I/O Interface	USB	4 x USB 2.0 (internal) 4 x USB 3.2 Gen 2 (rear)	
	Serial	4 x COM ports (internal) COM1~4: RS-232/422/485, 0V/5V/12V, support auto flow control	
	Parallel	N/A	
	PS/2	N/A	
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V	
Expansion Slot	PCIe x 16	N/A	
	PCIe x 4	N/A	
	PCIe x 1	N/A	
	PCI	N/A	
	M.2	1 x M.2 M key (PCIe Gen4 x4 NVMe), 2280 1 x M.2 B key (SATA 3.0, PCIe x1, USB 2.0, w/ NANO SIM-Holder), 2242/3042 1 x M.2 E key (PCIe x1, USB 2.0), 2230	
	Mini-PCIe	N/A	
Storage	SATA	1 x SATA 3.0	
	IDE	N/A	
	eSATA	N/A	
	CFast	N/A	
	mSATA	N/A	
	CompactFlash	N/A	
Power Supply	DC	DC-in 12~24V (OCP & OVP)	
	ATX	N/A	
Environment	Operating Temperature	-10 ~ 60°C Note: 1. Thermal w/ Airflow:0.7m/s 2. The standard thermal solution only supports TDP up to 15W.	-40 ~ 70°C (w/Turbo disabled) Note: 1. Thermal w/ Airflow:0.7m/s 2. The standard thermal solution only supports TDP up to 15W. 3. -40 ~ 85°C by request
	Operating Humidity	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	-40 ~ 85°C
	Storage Humidity	10 ~ 90%, non-condensing	
Form Factor	Dimensions	146 x 102 mm (3.5")	
	Weight	0.65 kg	
Certification	EMC	FCC, CE, RCM, VCCI, BSMI, UKCA, IC	
Software Platform	OS Support	Windows 10 IoT Enterprise 2019 LTSC (64-bit, RS5) Windows 10 IoT Enterprise 2021 LTSC (64-bit, 21H2) Windows 11 IoT Enterprise (64-bit, 21H2, Pre-scan) Linux (Support by request)	

MSI reserves the right to change the specifications without prior notices.

MS-98L3

3.5" SBC with Intel® Whiskey Lake-U for Fanless, Ultra Low-Power & High-Performance Solution





Features

- Intel® 8th Gen Whiskey Lake-U Series
- DDR4 2400 MHz SODIMM Slot up to 32GB
- Triple independent displays: DP++ , HDMI, LVDS
- 4 GbE LAN for RJ-45
- 1 M.2 B key (with NANO SIM-holder), 1 M.2 E key (with CNVi)
- M.2 M key, 2 SATA 3.0, Micro SD for storage
  SATA RAID 0/1 (Supported by i7/i5 SKUs)
- 4 USB 3.2 Gen 2, 4 USB 2.0, 4 COM (4 RS-485), GPIO, Audio
- Onboard TPM 2.0
- Wide Voltage DC-IN 12~24V (OCP & OVP)

Ordering Information

Part Number	Description
919-98L3-001	MS-98L3\609-98L3-010\809-98L3-006 VER:12 OPT:A Intel Whiskey Lake-U, i7-8665UE, 1*DDR4, 1*DP, 1*HDMI, 1*LVDS, 3*M.2, 4*LAN, 2*SATA3.0, 4*USB3.2Gen2, 4*USB 2.0,4*COM, 1*Micro SD, DC 12~24V, Single For Channel
919-98L3-002	MS-98L3\609-98L3-020\809-98L3-007 VER:12 OPT:B Intel Whiskey Lake-U, i5-8365UE, 1*DDR4,1*DP, 1*HDMI, 1*LVDS, 3*M.2, 4*LAN, 2*SATA3.0, 4*USB3.2Gen2, 4*USB 2.0, 4*COM, 1*Micro SD, DC 12~24V, Single For Channel
919-98L3-003	MS-98L3\609-98L3-030\809-98L3-008 VER:12 OPT:C Intel Whiskey Lake-U, i3-8145UE, 1*DDR4, 1*DP, 1*HDMI, 1*LVDS, 3*M.2,4*LAN, 2*SATA3.0, 4*USB3.2Gen2, 4*USB 2.0, 4*COM, 1*Micro SD, DC 12~24V, Single For Channel
919-98L3-004	MS-98L3\609-98L3-040\809-98L3-009 VER:12 OPT:D Intel Whiskey Lake-U, Celeron 4305UE, 1*DDR4,1*DP, 1*HDMI, 1*LVDS,3*M.2,4*LAN, 2*SATA3.0, 4*USB3.2Gen2, 4*USB 2.0, 4*COM, 1*Micro SD, DC 12~24V, Single For Channel
919-98L3-102	MS-98L3\609-98L3-010\809-98L3-102 VER:12 OPT:E Intel Whiskey Lake-U, i7-8665UE, 1*DDR4, 1*DP, 1*HDMI, 1*LVDS, 3*M.2, 4*LAN, 2*SATA3.0, 4*USB3.2Gen2, 4*USB 2.0, 4*COM, 1*Micro SD, DC 12~24V, Bulk For Channel
919-98L3-103	MS-98L3\609-98L3-020\809-98L3-102 VER:12 OPT:F Intel Whiskey Lake-U, i5-8365UE, 1*DDR4, 1*DP, 1*HDMI, 1*LVDS, 3*M.2, 4*LAN, 2*SATA3.0, 4*USB3.2Gen2, 4*USB 2.0, 4*COM, 1*Micro SD, DC 12~24V, Bulk For Channel
919-98L3-104	MS-98L3\609-98L3-030\809-98L3-102 VER:12 OPT:G Intel Whiskey Lake-U, i3-8145UE, 1*DDR4, 1*DP, 1*HDMI, 1*LVDS, 3*M.2, 4*LAN, 2*SATA3.0, 4*USB3.2Gen2, 4*USB 2.0, 4*COM, 1*Micro SD, DC 12~24V, Bulk For Channel
919-98L3-105	MS-98L3\609-98L3-040\809-98L3-102 VER:12 OPT:H Intel Whiskey Lake-U, Celeron 4305UE, 1*DDR4, 1*DP, 1*HDMI, 1*LVDS, 3*M.2, 4*LAN, 2*SATA3.0, 4*USB3.2Gen2, 4*USB 2.0, 4*COM, 1*Micro SD, DC 12~24V, Bulk For Channel

Specifications

System Processor	CPU	8th Gen Intel® IOTG Mobile Whiskey Lake-U Core™ i7-8665UE/i5-8365UE, QC, 15W & i3-8145UE/Celeron® 4305UE, DC, 15W
	Frequency	1.8GHz~4.6GHz (Depends on CPU)
	L2 Cache	4MB~8MB (Depends on CPU)
	CPU Type	BGA
	Chipset	N/A
	BIOS	AMI
Memory	Technology	Single-channel DDR4 2400MHz
	Max. Capacity	Up to 32GB
	Socket	1 x 260-pin SO-DIMM
Display	Controller	Intel® HD Graphics
	Graphic Memory	Depends on CPU
	LVDS	Dual Channel 18/24-Bit
	HDMI	1
	DisplayPort	1 (Support DP++)
	Multiple Display	3 independent displays
	Display Interface	LVDS up to 1920 x 1200 @60 Hz HDMI up to 4096 x 2160 @24Hz DP up to 4096 x 2160 @60Hz
Ethernet	Controller	1 x Intel® I219LM GbE-PHY LAN (AMT 12.0 supported by i7/i5 SKUs) 3 x Intel® I210-AT GbE LAN
Audio	Controller	Realtek® ALC887-VD2-CG HD Audio Codec
Super I/O	Controller	Fintek F81866AD-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes
TPM	Controller	Infineon SLB9670TT2.0
I/O Interfaces	USB	4 x USB 2.0 (internal) 4 x USB 3.2 Gen 2 (rear)
	Serial	4 x COM ports (internal) COM1~4: RS-232/422/485, 0V/5V/12V, support auto flow control
	Parallel	N/A
	PS/2	N/A
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V
Expansion Slot	PCIe x16	N/A
	PCIe x4	N/A
	M.2	1 x M.2 M key (SATA), 2242 1 x M.2 B key (PCIe x1, USB 3.1, USB 2.0 w/ NANO SIM-Holder), 2242/3042 1 x M.2 E key (PCIe x1, USB 2.0, w/CNVi), 2230
	Mini-PCIe	N/A
Storage	SATA	2 x SATA 3.0 (RAID 0/1 supported by i7/i5 SKUs)
Power Supply	DC Input	DC-in 12~24V (OCP & OVP)
	AC Input	N/A
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
Form Factor	Dimensions (W x D x H)	146 x 102 mm (3.5")
	Weight	0.64 kg
Certification	EMC	FCC, CE, RCM, VCCI, BSMI
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)

Packing List

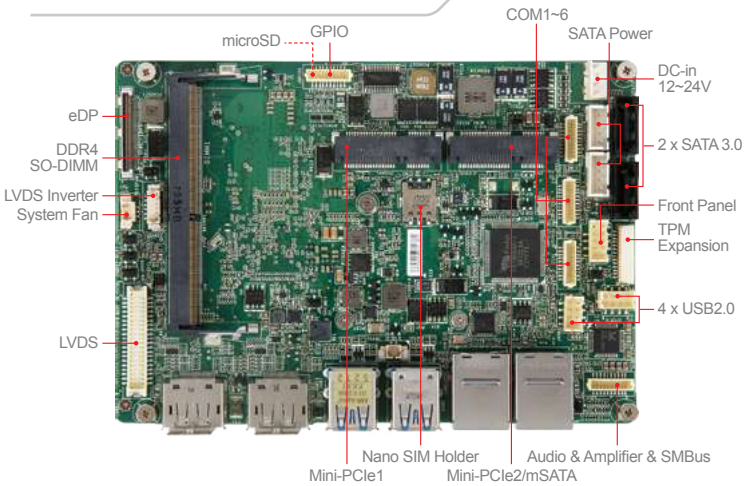
Part Number	Description	Quantity
K1G-3004069-V03	DC Power Cable, 150mm	1
K14-3018001-V03	COM Port Cable, 150mm	1
K1B-3008067-V03	USB Cable, 150mm	1
K1D-3012023-V03	SATA Cable with Power, 230mm	1

Optional Item

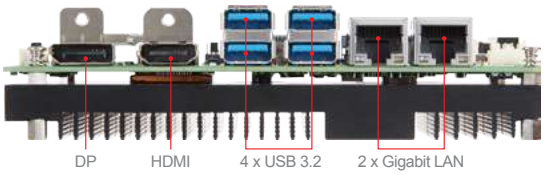
Part Number	Description
E31-0806460-K08	Heatspreader

MS-98H3

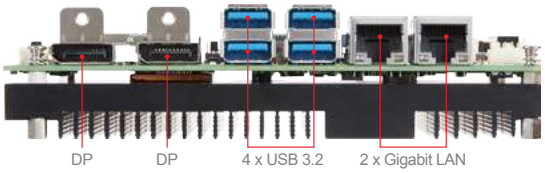
3.5" SBC with Intel® Kaby Lake-U/Skylake-U for Fanless, Ultra Low-Power & High-Performance Solution



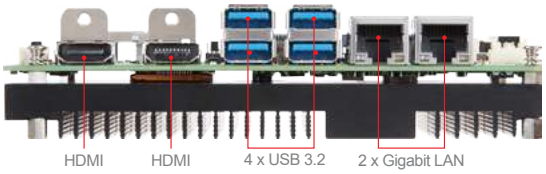
Standard : DP+HDMI



Optional : 2 DP



Optional : 2 HDMI



Features

- Intel® 7th Gen Kaby Lake-U/Skylake-U Series
- DDR4 2133 MHz SODIMM Slot up to 16GB
- Triple independent displays: DP++ , HDMI, LVDS, eDP
- 2 GbE LAN with RJ-45
- 1 Mini-PCIe (Full size, with mSATA), 1 Mini-PCIe (Full size, with Nano SIM Holder) Slots
- 2 SATA 3.0, Micro SD for storage
  SATA RAID 0/1
- 4 USB 3.2 Gen 1, 4 USB 2.0, 6 COM(1 RS-485), GPIO, Audio
- Wide Voltage DC-IN 12~24V

Packing List

Part Number	Description	Quantity
K1G-3004069-V03	DC Power Cable, 150mm	1
K14-3018001-V03	COM Port Cable, 150mm	1
K1B-3008067-V03	USB Cable, 150mm	1
K1D-1012064-V03	SATA Cable with Power, 200mm	1

Optional Item

Part Number	Description
E31-2100170-K08	Heatspreader

Specifications

Processor	CPU	7th/6th Gen Intel® Embedded Mobile Kaby Lake-U/Skylake-U Core™ i7/i5/i3/Celeron® Processor, DC, 15W
	Frequency	2.0GHz~3.4GHz (Depends on CPU)
	L2 Cache	2MB~4MB (Depends on CPU)
	CPU Type	BGA
	BIOS	AMI
Memory	Technology	Single-channel DDR4 2133MHz
	Max. Capacity	Up to 16GB
	Socket	1 x 260-pin SO-DIMM
Display	Controller	Intel® HD Graphics
	Graphic Memory	Depends on CPU
	LVDS	Dual Channel 18/24-bit
	eDP	1 (Share with LVDS Singnal)
	HDMI	1(HDMI1 Co-lay DP1 & HDMI2 Co-lay DP2 by option)
	DisplayPort	1 (Support DP++, DP1 Co-lay HDMI1 & DP2 Co-lay HDMI2 by option)
	Multiple Display	3 independent displays
	Display Interface	LVDS up to 1920 x 1200 @60Hz eDP up to 4096 x 2304 @60Hz HDMI1/HDMI2 HDMI1.4 up to 4096 x 2160 @24Hz DP1/DP2 up to 4096 x 2304 @60Hz
Ethernet	Controller	1 x Intel® I210-AT GbE LAN 1 x Intel® I219LM GbE-PHY LAN (AMT 11.x supported)
Audio	Controller	Realtek® ALC887-VD2-CG HD Audio Codec
Super I/O	Controller	Fintek F81866AD-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes
TPM	Controller	Pin header
I/O Interface	USB	4 x USB 2.0 (internal) 4 x USB 3.2 Gen 1 (rear)
	Serial	6 x COM ports (internal) COM1: RS-232/422/485, 0V/5V/12V, support auto flow control COM2~6: RS-232, 0V/5V/12V (RS-422/485 Optional)
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V
Expansion Slot	Mini-PCIe	2 x Full-size (one w/NANO SIM-Holder & one w/mSATA)
Storage	SATA	2 x SATA 3.0
	mSATA	1 (Shared with Mini-PCIe)
Power Supply	DC	DC-in 12~24V
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
Form Factor	Dimensaions	146 x 102 mm (3.5")
	Weight	0.59 kg
Certification	EMC	FCC, CE, RCM, VCCI, BSMI
Software Platform	OS Support	Windows 7 (32/64-bit) (Skylake-ULT Only) Windows 8.1 (64-bit) (Skylake-ULT Only) Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Windows 11 IoT Enterprise (64-bit, 22H2, Pre-scan) Linux (Support by request)

Ordering Information

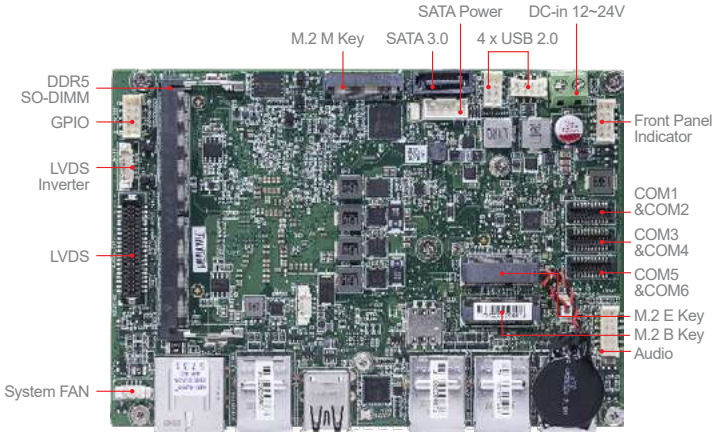
Part Number	Description
919-98H3-001	MS-98H3 11 Intel Kaby Lake-U i7-7600U,DDR4 SO DIMM+DP+HDMI+LVDS+eDP+2*Mini-PCIe+2*LAN+ 2*SATA3.0+4*USB3.0+2*USB 2.0+6*COM+Micro SD,DC 12V~24V
919-98H3-002	MS-98H3 11 OPT:A Intel Kaby Lake-U i5-7300U,DDR4 SO DIMM+DP+HDMI+LVDS+eDP+2*Mini-PCIe+2*LAN+ 2*SATA3.0+4*USB3.0+2*USB 2.0+6*COM+Micro SD,DC 12V~24V
919-98H3-003	MS-98H3 11 OPT:B Intel Kaby Lake-U i3-7100U,DDR4 SO DIMM+DP+HDMI+LVDS+eDP+2*Mini-PCIe+2*LAN+ 2*SATA3.0+4*USB3.0+2*USB 2.0+6*COM+Micro SD,DC 12V~24V
919-98H3-004	MS-98H3 11 OPT:C Intel Kaby Lake-U 3965U,DDR4 SO DIMM+DP+HDMI+LVDS+eDP+2*Mini-PCIe+2*LAN+ 2*SATA3.0+4*USB3.0+2*USB 2.0+6*COM+Micro SD,DC 12V~24V
919-98H3-005	MS-98H3 11 OPT:D Intel Skylake-U i7-6600U,DDR4 SO DIMM+DP+HDMI+LVDS+eDP+2*Mini-PCIe+2*LAN+ 2*SATA3.0+4*USB3.0+2*USB 2.0+6*COM+Micro SD,DC 12V~24V
919-98H3-006	MS-98H3 11 OPT:E Intel Skylake-U i5-6300U,DDR4 SO DIMM+DP+HDMI+LVDS+eDP+2*Mini-PCIe+2*LAN+ 2*SATA3.0+4*USB3.0+2*USB 2.0+6*COM+Micro SD,DC 12V~24V
919-98H3-007	MS-98H3 11 OPT:F Intel Skylake-U i3-6100U,DDR4 SO DIMM+DP+HDMI+LVDS+eDP+2*Mini-PCIe+2*LAN+ 2*SATA3.0+4*USB3.0+2*USB 2.0+6*COM+Micro SD,DC 12V~24V
919-98H3-008	MS-98H3 11 OPT:G Intel Skylake-U 3955U,DDR4 SO DIMM+DP+HDMI+LVDS+eDP+2*Mini-PCIe+2*LAN+ 2*SATA3.0+4*USB3.0+2*USB 2.0+6*COM+Micro SD,DC 12V~24V

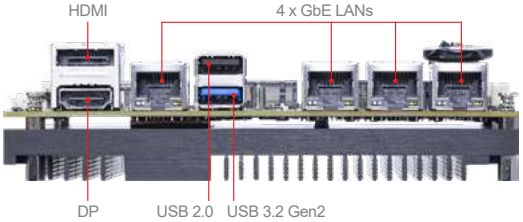
MSI reserves the right to change the specifications without prior notices.

MS-CF27

3.5" SBC with Intel® Alder Lake-N, Twin Lake-N & Amston Lake for Fanless, Ultra Low-Power, Wide Voltage Range & High-Performance Solution

NEW





Features

- Intel® Alder Lake-N, Amston Lake, Twin Lake-N PC Client & Embedded Series SoC
- DDR5 4800 MHz SODIMM slot up to 32GB
- Triple independent displays: DP, HDMI, LVDS/eDP
- 4 1 GbE LAN with RJ-45
- 1 M.2 B Key, 1 M.2 E Key slot
- 1 M.2 M Key, SATA 3.0 for storage
- 1 USB 3.2 Gen 2, 5 USB 2.0, 6 COM (2 RS-485), GPIO, Audio
- Wide Voltage DC-IN 12~24V

Ordering Information

Part Number	Description
Coming Soon	

Packing List

Part Number	Description
Coming Soon	

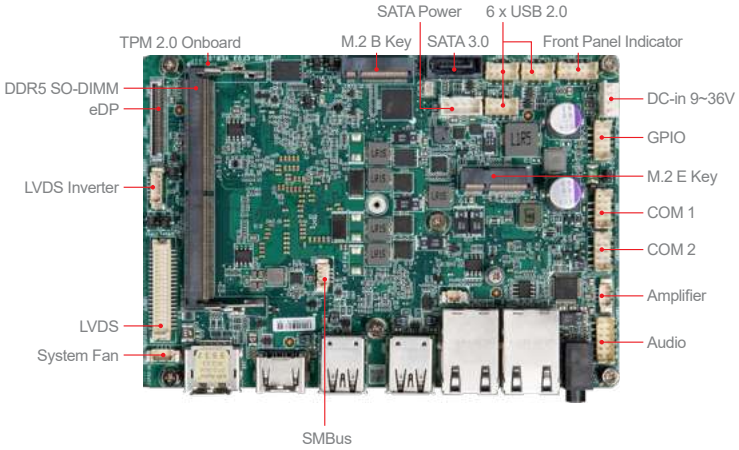
Specifications

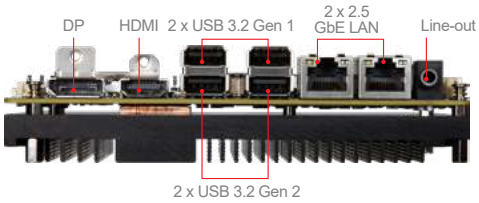
Processor	CPU	Intel® Alder Lake-N Processor N97, QC, 12W Intel® Alder Lake-N Core i3-N305, OC, 9W up to 15W Intel® Amston Lake x7433RE, QC, 12W Intel® Twin Lake-N Processor N150, QC, 6W
	Frequency	N97, 2.0GHz, up to 3.6GHz i3-N305, 1.8GHz, up to 3.8GHz x7433E, 1.5GHz, up to 3.4GHz N150, 0.8GHz, up to 3.6GHz
	L2 Cache	6MB
	CPU Type	BGA
	Chipset	Integrated in SoC
	BIOS	AMI
Memory	Technology	Single Channel for DDR5 4800MT/s
	Max. Capacity	Up to 16GB (3-N305, N150) Up to 32GB (N97, X7433RE)
	Socket	1 x 262-pin SO-DIMM
Display	Controller	Intel® UHD Graphics
	Graphic Memory	Depends on CPU
	LVDS	1 x Dual Channel 18/24-bit
	eDP	1 x eDP (Connector shared with LVDS)
	VGA	N/A
	DVI	N/A
	HDMI	1
	DisplayPort	1
	Multiple Display	3 independent displays
	Display Interface	LVDS up to 1920 x 1200 @60Hz eDP up to 1920 x 1080 @ 60Hz HDMI up to 3840 x 2160 @30Hz DP up to 4096 × 2304 @60Hz
Ethernet	Controller	4 x Intel® I226-V 1 GbE LAN
Audio	Controller	Realtek® ALC897 HD Audio Codec
Super I/O	Controller	Fintek F81966AB-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes
TPM	Controller	N/A
I/O Interface	USB	4 x USB 2.0 (internal) 1 x USB 2.0 (rear) 1 x USB 3.2 Gen 2 (rear)
	Serial	6 x COM ports (internal) COM1~2: RS-232/422/485 COM3~6: RS-232
	Parallel	N/A
	PS/2	N/A
	GPIO	8-bit (4 x GPI; 4 x GPO), 5V
Expansion Slot	PCIe x 16	N/A
	M.2	1 x M.2 M key (SATA), 2280 1 x M.2 B key (USB 3.2 Gen1), 3042 1 x M.2 E key (PCIe x1, USB 2.0), 2230
	Mini-PCIe	N/A
Storage	SATA	1 x SATA 3.0
	mSATA	N/A
Power Supply	DC	DC-in 12~24V
	ATX	N/A
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
Form Factor	Dimensions	146 x 102 mm (3.5")
	Weight	0.58 kg
Certification	EMC	CE, FCC Class B, BSMI, VCCI, RCM, UKCA
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC (64-bit, 21H2, only for ADL-N) Windows 11 IoT Enterprise LTSC (64-bit, 24H2) Linux (Support by request)

MS-CF03

3.5" SBC with Intel® Alder Lake-N & Twin Lake-N for Fanless, Ultra Low-Power, Wide Voltage Range & High-Performance Solution

NEW





Features

- Intel® Alder Lake-N & Twin Lake-N PC Client & Embedded Series SoC
- DDR5 4800 MT/s SODIMM Slot up to 16GB
- Triple independent displays: DP, HDMI, LVDS, eDP
- 2 2.5 GbE LAN with RJ-45
- 1 M.2 B Key, 1 M.2 E Key Slot
- SATA 3.0 for storage
- 2 USB 3.2 Gen 2, 2 USB 3.2 Gen 1, 6 USB 2.0, 2 COM (1 RS-485), GPIO, Audio, Amplifier-6W
- Wide Voltage DC-IN 9~36V

Ordering Information

Part Number	Description
911-CF03-008	MS-CF03\601-CF03-160\801-CF03-017 10 OPT:K, Intel ADL-N Core i3-N305, 1*DDR5 SO-DIMM,1*DP+1*HDMI+1*LVDS+1*eDP,1*M.2 E key,1*M.2 B key,2*2.5GbE LAN,1*SATA 3.0, 4*USB 3.2,6*USB 2.0,2*COM,TPM2.0,DC 9-36V, 3.5 inch
911-CF03-009	MS-CF03\601-CF03-170\801-CF03-018 10 OPT:M, Intel ADL-N Atom x7425E, 1*DDR5 SO-DIMM,1*DP+1*HDMI+1*LVDS+1*eDP,1*M.2 E key,1*M.2 B key,2*2.5GbE LAN,1*SATA 3.0, 4*USB 3.2,6*USB 2.0,2*COM,TPM2.0,DC 9-36V, 3.5 inch
911-CF03-010	MS-CF03\601-CF03-180\801-CF03-019 10 OPT:N, Intel ADL-N N200, 1*DDR5 SO-DIMM,1*DP+1*HDMI+1*LVDS+1*eDP,1*M.2 E key,1*M.2 B key,2*2.5GbE LAN,1*SATA 3.0, 4*USB 3.2,6*USB 2.0,2*COM,TPM2.0,DC 9-36V, 3.5 inch
916-CF03-001	MS-CF03\606-CF03-270\806-CF03-002 10 Intel TWL N150, 1*DDR5 SO-DIMM,1*DP+1*HDMI+1*LVDS+1*eDP,1*M.2 E key,1*M.2 B key,2*2.5GbE LAN,1*SATA 3.0,4*USB 3.2,6*USB 2.0,2*COM,TPM2.0,DC 9-36V, 3.5 inch
916-CF03-002	MS-CF03\606-CF03-280\806-CF03-003 10 Intel TWL Core 3 N355, 1*DDR5 SO-DIMM,1*DP+1*HDMI+1*LVDS+1*eDP, 1*M.2 E key,1*M.2 B key,2*2.5GbE LAN,1*SATA 3.0,4*USB 3.2,6*USB 2.0,2*COM,TPM2.0,DC 9-36V, 3.5 inch
916-CF03-006	MS-CF03\606-CF03-330\806-CF03-007 10 OPT:H, Intel ADL-N N97,1*DDR5 SO-DIMM,1*DP+1*HDMI+1*LVDS+1*eDP,1*M.2 E key,1*M.2 B key,2*2.5GbE LAN,1*SATA 3.0, 4*USB 3.2,6*USB 2.0,2*COM,TPM2.0,DC 9-36V,3.5 inch

Optional Item

Part Number	Description
E31-0807460-K08	Heatspreader

Specifications

System Processor	CPU	Intel® Alder Lake-N Processor N97, QC, 12W Intel® Alder Lake-N Processor N200, QC, 6W Intel® Alder Lake-N Core i3-N305, OC, 9W up to 15W Intel® Alder Lake-N Atom x7425E, QC, 12W Intel® Twin Lake-N Processor N150, QC, 6W Intel® Twin Lake-N Core 3 N355, OC, 9W up to 15W
	Frequency	N97, 2.0GHz, up to 3.6GHz N200, 1.0GHz, up to 3.7GHz i3-N305, 1.8GHz, up to 3.8GHz x7425E, 1.5GHz, up to 3.4GHz N150, 0.8GHz, up to 3.6GHz N355, 1.9GHz, up to 3.9GHz
	L2 Cache	6MB
	CPU Type	BGA
	Chipset	Integrated in SoC
	BIOS	AMI
Memory	Technology	Single Channel for DDR5 4800MT/s
	Max. Capacity	Up to 16GB
	Socket	1 x 262-pin SO-DIMM
Display	Controller	Intel® UHD Graphics
	Graphic Memory	Depends on CPU
	LVDS	1 x Dual Channel 18/24-bit
	eDP	1 x eDP
	VGA	N/A
	DVI	N/A
	HDMI	1
	Display Port	1
	Multiple Display	3 independent displays
	Display Interface	LVDS up to 1920 x 1200 @60Hz eDP up to 1920 x 1080 @ 60Hz; up to 4K @ 60Hz is supported only with Alder Lake-N N97 and Twin Lake Series. HDMI up to 3840 x 2160 @30Hz DP up to 4096 × 2304 @60Hz
Ethernet	Controller	2 x Intel® I226-V 2.5 GbE LAN
Audio	Controller	Realtek® ALC897 HD Audio Codec
Super I/O	Controller	Fintek F81966AB-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes
TPM	Controller	Infineon SLB9672VU2.0
I/O Interfaces	USB	6 x USB 2.0 (internal) 2 x USB 3.2 Gen 2 (rear) 2 x USB 3.2 Gen 1 (rear)
	Serial	2 x COM ports (internal) COM1: RS-232/422/485, 0V/5V/12V COM2: RS-232
	Parallel	N/A
	PS/2	N/A
	GPIO	8-bit (4 x GPI; 4 x GPO), 5V
Expansion Slot	M.2	1 x M.2 B key (SATA/PCIe x1), 2242/3042/2280 1 x M.2 E key (PCIe x1, USB 2.0), 2230
	Mini-PCIe	N/A
Storage	SATA	1 x SATA 3.0
	mSATA	N/A
	CompactFlash	N/A
Power Supply	DC Input	DC-in 9~36V
	AC Input	N/A
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
Form Factor	Dimensions (W x D x H)	146 x 102 mm (3.5")
	Weight	0.58 kg
Certification	EMC	CE, FCC Class B, BSMI, VCCI, RCM, UKCA
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC (64-bit, 21H2, only for ADL-N) Windows 11 IoT Enterprise LTSC (64-bit, 24H2) Linux (Support by request)

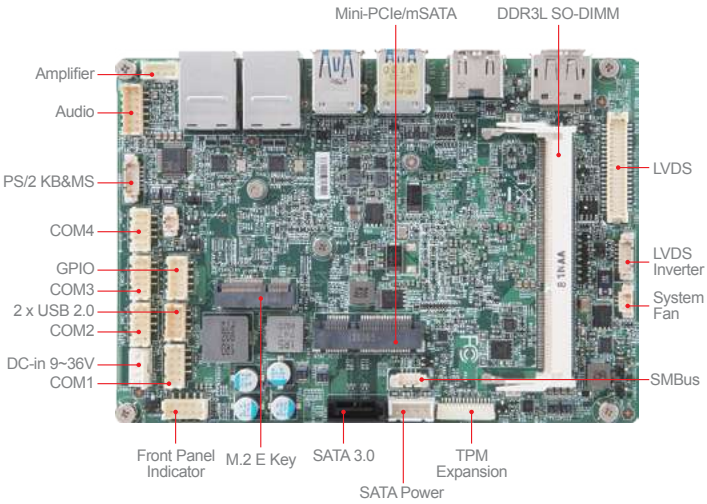
Packing List

Part Number	Description	Quantity
K14-1009062-V03	COM Port Cable, 250mm	1
K1G-3004069-V03	DC Power Cable, 150mm	1
K1D-1012115-V03	SATA Cable with Power, 230mm	1
K1B-3008067-V03	USB Cable, 150mm	1

MSI reserves the right to change the specifications without prior notices.

MS-98J8

3.5" SBC with Intel® Apollo Lake/Apollo Lake-I for Fanless, Ultra Low-Power, Wide Voltage Range & High-Performance Solution



Features

- Intel® Apollo Lake/Apollo Lake-I Series SoC
- DDR3L 1866/1600 MHz SODIMM Slot up to 8GB
- Triple independent displays: DP, HDMI, LVDS
- 2 GbE LAN with RJ-45
- 1 M.2 E Key, Mini-PCIe (Full size, with mSATA) Slot
- SATA 3.0 for storage
- 4 USB 3.2 Gen 1, 2 USB 2.0, 4 COM (1 RS-485), GPIO, PS/2, Audio
- Wide Voltage DC-IN 9~36V

Ordering Information

Part Number	Description
919-98J8-009	MS-98J8\MS-98J8\609-98J8-030\809-98J8-007 VER 1.0 OPT:E Intel Apollo Lake-I E3940, F1 stepping, DDR3L, HDMI™+LVDS+DP+SATA3.0+2*LAN+1*M.2+1*Mini-PCIe (with Msata)+2*USB2.0+4*USB3.0+4*COM, Non-WT DC-in 9V~36V, Single
919-98J8-011	MS-98J8\MS-98J8\609-98J8-050\809-98J8-010 VER 1.0 OPT:F Intel Apollo Lake J3455, F1 stepping, DDR3L, HDMI™+LVDS+DP+SATA3.0+2*LAN+1*M.2+1*Mini-PCIe (with mSATA)+2*USB2.0+4*USB3.0+4*COM, Non-WT DC-in 9V~36V, Single
919-98J8-012	MS-98J8\MS-98J8\609-98J8-060\809-98J8-010 VER 1.0 OPT:F Intel Apollo Lake J3455, F1 stepping, DDR3L, HDMI™+LVDS+DP+SATA3.0+2*LAN+1*M.2+1*Mini-PCIe (with mSATA)+2*USB2.0+4*USB3.0+4*COM, Non-WT DC-in 9V~36V, Single
919-98J8-014	MS-98J8\609-98J8-080\809-98J8-009 VER 1.0 OPT:J Intel Apollo Lake-I E3940,F1,DDR3L,HDMI+LVDS+DP+SATA3.0+2*LAN+1*M.2+1 *Mini-PCIe(with mSATA)+2*USB2.0+4*USB3.0+4*COM,DC-in 9V~36V, Heatspreader, Single

Packing List

Part Number	Description	Quantity
K14-1009062-V03	COM PORT Cable, 250mm	1
K1B-3008067-V03	USB Cable, 150mm	1
K1D-1012064-V03	SATA Cable with Power, 200mm	1
K1G-3004069-V03	DC Power Cable, 150mm	1

Specifications

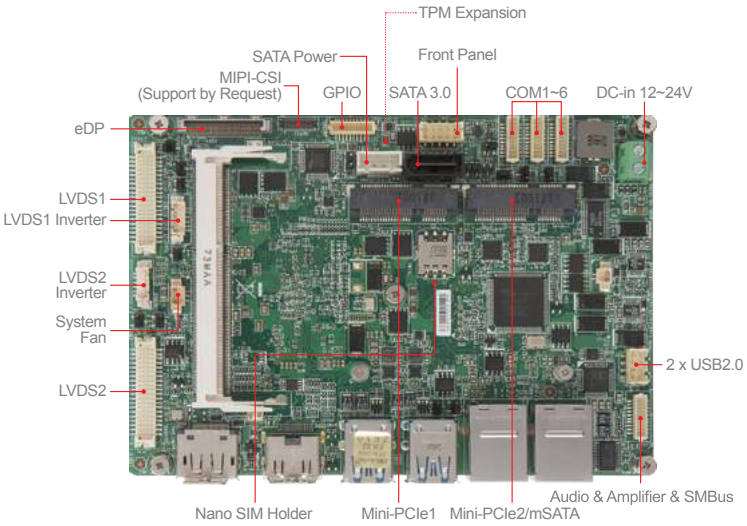
Processor	CPU	Intel® Pentium™ N4200 Processor, QC, 6W Intel® Celeron® N3350 Processor, DC, 6W Intel® Celeron® Processor J3455, QC, 10W Intel® Atom™ X5-E3940 Processor, QC, 9.5W Intel® Atom™ X5-E3930 Processor, DC, 6.5W
	Frequency	N4200, 1.1 GHz, up to 2.5 GHz N3350, 1.1 GHz, up to 2.4 GHz J3455, 1.5 GHz, up to 2.3 GHz E3940, 1.6 GHz, up to 1.8 GHz E3930, 1.3 GHz, up to 1.8 GHz
	L2 Cache	2M
	CPU Type	BGA
	Chipset	Integrated in SoC
	BIOS	AMI
Memory	Technology	Single Channel for DDR3L 1866/1600 MHz
	Max. Capacity	Up to 8GB
	Socket	1 x 204pin SO-DIMM
Display	Controller	Intel® HD Graphics
	Graphic Memory	Depends on CPU
	LVDS	Dual channel 18/24-bit
	eDP	N/A
	VGA	N/A
	DVI	N/A
	HDMI	1
	DisplayPort	1
	Multiple Display	3 independent displays
	Display Interface	LVDS up to 1920 x 1200 @60Hz HDMI up to 3840 x 2160 @30Hz DP up to 4096 × 2160 @60Hz
Ethernet	Controller	2 x Realtek® RTL8111H GbE LAN
Audio	Controller	Realtek® ALC887 HD Audio Codec
Super I/O	Controller	Fintek F81867AD-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes
TPM	Controller	Pin header (Default) Infineon SLB9665TT 2.0 (by BOM option)
I/O Interface	USB	2 x USB 2.0 (internal) 4 x USB 3.2 Gen 1 (rear)
	Serial	4 x COM ports (Internal) COM1: RS-232/422/485, 0V/5V/12V COM2~4: RS-232
	Parallel	N/A
	PS/2	1 (wafer connector)
	GPIO	8-bit (4 x GPI; 4 x GPO), 5V
Expansion Slot	PCIe x 16	N/A
	PCIe x 4	N/A
	PCIe x 1	N/A
	PCI	N/A
	M.2	1 x M.2 E key (PCIe x1, USB 2.0), 2230
	Mini-PCIe	1 x Full-size (w/ mSATA)
Storage	SATA	1 x SATA 3.0
	IDE	N/A
	eSATA	N/A
	CFast	N/A
	mSATA	1 (Shared with Mini-PCIe)
	CompactFlash	N/A
Power Supply	DC	DC-in 9~36V
	ATX	N/A
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
Form Factor	Dimensions	146 x 102 mm (3.5")
	Weight	0.33 kg
Certification	EMC	CE, FCC Class B, BSMI, VCCI, RCM
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)

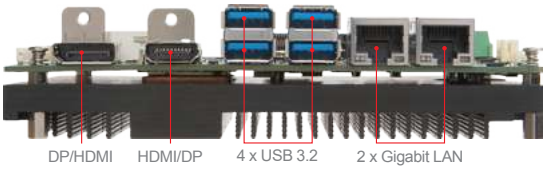
Optional Item

Part Number	Description
E31-0806190-K08	Heatspreader for Apollo Lake
E31-0806191-K08	Heatspreader for Apollo Lake-I

MS-98E6

3.5" SBC with Intel® Apollo Lake/Apollo Lake-I for Fanless, Ultra Low-Power, High-Performance & Wide Temperature Solution





Features

- Intel® Apollo Lake/Apollo Lake-I Series SoC
- DDR3L 1866/1600 MHz SODIMM Slot up to 8GB
- Triple independent displays: DP, HDMI, LVDS(eDP by option)
- 2 GbE LAN with RJ-45
- 1 Mini-PCIe (Full size, with mSATA), 1 Mini-PCIe (Full size, with Nano SIM Holder) Slots
- SATA 3.0, Micro SD for storage
- 4 USB 3.2 Gen 1, 2 USB 2.0, 6 COM (1 RS-485), GPIO, Audio
- Wide operating temperature : -40 ~ 85°C
- Wide Voltage DC-IN 12~24V

Ordering Information

Part Number	Description
919-98E6-007	MS-98E6\609-98E6-180\809-98E6-007 VER12 OPT:A Intel Apollo Lake-I E3950,F1,DDR3L SO DIMM+DP+HDMI+2LVDS+eDP+2Mini-PCIe+2LAN+SATA3.0+4USB3.0+2USB 2.0+6COM+MIPI+Micro SD, DC 12V~24V, WT
919-98E6-008	MS-98E6\609-98E6-190\809-98E6-007 VER12 OPT:B Intel Apollo Lake-I E3940,F1,DDR3L SO DIMM+DP+HDMI+2LVDS+eDP+2Mini-PCIe+2LAN+SATA3.0+4USB3.0+2USB 2.0+6COM+MIPI+Micro SD, DC 12V~24V, WT
919-98E6-009	MS-98E6\609-98E6-200\809-98E6-007 VER12 OPT:C Intel Apollo Lake-I E3930,F1,DDR3L SO DIMM+DP+HDMI+2LVDS+eDP+2Mini-PCIe+2LAN+SATA3.0+4USB3.0+2USB 2.0+6COM+MIPI+Micro SD, DC 12V~24V, WT
919-98E6-010	MS-98E6\609-98E6-210\809-98E6-008 VER12 OPT:D Intel Apollo Lake-I E3940,F1,DDR3L SO DIMM+DP+HDMI+2LVDS+eDP+2Mini-PCIe+2LAN+SATA3.0+4USB3.0+2USB 2.0+6COM+MIPI+Micro SD, DC 12V~24V, Non-WT
919-98E6-011	MS-98E6\609-98E6-220\809-98E6-008 VER12 OPT:E Intel Apollo Lake N4200,F1,DDR3L SO DIMM+DP+HDMI+2LVDS+eDP+2Mini-PCIe+2LAN+SATA3.0+4USB3.0+2USB 2.0+6COM+MIPI+Micro SD, DC 12V~24V, Non-WT
919-98E6-012	MS-98E6\609-98E6-230\809-98E6-008 VER12 OPT:F Intel Apollo Lake N3350,F1,DDR3L SO DIMM+DP+HDMI+2LVDS+eDP+2Mini-PCIe+2LAN+SATA3.0+4USB3.0+2USB 2.0+6COM+MIPI+Micro SD, DC 12V~24V, Non-WT
919-98E6-013	MS-98E6\609-98E6-240\809-98E6-008 VER12 OPT:G Intel Apollo Lake J3455,F1,DDR3L SO DIMM+DP+HDMI+2LVDS+eDP+2Mini-PCIe+2LAN+SATA3.0+4USB3.0+2USB 2.0+6COM+MIPI+Micro SD, DC 12V~24V, Non-WT

Packing List

Part Number	Description	Quantity
K1B-3008067-V03	USB Cable, 150mm	1
K1D-1012064-V036	SATA Cable with Power, 200mm	1
K14-3018001-V03	COM PORT Cable, 150mm	1
K1G-3002031-V03	DC Power Cable, 150mm (For 919-98E6-007/008/009)	1
K1G-3004069-V03	DC Power Cable, 150mm (For 919-98E6-010/011/012/013)	1

Specifications

Processor	CPU	Apollo Lake SKUs	Apollo Lake-I SKUs
		Intel® Pentium® Processor N4200, QC, 6W Intel® Celeron® Processor N3350, DC, 6W Intel® Celeron® Processor J3455, QC, 10W	Intel® Atom™ x7 Processor E3950, QC, 12W Intel® Atom™ x5 Processor E3940, QC, 9.5W Intel® Atom™ x5 Processor E3930, DC, 6.5W
	Frequency	N4200, 1.1 GHz, up to 2.5 GHz N3350, 1.1 GHz, up to 2.4 GHz J3455, 1.5 GHz, up to 2.3 GHz	E3950, 1.6 GHz, up to 2.0 GHz E3940, 1.6 GHz, up to 1.8 GHz E3930, 1.3 GHz, up to 1.8 GHz
	L2 Cache	1M~2M (Depends on CPU)	
	CPU Type	BGA	
	Chipset	Integrated in SoC	
	BIOS	AMI	
Memory	Technology	Single-channel DDR3L 1866/1600 MHz	
	Max. Capacity	Up to 8GB	
	Socket	1 x 204-pin SO-DIMM	
Display	Controller	Intel® HD Graphics	
	Graphic Memory	Depends on CPU	
	LVDS	2 x Dual Channel 18/24-bit (LVDS1 Share with eDP Signal, LVDS2 Share with DP1 Signal)	
	eDP	1 (Share with LVDS1 Signal)	
	VGA	N/A	
	DVI	N/A	
	HDMI	1(HDMI1 Co-lay DP1/LVDS2 & HDMI2 Co-lay DP2 by option)	
	DisplayPort	1(DP1 Co-lay HDMI1/LVDS2 & DP2 Co-lay HDMI2 by option)	
	Multiple Display	3 independent displays	
	Display Interface	LVDS1/LVDS2 up to 1920 x 1200 @60Hz eDP up to 4096 x 2160 @60Hz HDMI1/HDMI2 up to 3840 x 2160 @30Hz DP1/DP2 up to 4096 × 2160 @60Hz	
Ethernet	Controller	2 x Intel® I211-AT GbE LAN	2 x Intel® I210-IT GbE LAN
Audio	Controller	Realtek® ALC887-VD2-CG HD Audio Codec	
Super I/O	Controller	Fintek F81867AD-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	Yes	
TPM	Controller	Pin header	
I/O Interface	USB	2 x USB 2.0 (internal) 4 x USB 3.2 Gen 1 (rear)	
	Serial	6 x COM ports (Internal) COM1: RS-232/422/485, 0V/5V/12V, support auto flow control COM2~6: RS-232, 0V/5V/12V (RS-422/485 by Optional)	
	Parallel	N/A	
	PS/2	N/A	
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V	
Expansion Slot	PCIe x16	N/A	
	PCI	N/A	
	M.2	N/A	
	Mini-PCIe	2 x Full-size (Mini-PCIe1 Slot w/ NANO SIM-Holder) (Mini-PCIe2 Slot w/ mSATA)	
Storage	SATA	1 x SATA 3.0	
	mSATA	1 (Shared with Mini-PCIe2)	
Power Supply	DC	DC-in 12~24V (Box header with 4pin)	DC-in 12~24V (Phoenix connector with 2pin)
	ATX	N/A	
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	-40 ~ 85°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	-40 ~ 85°C
	Storage Humidity	10 ~ 90%, non-condensing	
Form Factor	Dimensions	146 x 102 mm (3.5")	
	Weight	0.34 kg	0.59 kg
Certification	EMC	FCC, CE, RCM, VCCI, BSMI	
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)	

*1 x MIPI-CSI 2.0 (by request)
*1 x microSD slot

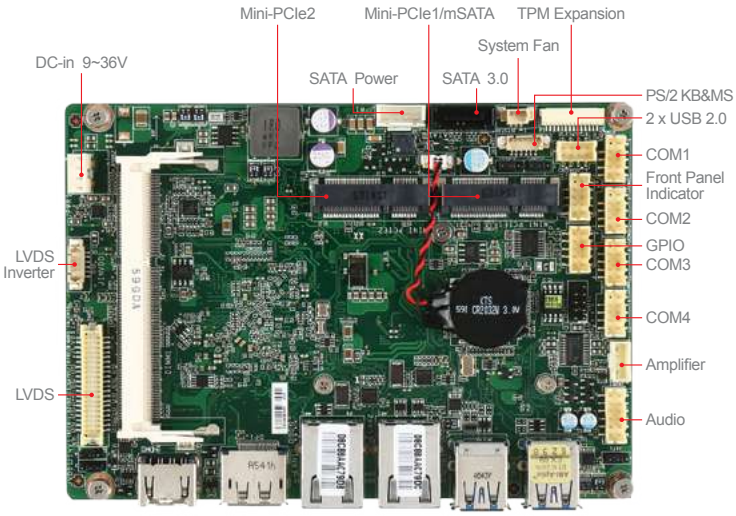
Optional Item

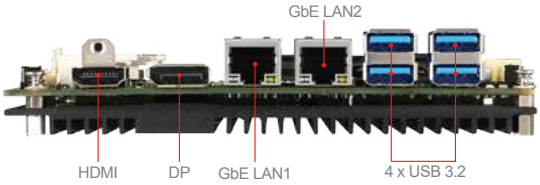
Part Number	Description
E31-0805840-K08	Heatspreader (For Apollo Lake-I))
E31-0805850-K08	Heatspreader (For Apollo Lake)

MSI reserves the right to change the specifications without prior notices.

MS-98I8

3.5" SBC with Intel® Celeron® Processor N3010/N3160 for Fanless, Ultra Low-Power, Wide Voltage Range & High-Performance Solution





Features

- Intel® Braswell Series SoC
- DDR3L 1333/1600 MHz SODIMM Slot up to 8GB
- Triple independent displays: DP, HDMI, LVDS
- 2 GbE LAN with RJ-45
- 1 Mini-PCIe (Full size, with mSATA), 1 Mini-PCIe(Full size) Slots
- SATA 3.0 for storage
- 4 USB 3.2 Gen 1, 2 USB 2.0, 4 COM (1 RS-485), GPIO, PS/2, Audio
- Wide Voltage DC-IN 9~36V

Ordering Information

Part Number	Description
919-98I8-003	MS-98I8 10 OPTB, 3.5-INCH, INTEL CELERON N3160, 1*DDR3L SO-DIMM, DP, HDMI, LVDS, 2*MINI-PCIE, 2*LAN, 1*SATA3.0, 1*MSATA, 6*USB (4*USB 3.0+2*USB 2.0), 4*COM, DC-IN 9~36V
919-98I8-004	MS-98I8 10 OPTC, 3.5-INCH, INTEL CELERON N3010, 1*DDR3L SO-DIMM, DP, HDMI, LVDS, 2*MI-NI-PCIE, 2*LAN, 1*SATA3.0, 1*MSATA, 6*USB(4*USB 3.0+2*USB 2.0), 4*COM, DC-IN 9~36V

Packing List

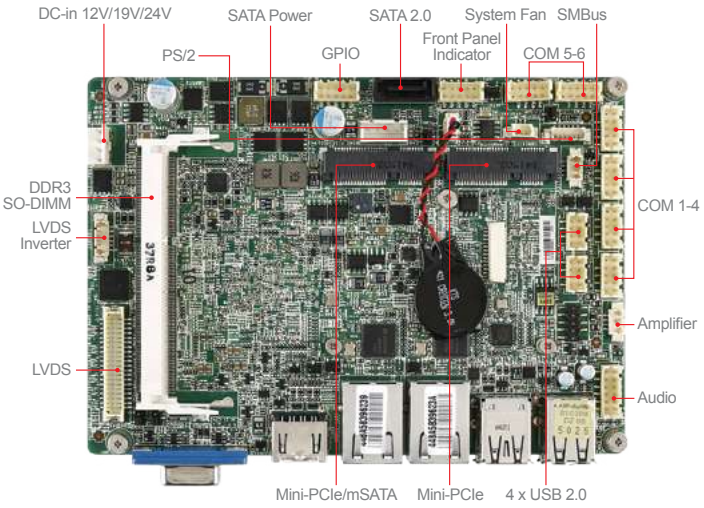
Part Number	Description	Quantity
K10-3002145-V03	DC LOCKABLE CABLE, 120mm	1
K1B-3008067-V03	USB2.0 CABLE, 150mm	1
K14-1009062-V03	INT COM PORT CABLE, 250mm	1
K1D-1012064-V03	SATA Power CABLE, 200mm	1
E31-0806020-K08	Heatsink	1

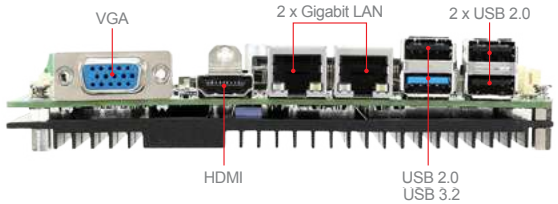
Specifications

Processor	CPU	Intel® Celeron® Processor N3160, QC, 6W Intel® Celeron® Processor N3010, DC, 4W
	Frequency	N3160, 1.6 GHz up to 2.24 GHz N3010, 1.04 GHz up to 2.24 GHz
	L2 Cache	2MB
	CPU Type	BGA
	Chipset	Integrated in SoC
	BIOS	AMI
Memory	Technology	Single-channel DDR3L 1600MHz
	Max. Capacity	Up to 8GB
	Socket	1 x 204-pin SO-DIMM
Display	Controller	Intel® HD Graphics
	Graphic Memory	Depends on CPU
	LVDS	Dual Channel 18/24-bit
	HDMI	1
	DisplayPort	1
	Multiple Display	3 independent displays
	Display Interface	LVDS up to 1920 x 1200 @60Hz HDMI up to 2560 x 1600 @60Hz; up to 3840 x 2160 @30Hz DP1.1a up to 2560 x 1600 @60Hz; up to 3840 x 2160 @30Hz
Ethernet	Controller	2 x Realtek® RTL8111G GbE LAN
Audio	Controller	Realtek® ALC887-VD2-CG HD Audio Codec
Super I/O	Controller	Fintek F81866AD-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes
TPM	Controller	Pin header
I/O Interface	USB	2 x USB 2.0 (internal) 4 x USB 3.2 Gen 1 (rear)
	Serial	4 x COM ports (internal) COM1: RS-232/422/485, 0V/5V/12V COM2~4: RS-232
	PS/2	1 (box header)
	GPIO	8-bits (4 x GPI; 4 x GPO), 5V
Expansion Slot	M.2	N/A
	Mini-PCIe	2 x Full-size (one w/mSATA)
Storage	SATA	1 x SATA 3.0
	mSATA	1 (Shared with Mini-PCIe)
Power Supply	DC	DC-in 9~36V
	ATX	N/A
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
Form Factor	Dimensions	146 x 102 mm (3.5")
	Weight	0.33 kg
Certification	EMC	FCC, CE, RCM, VCCI, BSMI
Software Platform	OS Support	Windows 7 (32/64-bit) Windows 8.1 (64-bit) Windows 10 (64-bit) Linux (Support by request)

MS-98F6

3.5" SBC with Intel® Bay Trail-D/M Series Platform for High-Performance, Low-Power & Fanless Solution





Features

- Intel® Bay Trail-D/M Series SoC
- DDR3L 1333/1600 MHz SODIMM up to 8GB
- Triple independent displays: VGA, HDMI, LVDS
- 2 GbE LAN with RJ-45
- 2 Mini-PCIe (Full size, 1 with mSATA)
- SATA 2.0 for storage
- USB 3.2 Gen 1, 7 USB 2.0, 6 COM (1 RS-485), GPIO, PS/2, Audio
- DC-IN 12/19/24V

Ordering Information

Part Number	Description
919-98F6-004	MS-98F6 11 OPT:A Intel Bay Trail M-N2930, DDR3L SO DIMM+VGA+HDMI+LVDS+2*Mini-PCIe+2*LAN+ 1*SATA2.0+ 1*USB3.0+7*USB 2.0+6*COM, DC 12V/19V/24V
919-98F6-007	MS-98F6\609-98F6-120\809-98F6-007\STD VER11 OPT:N Intel Bay Trail D-J1900 D1 Stepping, DDR3L SO DIMM+VGA+HDMI+LVDS+2*Mini-PCIe+2*LAN+ 1*SA-TA2.0+1*USB3.0+7*USB 2.0+6*COM, DC 12V/19V/24V
919-98F6-008	MS-98F6\609-98F6-150\809-98F6-011 STD VER12 Intel Bay Trail D-J1900 D1 Stepping,DDR3L SO DIMM+VGA+HDMI+LVDS+2*Mini-PCIe+2*LAN+ 1*SA-TA2.0+1*USB3.0+7*USB 2.0+6*COM,DC 12V/19V/24V, Single

Packing List

Part Number	Description	Quantity
K10-3002145-V03	DC Power Cable, 120mm	1
K14-1009062-V03	COM Port Cable, 250mm	1
K1B-3008067-V03	USB Cable, 150mm	1
K1D-1012064-V03	SATA Cable with Power, 200mm	1

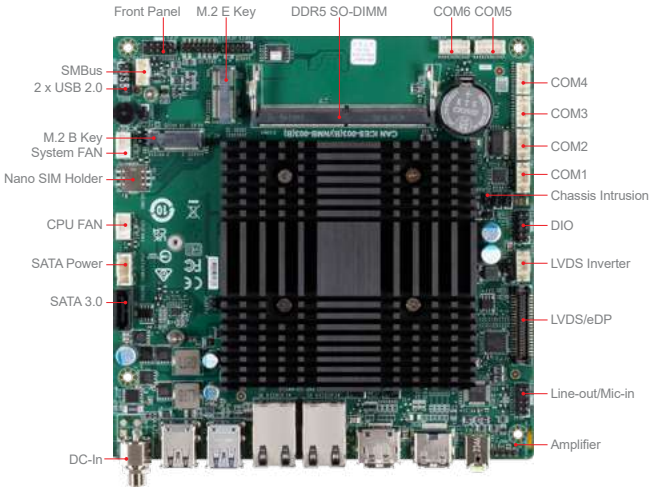
Specifications

Processor	CPU	Intel® Celeron® Processor J1900, QC, 10W Intel® Celeron® Processor N2930, QC, 7.5W
	Frequency	J1900, 2 GHz N2930, 1.83 GHz
	L2 Cache	2MB
	CPU Type	BGA
	Chipset	N/A
	BIOS	AMI
Memory	Technology	Single-channel DDR3L 1333 MHz
	Max. Capacity	Up to 8GB
	Socket	1 x 204-pin SO-DIMM
Display	Controller	Intel® HD Graphics
	Graphic Memory	Depends on CPU
	LVDS	Dual Channel 18/24-bit
	VGA	1
	HDMI	1
	Multiple Display	2 independent displays
	Display Interface	VGA up to 2560 x 1600 @60Hz HDMI up to 1920 x 1080 @60Hz LVDS up to 1920 x 1200 @60Hz
Ethernet	Controller	2 x Intel® I210-AT GbE LAN
Audio	Controller	Realtek® ALC887-VD2-CG HD Audio Codec
Super I/O	Controller	Fintek F81866AD-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
TPM	Controller	N/A
I/O Interface	USB	7 x USB 2.0 (4 x internal, 3 x rear) 1 x USB 3.2 Gen 1 (rear)
	Serial	6 x COM ports (internal) COM1: RS-232/422/485, 0V/5V/12V COM2~6: RS-232, 0V/5V/12V
	PS/2	1 (wafer connector)
	GPIO	8-bits (4 x GPI; 4 x GPO), 5V
Expansion Slot	M.2	N/A
	Mini-PCIe	2 x Full-size (one w/ mSATA)
Storage	SATA	1 x SATA 2.0
	mSATA	1
Power Supply	DC	DC-in 12V/19V/24V
	ATX	N/A
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
Form Factor	Dimensions	146 x 102 mm (3.5")
	Weight	0.31 kg
Certification	EMC	FCC, CE, RCM, VCCI, BSMI
Software Platform	OS Support	Windows 7 (32/64-bit) Windows 8.1 (32/64-bit) Windows 10 (32/64-bit) Linux (Support by request)

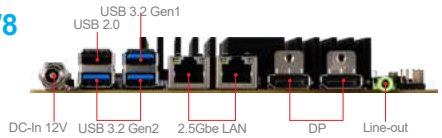
MSI reserves the right to change the specifications without prior notices.

MS-CF13

Mini-ITX with Intel® Alder Lake-N & Twin Lake-N SoC Series for Fanless, Low-Profile, Ultra Low-Power & Multi-Displays Solution



SKU1/5/6/8



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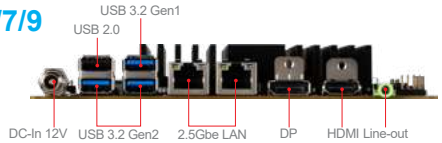


Features

- Intel® Alder Lake-N & Twin Lake-N PC Client & Embedded Series SoC
- DDR5 4800 MHz SODIMM Slot up to 16GB
- Triple independent displays: DP, HDMI/DP, LVDS/eDP
- 2 2.5 GbE LAN with RJ-45
- 1 M.2 E Key Slot, 1 M.2 B Key (with SIM Holder)
- 1 M.2 B key, 1 SATA 3.0 for storage
- 2 USB 3.2 Gen 2, 1 USB 3.2 Gen 1, 3 USB 2.0, 6 COM, GPIO, Audio, Amplifier-3W
- Onboard TPM 2.0
- DC-IN 12V

Ordering Information

Part Number	Description
911-CF13-101	MS-CF13\601-CF13-010\801-CF13-102 10 Fanless, Intel ADL-N N97, 1*DDR5 SO-DIMM, 3*USB 3.2, 3*USB 2.0, 6*COM, 2*DP+1*LVDS/eDP, 2*M.2, 2*2.5GbE LAN, 1*SATA 3.0, DC-in 12V, BULK
911-CF13-102	MS-CF13\601-CF13-020\801-CF13-103 10 Fanless, Intel ADL-N N97, 1*DDR5 SO-DIMM, 3*USB 3.2, 3*USB 2.0, 6*COM, 1*DP+1*HDMI+1*LVDS/eDP, 2*M.2, 2*2.5GbE LAN, 1*SATA 3.0, DC-in 12V, BULK
911-CF13-103	MS-CF13\601-CF13-030\801-CF13-103 10 Fanless, Intel ADL-N Core i3-N305, 1*DDR5 SO-DIMM, 3*USB 3.2, 3*USB 2.0, 6*COM, 1*DP+1*HDMI+1*LVDS/ eDP, 2*M.2, 2*2.5GbE LAN, 1*SATA 3.0, DC-in 12V, BULK
911-CF13-104	MS-CF13\601-CF13-040\801-CF13-103 10 Fanless, Intel ADL-N Atom X7425E, 1*DDR5 SO-DIMM, 3*USB 3.2, 3*USB 2.0, 6*COM, 1*DP+1*HDMI+1*LVDS/ eDP, 2*M.2, 2*2.5GbE LAN, 1*SATA 3.0, DC 12V, BULK
911-CF13-106	MS-CF13\601-CF13-050\801-CF13-102 10 Fanless, Intel ADL-N Core i3-N305, 1*DDR5 SO-DIMM, 3*USB 3.2, 3*USB 2.0, 6*COM, 2*DP +1*LVDS/eDP, 2*M.2, 2*2.5GbE LAN, 1*SATA 3.0, DC-in 12V, BULK
916-CF13-103	MS-CF13\606-CF13-080\806-CF13-103 10 Fanless, Intel TWL N150, 1*DDR5 SO-DIMM, 3*USB 3.2, 3*USB 2.0, 6*COM, 2*DP+1*LVDS/eDP, 2*M.2, 2*2.5GbE LAN, 1*SATA 3.0, DC-in 12V, Bulk
916-CF13-104	MS-CF13\606-CF13-090\806-CF13-104 10 Fanless, Intel TWL N150, 1*DDR5 SO-DIMM, 3*USB 3.2, 3*USB 2.0, 6*COM, 1*DP+1*HDMI+1*LVDS/eDP, 2*M.2, 2*2.5GbE LAN, 1*SATA 3.0, DC-in 12V, Bulk
916-CF13-105	MS-CF13\606-CF13-100\806-CF13-103 10 Fanless, Intel TWL Core 3 N355, 1*DDR5 SO-DIMM, 3*USB 3.2, 3*USB 2.0, 6*COM, 2*DP+1*LVDS/eDP, 2*M.2, 2*2.5GbE LAN, 1*SATA 3.0, DC-in 12V, Bulk
916-CF13-106	MS-CF13\606-CF13-110\806-CF13-104 10 Fanless, Intel TWL Core 3 N355, 1*DDR5 SO-DIMM, 3*USB 3.2, 3*USB 2.0, 6*COM, 1*DP+1*HDMI+1*LVDS/ eDP, 2*M.2, 2*2.5GbE LAN, 1*SATA 3.0, DC-in 12V, Bulk
911-CF13-005	MS-CF13\601-CF13-010\801-CF13-005 10 Fanless, Intel ADL-N N97, 1*DDR5 SO-DIMM, 3*USB 3.2, 3*USB 2.0, 6*COM, 2*DP+1*LVDS/eDP, 2*M.2, 2*2.5GbE LAN, 1*SATA 3.0, DC-in 12V, Single
911-CF13-006	MS-CF13\601-CF13-020\801-CF13-006 10 Fanless, Intel ADL-N N97, 1*DDR5 SO-DIMM, 3*USB 3.2, 3*USB 2.0, 6*COM, 1*DP+1*HDMI+1*LVDS/eDP, 2*M.2, 2*2.5GbE LAN, 1*SATA 3.0, DC-in 12V, Single
911-CF13-007	MS-CF13\601-CF13-030\801-CF13-007 10 Fanless, Intel ADL-N Core i3-N305, 1*DDR5 SO-DIMM, 3*USB 3.2, 3*USB 2.0, 6*COM, 1*DP+1*HDMI+1*LVDS/ eDP, 2*M.2, 2*2.5GbE LAN, 1*SATA 3.0, DC-in 12V, Single
911-CF13-008	MS-CF13\601-CF13-040\801-CF13-008 10 Fanless, Intel ADL-N Atom X7425E, 1*DDR5 SO-DIMM, 3*USB 3.2, 3*USB 2.0, 6*COM, 1*DP+1*HDMI+1*LVDS/ eDP, 2*M.2, 2*2.5GbE LAN, 1*SATA 3.0, DC 12V, Single
911-CF13-010	MS-CF13\601-CF13-050\801-CF13-010 10 Fanless, Intel ADL-N Core i3-N305, 1*DDR5 SO-DIMM, 3*USB 3.2, 3*USB 2.0, 6*COM, 2*DP +1*LVDS/eDP, 2*M.2, 2*2.5GbE LAN, 1*SATA 3.0, DC-in 12V, Single
916-CF13-001	MS-CF13\606-CF13-080\806-CF13-003 10 Fanless, Intel TWL N150, 1*DDR5 SO-DIMM, 3*USB 3.2, 3*USB 2.0, 6*COM, 2*DP+1*LVDS/eDP, 2*M.2, 2*2.5GbE LAN, 1*SATA 3.0, DC-in 12V, Single
916-CF13-002	MS-CF13\606-CF13-090\806-CF13-004 10 Fanless, Intel TWL N150, 1*DDR5 SO-DIMM, 3*USB 3.2, 3*USB 2.0, 6*COM, 1*DP+1*HDMI+1*LVDS/eDP, 2*M.2, 2*2.5GbE LAN, 1*SATA 3.0, DC-in 12V, Single
916-CF13-003	MS-CF13\606-CF13-100\806-CF13-005 10 Fanless, Intel TWL Core 3 N355, 1*DDR5 SO-DIMM, 3*USB 3.2, 3*USB 2.0, 6*COM, 2*DP+1*LVDS/eDP, 2*M.2, 2*2.5GbE LAN, 1*SATA 3.0, DC-in 12V, Single
916-CF13-004	MS-CF13\606-CF13-110\806-CF13-006 10 Fanless, Intel TWL Core 3 N355, 1*DDR5 SO-DIMM, 3*USB 3.2, 3*USB 2.0, 6*COM, 1*DP+1*HDMI+1*LVDS/ eDP, 2*M.2, 2*2.5GbE LAN, 1*SATA 3.0, DC-in 12V, Single

Packing List

Part Number	Description	Quantity
K1D-1012115-V03	SATA Cable with Power, 230mm	1
E21-CF13010-C22	I/O SHIELDING For DP+HDMI	1
E21-CF13020-C22	I/O SHIELDING For DP+DP	

Optional Item

Part Number	Description
K14-1009062-V03	COM Port Cable, 250mm
K14-1018003-V03	COM port cable, 300mm
K1B-3008012-E06	USB 2.0 Cable, 330mm

NEW

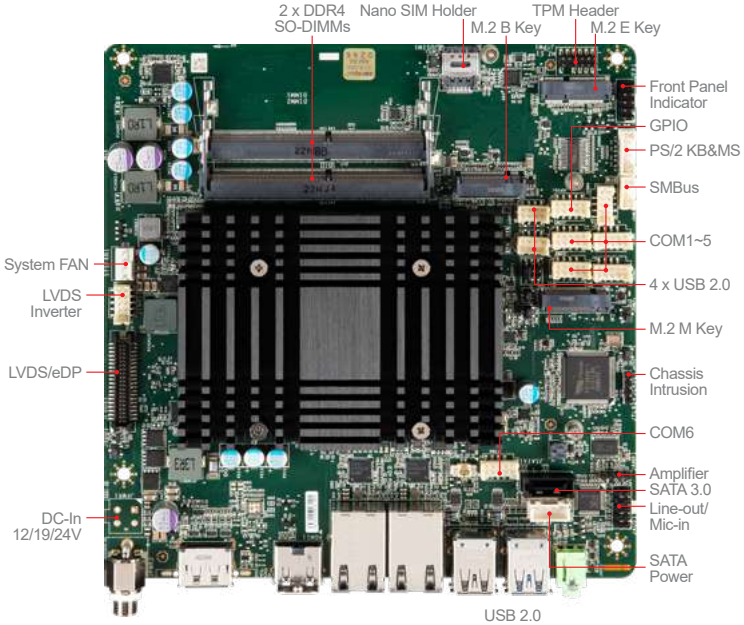
Specifications

		SKU1	SKU2	SKU3	SKU4	SKU5	SKU6	SKU7	SKU8	SKU9
Processor	CPU	Intel® IOTG Alder Lake-N Processor N97, QC, 12W		Intel® IOTG Alder Lake-N Core i3-N305, QC, 9W up to 15W	Intel® IOTG Alder Lake-N Atom x7425E, QC, 12W	Intel® IOTG Alder Lake-N Core i3-N305, QC, 9W up to 15W	Intel® Twin Lake-N Processor N150, QC, 6W		Intel® Twin Lake-N Core 3 N355, OC, 9W up to 15W	
	Frequency	N97, 2.0GHz, up to 3.6GHz		i3-N305, 1.8GHz, up to 3.8GHz	x7425E, 1.5GHz, up to 3.4GHz	i3-N305, 1.8GHz, up to 3.8GHz	N150, 0.8GHz, up to 3.6GHz		N355, 1.9GHz, up to 3.9GHz	
	L2 Cache	6MB								
	CPU Type	BGA								
	Chipset	Integrated in SoC								
	BIOS	AMI UEFI								
Memory	Technology	Single Channel for DDR5 4800MHz								
	Max. Capacity	Up to 16GB								
	Socket	1 x 262-pin DDR5 SO-DIMM								
Display	Controller	Intel® UHD Graphics								
	Graphic Memory	Depends on CPU								
	LVDS	1 x Dual channel 18/24-bit (Connector shared with eDP)								
	eDP	1 (Connector shared with LVDS)								
	HDMI	N/A	1			N/A		1	N/A	1
	DisplayPort	2	1			2		1	2	1
	Multiple Display	3 independent displays								
	Display Interface	LVDS up to 1920 x 1200 @60Hz eDP up to 1920 x 1080 @60Hz DP up to 4096 × 2304 @60Hz	LVDS up to 1920 x 1200 @60Hz eDP up to 1920 x 1080 @60Hz HDMI up to 3840 x 2160 @30Hz DP up to 4096 × 2304 @60Hz			LVDS up to 1920 x 1200 @60Hz eDP up to 1920 x 1080 @60Hz DP up to 4096 × 2304 @60Hz		LVDS up to 1920 x 1200 @60Hz eDP up to 1920 x 1080 @60Hz HDMI up to 3840 x 2160 @30Hz DP up to 4096 × 2304 @60Hz	LVDS up to 1920 x 1200 @60Hz eDP up to 1920 x 1080 @60Hz DP up to 4096 × 2304 @60Hz	LVDS up to 1920 x 1200 @60Hz eDP up to 1920 x 1080 @60Hz HDMI up to 3840 x 2160 @30Hz DP up to 4096 × 2304 @60Hz
Ethernet	Controller	2 x Intel® I226-V 2.5GbE LAN								
Audio	Controller	Realtek® ALC897 Audio Codec (Co-lay ALC888S)								
Super I/O	Controller	Fintek F81966AB-I								
H/W Monitor	Watchdog Timer	256-level Watchdog Timer								
	Smart Fan	Yes								
TPM	Controller	Infineon® SLB 9672VU2.0								
I/O Interface	USB	2 x USB 3.2 Gen 2 (rear) 1 x USB 3.2 Gen 1 (rear) 1 x USB 2.0 (rear) 2 x USB 2.0 (internal)								
	Serial	6 x COM ports (internal) COM1: RS-232/422/485, 0V/5V/12V COM2~6: RS-232								
	GPIO	8-bit (4 x GPI; 4 x GPO), 5V								
	M.2	1 x M.2 B key (SATA/PCIe x1, USB 3.2 Gen 2 x 1, USB 2.0 w/NANO SIM-Holder), 2242/3042/2280 1 x M.2 E key (PCIe x1, USB 2.0), 2230								
Storage	SATA	1 x SATA 3.0								
Power Supply	DC	DC-in 12V								
	ATX	N/A								
Environment	Operating Temperature	0 ~ 60°C Note: Thermal w/ Airflow:0.7m/s								
	Operating Humidity	10 ~ 90%, non-condensing								
	Storage Temperature	-20 ~ 80°C								
	Storage Humidity	10 ~ 90%, non-condensing								
Form Factor	Dimensions	170 x 170 mm (Mini-ITX)								
	Weight	0.51 kg								
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI, UKCA								
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC (64-bit, 21H2, only for ADL-N) Windows 11 IoT Enterprise LTSC (64-bit, 24H2) Linux (Support by request)								

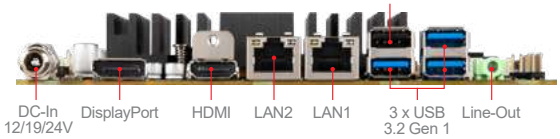
MSI reserves the right to change the specifications without prior notices.

MS-98N1

Mini-ITX with Intel® Elkhart Lake SoC Series for Fanless, Low-Power, High-Performance, Multi-Displays & Multi-Functions Solution



SKU 1



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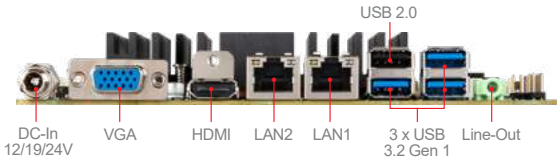


Features

- Intel® Elkhart Lake Series SoC
- 2 DDR4 3200MHz SODIMM slots up to 32GB
- Triple independent displays: 1 HDMI, 1 DP/VGA, 1 LVDS/eDP
- 2 2.5GbE LAN with RJ-45
- M.2 E Key, M.2 B Key (with SIM Holder)
- M.2 M Key, 1 SATA 3.0 for storage
- 3 USB 3.2 Gen 1, 5 USB 2.0, 6 COM (2 RS-485), GPIO, PS/2, Audio, System FAN
- Onboard TPM 2.0
- DC-in 12V/19V/24V

Ordering Information

Part Number	Description
919-98N1-101	Intel Elkhart Lake J6412,2*DDR4 SO-DIMM, 3*USB3.2,5*USB2.0,6*COM, 1*eDP/LVDS,1*DP,1*HDMI, 2*LAN,3*M.2,1*SATA3.0,DC-in 12/19/24V
919-98N1-102	Intel Elkhart Lake J6412,2*DDR4 SO-DIMM, 3*USB3.2,5*USB2.0,6*COM, 1*eDP/LVDS,1*VGA,1*HDMI, 2*LAN,3*M.2,1*SATA3.0,DC-in 12/19/24V
919-98N1-103	Intel Elkhart Lake N6210,2*DDR4 SO-DIMM, 3*USB3.2,5*USB2.0,6*COM, 1*eDP/LVDS,1*DP,1*HDMI, 2*LAN,3*M.2,1*SATA3.0,DC-in 12/19/24V
919-98N1-104	Intel Elkhart Lake X6211E,2*DDR4 SO-DIMM, 3*USB3.2,5*USB2.0,6*COM, 1*eDP/LVDS,1*DP,1*HDMI, 2*LAN,3*M.2,1*SATA3.0,DC-in 12/19/24V, SEMI-WT

Packing List

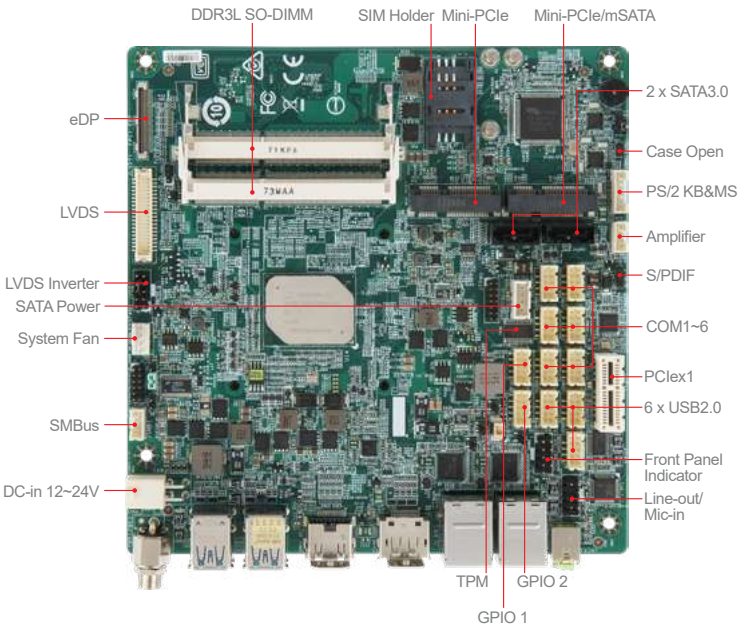
Part Number	Description	Quantity
K1D-1012064-V03	SATA Cable with Power, 200mm	1
K14-1009062-V03	COM PORT Cable, 250mm	1
K1B-3008067-V03	USB Cable, 150mm	1
E21-98N1010-C22	I/O SHIELDING For DP+HDMI	1
E21-98N1020-C22	I/O SHIELDING For VGA+HDMI	

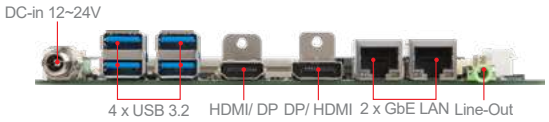
Specifications

		SKU1	SKU2	SKU3	SKU4
Processor	CPU	Intel® Celeron® Processor J6412, QC, 10W Intel® Celeron® Processor N6210, DC, 6.5W			Intel Atom® x6211E Processor, DC, 6W
	Frequency	J6412, 2.0 GHz, up to 2.6 GHz N6210, 1.2 GHz, up to 2.6 GHz x6211E, 1.3 GHz, up to 3.0 GHz			
	L2 Cache	1.5MB			
	CPU Type	BGA			
	Chipset	Integrated in SoC			
	BIOS	AMI			
Memory	Technology	Dual-channel DDR4 3200 MHz			
	Max. Capacity	Up to 32 GB			
	Socket	2 x 260-pin DDR4 SO-DIMMs			
Display	Controller	Intel® UHD Graphics			
	Graphic Memory	Depends on CPU			
	LVDS	1 x Dual channel 18/24-bit (Connector shared with eDP)			
	eDP	1 (Connector shared with LVDS)			
	VGA	N/A	1	N/A	
	DVI	N/A			
	HDMI	1			
	DisplayPort	1	N/A	1	
	Multiple Display	3 independent displays			
	Display Interface	LVDS up to 1920 x 1200 @60 Hz eDP up to 4096 x 2160 @60 Hz DP up to 4096 x 2160 @60Hz HDMI up to 4096 × 2160 @ 24 Hz VGA up to 1920 x 1200 @60Hz			
Ethernet	Controller	2 x Intel® I225-V 2.5 GbE LAN			2 x Intel® I225-IT 2.5 GbE LAN
Audio	Controller	Realtek® ALC897 Audio Codec (Co-lay ALC888S)			
Super I/O	Controller	Fintek F81966D-I			
H/W Monitor	Watchdog Timer	256-level Watchdog Timer			
	Smart Fan	Yes			
TPM	Controller	Infineon SLB9672VU 2.0			
I/O Interface	USB	5 x USB 2.0 (1 x rear, 4 x internal) 3 x USB 3.2 Gen 1 (rear)			
	Serial	6 x COM ports (internal) COM1: RS-232/422/485, RI/0V/5V/12V COM2: RS-232/422/485, 0V/5V/12V COM3-6: RS-232, W/O Power			
	Parallel	N/A			
	PS/2	1 (pin header)			
	GPIO	8-bits (4 x GPI, 4 x GPO), 5V			
Expansion Slot	PCIe x 16	N/A			
	PCIe x 4	N/A			
	PCIe x 1	N/A			
	PCI	N/A			
	M.2	1 x M key (SATA), 2242 1 x B key (PCIe x1, USB 3.2 Gen 1 x 1, USB 2.0 w/NANO SIM-Holder), 2242/3042 1 x E key (PCIe x1, USB 2.0), 2230			
	Mini-PCIe	N/A			
Storage	SATA	1 x SATA 3.0			
	IDE	N/A			
	eSATA	N/A			
	CFast	N/A			
	mSATA	N/A			
	CompactFlash	N/A			
Power Supply	DC	DC-in 12/19/24V			
	ATX	N/A			
Environment	Operating Temperature	0 ~ 60°C Note: Thermal w/ Airflow:0.7m/s			-20 ~ 70°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing			
	Storage Temperature	-20 ~ 80°C			
	Storage Humidity	10 ~ 90%, non-condensing			
Form Factor	Dimensions	170 x 170 mm (Mini-ITX)			
	Weight	0.50 kg			
Certification	EMC	FCC, CE, RCM, VCCI, BSMI, UKCA, IC			
Software Platform	OS Support	Windows 10 IoT Enterprise 2021 LTSC (64-bit, 21H2) Linux (Support by request)			

MS-9892

Mini-ITX with Intel® Apollo Lake/Apollo Lake-I for Fanless, Low-Power, High-Performance & Wide Temperature Solution





Features

- Intel® Apollo Lake/Apollo Lake-I Series SoC
- 2 DDR3L 1866 MHz SODIMM slots up to 8GB
- Triple independent displays : DP, HDMI, LVDS/eDP
- 2 GbE LAN with RJ-45
- 1 PCIe x1 (Gen 2), 1 Mini-PCIe (Full/Half size, with SIM Holder), 1 Mini-PCIe (Full size, with mSATA) slots
- mSATA, 2 SATA 3.0 for storage
- 4 USB 3.2 Gen 1, 6 USB 2.0, 6 COM (2 RS-485), GPIO, PS/2, Audio, S/PDIF, System FAN
- Onboard TPM 2.0
- SMBus, Chassis Intrusion
- Wide operating temperature : -40~85°C (by option)
- Wide Voltage DC-IN 12~24V

Ordering Information

Part Number	Description
Please check MSI IPC website at http://ipc.msi.com for details.	

Packing List

Part Number	Description	Quantity
K14-1018003-V03	COM Port Cable, 300mm	1
K1D-1012115-V03	SATA Cable with Power, 230mm	1
E21-9892010-C22	I/O SHIELDING	1

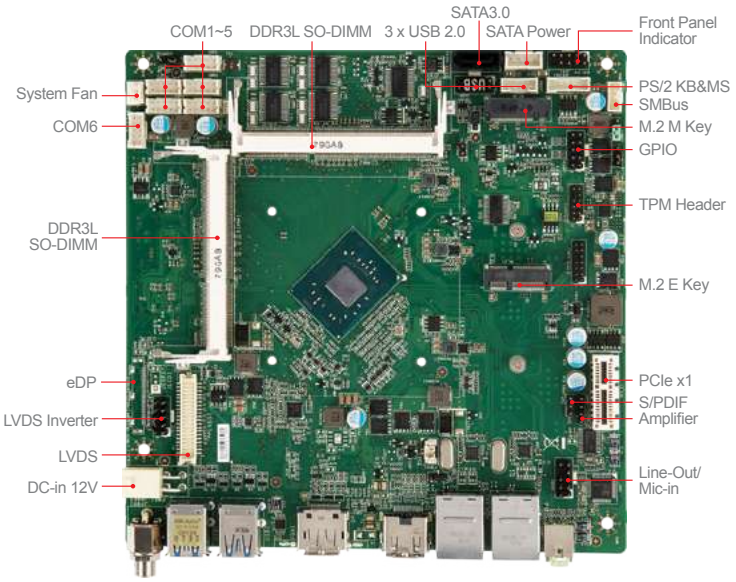
Specifications

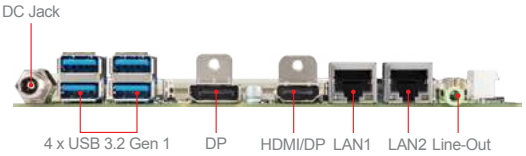
		SKU1	SKU2
System Processor	CPU	Intel® Pentium® Processor N4200, QC, 6W Intel® Celeron® Processor N3350, DC, 6W Intel® Celeron® Processor J3455, QC, 10W Intel® Atom™ x5 Processor E3940, QC, 9W	Intel® Atom™ x5 Processor E3940, QC, 9W Intel® Atom™ x5 Processor E3930, DC, 6W
	Frequency	N4200, 1.1 GHz, up to 2.5 GHz N3350, 1.1 GHz, up to 2.4 GHz J3455, 1.5 GHz, up to 2.3 GHz E3940, 1.6 GHz, up to 1.8 GHz	E3940, 1.6 GHz, up to 1.8 GHz E3930, 1.3 GHz, up to 1.8 GHz
	L2 Cache	1MB~2MB (Depends on CPU)	
	CPU Type	BGA	
	Chipset	Integrated in SoC	
	BIOS	AMI	
Memory	Technology	Dual-channel DDR3L 1866 MHz	
	Max. Capacity	Up to 8 GB	
	Socket	2 x 204-pin SO-DIMMs	
Display	Controller	Intel® HD Graphics	
	Graphic Memory	Depends on CPU	
	LVDS	1 x Dual channel 18/24-bit	
	eDP	1 (co-lay with LVDS)	
	HDMI	1 (co-lay with DP)	
	DisplayPort	1 (co-lay with HDMI)	
	Multiple Display	3 independent displays	
	Display Interface	LVDS up to 1920 x 1200 @60 Hz eDP up to 4096 x 2160 @60Hz HDMI up to 3840 x 2160 @30Hz DP up to 4096 x 2160 @60Hz	
Ethernet	Controller	2 x Intel® I211-AT GbE LAN	2 x Intel® I210-IT GbE LAN
Audio	Controller	Realtek® ALC887-VD2-CG HD Audio Codec	
Super I/O	Controller	Fintek F81867D-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	Yes	
TPM	Controller	Infineon® SLB9665TT 2.0	Infineon® SLB9665XT 2.0
I/O Interfaces	USB	6 x USB 2.0 (internal) 4 x USB 3.2 Gen 1 (rear)	
	Serial	6 x COM ports (internal) COM1/2: RS-232/422/485, 0V/5V/12V COM3~6: RS-232, W/O Power	
	Parallel	N/A	
	PS/2	1 (pin header)	
	GPIO	GPIO 1: 8-bits (4 x GPI; 4 x GPO), 3.3V GPIO 2: 8-bits (4 x GPI; 4 x GPO), 5V	
Expansion Slot	PCIe x1	1	
	M.2	N/A	
	Mini-PCIe	2 x Full-size (one w/SIM holder & one w/mSATA)	
Storage	SATA	2 x SATA 3.0 (SATA2 share with mSATA)	
	mSATA	1 (shared w/SATA2)	
Power Supply	DC	DC-in 12V~24V	
	ATX	N/A	
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	-40 ~ 85°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	-40 ~ 85°C
	Storage Humidity	10 ~ 90%, non-condensing	
Form Factor	Dimensions (W x D x H)	170 x 170 mm (Mini-ITX)	
	Weight	0.38 kg	0.45 kg
Certification	EMC	FCC, CE, RCM, VCCI, BSMI	
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)	

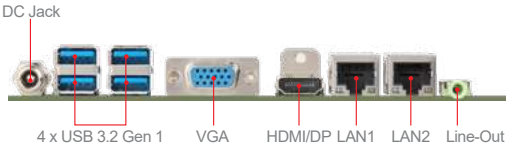
MSI reserves the right to change the specifications without prior notices.

MS-98J0

Mini-ITX with Intel® Apollo Lake SoC Series for Fanless, Low-Profile & Multi-Displays Solution







Features

- Intel® Apollo Lake/Apollo Lake-I Series SoC
- 2 DDR3L 1866MHz SODIMM slots up to 8GB
- Triple independent displays : VGA (DP by option), HDMI (DP by option), LVDS (eDP by option)
- 2 GbE LAN with RJ-45
- 1 PCIe x1 (Gen 2), 1 M.2 E Key slots
- M.2 M Key, 1 SATA 3.0 for storage
- 4 USB 3.2 Gen 1, 3 USB 2.0, 6 COM (1 RS485), GPIO, PS/2, Audio, S/PDIF, System FAN
- Onboard TPM 2.0 (by option)
- SMBus, Chassis Intrusion
- DC-IN 12V

Ordering Information

Part Number	Description
919-98J0-103	MS-98J0 10 Intel Apollo Lake-I E3940, F1 stepping, DP2+HDMI+LVDS, 2*DDR3L SO-DIMM, 2*LAN, 1*SATA-3.0, Audio, 2*M.2 Slot, 4*USB 3.2 Gen 1, 3*USB 2.0, DC-in12V
919-98J0-107	MS-98J0 10 Intel Apollo Lake J3455, F1 stepping, VGA+HDMI+LVDS, 2*DDR3L SO-DIMM, 2*LAN, 1*SATA-3.0, Audio, 2*M.2 Slot, 4*USB 3.0, 3*USB 2.0, DC-in12V
919-98J0-105	MS-98J0 10 Intel Apollo Lake N3350, F1 stepping, DP2+HDMI+LVDS, 2*DDR3L SO-DIMM, 2*LAN, 1*SATA-3.0, Audio, 2*M.2 Slot, 4*USB 3.0, 3*USB 2.0, DC-in12V

Optional Item

Part Number	Description
K14-1009062-V03	COM Port Cable, 250mm
K14-1018003-V03	COM port cable, 300mm
K1B-3008012-E06	USB 2.0 Cable, 330mm

Specifications

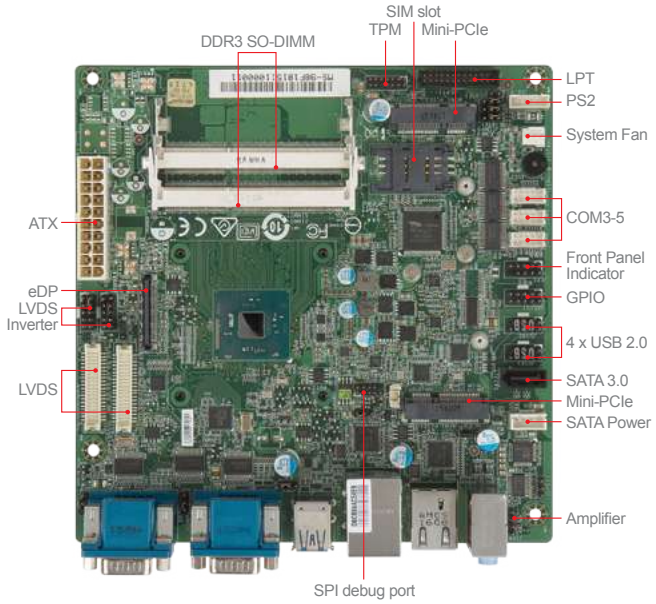
Processor	CPU	Intel® Celeron® Processor J3455, QC, 10W	Intel® Celeron® Processor N3350, DC, 6W	Intel® Atom™ x5 Processor E3940, QC, 9.5W
	Frequency	J3455, 1.5 GHz, up to 2.3 GHz	N3350, 1.1 GHz, up to 2.4 GHz	E3940, 1.6 GHz, up to 1.8 GHz
	L2 Cache	2MB		
	CPU Type	BGA		
	Chipset	Integrated in SoC		
	BIOS	AMI		
Memory	Technology	Dual-channel DDR3L 1866 MHz		
	Max. Capacity	Up to 8GB		
	Socket	2 x 204-pin SO-DIMMs		
Display	Controller	Intel® HD Graphics		
	Graphic Memory	Depends on CPU		
	LVDS	1 x Dual channel 18/24-bit		
	eDP	N/A (by option)		
	VGA	1	N/A (by BOM option)	
	DVI	N/A		
	HDMI	1		
	DisplayPort	N/A(by option)	1	
	Multiple Display	3 independent displays		
	Display Interface	LVDS up to 1920 x 1200 @60 Hz eDP up to 4096 x 2160 @60Hz HDMI up to 3840 x 2160 @30Hz DP up to 4096 x 2160 @60Hz VGA up to 1920 x 1080 @60Hz		
Ethernet	Controller	2 x Realtek® RTL8111H-CG GbE LAN		
Audio	Controller	Realtek® ALC887-VD2-CG HD Audio Codec		
Super I/O	Controller	Fintek F81867D-I		
H/W Monitor	Watchdog Timer	256-level Watchdog Timer		
	Smart Fan	Yes		
TPM	Controller	Pin header (default) Infineon® SLB9665TT 2.0 (by BOM option)		
I/O Interface	USB	3 x USB 2.0 (internal) 4 x USB 3.2 Gen 1 (rear)		
	Serial	6 x COM ports (internal) COM1: RS-232/422/485, 0V/5V/12V COM2~6: RS-232, w/o Power		
	Parallel	N/A		
	PS/2	1 (pin header)		
	GPIO	8-bits (4 x GPI; 4 x GPO), 5V		
Expansion Slot	PCIe x 16	N/A		
	PCIe x 4	N/A		
	PCIe x 1	1		
	PCI	N/A		
	M.2	1 x M Key (SATA 3.0), 2242 1 x E Key (PCIe x1, USB2.0), 2230		
	Mini-PCIe	N/A		
Storage	SATA	1 x SATA 3.0		
	IDE	N/A		
	eSATA	N/A		
	CFast	N/A		
	mSATA	N/A		
	CompactFlash	N/A		
Power Supply	DC	DC-in 12V		
	ATX	N/A		
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s		
	Operating Humidity	10 ~ 90%, non-condensing		
	Storage Temperature	-20 ~ 80°C		
	Storage Humidity	10 ~ 90%, non-condensing		
Form Factor	Dimensions	170 x 170 mm (Mini-ITX)		
	Weight	0.37 kg		
Certification	EMC	FCC, CE, RCM, VCCI, BSMI		
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)		

Packing List

Part Number	Description	Quantity
K1D-1012115-V03	SATA Cable with Power, 230mm	1
E21-98J0010-C22	I/O SHIELDING	1

MS-98F1

Mini-ITX with Intel® Atom™ Braswell Platform for Rich I/O ports, Multi-Displays, Low-Power, Fanless & DC/ATX Solution



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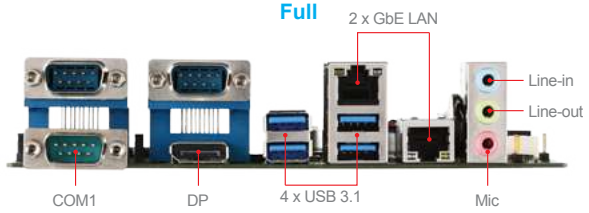
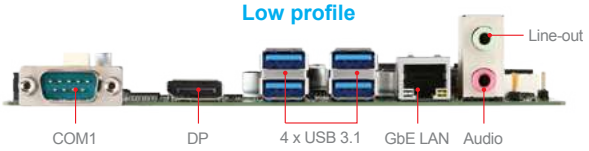


Low profile



Features

- Intel® Braswell Series SoC
- 2 DDR3L 1600/1333 MHz SODIMM slots up to 8GB
- Triple independent displays:
  DP, LVDS, LVDS(eDP by option)
- 2 GbE LAN with RJ-45
- 1 Mini-PCIe (Full/Half size, with SIM Holder), 1 Mini-PCIe (Full/Half size, with mSATA) slots
- mSATA, SATA 3.0 for storage SATA RAID 0/1
- 4 USB 3.2 Gen 1, 4 USB 2.0, 6 COM(2 RS485, 4 ports by option), GPIO, LPT, PS/2, Audio, S/PDIF, System FAN
- Onboard TPM 1.2 (by option)
- 2 LVDS for dual independent panels
- DC-IN 12V/19V/24V (ATX Power by option)

Ordering Information

Part Number	Description
919-98F1-104	MS-98F1\609-98F1-040\809-98F1-105\VER 11 OPT:D Intel N3160,2*DDR3L,1*DP,1*LVDS,1*LVDS colay eDP,6*COM,4*USB3.0, 4*USB2.0, 2*Gbe LAN,1*SATA3.0, 2*Mini-PCIe,ATX Power,1*SATA cable, 1*I/O Shield, Bulk, For channel
919-98F1-103	MS-98F1\609-98F1-030\809-98F1-104\VER 11 OPT:C Intel N3060,2*DDR3L,1*DP,1*LVDS,1*LVDS colay eDP,4*COM,4*USB3.0, 4*USB2.0, 1*Gbe LAN,1*SATA3.0, 2*Mini-PCIe,DC Power, 1*SATA cable,1*Power cable,1*I/O Shield,Bulk, For Channel

Packing List

Part Number	Description
K1D-1012064-V03	SATA CABLE
K10-3004215-V03	DC POWER CABLE For OPT: C
E21-98F1010-C22	I/O SHIELDING For OPT: C
E21-98F1020-C22	I/O SHIELDING For OPT: D

Specifications

Processor	CPU	Intel® Pentium processor N3710, QC, 6W Intel® Celeron processor N3160, QC, 6W Intel® Celeron processor N3060, DC, 6W Intel® Celeron processor N3010, DC, 4W	
	Frequency	N3710, 1.6 GHz, up to 2.56 GHz N3160, 1.6 GHz, up to 2.24 GHz N3060, 1.6 GHz, up to 2.48 GHz N3010, 1.04 GHz, up to 2.24 GHz	
	L2 Cache	2MB	
	CPU Type	BGA	
	Chipset	Integrated	
	BIOS	AMI	
Memory	Technology	Dual-channel DDR3L 1333/1600 MHz	
	Max. Capacity	Up to 8GB	
	Socket	2 x 204-pin SO-DIMM	
Display	Controller	Intel® HD Graphics	
	Graphic Memory	Depends on CPU	
	LVDS	2 x dual channel 18/24-bit	
	eDP	1 (colay with LVDS)	
	DisplayPort	1	
	Multiple Display	3 independent displays	
	Display Interface	LVDS up to 1920 x 1200 @60Hz DP up to 3840 x 2160 @30Hz eDP up to 2560 x 1600 @60Hz	
Ethernet	Controller	2 x Intel® i210-AT GbE LAN	1 x Intel® i210-AT GbE LAN
Audio	Controller	Realtek® ALC887 co-lay ALC888S	
Super I/O	Controller	Fintek F81866AD-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	Yes	
TPM	Controller	Pin header (default) Infineon® SLB9635TT 1.2 (by BOM option) Pin header	
I/O Interface	USB	4 x USB 2.0 (internal) 4 x USB 3.1 Gen 1 (rear)	2 x USB 2.0 (internal) 4 x USB 3.1 Gen 1 (rear)
	Serial	6 x COM ports (COM1~3: rear, COM4~6: internal) COM1&5: RS-232/422/485, 0V/5V/12V COM2~4: RS-232,0V/5V/12V COM6: RS-232 w/o power	4 x COM ports (COM1: rear, COM4~6: internal) COM1&5: RS-232/422/485, 0V/5V/12V COM4: RS-232, 0V/5V/12V COM6: RS-232 w/o power
	Parallel	1	
	PS/2	1 (pin header)	
	GPIO	8-bits (4 x GPI; 4 x GPO), 5V	
Expansion Slot	M.2	N/A	
	Mini-PCIe	2 x Full/Half-size (one w/ SIM holder & one w/mSATA)	
Storage	SATA	1 x SATA 3.0	
	mSATA	1 (support by mini PCIe slot)	
	CompactFlash	N/A	
Power Supply	DC	DC-in 12V/19V/24V	
	ATX	ATX Power 20P	
Environment	Operating Temperature	0 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	
	Operating Humidity	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	
	Storage Humidity	10 ~ 90%, non-condensing	
Form Factor	Dimensions	170 x 170 mm (Mini-ITX)	
	Weight	0.37 kg	
Certification	EMC	FCC, CE, RCM, VCCI, BSMI	
Software Platform	OS Support	Windows 7 (32/64-bit) Windows 8.1 (64-bit) Windows 10 (64-bit) Linux (Support by request)	

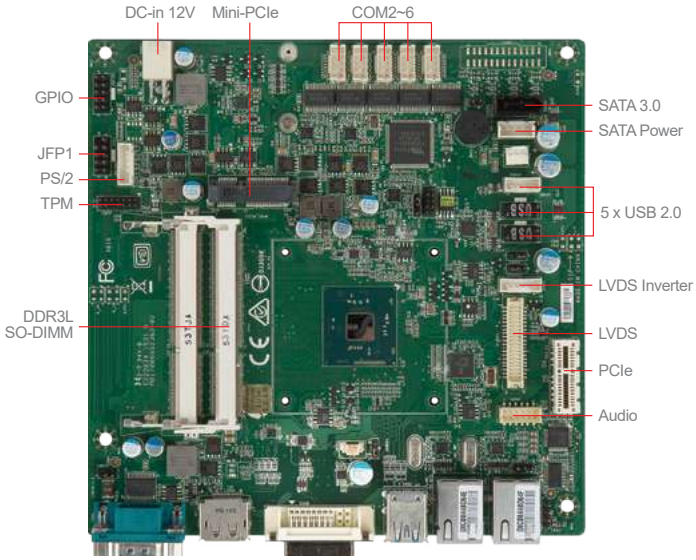
Optional Item

Part Number	Description
K14-1018003-V03	COM port cable, 300mm
K1B-3008012-E06	USB 2.0 Cable, 330mm

MSI reserves the right to change the specifications without prior notices.

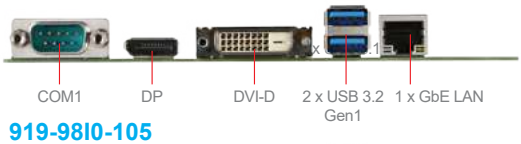
MS-98I0

Mini-ITX with Intel® Atom™ Braswell Platform Low-Power, Slim/ Low-Profile & Fanless Solution



919-98I0-103

919-98I0-104



919-98I0-105

Features

- Intel® Braswell Series SoC
- 2 DDR3L 1600/1333 MHz SODIMM slots up to 8GB
- Triple independent displays:
  DVI-D, DP(HDMI by option), LVDS
- 2 GbE LAN with RJ-45
- 1 PCIe x1(Gen 2), 1 Mini-PCIe (Full/Half size, with mSATA) slots
- mSATA, SATA 3.0 for storage
  SATA RAID 0/1
- 2 USB 3.2 Gen 1, 5 USB 2.0, 6 COM(1 RS485), GPIO, LPT(by option), PS/2, Audio, S/PDIF, System FAN
- Onboard TPM 1.2 (by option)
- DC-IN 12V

Ordering Information

Part Number	Description
919-98I0-103	MS-98I0\609-98I0-030\809-98I0-103 VER 10, FANLESS, Braswell N3160, 2*DDR3L, 1*PCIex1, 1*DP, 1*DVI-D, 5*USB2.0, 2*USB3.0, 6*COM, 1*Mini-PCIe, 2*LAN, 1*SATA, 1*SATA Cable, 1*Power Cable, I/O Shield, BULK For Channel
919-98I0-104	MS-98I0\609-98I0-040\809-98I0-104 VER 10, FANLESS, Braswell N3060, 1*DDR3L, 1*PCIex1, 1*DP, 1*DVI-D, 5*USB2.0, 2*USB3.0, 6*COM, 1*Mini-PCIe, 1*LAN, 1*SATA, 1*SATA CABLE, 1*Power CABLE, I/O Shield, BULK For Channel
919-98I0-105	MS-98I0\609-98I0-050\809-98I0-105 VER 10, FANLESS, Braswell N3160, 2*DDR3L, 1*PCIex1, 1*HDMI™, 1*DVI-D, 5*USB2.0, 2*USB3.0, 6*COM, 1*Mini-PCIe, 2*LAN, 1*SATA, 1*SATA Cable, 1*Power Cable, I/O Shield, BULK For Channel

Optional Item

Part Number	Description
K14-1018003-V03	COM port cable, 300mm
K1B-3008012-E06	USB 2.0 Cable, 330mm

Specifications

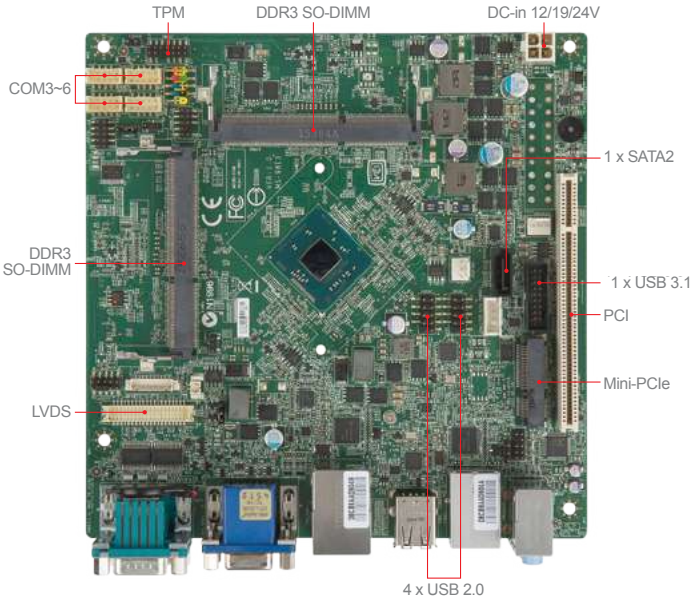
Processor	CPU	Intel® Pentium processor N3710, QC, 6W Intel® Celeron processor N3160, QC, 6W Intel® Celeron processor N3060, DC, 6W Intel® Celeron processor N3010, DC, 4W
	Frequency	N3710, 1.6 GHz, up to 2.56 GHz N3160, 1.6 GHz, up to 2.24 GHz N3060, 1.6 GHz, up to 2.48 GHz N3010, 1.04 GHz, up to 2.24 GHz
	L2 Cache	2MB
	CPU Type	BGA
	Chipset	Integrated
	BIOS	AMI
Memory	Technology	Dual-channel DDR3L 1333/1600 MHz
	Max. Capacity	Up to 8GB
	Socket	2 x 204-pin SO-DIMMs (1 slot for opt SKU)
Display	Controller	Intel® HD Graphics
	Graphic Memory	Depends on CPU
	LVDS	Dual channel 24-bit
	DVI	1 (DVI-D)
	HDMI	1 (colay with DP)
	DisplayPort	1 (colay with HDMI)
	Multiple Display	3 independent displays
	Display Interface	LVDS up to 1920 x 1200 @60Hz DP up to 3840 x 2160 @30Hz HDMI up to 1920 x 1200 @60Hz DVI up to 1920 x 1200 @60Hz
Ethernet	Controller	2 or 1 x Realtek® RTL8111G-CG GbE LAN (depends on SKU)
Audio	Controller	Realtek® ALC887 co-lay ALC888S
Super I/O	Controller	Fintek F81866AD-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes
TPM	Controller	Pin header (default) Infineon® SLB9635TT 1.2 (by BOM option)
I/O Interface	USB	5 x USB 2.0 (internal) 2 x USB 3.1 Gen 1 (rear)
	Serial	6 x COM ports (COM1: rear, COM2~5: internal) COM1: RS-232/422/485, 0V/5V/12V COM2~6: RS-232, w/o power
	Parallel	1 (by BOM option)
	PS/2	1 (pin header)
	GPIO	8-bits (4 x GPI; 4 x GPO), 5V
Expansion Slot	PCIe x 1	1
	M.2	N/A
	Mini-PCIe	1 x Full-size co-lay mSATA (support Half-size card)
Storage	SATA	1 x SATA 3.0
	mSATA	1 (support by Mini-PCIe slot)
Power Supply	DC	DC-in 12V
	ATX	N/A
Environment	Operating Temperature	0 ~ 60°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
Form Factor	Dimensions	170 x 170 mm (Mini-ITX)
	Weight	0.37 kg
Certification	EMC	FCC, CE, RCM, VCCI
Software Platform	OS Support	Windows 7 (32/64-bit) Windows 8.1 (64-bit) Windows 10 (64-bit) Linux (Support by request)

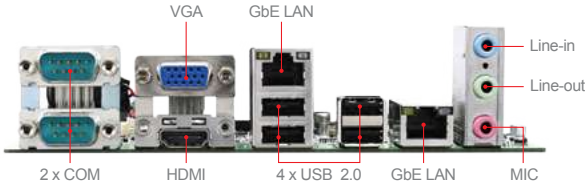
Packing List

Part Number	Description
E21-98I0010-C22	I/O Shielding (DP + 2 x LAN)
E21-98I0020-C22	I/O Shielding (DP + 1 x LAN)
E21-98I0030-C22	I/O Shielding (HDMI + 2 x LAN)
K1D-1012064-V03	SATA Cable, 200mm
K10-3004215-V03	DC power cable, 160mm

MS-98E3

Mini-ITX with Intel® Atom™ Bay Trail for Multi-Displays, DC/ATX, Low-Power & Fanless Solution





Features

- Intel® Bay Trail Series SoC
- 2 DDR3L 1333/1066 MHz SODIMM slots up to 8GB
- Dual independent displays: VGA, HDMI, LVDS
- 2 GbE LAN with RJ-45
- 1 PCI, 1 Mini-PCIe (Full size, with mSATA) slots
- mSATA, SATA 2.0 for storage
- USB 3.2 Gen 1, 8 USB 2.0, 6 COM (1 RS485), GPIO, PS/2, Audio
- Wide Voltage DC-IN 12/19/24V(ATX Power by option)

Ordering Information

Part Number	Description
919-98E3-001	MS-98E3 10 Intel Bay Trail D sku-J1900, DC,1*Mini PCI_E+2*DDR3L SO DIMM,1*PCI, 1*mini PCIe (with msata function), 8*USB 2.0, 1*USB 3.0,6*COM
919-98E3-002	MS-98E3 10 OPT: A Intel Bay Trail D sku-J1900, ATX-,1*Mini PCI_E+2*DDR3L SO DIMM,1*PCI, 1*mini PCIe (with msata function), 8*USB 2.0, 1*USB 3.0,6*COM

Packing List

Part Number	Description	Quantity
K10-3004215-V03	DC power cable, 160mm	1
K1D-1012064-V03	SATA cable, 200mm	1
E21-98E3020-C22	I/O shield	1

Specifications

Processor	CPU	Intel® Celeron® Processor J1900, QC, 10W Intel® Celeron® Processor N2930, QC, 7.5W
	Frequency	J1900, 2.0 GHz, up to 2.42 GHz N2930, 1.83 GHz, up to 2.16 GHz
	L2 Cache	2 MB
	CPU Type	BGA
	Chipset	Integrated
	BIOS	AMI
Memory	Technology	Dual-channel DDR3L 1333/1066 MHz
	Max. Capacity	Up to 8GB
	Socket	2 x 204-pin SO-DIMMs
Display	Controller	Intel® HD Graphics
	Graphic Memory	Depends on CPU
	LVDS	Daul Channel 24-bit (add chrontel 7511B chipset)
	VGA	1
	HDMI	1
	Multiple Display	2 independent displays
	Display Interface	VGA up to 2560 x 1600 @60Hz HDMI up to 1920 x 1080 @60Hz LVDS up to 1920 x 1200 @60Hz
Ethernet	Controller	2 x Intel® i210-AT GbE LAN
Audio	Controller	Realtek® ALC887 HD Audio Codec
Super I/O	Controller	Fintek F81866AD-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes
TPM	Controller	Pin header
I/O Interface	USB	8 x USB 2.0 (4 x internal, 4 x rear) 1 x USB 3.1 Gen 1 (internal)
	Serial	6 x COM ports (COM1~2: rear, COM3~6: internal) COM1: RS-232/422/485, 0V/5V/12V COM2~6: RS-232, 0V/5V/12V
	PS/2	1 (Pin header)
	GPIO	8-bits (4 x GPI, 4 x GPO), 5V
Expansion Slot	PCI	1
	M.2	N/A
	Mini-PCIe	1 x Full-size (w/ mSATA)
Storage	SATA	1 x SATA 2.0
	mSATA	1
Power Supply	DC	DC-in 12/19/24V
	ATX	ATX-Power 20P
Environment	Operating Temperature	0 ~ 60°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
Form Factor	Dimensions	170 x 170 mm (Mini-ITX)
	Weight	0.37 kg
Certification	EMC	FCC, CE, RCM, VCCI, BSMI
Software Platform	OS Support	Windows 7 (32/64-bit) Windows 8 (32/64-bit) Windows 10 (64-bit)

Optional Item

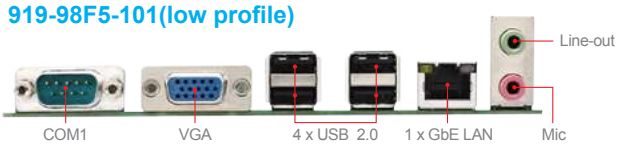
Part Number	Description
K14-1018003-V03	COM port cable, 300mm
K1B-3008012-E06	USB2.0 cable, 330mm

MSI reserves the right to change the specifications without prior notices.

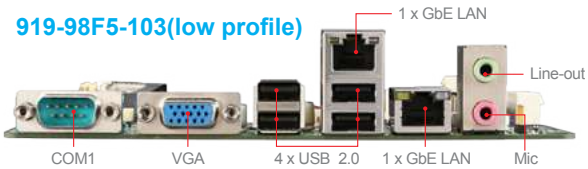
MS-98F5

Mini-ITX with Intel® Atom™ Bay Trail for Low-Power, Slim/Low-Profile & Fanless Solution

919-98F5-101(low profile)



919-98F5-103(low profile)



Features

- Intel® Bay Trail Series SoC
- 2 DDR3L 1333/1066 MHz SODIMM slots up to 8GB
- Dual independent displays: VGA, LVDS
- 2 GbE LAN with RJ-45(1 by option)
- 1 PCI x1 (Gen2), 1 Mini-PCIe (Full size, with mSATA) slots
- mSATA, SATA 2.0 for storage
- 8 USB 2.0, 6 COM , GPIO, LPT, PS/2, Audio
- DC-IN 12V

Ordering Information

Part Number	Description
919-98F5-101	MS-98F5\MS-98F5\609-98F5-010\809-98F5-102\MS-98F5 VER 10 OPT A FOR MS-98F5 STD SKU, 1 LAN, 1 SO-DIMM BULK
919-98F5-103	MS-98F5\MS-98F5\609-98F5-020\809-98F5-101\MS-98F5 VER 10 OPT B FOR MS-98F5 STD SKU, 2 LAN, 2 SO-DIMM BULK

Packing List

Part Number	Description
E21-98F5010-C22	I/O Shield (2 x LAN)
E21-98F5020-C22	I/O Shield (1 x LAN)
K10-3004215-V03	DC power cable, 160mm
K1D-1012064-V03	SATA cable, 200mm

Specifications

Processor	CPU	Intel® Celeron® Processor J1900, QC, 10W Intel® Celeron® Processor N2930, QC, 7.5W
	Frequency	J1900, 2.0 GHz, up to 2.42 GHz N2930, 1.83 GHz, up to 2.16 GHz
	L2 Cache	2 MB
	CPU Type	BGA
	Chipset	Integrated
	BIOS	AMI
Memory	Technology	Dual-channel DDR3L 1333/1066 MHz
	Max. Capacity	Up to 8GB
	Socket	2 or 1 x 204-pin SO-DIMMs (depends on SKU)
Display	Controller	Intel® HD Graphics
	Graphic Memory	Depends on CPU
	LVDS	Daul Channel 24-bit (add chrontel 7511B chipset)
	VGA	1
	Multiple Display	2 independent displays
	Display Interface	VGA up to 2560 x 1600 @60Hz LVDS up to 1920 x 1200 @60Hz
Ethernet	Controller	2 or 1 x Realtek® RTL8111G-CG GbE LAN (depends on SKU)
Audio	Controller	Realtek® ALC887 HD Audio Codec
Super I/O	Controller	Fintek F81866AD-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes
TPM	Controller	Pin header
I/O Interface	USB	8 x USB 2.0 (4 x internal, 4 x rear)
	Serial	6 x COM ports (COM1: rear, COM2~6: internal) COM1: RS-232, 0V/5V/12V COM2~6: RS-232, w/o power
	Parallel	1 (Pin header)
	PS/2	1 (Pin header)
	GPIO	8-bits (4 x GPI, 4 x GPO), 3.3V
Expansion Slot	PCIe x1	1
	M.2	N/A
	Mini-PCIe	1 x Full-size (w/ mSATA)
Storage	SATA	1 x SATA 2.0
	mSATA	1
Power Supply	DC	DC-in 12V
	ATX	N/A
Environment	Operating Temperature	0 ~ 60°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
Form Factor	Dimensions	170 x 170 mm (Mini-ITX)
	Weight	0.37 kg
Certification	EMC	FCC, CE, RCM, VCCI, BSMI
Software Platform	OS Support	Windows 7 (32/64-bit) Windows 8 (32/64-bit) Windows 10 (64-bit)

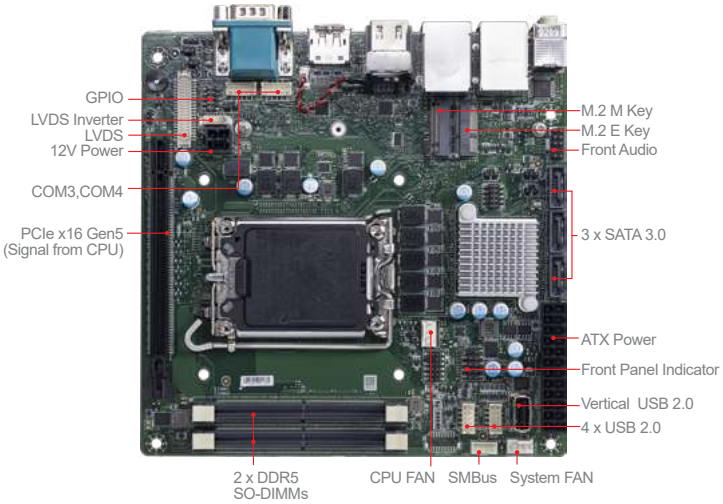
Optional Item

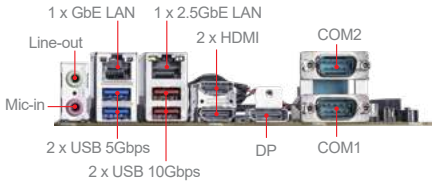
Part Number	Description
K14-1018003-V03	COM port cable, 300mm
K1B-3008012-E06	USB 2.0 cable, 330mm

MS-CF23

Mini-ITX with 15th Gen Intel® Arrow Lake-S Core Ultra 9/7/5 Series Processor, & Intel® H810 for Mainstream Solution

NEW





Features

- Intel® 15th Gen Arrow Lake-S Core Ultra 9/7/5 Series with H810
- 2 DDR5 5600 MT/s non-ECC SODIMM & 6400 MT/s CSODIMM slots up to 128GB
- Triple independent displays: DP, HDMI, LVDS
- 1 2.5GbE LAN with RJ-45, 1 GbE LAN with RJ-45
- 1 PCIe x16 (Gen 5)
- 1 M.2 E Key Slot
- 1 M2 M Key, 3 SATA 3.0 for storage
- 2 USB 3.2 Gen 2, 2 USB 3.2 Gen 1, 5 USB 2.0,4 COM (1 RS-485), GPIO, Audio, System FAN
- Onboard TPM 2.0
- SMBus
- ATX Power

Ordering Information

Part Number	Description
916-CF23-001	MS-CF23\606-CF23-010,10\801-CF23-004,RL-S,H810, 2*CSOD-DR5,HDMI*2+DP+LVDS,1*M.2 M key,1*PCIe x16,1*2.5GbE LAN,1*1.0GbE LAN,3*SATA 3.0,2*USB 3.2 Gen2,2*USB3.2 Gen1,5*USB2.0,4*COM,TPM2.0 SINGLE 12PCS/BOX
916-CF23-101	MS-CF23\606-CF23-010,10\801-CF23-102,RL-S,H810, 2*CSOD-DR5,HDMI*2+DP+LVDS,1*M.2 M key,1*PCIe x16,1*2.5GbE LAN,1*1.0GbE LAN,3*SATA 3.0,2*USB 3.2 Gen2,2*USB3.2 Gen1,5*USB2.0,4*COM,TPM2.0 BULK 20PCS

Packing List

Part Number	Description	Quantity
E21-CF23010-C22	I/O SHIELDING,159.2*44.9mm, FOR HDMI*2+DP	1

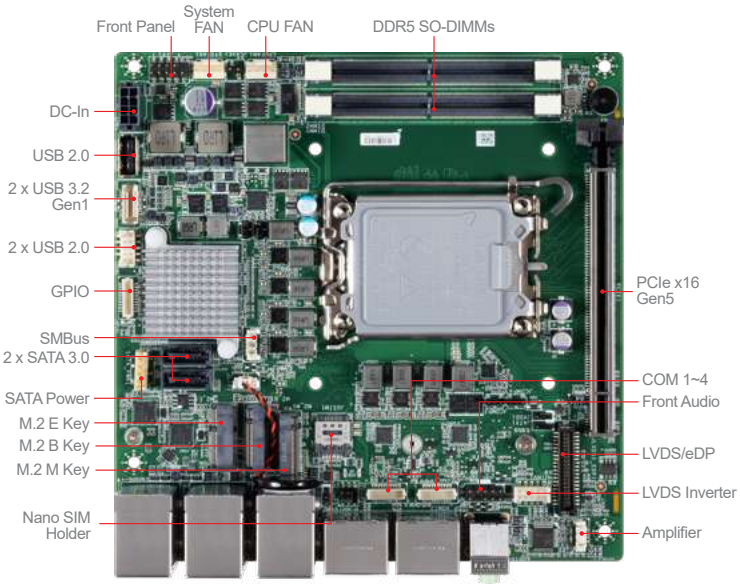
Specifications

Processor	CPU	15th Gen Intel® Arrow Lake-S Core Ultra 9/7/5 Series Processor, Max. TDP-65W	
	Frequency	Depends on CPU	
	L2 Cache	Depends on CPU	
	CPU Type	Socket (LGA 1851)	
	Chipset	Intel® H810	
	BIOS	AMI UEFI	
Memory	Technology	Dual-channel DDR5 (non-ECC) 5600MT/s	Dual-channel DDR5 CSODIMM 6400MT/s
	Max. Capacity	Up to 128GB	
	Socket	2 x 262-pin DDR5 SO-DIMMs	
Display	Controller	Intel® UHD Graphics	
	Graphic Memory	Depends on CPU	
	LVDS	1 x Dual channel 18/24-bit	
	eDP	N/A	
	VGA	N/A	
	DVI	N/A	
	HDMI	2	
	DisplayPort	1	
	Multiple Display	3 independent displays	
	Display Interface	HDMI up to 4096 x 2160 @30Hz DP up to 4096 x 2304 @60Hz LVDS up to 1920 x 1200 @60Hz	
Ethernet	Controller	1 x Intel® I219-LM GbE LAN PHY 1 x Intel® I226-V 2.5GbE LAN	
Audio	Controller	Realtek® ALC897 Audio Codec (Co-lay ALC888S)	
Super I/O	Controller	Fintek F81966D-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	Yes	
TPM	Controller	Infineon® SLB 9672VU2.0	
I/O Interface	USB	2 x USB 10Gbps (rear) 2 x USB 5Gbps (rear) 5 x USB 2.0 (5 x Internal with one Vertical Type-A)	
	Serial	4 x COM ports COM1: RS-232/422/485, Auto-flow Control COM2~4: RS-232	
	Parallel	N/A	
	PS/2	N/A	
	GPIO	8-bits (4 x GPI; 4 x GPO), 5V	
Expansion Slot	PCIe x 16	1 x PCIe x16 (Gen 5)	
	M.2	1 x M key (PCIe x4 NVMe), 2280/2242 1 x E key (PCIe x1 & USB 2.0), 2230	
	Mini-PCIe	N/A	
Storage	SATA	3 x SATA 3.0 (AHCI Mode Supported)	
	mSATA	N/A	
Power Supply	DC	N/A	
	ATX	ATX-Power 24P, 12V-8P	
Environment	Operating Temperature	0 ~ 60°C Note: Thermal Test w/ Airflow:0.7m/s	
	Operating Humidity	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	
	Storage Humidity	10 ~ 90%, non-condensing	
Form Factor	Dimensions	170 x 170 mm (Mini-ITX)	
	Weight	0.40 kg	
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI, UKCA	
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC (64-bit) Windows 11 IoT Enterprise LTSC (64-bit) Linux (Support by request)	

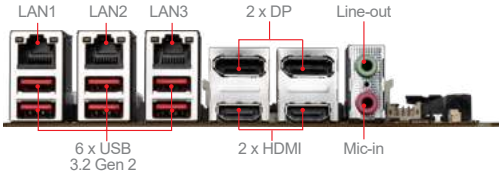
MSI reserves the right to change the specifications without prior notices.

MS-CF10

Mini-ITX with 14th/13th/12th Gen Intel® Raptor Lake-S Refresh/Raptor Lake-S/Alder Lake-S, Core™ i9/i7/i5/i3, Pentium®, Celeron® Processor & Intel® R680E/Q670E/H610E for High-Performance & DC Power Solution



SKU1/ SKU2



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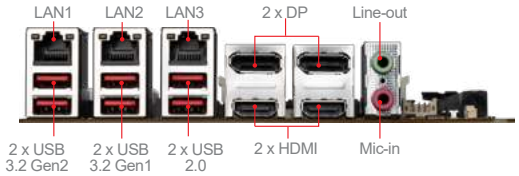


Features

- Intel® 14th/13th/12th Gen Raptor Lake-S Refresh/Raptor Lake-S/Alder Lake-S Series with R680E/Q670E/H610E
- 2 DDR5 5200 MT/s ECC/non-ECC SODIMM slots up to 64GB
- Quadruple independent displays: 2DP, 2HDMI 2.0, LVDS/eDP
- 3 2.5GbE LAN with RJ-45
- 1 PCIe x16 (Gen 5) Slot, 1 M.2 E key (with CNVi), 1 M.2 B key (with SIM Holder) slots
- M.2 M key, 2 SATA 3.0 for storage
- SATA RAID 0/1/5
- 6 USB 3.2 Gen 2, 2 USB 3.2 Gen 1, 3 USB 2.0, 4 COM (4 RS-485), GPIO, Audio, System FAN
- Onboard TPM 2.0
- SMBus, iAMT 16.x
- Wide Voltage DC-IN 8-48V

Ordering Information

Part Number	Description
911-CF10-001	601-CF10-010\801-CF10-007 11,Intel Raptor Lake-S R680E,2*D-DR5 SO-DIMM,2*HDMI+2*DP+1*eDP/LVDS,8*USB 3.2,3*USB 2.0,4*COM,3*2.5GbE LAN,2*SATA 3.0,1*M.2 E key,1*M.2 M key,1*M.2 B key,1*PCIe x16,TPM2.0,DC 8-48V, SINGLE For Channel
911-CF10-002	601-CF10-020\801-CF10-008 11,Intel Raptor Lake-S Q670E,2*D-DR5 SO-DIMM,2*HDMI+2*DP+1*eDP/LVDS,8*USB 3.2,3*USB 2.0,4*COM,3*2.5GbE LAN,2*SATA 3.0,1*M.2 E key,1*M.2 M key,1*M.2 B key,1*PCIe x16,TPM2.0,DC 8-48V, SINGLE For Channel
911-CF10-003	601-CF10-030\801-CF10-009 11,Intel Raptor Lake-S,H610E,2*D-DR5 SO-DIMM,2*HDMI+2*DP+1*eDP/LVDS,4*USB 3.2,5*USB 2.0,4*COM,3*2.5GbE LAN,2*SATA 3.0,1*M.2 E key,1*M.2 M key,1*PCIe x16,TPM2.0,DC 8-48V, SINGLE For Channel

Packing List

Part Number	Description	Quantity
K1D-3012023-V03	SATA CABLE, 230mm	1
K14-3018004-V03	COM PORT CABLE, 250mm	1
K1G-3008092-V03	POWER CABLE, 250mm	1
E21-CF10010-C22	I/O SHIELDING, H610E	1
E21-CF10020-C22	I/O SHIELDING, R680E/Q670E	1

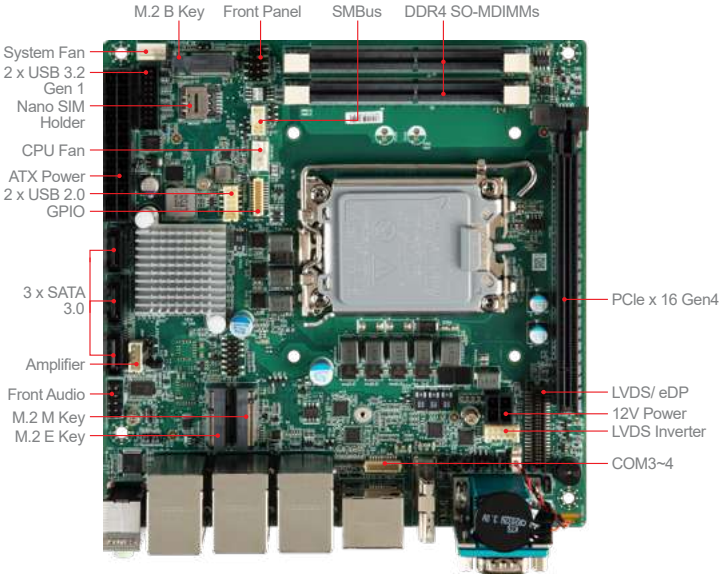
NEW

Specifications

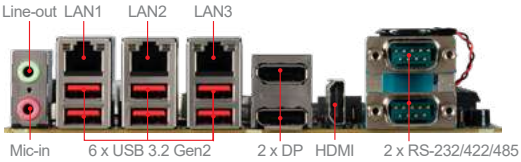
		SKU1	SKU2	SKU3
System Processor	CPU	14th Gen Intel® Raptor Lake-S Refresh i9/i7/i5/i3 IOTG Series Processor, Max 65W 13th Gen Intel® Raptor Lake-S i9/i7/i5/i3/ Pentium®/Celeron® IOTG Series Processor, Max 65W 12th Gen Intel® Alder Lake-S i9/i7/i5/i3/Pentium®/ Celeron® IOTG Series Processor, Max 65W		
	Frequency	1.6GHz~5.1GHz (Depends on CPU)		
	L2 Cache	2MB~30MB (Depends on CPU)		
	CPU Type	Socket (LGA 1700)		
	Chipset	Intel® R680E	Intel® Q670E	Intel® H610E
	BIOS	AMI UEFI		
Memory	Technology	Dual-channel DDR5 (ECC/ non-ECC) 5200MT/s	Dual-channel DDR5 (non-ECC) 5200MT/s	
	Max. Capacity	Up to 64GB		
	Socket	2 x 262-pin DDR5 SO-DIMMs		
Graphic	Controller	Intel® UHD Graphics		
	Graphic Memory	Depends on CPU		
	LVDS	1 x Dual channel 18/24-bit (Connector shared with eDP)		
	eDP	1 (Connector shared with LVDS)		
	HDMI	2		
	DisplayPort	2		
	Multiple Display	4 independent displays		3 independent displays
	Display Interface	LVDS up to 1920 x 1200 @60Hz eDP up to 4096 x 2304 @60Hz HDMI 2.0 up to 4096 x 2304 @60Hz DP up to 4096 x 2304 @60Hz		
Ethernet	Controller	3 x Intel® I226-LM 2.5GbE LAN	1 x Intel® I226-LM 2.5GbE LAN 2 x Intel® I226-V 2.5GbE LAN	3 x Intel® I226-V 2.5GbE LAN
Audio	Controller	Realtek® ALC897 Audio Codec (Co-lay ALC888S)		
Super I/O	Controller	Fintek F81966D-I		
H/W Monitor	Watchdog Timer	256-level Watchdog Timer		
	Smart Fan	Yes		
TPM	Controller	Infineon® SLB 9672VU2.0		
Expansion Slot	PCIe x16	1 x PCIe x16 (Gen 5)		
	M.2	1 x M key (PCIe x4 NVMe, SATA-3.0), 2242/2280 1 x E key (PCIe x1, USB 2.0, CNVi), 2230 1 x B key (PCIe x1, USB 3.2 Gen 2 x 1, USB 2.0), 3042 (with SIM Holder)		1 x M key (PCIe x4 NVMe, SATA-3.0), 2242/2280 1 x E key (PCIe x1, USB 2.0, CNVi), 2230
Storage	SATA	2 x SATA 3.0 (Support RAID 0/1/5, RAID 5 with M.2 M Key) (Support AHCI Mode)		2 x SATA 3.0 (Support AHCI Mode)
I/O Interface	USB	6 x USB 3.2 Gen 2 (rear) 2 x USB 3.2 Gen 1 (internal) 3 x USB 2.0 (internal with one Vertical Type-A)		2 x USB 3.2 Gen2 (rear) 2 x USB 3.2 Gen1 (rear) 2 x USB 2.0 (rear) 3 x USB 2.0 (internal with one Vertical Type-A)
	Serial	4 x COM ports COM1: RS-232/422/485, RI/5V/12V, Auto-flow Control COM2~4: RS-232/422/485, 0V/5V/12V, Auto-flow Control	4 x COM ports COM1: RS-232/422/485, RI/5V/12V, Auto-flow Control COM2~4: RS-232, 0V/5V/12V	
	GPIO	16-bits (8 x GPI; 8 x GPO), 3.3V		
Power Supply	DC Input	DC-in 8-48V		
	AC Input	N/A		
Environment	Operating Temperature	0 ~ 60°C Note: Thermal Test w/ Airflow:0.7m/s		
	Operating Humidity	10 ~ 90%, non-condensing		
	Storage Temperature	-20 ~ 80°C		
	Storage Humidity	10 ~ 90%, non-condensing		
Physical haracteristics	Dimensions (WxDxH)	170 x 170 mm (Mini-ITX)		
	Weight	0.42 kg		
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI, UKCA		
Software Platform	OS Support	Windows 10 IoT Enterprise 2021 LTSC (64-bit) Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request)		

MS-CF02

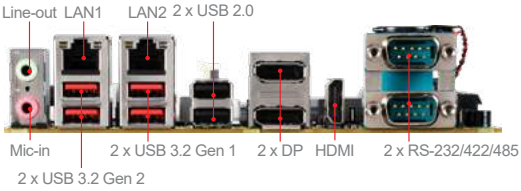
Mini-ITX with 14th/13th/12th Gen Intel® Raptor Lake-S Refresh/Raptor Lake-S/Alder Lake-S, Core™ i9/i7/i5/i3, Pentium®, Celeron® Processor & Intel® R680E/Q670E/H610E for High-Performance Solution



SKU1 / SKU2



SKU3



Features

- Intel® 14th/13th/12th Gen Raptor Lake-S Refresh/Raptor Lake-S/Alder Lake-S Series with R680E/Q670E/H610E
- 2 DDR4 3200 MT/s ECC/non-ECC SODIMM slots up to 64GB
- Quadruple independent displays: 2DP, HDMI, LVDS/eDP
- 3/2 2.5GbE LAN with RJ-45
- 1 PCIe x16 (Gen 4) Slot, 1 M.2 E key (with CNVi), 1 M.2 B key (with SIM Holder) slots
- M.2 M key, 3 SATA 3.0 for storage
- SATA RAID 0/1/5
- 6 USB 3.2 Gen 2, 2 USB 3.2 Gen 1, 2 USB 2.0, 4 COM (4 RS-485), GPIO, Audio, System FAN
- Onboard TPM 2.0
- SMBus, iAMT 16.x
- ATX Power

Ordering Information

Part Number	Description
911-CF02-001	MS-CF02\601-CF02-010\801-CF02-005 10 Intel Raptor Lake-S,R680E,2*DDR4 SO DIMM, 1*HDMI,2*DP,1*eDP,1*LVDS,1*M.2 E key,1*M.2 M key, 1*M.2 B key,1*PCIe x16,3*2.5GbE LAN, 3*SATA 3.0,8*USB 3.2,2*USB 2.0, 4*COM,TPM2.0,Mini-ITX
911-CF02-002	MS-CF02\601-CF02-020\801-CF02-006 10 OPT:A Intel Raptor Lake-S,H610E,2*DDR4 SO DIMM, 1*HDMI,2*DP,1*eDP,1*LVDS,1*M.2 E key,1*M.2 M key, ,1*PCIe x16,2*2.5GbE LAN, 3*SATA 3.0,4*USB 3.2,4*USB 2.0, 4*COM,TPM2.0,Mini-ITX
911-CF02-003	MS-CF02\601-CF02-030\801-CF02-007 10 OPT:B Intel Raptor Lake-S,Q670E,2*DDR4 SO DIMM, 1*HDMI,2*DP,1*eDP,1*LVDS,1*M.2 E key,1*M.2 M key, 1*M.2 B key,1*PCIe x16,3*2.5GbE LAN, 3*SATA 3.0,8*USB 3.2,2*USB 2.0, 4*COM,TPM2.0,Mini-ITX

Packing List

Part Number	Description	Quantity
K1D-1008261-V03	SATA Cable, 500mm	1
K14-3018004-V03	COM Port Cable, 250mm	1
E21-CF02010-C22	I/O Shielding (For SKU 1&2)	1
E21-CF02010-C22	I/O Shielding (For SKU 3)	1

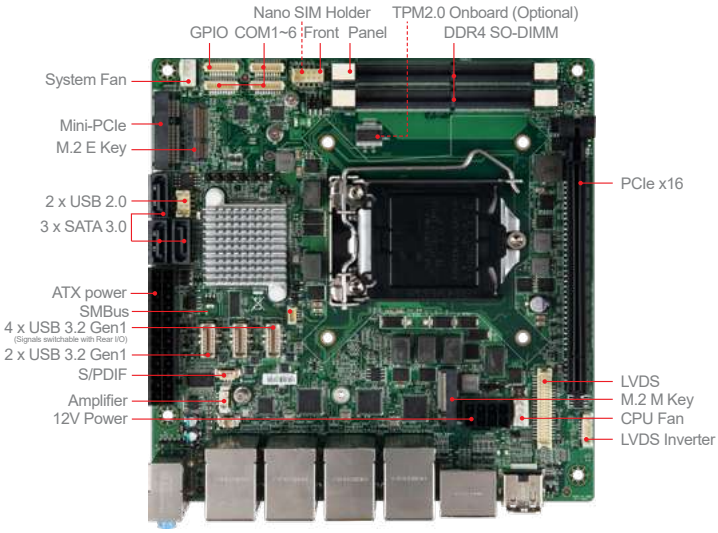
Specifications

		SKU1	SKU2	SKU3
System Processor	CPU	12th Gen Intel® Alder Lake-S i9/i7/i5/i3/Pentium®/Celeron® IOTG Series Processor, Max 65W 13th Gen Intel® Raptor Lake-S i9/i7/i5/i3/Pentium®/Celeron® IOTG Series Processor, Max 65W 14th Gen Intel® Raptor Lake-S Refresh i9/i7/i5/i3/Pentium®/Celeron® IOTG Series Processor, Max 65W		
	Frequency	1.6 GHz~5.1 GHz (Depends on CPU)		
	L2 Cache	2MB~30MB (Depends on CPU)		
	CPU Type	Socket (LGA 1700)		
	Chipset	Intel® R680E	Intel® Q670E	Intel® H610E
	BIOS	AMI UEFI		
Memory	Technology	Dual-channel DDR4 (ECC/non-ECC) 3200MT/s	Dual-channel DDR4 (non-ECC) 3200MT/s	
	Max. Capacity	Up to 64GB		
	Socket	2 x 260-pin DDR4 SO-DIMMs		
Graphic	Controller	Intel® UHD Graphics		
	Graphic Memory	Depends on CPU		
	LVDS	1 x Dual channel 18/24-bit (Connector shared with eDP)		
	eDP	1 (Connector shared with LVDS)		
	HDMI	1		
	DisplayPort	2		
	Multiple Display	4 independent displays		3 independent displays
	Display Interface	LVDS up to 1920 x 1200@60Hz eDP up to 4096 x 2304@60Hz HDMI up to 4096 x 2160@24Hz DP up to 4096 x 2304@60Hz		
Ethernet	Controller	3 x Intel® I226-LM 2.5GbE LAN		2 x Intel® I226-V 2.5GbE LAN
Audio	Controller	Realtek® ALC897 Audio Codec (Co-lay ALC888S)		
Super I/O	Controller	Fintek F81966D-I		
H/W Monitor	Watchdog Timer	256-level Watchdog Timer		
	Smart Fan	Yes		
TPM	Controller	Infineon® SLB 9670VQ2.0		
Expansion Slot	PCIe x16	1 x PCIe x16 (Gen 4)		
	M.2	1 x M key (PCIe x4 NVMe), 2242/2280 1 x E key (PCIe x1, USB 2.0, CNVi), 2230 1 x B key (PCIe x1, USB 3.2 Gen 2 x 1, USB 2.0), 3042 (with SIM Holder)		1 x M key (PCIe x4 NVMe), 2242/2280 1 x E key (PCIe x1, USB 2.0, CNVi), 2230
Storage	SATA	3 x SATA 3.0 (Support RAID 0/1/5)		3 x SATA 3.0 (Support AHCI Mode)
I/O Interface	USB	6 x USB 3.2 Gen 2 (rear) 2 x USB 3.2 Gen 1 (internal) 2 x USB 2.0 (internal)		2 x USB 3.2 Gen2 (rear) 2 x USB 3.2 Gen1 (rear) 2 x USB 2.0 (rear) 2 x USB 2.0 (internal)
	Serial	4 x COM ports COM1: RS-232/422/485, RI/5V/12V, Auto-flow Control COM2~4: RS-232/422/485, 0V/5V/12V, Auto-flow Control		4 x COM ports COM1: RS-232/422/485, RI/5V/12V, Auto-flow Control COM2: RS-232/422/485, 0V/5V/12V, Auto-flow Control COM3~4: RS-232, 0V/5V/12V (RS-232/422/485 by option)
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V		
Power Supply	DC Input	N/A		
	AC Input	ATX-Power 24P, 12V-4P		
Environment	Operating Temperature	0 ~ 60°C Note: Thermal Test w/ Airflow:0.7m/s		
	Operating Humidity	10 ~ 90%, non-condensing		
	Storage Temperature	-20 ~ 80°C		
	Storage Humidity	10 ~ 90%, non-condensing		
Physical haracteristics	Dimensions (WxDxH)	170 x 170 mm (Mini-ITX)		
	Weight	0.43 Kg		0.41 Kg
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI, UKCA		
Software Platform	OS Support	Windows 10 IoT Enterprise 2021 LTSC (64-bit) Windows 11 IoT Enterprise LTSC (64-bit) Linux (Support by request)		

MSI reserves the right to change the specifications without prior notices.

MS-98L1

Mini-ITX with 9th/8th Gen Intel® Coffee Lake Refresh-S/Coffee Lake-S Xeon®, Core™ i7/i5/i3, Pentium®, Celeron® Processor & Intel® C246/Q370/H310 for High-Performance Solution



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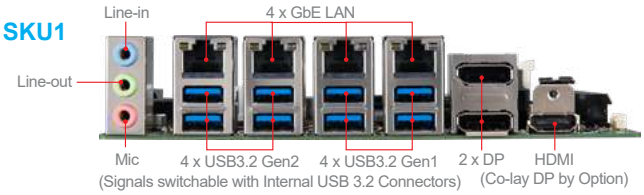

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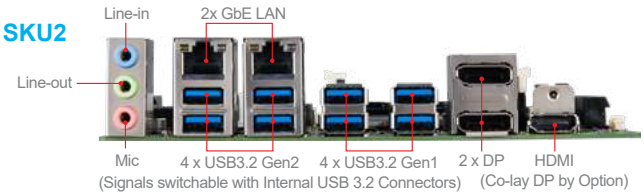
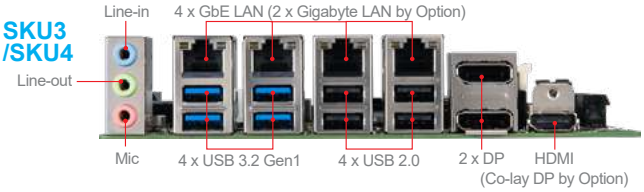


SKU3 /SKU4



Features

- Intel® 8th/9th Gen Coffee Lake-S/Coffee Lake Refresh-S Series with C246/Q370/H310
- 2 DDR4 2666 MHz ECC/non-ECC SODIMM slots up to 64GB
- Triple independent displays: 2DP, HDMI (DP by option), LVDS
- 4 GbE LAN with RJ-45
- 1 PCIe x16 (Gen 3) Slot, M.2 E key (with CNVi), 1 Mini-PCIe (Full-size, with SIM Holder) slots
- M.2 M key, 3 SATA 3.0 for storage
- SATA RAID 0/1/5/10 (RAID 10 Configured with M.2 M Key)
- 4 USB 3.2 Gen 2, 6 USB 3.2 Gen 1, 2 USB 2.0, 6 COM (2 RS-485), GPIO, Audio, S/PDIF, System FAN
- Onboard TPM 2.0 (by option)
- SMBus, iAMT 12.x
- ATX Power

Ordering Information

Part Number	Description
Please check MSI IPC website at http://ipc.msi.com for details.	

Packing List

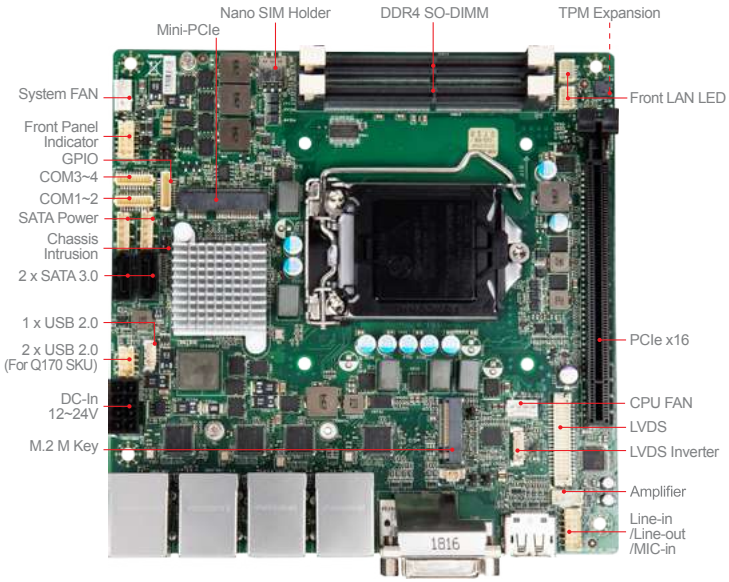
Part Number	Description
Please check MSI IPC website at http://ipc.msi.com for details.	

Specifications

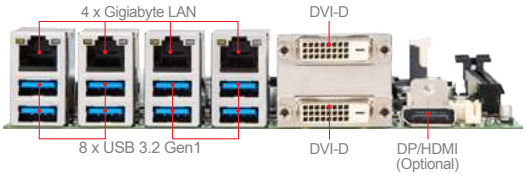
		SKU1	SKU2	SKU3	SKU4
System Processor	CPU	8th Gen Intel® Coffee Lake-S Xeon®/i7/i5/i3/Pentium®/Celeron® Series Processor, Max 95W 9th Gen Intel® Coffee Lake Refresh-S Xeon®/i7/i5/i3/Pentium®/Celeron® IOTG Processor, Max 65W	8th Gen Intel® Coffee Lake-S i7/i5/i3/Pentium®/Celeron® Series Processor, Max 95W 9th Gen Intel® Coffee Lake Refresh-S i7/i5/i3/Pentium®/Celeron® IOTG Processor, Max 65W		
	Frequency	2.0GHz~4.7GHz (Depends on CPU)			
	L2 Cache	2MB~16MB (Depends on CPU)			
	CPU Type	Socket (LGA 1151)			
	Chipset	Intel® C246 Express	Intel® Q370 Express	Intel® H310 Express	
	BIOS	AMI UEFI			
Memory	Technology	Dual-channel DDR4 (ECC/non-ECC) 2666MHz	Dual-channel DDR4 (non-ECC) 2666MHz		
	Max. Capacity	Up to 64 GB			
	Socket	2 x 260-pin DDR4 SO-DIMMs			
Display	Controller	Intel® UHD Graphics			
	Graphic Memory	Depends on CPU			
	LVDS	1 x Dual-channel 18/24-bit		N/A	
	HDMI	1 (Co-lay with DP by Optional)			
	DisplayPort	2			
	Multiple Display	3 independent displays		2 independent displays	
	Display Interface	LVDS up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @24Hz DP up to 4096 x 2304 @60Hz		HDMI up to 4096 x 2160 @24Hz DP up to 4096 x 2304 @60Hz	
Ethernet	Controller	1 x Intel® I219-LM GbE LAN PHY 3 x Intel® I210-AT GbE LAN	1 x Intel® I219-LM GbE LAN PHY 1 x Intel® I210-AT GbE LAN	1 x Intel® I219-LM GbE LAN PHY 3 x Intel® I211-AT GbE LAN	1 x Intel® I219-LM GbE LAN PHY 1 x Intel® I211-AT GbE LAN
Audio	Controller	Realtek® ALC887 Audio Codec (Co-lay ALC888S)			
Super I/O	Controller	Fintek F81866AD-I			
H/W Monitor	Watchdog Timer	256-level Watchdog Timer			
	Smart Fan	Yes			
TPM	Controller	Infineon® SLB9665TT2.0		Box header (Default) Infineon® SLB9665TT2.0 (by BOM option)	
I/O Interfaces	USB	2 x USB 2.0 (internal) 6 x USB 3.2 Gen 1 (4 x rear, Signal Share with Internal Box Header; 2 x internal) 4 x USB 3.2 Gen 2 (rear)		4 x USB 2.0 (rear) 4 x USB 3.2 Gen1 (rear)	
	Serial	6 x COM ports COM1: RS-232/422/485, RI/5V/12V, Auto-flow Control COM2: RS-232/422/485, 0V/5V/12V, Auto-flow Control COM3~6: RS-232, 0V/5V/12V (RS-232/422/485 by option)		4 x COM ports COM1: RS-232/422/485, RI/5V/12V, Auto-flow Control COM2~4: RS-232, 0V/5V/12V (RS-232/422/485 by option)	2 x COM ports COM1: RS-232/422/485, RI/5V/12V, Auto-flow Control COM2: RS-232, 0V/5V/12V (RS-232/422/485 by option)
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V			
Expansion Slot	PCIe x16	1			
	M.2	1 x M key (PCIe x4 NVMe, SATA), 2242/2280 1 x E key (PCIe x1, USB 2.0, CNVi), 2230		1 x M key (SATA), 2242/2280	
	Mini-PCIe	1 x Full-size (w/SIM holder)		1 x Full-size	
Storage	SATA	3 x SATA 3.0 (Support RAID 0/1/5/10, AHCI Mode, RAID 10 Configured with M.2 M Key)		3 x SATA 3.0 (Support AHCI Mode)	
Power Supply	AC Input	ATX-Power 24P, 12V-8P			
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s			
	Operating Humidity	10 ~ 90%, non-condensing			
	Storage Temperature	-20 ~ 80°C			
	Storage Humidity	10 ~ 90%, non-condensing			
Form Factor	Dimensions (W x D x H)	170 x 170 mm (Mini-ITX)			
	Weight	0.405 kg	0.375 kg	0.39 kg	0.375 kg
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI			
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)			

MS-98K1

Mini-ITX with 7th/6th Gen Intel® Kaby Lake/Skylake Processor with Multi-LAN, Expansion Capability, Wide Voltage & High-Performance Solution



SKU1



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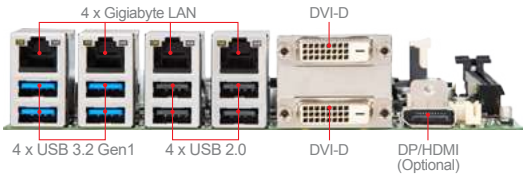

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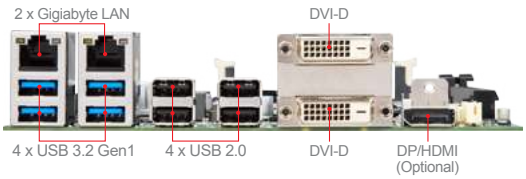


Features

- Intel® 7th/6th Gen Skylake-S/Kaby Lake-S Series with Q170/H110
- 2 DDR4 2400 MHz SODIMM slots up to 32GB
- Triple independent displays: 2 DVI-D, DP (HDMI by option), LVDS
- 4 GbE LAN with RJ-45
- 1 PCIe x16 (Gen3), 1 Mini-PCIe (Full size, with SIM Holder) slots
- M.2 M Key, 2 SATA 3.0 for storage
- SATA RAID 0/1/5 (RAID 5 Configured with M.2 M Key)
- 8 USB 3.2 Gen 1, 3 USB 2.0, 4 COM (4 RS-485), GPIO, Audio, System FAN
- Onboard TPM 2.0 (by option)
- SMBus, Chassis Intrusion
- Wide Voltage DC-IN 12~24V

Ordering Information

Part Number	Description
Please check MSI IPC website at http://ipc.msi.com for details.	

Packing List

Part Number	Description
Please check MSI IPC website at http://ipc.msi.com for details.	

Specifications

		SKU1	SKU2	SKU3
System Processor	CPU	7th Gen Intel® Desktop Kaby Lake-S i7-7700/i7-7700T/i5-7500/i5-7500T/i3-7101E/i3-7101TE, Max 65W 6th Gen Intel® Desktop Skylake-S i7-6700/i7-6700TE/i5-6500/i5-6500TE/i3-6100/i3-6100TE/G4400/G4400TE/G3900/G3900TE, Max 65W		
	Frequency	2.3GHz~4.0GHz (Depends on CPU)		
	L2 Cache	2M ~ 8M (Depends on CPU)		
	CPU Type	Socket (LGA 1151)		
	Chipset	Intel® Q170 Express	Intel® H110 Express	
	BIOS	AMI		
Memory	Technology	Dual-channel DDR4 (non-ECC) 2133MHz/2400MHz		
	Max. Capacity	Up to 32 GB		
	Socket	2 x 260-pin SO-DIMMs		
Display	Controller	Intel® HD Graphics		
	Graphic Memory	Depends on CPU		
	LVDS	1 x Dual channel 18/24-bit		
	DVI	2 (DVI-D)		
	HDMI	1 (Co-lay with DP by Optional)		
	DisplayPort	1		
	Multiple Display	3 independent displays	2 independent displays	
Ethernet	Controller	4 x Intel® I210-AT GbE LAN (Front LAN LED Supported)	4 x Intel® I211-AT GbE LAN (Front LAN LED Supported)	2 x Intel® I211-AT GbE LAN (Front LAN LED Supported)
Audio	Controller	Realtek® ALC887 HD Audio Codec		
H/W Monitor	Watchdog Timer	256-level Watchdog Timer		
	Smart Fan	Yes		
I/O Interfaces	USB	3 x USB 2.0 (internal) 8 x USB 3.2 Gen 1 (rear)	5 x USB 2.0 (4 x rear, 1 x internal) 4 x USB 3.2 Gen 1 (rear)	
	Serial	4 x COM ports (internal) COM1: RS-232/422/485, RI/5V/12V COM2~4: RS-232/422/485, 0V/5V/12V	4 x COM ports (internal) COM1: RS-232/422/485, RI/5V/12V COM2~4: RS-232, 0V/5V/12V	
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V		
TPM	Controller	Infineon® SLB9665TT 2.0	Pin header (Default) Infineon® SLB9665TT 2.0 (by BOM option)	
Expansion Slot	PCIe x16	1 (Maximum 75W Supported)		
	M.2	1 x M key (PCIe x4 NVMe, SATA 3.0), 2242/2280	1 x M key (SATA 3.0), 2242/2280	
	Mini-PCIe	1 x Full-size (w/ SIM holder)		
Storage	SATA	2 x SATA 3.0		
Power Supply	DC Input	DC-in 12 ~24V		
	AC Input	N/A		
	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s		
	Operating Humidity	10 ~ 90%, non-condensing		
	Storage Temperature	-20 ~ 80°C		
	Storage Humidity	10 ~ 90%, non-condensing		
Form Factor	Dimensions (W x D x H)	170 x 170 mm (Mini-ITX)		
	Weight	0.42 kg	0.42 kg	0.39 kg
Certification	EMC	FCC, CE , RCM, VCCI, BSMI (Class A)		
Software Platform	OS Support	Windows 7 (32/64-bit) (Skylake-S Series CPU Only) Windows 8.1 (64-bit) (Skylake-S Series CPU Only) Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)		

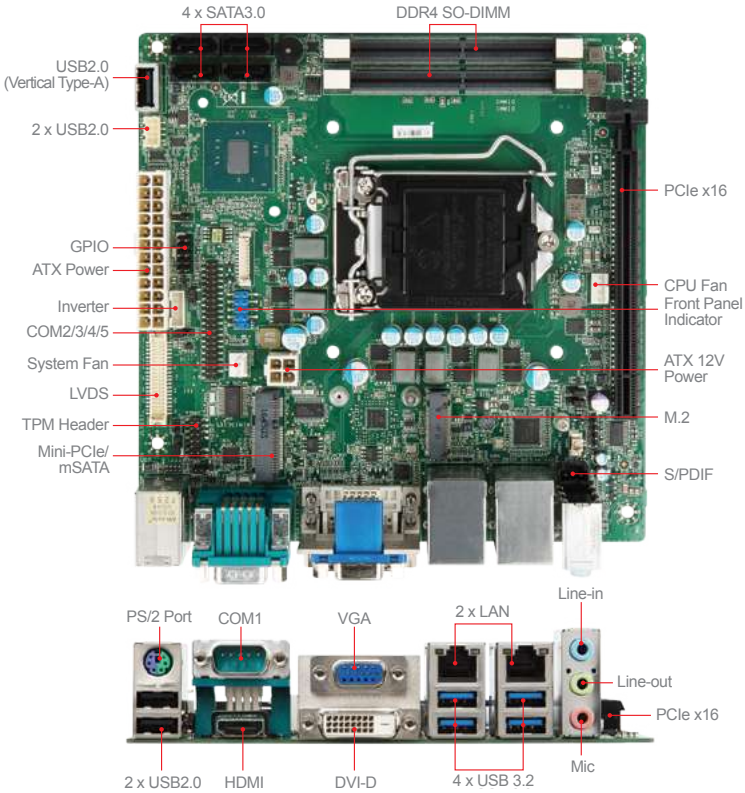
Optional Item

Part Number	Description
Please check MSI IPC website at http://ipc.msi.com for details.	

MSI reserves the right to change the specifications without prior notices.

MS-98E1

Mini-ITX with 7th/6th Gen Intel® Kaby Lake/Skylake Processor with Superior I/O & Expansion Capability for High-Performance Solution



Features

- Intel® 7th/6th Gen Skylake-S/Kaby Lake-S Series with C236/ H110
- 2 DDR4 2400 MHz SODIMM slots up to 32GB
- Triple independent displays: VGA, DVI-D, HDMI, LVDS
- 2 GbE LAN with RJ-45
- 1 PCIe x16 (Gen3), 1 Mini-PCIe (Full size, with SIM Holder), 1 Mini-PCIe (Half size) slots
- mSATA, M.2 M Key, 4 SATA 3.0 for storage
- SATA RAID 0/1/5/10
- 4 USB 3.2 Gen 1, 5 USB 2.0, 5 COM (1 RS-485), GPIO, PS/2, Audio, System FAN
- iAMT 11.x
- ATX Power

Ordering Information

Part Number	Description
919-98E1-001	V1.1Intel Kabylake-S/Skylake-S +C236+2*DDR4 LVDS+HDMI+DVI-D+VGA+4*SATAIII+2*GbE LAN+5*COM+1*mini-PCIe +1*M.2+ATX,SINGLE
919-98E1-002	V1.1 OPT:A Intel Kabylake-S/Skylake-S +H110+2*DDR4 LVDS+HDMI+DVI-D+VGA+3*SATAIII+2*GbE LAN+5*COM+1*mini-PCIe +ATX,SINGLE

Packing List

Part Number	Description
K1D-1008261-V03	SATA Cable, 500mm
E21-98E1010-C22	I/O SHIELD

Optional Item

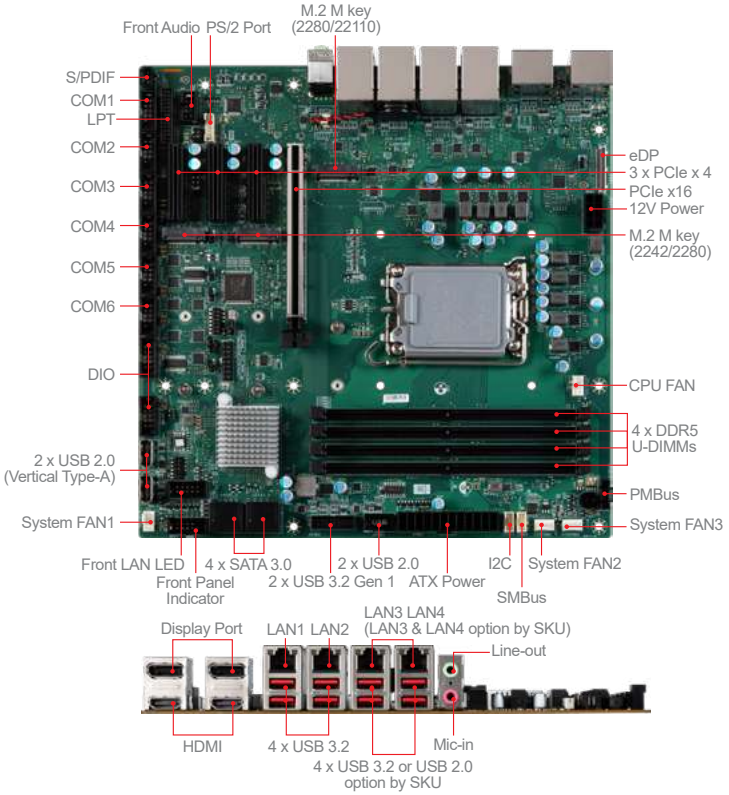
Part Number	Description
K14-1036005-V03	COM Port Cable, 500mm

Specifications

Processor		C236 SKU	H110 SKU
	CPU	7th/6th Gen Intel® Desktop Kaby Lake/ Skylake Xeon/i7/ i5/i3/Pentium®/ Celeron® Series Processor, Max. 95W	7th/6th Gen Intel® Desktop Kaby Lake/ Skylake Core™ i7/i5/i3/Pentium®/ Celeron® Series Processor, Max. 95W
	Frequency	2.3GHz~4.0GHz (Depends on CPU)	
	L2 Cache	2M ~ 8M (Depends on CPU)	
	CPU Type	Socket (LGA 1151)	
	Chipset	Intel® C236 Express	Intel® H110 Express
	BIOS	AMI	
Memory	Technology	Dual-channel DDR4 (ECC) 2133/2400MHz	Dual-channel DDR4 (non-ECC) 2133/2400MHz
	Max. Capacity	Up to 32GB	
	Socket	2 x 260-pin SO-DIMMs	
Display	Controller	Intel® HD Graphics	
	Graphic Memory	Depends on CPU	
	LVDS	1 x Dual channel 18/24-bit	
	eDP	N/A	
	VGA	1	
	DVI	1 (DVI-D)	
	HDMI	1	
	DisplayPort	N/A	
	Multiple Display	3 independent displays	2 independent displays
	Display Interface	LVDS up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @24Hz DVI-D up to 1920 x 1200 @60Hz VGA up to 1920 x 1200 @60Hz	
Ethernet	Controller	1 x Intel® I219-LM GbE-PHY 1 x Intel® I211-AT PCIe GbE LAN(Co-lay I210-AT)	
Audio	Controller	Realtek® ALC887 HD Audio Codec	
Super I/O	Controller	Fintek F81866AD-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	Yes	
TPM	Controller	Pin header	
I/O Interface	USB	5 x USB 2.0 (2 x rear, 3 x internal with one Vertical Type-A) 4 x USB 3.2 Gen 1 (rear)	
	Serial	5 x COM ports (COM1: rear, COM2~4: internal) COM1: RS-232/422/485, 0V/5V/12V COM2~5: RS-232, 0V/5V/12V	
	Parallel	N/A	
	PS/2	1	
	GPIO	8-bits (4 x GPI, 4 x GPO), 5V	
Expansion Slot	PCIe x 16	1	
	M.2	1 x M key (PCIe x4, SATA 3.0), 224	N/A
	Mini-PCIe	1 x Full-size, mSATA	
Storage	SATA	4 x SATA 3.0	3 x SATA 3.0
	mSATA	1 (shared w/ Mini-PCIe)	
Power Supply	DC	N/A	
	ATX	ATX-Power 24P, 12V-4P	
Environment	Operating Temperature	0 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	
	Operating Humidity	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	
	Storage Humidity	10 ~ 90%, non-condensing	
Form Factor	Dimensions	170 x 170 mm (Mini-ITX)	
	Weight	0.37 kg	
Certification	EMC	FCC, CE, RCM, VCCI, BSMI	
Software Platform	OS Support	Windows 7 (32/64-bit) Windows 8.1 (64-bit) Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)	

MS-CF09

Micro-ATX with 14th/13th/12th Gen Intel® Raptor Lake-S Refresh/Raptor Lake-S/Alder Lake-S/Bartlett Lake-S, Core™ i9/i7/i5/i3/300, Pentium®, Celeron® Processor & Intel® R680E/Q670E/H610E for High-Performance Solution



Features

- Intel® 14th/13th/12th Gen Raptor Lake-S Refresh/Raptor Lake-S/ Alder Lake-S/Bartlett Lake-S Series with R680E/Q670E/H610E
- 4 DDR5 4400 MT/s ECC/non-ECC UDIMM slots up to 128GB
- Quadruple independent displays: 2DP, 2HDMI, eDP
- 4 2.5GbE LAN with RJ-45
- 1 PCIe x16 (Gen 5) Slot, 2 PCIe x4 (Gen 4), 1 PCIe x4 (Gen 3) slots
- 3 M.2 M key, 4 SATA 3.0 for storage
- SATA RAID 0/1/5/10
- 8 USB 3.2 Gen 2, 2 USB 3.2 Gen 1, 4 USB 2.0, 6 COM (6 RS-485), GPIO, PS/2, Audio, 3 System FAN
- Onboard TPM 2.0
- SMBus, I2C, PMBus, iAMT 16.x, Chassis Intrusion
- ATX Power

Ordering Information

Part Number	Description
911-CF09-001	MS-CF09\601-CF09-010\801-CF09-010 VER 10 OPT:STD Intel RPL-S,R680E,4*DDR5,HDMI+DP+eDP,3*M.2 M key,1*PCIe x16,3*PCIe x4,4*2.5GbE LAN,4*SATA 3.0,10*USB 3.2,4*USB 2.0,6*COM,T-PM2.0,Micro-ATX For Channel
911-CF09-002	MS-CF09\601-CF09-020\801-CF09-011 VER 10 OPT:A Intel RPL-S,Q670E,4*DDR5,HDMI+DP+eDP,2*M.2 M key,1*PCIe x16,3*PCIe x4,2*2.5GbE LAN,4*SATA 3.0,10*USB 3.2,4*USB 2.0,6*COM,T-PM2.0,Micro-ATX For Channel
911-CF09-003	MS-CF09\601-CF09-030\801-CF09-012 VER 10 OPT:B Intel RPL-S,H610E,2*DDR5,HDMI+DP+eDP,1*PCIe x16,1*PCIe x4,4*2.5GbE LAN,4*SATA 3.0,4*USB 3.2,6*USB 2.0,4*COM,T-PM2.0,Micro-ATX For Channel
911-CF09-004	MS-CF09\601-CF09-040\801-CF09-013 VER 10 OPT:C Intel RPL-S,H610E,2*DDR5,HDMI+DP+eDP,1*PCIe x16,1*PCIe x4,2*2.5GbE LAN,4*SATA 3.0,4*USB 3.2,6*USB 2.0,4*COM,T-PM2.0,Micro-ATX For Channel
916-CF09-002	MS-CF09\606-CF09-060\806-CF09-002 VER 10 Intel RPL-S, Q670E,4*DDR5,HDMI+DP+eDP,2*M.2 M key,1*PCIe x16,3*PCIe x4,4*2.5GbE LAN,4*SATA 3.0,10*USB 3.2,4*USB 2.0,6*COM,T-PM2.0, Micro-ATX For Channel

Packing List

Part Number	Description	Quantity
K1D-1008261-V03	SATA Cable, 500mm	2
E21-CF09010-C22	I/O SHIELDING For R680E/Q670E 4LANs SKU	1
E21-CF09020-C22	I/O SHIELDING For Q670E 2LANs SKU	1
E21-CF09030-C22	I/O SHIELDING For H610E 4LANs SKU	1
E21-CF09040-C22	I/O SHIELDING For H610E 2LANs SKU	1

NEW

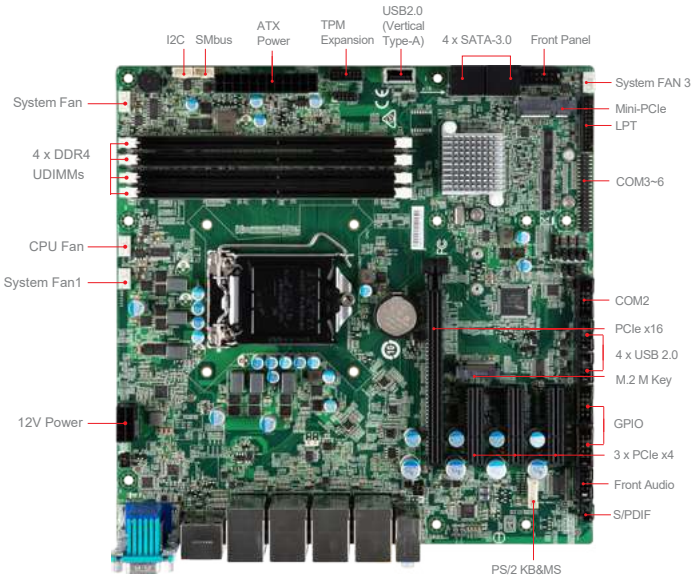
Specifications

		SKU1	SKU2	SKU5	SKU3	SKU4
System Processor	CPU	12th Gen Intel® IOTG Alder Lake-S Processor Core i9/i7/i5/i3, Pentium, Celeron, Max 125W 13th Gen Intel® IOTG Raptor Lake-S Processor Core i9/i7/i5/i3, Pentium, Celeron, Max 125W 14th Gen Intel® Raptor Lake-S Refresh i9/i7/i5/i3/Pentium®/Celeron® IOTG Series Processor, Max 125W Intel® Bartlett Lake-S i7/i5/i3/300 IOTG Series Processor, Max 125W				
	Frequency	P-Core 1.1GHz~5.0GHz (Depends on CPU) E-Core 0.9GHz~3.8GHz (Depends on CPU)				
	L2 Cache	4MB~30MB (Depends on CPU)				
	CPU Type	Socket (LGA1700)				
	Chipset	Intel® R680E Express	Intel® Q670E Express		Intel® H610E Express	
	BIOS	AMI UEFI				
Memory	Technology	Dual-channel DDR5 (ECC/ non-ECC) 4400 MHz	Dual-channel DDR5 (non-ECC) 4400 MHz			
	Max. Capacity	Up to 128GB			Up to 64GB	
	Socket	4 x 288-pin UDIMMs			2 x 288-pin UDIMMs	
Graphic	Controller	Intel® UHD Graphics				
	Graphic Memory	Depends on CPU				
	LVDS	N/A				
	eDP	1				
	HDMI	2				
	DisplayPort	2				
	Multiple Display	4 independent displays			3 independent displays	
	Display Interface	HDMI up to 4096 x 2160 @60Hz DP up to 4096 x 2304 @60Hz eDP up to 4096 x 2160 @60Hz				
Ethernet	Controller	4 x Intel® i226-LM 2.5GbE LAN	2 x Intel® i226-LM 2.5GbE LAN	1 x Intel® i226-LM 2.5GbE LAN 3 x Intel® i226-V 2.5GbE LAN	4 x Intel® i226-V 2.5GbE LAN	2 x Intel® i226-V 2.5GbE LAN
Audio	Controller	Realtek® ALC897 Audio Codec				
Super I/O	Controller	Fintek F81966D-I				
H/W Monitor	Watchdog Timer	256-level Watchdog Timer				
	Smart Fan	Yes				
TPM	Controller	Infineon® SLB9672VU2.0				
Expansion Slot	PCIe x16	1				
	PCIe x4	3			1	
	M.2	1 x M.2 M key (PCIe x4 NVMe; Signal from CPU), 2280/22110 2 x M.2 M key (PCIe x4 NVMe; Signal from PCH), 2242/2280"	1 x M.2 M key (PCIe x4 NVMe; Signal from CPU), 2280/22110 1 x M.2 M key (PCIe x4 NVMe; Signal from PCH), 2242/2280		N/A	
Storage	SATA	4 x SATA 3.0 (RAID 0/1/5/10)			4 x SATA 3.0	
I/O Interface	USB	8 x USB 3.2 Gen 2 x1 Ports (8 x rear) 2 x USB 3.2 Gen 1 Ports (2 x internal) 4 x USB 2.0 Ports (2 x internal, 2 x Vertical Type-A Connector)			2 x USB 3.2 Gen 2 x1 Ports (2 x rear) 2 x USB 3.2 Gen 1 Ports (2 x rear) 6 x USB 2.0 Ports (4 x rear, 2 x internal)	
	Serial	6 x COM ports (internal) COM1~2: RS-232/422/485 with Ring/0V/5V/12V Auto-flow Control COM3~6: RS-232/422/485 with 0V/5V/12V Auto-flow Control	6 x COM ports (internal) COM1~2: RS-232/422/485 with Ring/0V/5V/12V Auto-flow Control COM3~6: RS-232 with 0V/5V/12V		4 x COM ports (internal) COM1: RS-232/422/485 with Ring/0V/5V/12V Auto-flow Control COM2~4: RS-232 with 0V/5V/12V	
	Parallel	Yes				
	PS/2	1 x PS/2 port by Y-cable for keyboard and mouse				
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V				
Power Supply	DC Input	N/A				
	AC Input	ATX-Power 24P, 12V-8P				
Environment	Operating Temperature	0 ~ 60°C Note: Thermal Test w/ Airflow:0.7m/s				
	Operating Humidity	10 ~ 90%, non-condensing				
	Storage Temperature	-20 ~ 80°C				
	Storage Humidity	10 ~ 90%, non-condensing				
Physical haracteristics	Dimensions (WxDxH)	244 x 244mm (uATX)				
	Weight	0.659 kg				
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI, UKCA				
Software Platform	OS Support	Windows 10 IoT Enterprise 2021 LTSC (64-bit, 21H2) Windows 11 IoT Enterprise LTSC 24H2 (64-bit) Linux (Support by request)				

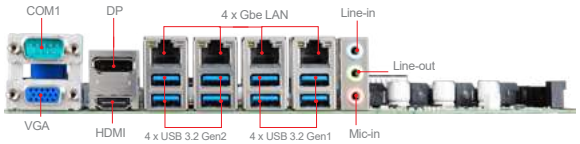
MSI reserves the right to change the specifications without prior notices.

MS-98L2

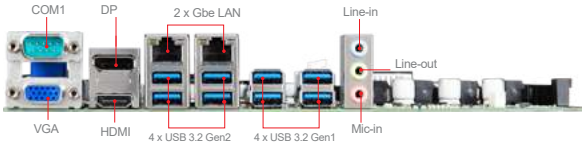
Micro-ATX with 8th Gen Intel® Coffee Lake-S Xeon, Core™ i7/i5/i3, Pentium®, Celeron® Processor for Superior I/O & Expansion Capability for High-Performance Solution



SKU1/SKU2



SKU3



Features

- Intel® 8th Gen Coffee Lake-S Series with C246/Q370
- 4 DDR4 2666 MHz ECC/non-ECC UDIMM slots up to 128GB
- Triple independent displays: VGA, DP, HDMI
- 4 GbE LAN with RJ-45
- 1 PCIe x16 (Gen 3), 3 PCIe x4 (Gen 3), 1 Mini-PCIe (Full/Half size) slots
- M.2 M Key, 4 SATA 3.0 for storage
- SATA RAID 0/1/5/10
- 4 USB 3.2 Gen 2, 4 USB 3.2 Gen 1, 5 USB 2.0, 6 COM (2 RS-485), GPIO, LPT, PS/2, Audio, S/PDIF, 3 System FAN
- Onboard TPM 2.0 (by option)
- SMBus, I2C, iAMT12.x
- ATX Power

Ordering Information

Part Number	Description
919-98L2-001	MS-98L2\609-98L2-020\809-98L2-010 VER 10 OPT:A Intel Coffee Lake-S LGA1151,Q370,4*DDR4 UDIMM,1*PCIe x16,3*PCIe x4, HDMI, DP,VGA,4*LAN,4*USB 3.2 Gen 2, 4*USB 3.2 Gen 1,5*USB 2.0, 4*SATA 3.0,M.2,Mini-PCIe, 6*COM,Micro-ATX,RoHS,SINGLE, For Channel
919-98L2-006	MS-98L2\609-98L2-030\809-98L2-014 VER 10 OPT:C Intel Coffee Lake-S LGA1151, Q370,4*DDR4 UDIMM,1*PCIe x16,3*PCIe x4,HD-MI™,DP,VGA,2*LAN,4*USB 3.2 Gen 2, 4*USB 3.2 Gen 1,5*USB 2.0,4*SATA 3.0,M.2,Mini-PCIe, 6*COM,Micro-ATX,RoHS,SINGLE,For Channel
919-98L2-005	MS-98L2\609-98L2-010\809-98L2-013 VER 10 Intel Coffee Lake-S LGA1151, C246,4*DDR4 UDIMM,1*PCIe x16,3*PCIe x4,HDMI,D-P,VGA,4*LAN,4*USB 3.2 Gen 2, 4*USB 3.2 Gen 1,5*USB2.0,4*SA-TA3.0,M.2,Mini-PCIe,6*COM,Micro-ATX,RoHS,SINGLE,For Channel

Packing List

Part Number	Description	Quantity
K1D-1008261-V03	SATA Cable, 500mm	2
E21-98L2020-C22	I/O SHIELDING	1

Optional Item

Part Number	Description
K14-1018004-V03	COM Port Cable, 510mm
K1B-3008012-E06	USB 2.0 Cable, 330mm

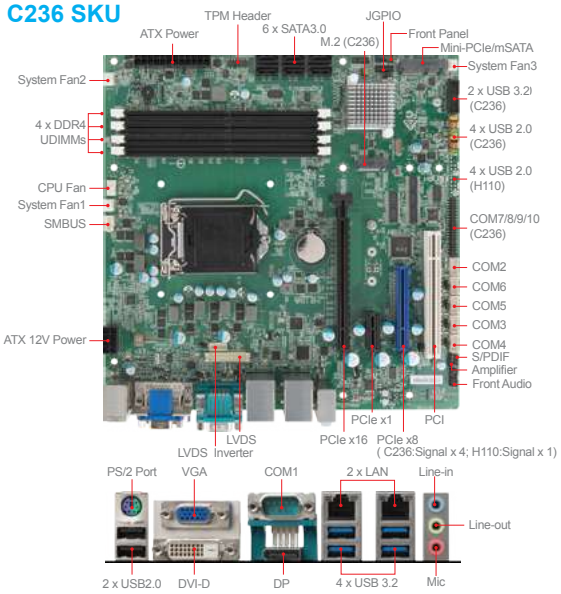
Specifications

		SKU1	SKU2	SKU3
System Processor	CPU	8th Gen Intel® Desktop Coffee Lake-S Xeon®/ Core™ i7/i5/ i3/Pentium®/ Celeron® Series Processor, Max 95W	8th Gen Intel® Desktop Coffee Lake-S Core™ i7/i5/i3/Pentium®/ Celeron® Series Processor, Max 95W	
	Frequency	2.1GHz~4.7GHz(Depends on CPU)		
	L2 Cache	2MB~12MB (Depends on CPU)		
	CPU Type	Socket (LGA 1151)		
	Chipset	Intel® C246 Express	Intel® Q370 Express	
	BIOS	AMI UEFI		
Memory	Technology	Dual-channel DDR4 (ECC/ non-ECC) 2666 MHz	Dual-channel DDR4 (non-ECC) 2666 MHz	
	Max. Capacity	Up to 128 GB		
	Socket	4 x 288-pin UDIMMs		
Display	Controller	Intel® HD Graphics		
	Graphic Memory	Depends on CPU		
	VGA	1		
	HDMI	1		
	DisplayPort	1		
	Multiple Display	3 independent displays		
	Display Interface	VGA up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @24Hz DP up to 4096 x 2304 @60Hz		
Ethernet	Controller	1 x Intel® I219-LM GbE LAN PHY 3 x Intel® I210-AT GbE LAN		1 x Intel® I219-LM GbE LAN PHY 1 x Intel® I211-AT GbE LAN
Audio	Controller	Realtek® ALC887 HD Audio Codec		
Super I/O	Controller	Fintek F81866AD-I		
H/W Monitor	Watchdog Timer	256-level Watchdog Timer		
	Smart Fan	Yes		
TPM	Controller	Box header (Default) Infineon SLB9665TT2.0 (by BOM option)		
I/O Interfaces	USB	5 x USB 2.0 (5 x internal with one Vertical Type-A) 4 x USB 3.2 Gen 1 Type-A (rear) 4 x USB 3.2 Gen 2 Type-A (rear)		
	Serial	6 x COM ports (COM1: rear, COM2~6: internal) COM1: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control COM2: RS-232/422/485, 0V/5V/12V, Auto-flow Control COM3~6: RS-232, 0V/5V/12V		6 x COM ports (COM1: rear, COM2~6: internal) COM1: RS-232/422/485, Ring/ 0V/5V/12V, Auto-flow Control COM2~6: RS-232, 0V/5V/12V
	Parallel	1		
	PS/2	1 x PS/2 port by Y-cable for keyboard and mouse		
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V		
Expansion Slot	PCIe x16	1		
	PCIe x4	3 (Slot2 signal shared with M.2; 2*PCIe x4 NVMe)		
	M.2	1 x M key (PCIe x4 NVMe, SATA 3.0), 2242/2260/2280		
	Mini-PCIe	1 x Full-size/Half-size		
Storage	SATA	4 x SATA 3.0		
Power Supply	DC Input	N/A		
	AC Input	ATX-Power 24P, 1 2V-8P		
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s		
	Operating Humidity	10 ~ 90%, non-condensing		
	Storage Temperature	-20 ~ 80°C		
	Storage Humidity	10 ~ 90%, non-condensing		
Form Factor	Dimensions (W x D x H)	244 x 244 mm (uATX)		
	Weight	0.625 kg		0.39 kg
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI		
Software Platform	OS Support	Windows 10 IoT Enterprise 2019 SAC (64-bit, RS5) Linux (Support by request)		

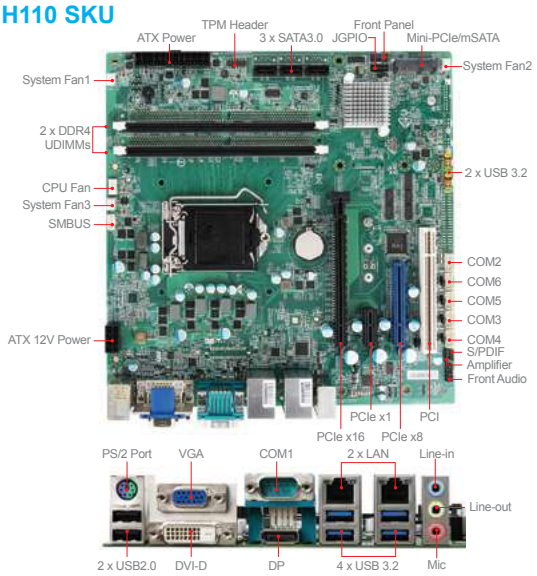
MS-98E2

Micro-ATX with 7th/6th Gen Intel® Kaby Lake/Skylake, Superior I/O & Expansion Capability for High-Performance Solution

C236 SKU



H110 SKU



Features

- Intel® 7th/6th Gen Skylake-S/Kaby Lake-S Series with C236/H110
- 4 DDR4 2666 MHz ECC/non-ECC UDIMM slots up to 64GB
- Triple independent displays: VGA, DVI-D, DP, LVDS
- 2 GbE LAN with RJ-45
- 1 PCIe x16 (Gen 3), 1 PCIe x8 (Gen 3), 1 PCIe x1 (Gen 3), 1 PCI, 1 Mini-PCIe (Full size, with mSATA) slots
- M.2 M Key, 6 SATA 3.0 for storage
- SATA RAID 0/1/5/10
- 6 USB 3.2 Gen 1, 5 USB 2.0, 10 COM (1 RS-485), GPIO, PS/2, Audio, S/PDIF, 3 System FAN
- SMBus, iAMT11.x
- ATX Power

Ordering Information

Part Number	Description
919-98E2-001	VER 1.1 OPTA,9.6-INCH, Intel Skylake-S/Kabylake-S +C236,4*DDR4, DP, VGA, LVDS, DVI, 1*M.2, 1*Mini-PCIe, 2*LAN, 6*SATA3.0, 6*USB3.0, 6*USB2.0, 10*COM, ATX Power,s-ingle for channel
919-98E2-002	VER 1.1 OPTB,9.6-INCH, Intel Skylake-S/Kabylake-S +H110, 2*DDR4, DP, VGA, DVI, 1*Mini-PCIe, 2*LAN, 3*SATA3.0, 4*USB3.0, 6*USB2.0, 6*COM, ATX Power,single for channel

Specifications

Processor	CPU	C236 SKU	H110 SKU
		7th/6th Gen Intel® Desktop Kaby Lake/ Skylake Xeon/i7/i5/ i3/Pentium®/Celeron® Series Processor, Max 95W	7th/6th Gen Intel® Desktop Kaby Lake/ Skylake Core™ i7/i5/ i3/Pentium®/Celeron® Series Processor, Max 95W
	Frequency	2.3GHz~4.0GHz (Depends on CPU)	
	L2 Cache	2M ~ 8M (Depends on CPU)	
	CPU Type	Socket (LGA 1151)	
	Chipset	Intel® C236 Express	Intel® H110 Express
	BIOS	AMI	
Memory	Technology	Dual-channel DDR4 (ECC) 2133/2400 MHz(7th Gen)	Dual-channel DDR4 (non-ECC) 2133/2400 MHz(7th Gen)
	Max. Capacity	Up to 64 GB	Up to 32 GB
	Socket	4 x 288-pin UDIMMs	4 x 288-pin UDIMMs
Display	Controller	Intel® HD Graphics	
	Graphic Memory	Depends on CPU	
	LVDS	1	N/A
	eDP	N/A	
	VGA	1	
	DVI	1 (DVI-D)	
	DisplayPort	1	
	Multiple Display	3 independent displays	2 independent displays
	Display Interface	LVDS up to 1920 x 1200 @60Hz DP up to 4096 x 2304 @60Hz DVI-D up to 1920 x 1200 @60Hz VGA up to 1920 x 1200 @60Hz	DP up to 4096 x 2304 @60Hz DVI-D up to 1920 x 1200 @60Hz VGA up to 1920 x 1200 @60Hz
Ethernet	Controller	1 x Intel® I219-LM GbE-PHY 1 x Intel® I210-AT PCIe GbE LAN	1 x Intel® I219-LM GbE-PHY 1 x Intel® I211-AT PCIe GbE LAN
Audio	Controller	Realtek® ALC887 HD Audio Codec	
Super I/O	Controller	Fintek F81866AD-I + F81216H	Fintek F81866AD-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	Yes	
TPM	Controller	Pin header	
I/O Interface	USB	6 x USB 2.0 (2 x rear, 4 x internal) 6 x USB 3.2 Gen 1 (4 x rear, 2 x internal)	6 x USB 2.0 (2 x rear, 4 x internal) 4 x USB 3.2 Gen 1 (rear)
	Serial	10 x COM ports (COM1: rear, COM2~9: internal) COM1: RS-232/422/485, 0V/5V/12V COM2~6: RS-232, 0V/5V/12V COM7~10: RS-232, without power	6 x COM ports (COM1: rear, COM2~5: internal) COM1: RS-232/422/485, 0V/5V/12V COM2~6: RS-232, 0V/5V/12V
	Parallel	N/A	
	PS/2	1	
	GPIO	8-bits (4 x GPI, 4 x GPO), 5V	
Expansion Slot	PCIe x16	1	
	PCIe x8	1*PCIe x8 (x4 signal)	1*PCIe x8 (x1 signal)
	PCIe x4	N/A	
	PCIe x1	1	
	PCI	1	
	M.2	1 x M key (PCIe x4, SATA 3.0), 2242/2260/2280	N/A
	Mini-PCIe	1 x Full-size (mSATA)	
Storage	SATA	6 x SATA 3.0	3 x SATA 3.0
	mSATA	1 (shared w/ Mini-PCIe)	
Power Supply	DC	N/A	
	ATX	ATX-Power 24P, 12V-8P	
Environment	Operating Temperature	0 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	
	Operating Humidity	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	
	Storage Humidity	10 ~ 90%, non-condensing	
Form Factor	Dimensions	244 x 244 mm (uATX)	
	Weight	0.73 kg	
Certification	EMC	FCC, CE, RCM, VCCI, BSMI	
Software Platform	OS Support	Windows 7 (32/64-bit) Windows 8.1 (64-bit) Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)	

Packing List

Part Number	Description
K1D-1008261-V03	SATA Cable, 500mm
K14-1018003-V03	COM PORT Cable, 300mm
E21-98E2010-C22	I/O SHIELD

Optional Item

Part Number	Description
K14-1036004-V03	COM Port Cable, 200mm
K1B-3008012-E06	USB 2.0 Cable, 330mm

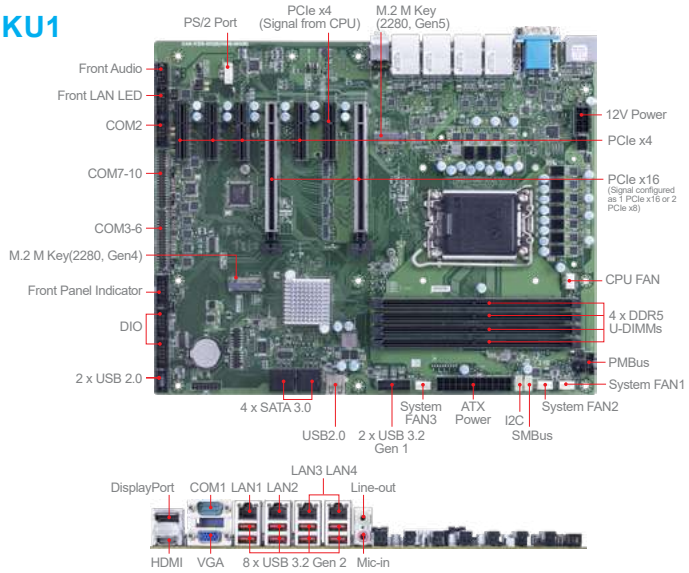
MSI reserves the right to change the specifications without prior notices.

MS-CF20 V2.0

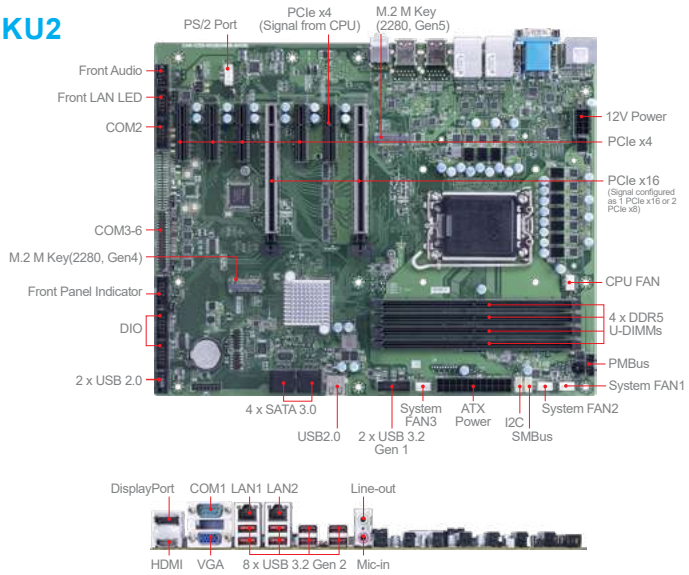
ATX with Intel® Arrow Lake-S , Core™ U9/U7/U5 & Intel® W880 for High-Performance Solution

NEW

SKU1



SKU2



Features

- Intel® Arrow Lake-S Series with W880
- 4 DDR5 5600 MT/s ECC/non-ECC UDIMM slots up to 256GB
- Triple independent displays: VGA, DP, HDMI
- 2 or 4 2.5GbE LAN with RJ-45
- 1 PCIe x16 (Gen 5) Slot or 2 PCIe x8 (Gen 5), 5 PCIe x4 (Gen 4, 1 signal from CPU, 4 signal from PCH)
- 2 M.2 M key, 4 SATA 3.0 for storage
- SATA RAID 0/1/5/10
- 8 USB 3.2 Gen 2, 2 USB 3.2 Gen 1, 3 USB 2.0, 10 COM (2 RS-485 / 8 RS-232), GPIO, PS/2, Audio, 3 System FAN
- Onboard TPM 2.0
- SMBus, I2C, PMBus, iAMT 19.x, Chassis Intrusion
- ATX Power

Packing List

Part Number	Description	Quantity
K1B-3008012-E06	USB2.0 cable, 330mm	1
K1D-1008261-V03	SATA Cable, 500mm	2
E21-CF05010-C22	IO shielding for SKU1 (4 LAN)	1
E21-CF05020-C22	IO shielding for SKU2 (2 LAN)	1

Specifications

		SKU1	SKU2
Processor	CPU	Intel® Arrow Lake-S Core™ Ultra 9/7/5, Max 125W	
	Frequency	P-Core 1.4GHz~5.6GHz (Depends on CPU) E-Core 1.2GHz~4.6GHz (Depends on CPU)	
	L2 Cache	3MB~36MB (Depends on CPU)	
	CPU Type	Socket (LGA1851)	
	Chipset	Intel® W880	
	BIOS	AMI UEFI	
Memory	Technology	Dual-channel DDR5 (ECC/non-ECC) 5600 MT/s (ECC support will depend on CPU)	
	Max. Capacity	Up to 256GB	
	Socket	4 x 288-pin UDIMMs	
Display	Controller	Intel® UHD Graphics	
	Graphic Memory	Depends on CPU	
	VGA	1	
	HDMI	1	
	DisplayPort	1	
	Multiple Display	3 independent displays	
	Display Interface	VGA up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @60Hz DP up to 4096 x 2304 @60Hz	
Ethernet	Controller	4 x Intel® I226-LM 2.5GbE LAN	2 x Intel® I226-LM 2.5GbE LAN
Audio	Controller	Realtek® ALC897 Audio Codec	
Super I/O	Controller	FINTEK F81967D-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	Yes	
TPM	Controller	Infineon® SLB9672VU2.0	
I/O Interface	USB	8 x USB 3.2 Gen 2 x1 (8 x rear) 2 x USB 3.2 Gen 1 (2 x internal) 3 x USB 2.0 (3 x internal with one Right Angle Type-A Connector)	
	Serial	10 x COM ports (1 x rear, 9 x internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control (Default set to Ring) COM3~6: RS-232, 0V/5V/12V COM7~10: RS-232, 0V/5V/12V	6 x COM ports (1 x rear, 5 x internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control (Default set to Ring) COM3~6: RS-232, 0V/5V/12V
	PS/2	1 x PS/2 port by Y-cable for keyboard and mouse	
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V	
Expansion Slot	PCIe x16	2 (Signal configured as 1 PCIe x16 or 2 PCIe x8)	
	PCIe x4	5	
	PCIe	N/A	
	M.2	1 x M key (Signal from CPU) 2280, 1 x M key (Signal Shared by PCIe Slot5) 2280	
Storage	SATA	4 x SATA 3.0 (RAID 0/1/5/10)	
Power Supply	ATX	ATX-Power 24P, 12V-8P	
Environment	Operating Temperature	0 ~ 60°C	
	Operating Humidity	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	
	Storage Humidity	10 ~ 90%, non-condensing	
Form Factor	Dimensions	305 x 244 mm (ATX)	
	Weight	0.766 kg	0.738 kg
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI, UKCA, CN	
Software Platform	OS Support	Windows 10 IoT Enterprise 2021 LTSC (64-bit) Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request) Noted : All driver base on Intel & chip vendor supported	

Ordering Information

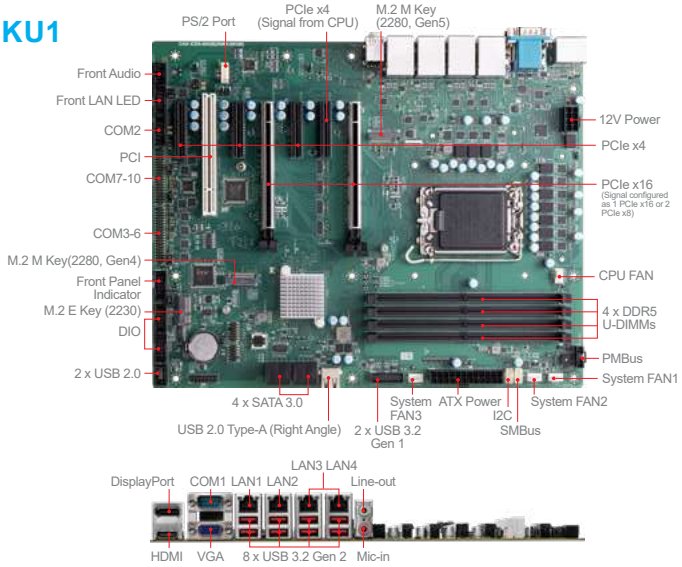
Part Number	Description
916-CF20-005	MS-CF20\606-CF20-030,20\806-CF20-001 MS-CF20 20 ARL-S, W880, 4*DDR5,HDMI+DP+VGA, 2*M.2 M key, 1*PCIe x16, 1*PCIe x8, 5*PCIe x4, 4*2.5GbE LAN, 4*SATA 3.0, 8*USB 3.2, 10*COM, TPM2.0, ATX SINGLE, 5pcs/box
916-CF20-006	MS-CF20\606-CF20-040,20\806-CF20-002 MS-CF20 20 OPT:A ARL-S,W880, 4*DDR5, HDMI+DP+VGA, 2*M.2 M key, 1*PCIe x16, 1*PCIe x8, 5*PCIe x4, 2*2.5GbE LAN, 4*SATA 3.0, 8*USB 3.2, 6*COM, TPM2.0, ATX SINGLE, 5pcs/box
916-CF20-007	MS-CF20\606-CF20-030,20\806-CF20-001 MS-CF20 20 ARL-S, W880, 4*DDR5, HDMI+DP+VGA, 2*M.2 M key, 1*PCIe x16, 1*PCIe x8, 5*PCIe x4, 4*2.5GbE LAN, 4*SATA 3.0, 8*USB 3.2, 10*COM, TPM2.0, ATX SINGLE, 2pcs/box
916-CF20-008	MS-CF20\606-CF20-040,20\806-CF20-002 MS-CF20 20 OPT:A ARL-S, W880, 4*DDR5, HDMI+DP+VGA, 2*M.2 M key, 1*PCIe x16, 1*PCIe x8, 5*PCIe x4, 2*2.5GbE LAN, 4*SATA 3.0, 8*USB 3.2, 6*COM, TPM2.0, ATX SINGLE, 2pcs/box

MS-CF20

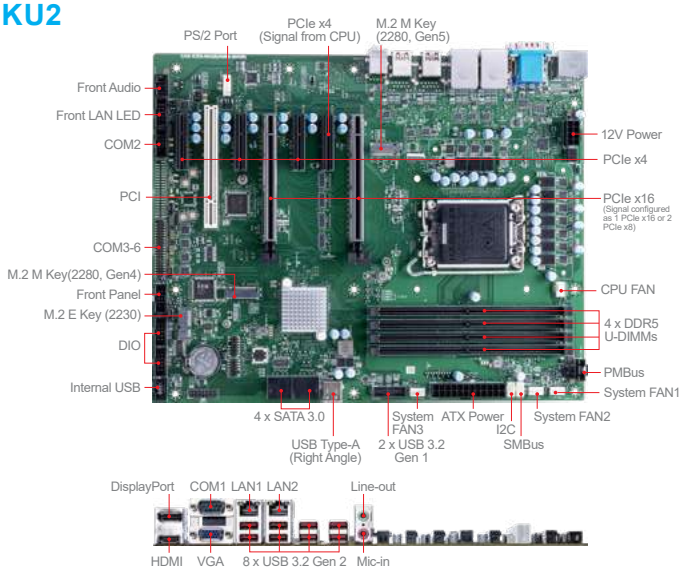
ATX with Intel® Arrow Lake-S , Core™ U9/U7/U5 & Intel® W880 for High-Performance Solution

NEW

SKU1



SKU2



Features

- Intel® Arrow Lake-S Series with W880
- 4 DDR5 5600 MT/s ECC/non-ECC UDIMM slots up to 192GB
- Triple independent displays: VGA, DP, HDMI
- 4 2.5GbE LAN with RJ-45
- 1 PCIe x16 (Gen 5) Slot or 2 PCIe x8 (Gen 5), 4 PCIe x4 (Gen 4, 1 signal from CPU, 3 signal from PCH), 1 PCI slot, 1 M.2 E key slots
- 2 M.2 M key, 4 SATA 3.0 for storage
- SATA RAID 0/1/5/10
- 8 USB 3.2 Gen 2, 2 USB 3.2 Gen 1, 3 USB 2.0, 10 COM (2 RS-485 / 8 RS-232), GPIO, PS/2, Audio, 3 System FAN
- Onboard TPM 2.0
- SMBus, I2C, PMBus, iAMT 19.x, Chassis Intrusion
- ATX Power

Packing List

Part Number	Description	Quantity
K1B-3008012-E06	USB2.0 cable, 330mm	1
K1D-1008261-V03	SATA Cable, 500mm	2
E21-CF05010-C22	IO shielding for SKU1 (4 LAN)	1
E21-CF05020-C22	IO shielding for SKU2 (2 LAN)	

Specifications

		SKU1	SKU2
Processor	CPU	Intel® Arrow Lake-S Core™ Ultra 9/7/5, Max 125W	
	Frequency	P-Core 1.4GHz~5.6GHz (Depends on CPU) E-Core 1.2GHz~4.6GHz (Depends on CPU)	
	L2 Cache	3MB~36MB (Depends on CPU)	
	CPU Type	Socket (LGA1851)	
	Chipset	Intel® W880	
	BIOS	AMI UEFI	
Memory	Technology	Dual-channel DDR5 (ECC/non-ECC) 5600 MT/s (ECC support will depend on CPU)	
	Max. Capacity	Up to 192GB	
	Socket	4 x 288-pin UDIMMs	
Display	Controller	Intel® UHD Graphics	
	Graphic Memory	Depends on CPU	
	VGA	1	
	HDMI	1	
	DisplayPort	1	
	Multiple Display	3 independent displays	
	Display Interface	VGA up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @60Hz DP up to 4096 x 2304 @60Hz	
Ethernet	Controller	4 x Intel® I226-LM 2.5GbE LAN	2 x Intel® I226-LM 2.5GbE LAN
Audio	Controller	Realtek® ALC897 Audio Codec	
Super I/O	Controller	FINTEK F81967D-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	Yes	
TPM	Controller	Infineon® SLB9672VU2.0	
I/O Interface	USB	8 x USB 3.2 Gen 2 x1 (8 x rear) 2 x USB 3.2 Gen 1 (2 x internal) 3 x USB 2.0 (3 x internal with one Right Angle Type-A Connector)	
	Serial	10 x COM ports (1 x rear, 9 x internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control (Default set to Ring) COM3~6: RS-232, 0V/5V/12V COM7~10: RS-232, 0V/5V/12V	6 x COM ports (1 x rear, 5 x internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control (Default set to Ring) COM3~6: RS-232, 0V/5V/12V
	PS/2	1 x PS/2 port by Y-cable for keyboard and mouse	
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V	
Expansion Slot	PCIe x16	2 (Signal configured as 1 PCIe x16 or 2 PCIe x8)	
	PCIe x4	4	
	PCI	1	
	M.2	1 x M key (Signal from CPU) 2280, 1 x M key (Signal Shared by PCIe Slot5) 2280 1 x E key (PCIe x1), 2230	
Storage	SATA	4 x SATA 3.0 (RAID 0/1/5/10)	
Power Supply	ATX	ATX-Power 24P, 12V-8P	
Environment	Operating Temperature	0 ~ 60°C	
	Operating Humidity	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	
	Storage Humidity	10 ~ 90%, non-condensing	
Form Factor	Dimensions	305 x 244 mm (ATX)	
	Weight	0.777 Kg	0.744 Kg
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI, UKCA, CN	
Software Platform	OS Support	Windows 10 IoT Enterprise 2021 LTSC (64-bit) Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request) Noted : All driver base on Intel & chip vendor supported	

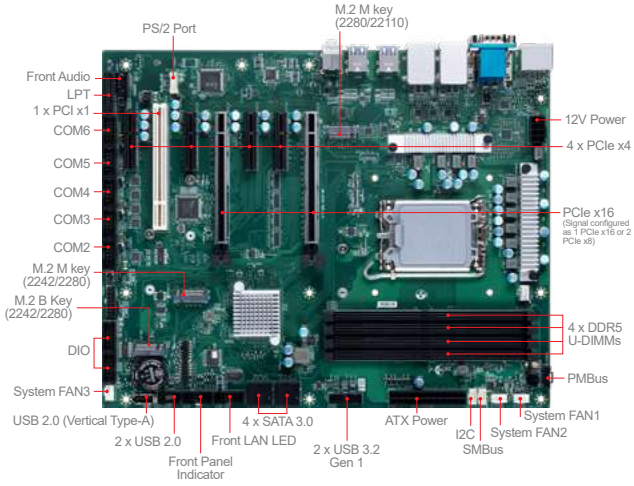
Ordering Information

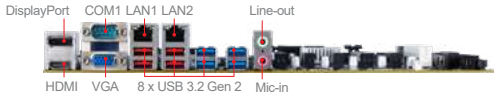
Part Number	Description
916-CF20-001	MS-CF20\606-CF20-010,10\806-CF20-001 MS-CF20 10 ARL-S,W880, 4*DDR5,HDMI+DP+VGA,2*M.2 M key,1*M.2 E key,1*PCIe x16,1*PCIe x8,4*PCIe x4, 1*PCI,4*2.5GbE LAN,4*SATA 3.0,8*USB 3.2,10*COM,T-PM2.0,ATX SINGLE,5pcs/box
916-CF20-002	MS-CF20\606-CF20-010,10\806-CF20-003 MS-CF20 10 ARL-S,W880, 4*DDR5,HDMI+DP+VGA,2*M.2 M key,1*M.2 E key,1*PCIe x16,1*PCIe x8,4*PCIe x4, 1*PCI,4*2.5GbE LAN,4*SATA 3.0,8*USB 3.2,10*COM,T-PM2.0,ATX SINGLE,2pcs/box
916-CF20-003	MS-CF20\606-CF20-020,10\806-CF20-002 MS-CF20 10 OPT:A ARL-S,W880, 4*DDR5,HDMI+DP+VGA,2*M.2 M key,1*M.2 E key,1*PCIe x16,1*PCIe x8,4*PCIe x4, 1*PCI,2*2.5GbE LAN,4*SATA 3.0,8*USB 3.2,6*COM,TPM2.0,ATX SINGLE, 5pcs/box
916-CF20-004	MS-CF20\606-CF20-020,10\806-CF20-004 MS-CF20 10 OPT:A ARL-S,W880, 4*DDR5,HDMI+DP+VGA,2*M.2 M key,1*M.2 E key,1*PCIe x16,1*PCIe x8,4*PCIe x4,1*PCI,2*2.5GbE LAN,4*SATA 3.0,8*USB 3.2,6*COM,TPM2,ATX SINGLE,2pcs/box

MSI reserves the right to change the specifications without prior notices.

MS-CF05 V2.0

ATX with 14th/13th/12th Gen Intel® Raptor Lake-S Refresh/ Raptor Lake-S/ Alder Lake-S, Core™ i9/i7/i5/i3, Pentium®, Celeron®, Bartlett Lake-S Core™ i7/i5/i3/300 Processor & Intel® Q670E for High-Performance Solution





Features

- Intel®14th/13th/12th Gen Raptor Lake-S Refresh/Raptor Lake-S/ Alder Lake-S Series/Bartlett Lake-S with Q670E
- 4 DDR5 4400 MT/s non-ECC UDIMM slots up to 128GB
- Triple independent displays: VGA, DP, HDMI
- 2 2.5GbE LAN with RJ-45
- 1 PCIe x16 (Gen 5) or 2 PCIe x8 (Gen 5), 1 PCIe x4 (Gen 4), 3 PCIe x4 (Gen 3), 1 PCI slot, 1 M.2 B key slots
- 2 M.2 M key, 4 SATA 3.0 for storage
- SATA RAID 0/1/5/10
- 8 USB 3.2 Gen 2, 2 USB 3.2 Gen 1, 3 USB 2.0, 6 COM (6 RS-485), GPIO, PS/2, Audio, 3 System FAN
- Onboard TPM 2.0
- SMBus, I2C, PMBus, iAMT 16.x, Chassis Intrusion
- ATX Power

Ordering Information

Part Number	Description
916-CF05-003	MS-CF05 20 OPT:A ADL-S,RPL-S,Q670E,4*DDR5,HDMI+DP+VGA,2*M.2 M key,1*M.2 B key,1*PCIe x16,1*PCIe x8,4*PCIe x 4,1*PCI,2*2.5GbE LAN,4*SATA 3.0,10*USB 3.2,3*USB 2.0,6*COM,TPM2.0,ATX,SINGLE

Packing List

Part Number	Description	Quantity
K1D-1008261-V03	SATA Cable 500mm	2
K1B-3008012-E06	USB 2.0 Cable, 330mm	1
E21-CF05020-C22	I/O SHIELDING For 2 LANs	1

NEW

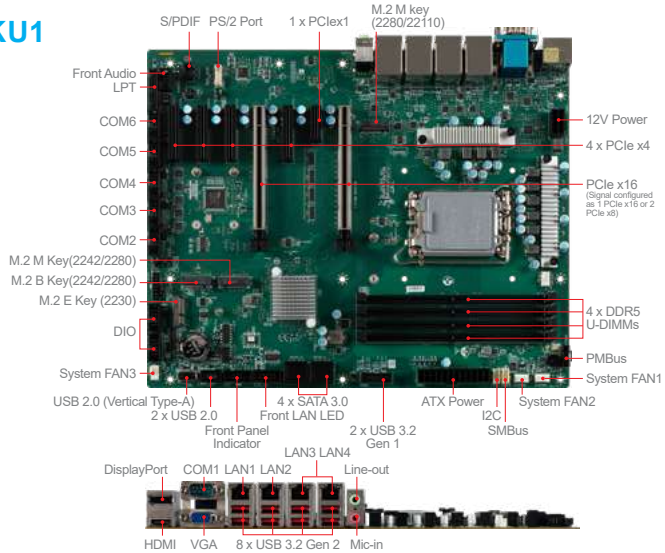
Specifications

Processor	CPU	12th Gen Intel® Alder Lake-S i9/i7/i5/i3/ Pentium®/Celeron® IOTG Series Processor, Max 125W 13th Gen Intel® Raptor Lake-S i9/i7/i5/i3/ Pentium®/Celeron® IOTG Series Processor, Max 125W 14th Gen Intel® Raptor Lake-S Refresh i9/i7/i5/ i3/Pentium®/Celeron® IOTG Series Processor, Max 125W Intel® Bartlett Lake-S i7/i5/i3/300 IOTG Series Processor, Max 125W
	Frequency	P-Core 1.1GHz~5.0GHz (Depends on CPU) E-Core 0.9GHz~3.8GHz (Depends on CPU)
	L2 Cache	4MB~30MB (Depends on CPU)
	CPU Type	Socket (LGA 1700)
	Chipset	Intel® Q670E Express
	BIOS	AMI UEFI
Memory	Technology	Dual-channel DDR5 (ECC/non-ECC) 4400 MT/s (ECC support will depend on CPU)
	Max. Capacity	Up to 128GB
	Socket	4 x 288-pin UDIMMs
Display	Controller	Intel® UHD Graphics
	Graphic Memory	Depends on CPU
	VGA	1
	HDMI	1
	DisplayPort	1
	Multiple Display	3 independent displays
	Display Interface	VGA up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @60Hz DP up to 4096 x 2304 @60Hz
Ethernet	Controller	2 x Intel® I226-LM 2.5GbE LAN
Audio	Controller	Realtek® ALC897 Audio Codec (Co-lay ALC888S)
Super I/O	Controller	FINTEK F81966D-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes
TPM	Controller	Infineon® SLB9672VU2.0
I/O Interface	USB	8 x USB 3.2 Gen 2 x1 (8 x rear) 2 x USB 3.2 Gen 1 Ports (2 x internal) 3 x USB 2.0 (3 x internal with one Vertical Type-A Connector)
	Serial	6 x COM ports (1 x rear, 5 x internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control (Default set to Ring) COM3~6: RS-232, 0V/5V/12V
	Parallel	Yes
	PS/2	1 x PS/2 port by Y-cable for keyboard and mouse
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V
Expansion Slot	PCIe x16	2 (Signal configured as 1 PCIe x16 or 2 PCIe x8)
	PCIe x4	4
	PCI	1
	M.2	1 x M key (Signal from CPU) 2280/22110, 1 x M key (Signal Shared by PCIe Slot5) 2242/2280 1 x B key (PCIe x1), 2242/2280
Storage	SATA	4 x SATA 3.0 (RAID 0/1/5/10)
Power Supply	ATX	ATX-Power 24P, 12V-8P
Environment	Operating Temperature	0 ~ 60°C
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
Form Factor	Dimensions	305 x 244 mm (ATX)
	Weight	0.779 Kg
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI
Software Platform	OS Support	Windows 10 IoT Enterprise 21H2 LTSC (64-bit) Windows 11 IoT Enterprise 24H2 LTSC(64-bit) Linux (Support by request) Noted : All driver base on Intel & chip vendor supported

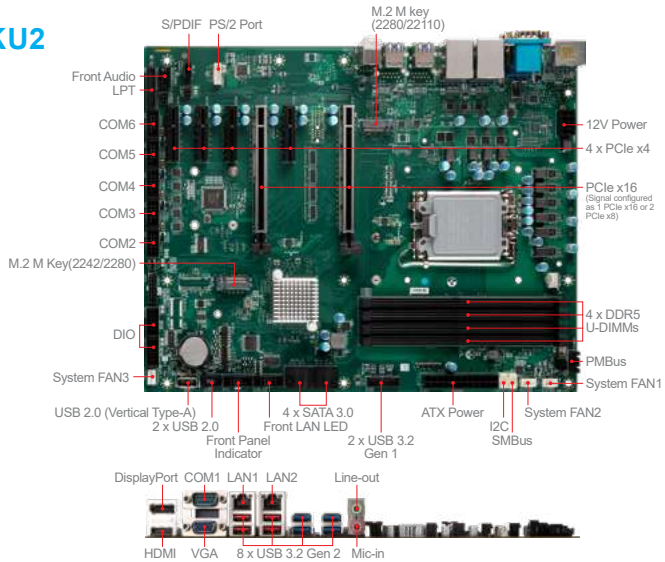
MS-CF05

ATX with 14th/13th/12th Gen Intel® Raptor Lake-S Refresh/Raptor Lake-S/Alder Lake-S, Core™ i9/i7/i5/i3, Pentium®, Celeron® Processor, Bartlett Lake-S Core™ i7/i5/i3/300 Processor & Intel® R680E/Q670E for High-Performance Solution

SKU1



SKU2



Features

- Intel® 14th/13th/12th Gen Raptor Lake-S Refresh/Raptor Lake-S/ Alder Lake-S Series with R680E/Q670E
- 4 DDR5 4400 MT/s ECC/non-ECC UDIMM slots up to 128GB
- Triple independent displays: VGA, DP, HDMI
- 2 or 4 2.5GbE LAN with RJ-45
- 1 PCIe x16 (Gen 5) or 2 PCIe x8 (Gen 5), 1 PCIe x4 (Gen 4), 3 PCIe x4 (Gen 3), 1 M.2 E key, 1 M.2 B key slots
- 2 M.2 M key, 4 SATA 3.0 for storage
- SATA RAID 0/1/5/10
- 8 USB 3.2 Gen 2, 2 USB 3.2 Gen 1, 3 USB 2.0, 6 COM (6 RS-485), GPIO, PS/2, Audio, 3 System FAN
- Onboard TPM 2.0
- SMBus, I2C, PMBus, iAMT 16.x, Chassis Intrusion
- ATX Power

Ordering Information

Part Number	Description
911-CF05-001	Intel ADL-S,RPL-S,R680E,4*DDR5,HDMI+DP+VGA,2*M.2 M key,1*M.2 B key,2*M.2 E key,1*PCIe x16,1*PCIe x8,4*PCIe x4,1*PCIe x1,4*2.5GbE LAN,4*SATA 3.0,10*USB 3.2,3*USB 2.0,6*COM,TPM2.0,ATX SINGLE
911-CF05-002	Intel ADL-S,RPL-S,Q670E,4*DDR5,HDMI+DP+VGA,2*M.2 M key,1*PCIe x16,1*PCIe x8,4*PCIe x 4,2*2.5GbE LAN,4*SATA 3.0,10*USB 3.2,3*USB 2.0,6*COM,TPM2.0,ATX SINGLE
911-CF05-101	Intel ADL-S,RPL-S,R680E,4*DDR5,HDMI+DP+VGA,2*M.2 M key,1*M.2 B key,2*M.2 E key,1*PCIe x16,1*PCIe x8,1*PCIe x1,4*PCIe x1,4*2.5GbE LAN,4*SATA 3.0,10*USB 3.2,3*USB 2.0,6*COM,TPM2.0,ATX BULK
911-CF05-102	Intel ADL-S,RPL-S,Q670E,4*DDR5,HDMI+DP+VGA,2*M.2 M key,1*PCIe x16,1*PCIe x8,4*PCIe x 4,2*2.5GbE LAN,4*SATA 3.0,10*USB 3.2,3*USB 2.0,6*COM,TPM2.0,ATX BULK

NEW

Specifications

		SKU1	SKU2
Processor	CPU	12th Gen Intel® Alder Lake-S i9/i7/i5/i3/ Pentium®/Celeron® IOTG Series Processor, Max 125W 13th Gen Intel® Raptor Lake-S i9/i7/i5/i3/ Pentium®/Celeron® IOTG Series Processor, Max 125W 14th Gen Intel® Raptor Lake-S Refresh i9/i7/i5/ i3/Pentium®/Celeron® IOTG Series Processor, Max 125W Intel® Bartlett Lake-S i7/i5/i3/300 IOTG Series Processor, Max 125W	
	Frequency	P-Core 1.1GHz~5.0GHz (Depends on CPU) E-Core 0.9GHz~3.8GHz (Depends on CPU)	
	L2 Cache	4MB~30MB (Depends on CPU)	
	CPU Type	Socket (LGA 1700)	
	Chipset	Intel® R680E Express	Intel® Q670E Express
	BIOS	AMI UEFI	
Memory	Technology	Dual-channel DDR5 (ECC/non-ECC) 4400 MT/s (ECC support will depend on CPU)	Dual-channel DDR5 (non-ECC) 4400 MT/ s
	Max. Capacity	Up to 128GB	
	Socket	4 x 288-pin UDIMMs	
Display	Controller	Intel® UHD Graphics	
	Graphic Memory	Depends on CPU	
	VGA	1	
	HDMI	1	
	DisplayPort	1	
	Multiple Display	3 independent displays	
	Display Interface	VGA up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @60Hz DP up to 4096 x 2304 @60Hz	
Ethernet	Controller	4 x Intel® I226-LM 2.5GbE LAN	2 x Intel® I226-LM 2.5GbE LAN
Audio	Controller	Realtek® ALC897 Audio Codec (Co-lay ALC888S)	
Super I/O	Controller	FINTEK F81966D-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	Yes	
TPM	Controller	Infineon® SLB9672VU2.0	
I/O Interface	USB	8 x USB 3.2 Gen 2 x1 (8 x rear) 2 x USB 3.2 Gen 1 Ports (2 x internal) 3 x USB 2.0 (3 x internal with one Vertical Type-A Connector)	
	Serial	6 x COM ports (1 x rear, 5 x internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control (Default set to Ring) COM3~6: RS-232/422/485, 0V/5V/12V, Auto-flow Control	6 x COM ports (1 x rear, 5 x internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control (Default set to Ring) COM3~6: RS-232, 0V/5V/12V
	Parallel	Yes	
	PS/2	1 x PS/2 port by Y-cable for keyboard and mouse	
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V	
Expansion Slot	PCIe x16	2 (Signal configured as 1 PCIe x16 or 2 PCIe x8)	
	PCIe x4	4	
	PCIe x1	1	N/A
	M.2	1 x M key (Signal from CPU) 2280/22110, 1 x M key (Signal Shared by PCIe Slot5) 2242/2280 1 x E key (PCIe x1), 2230 1 x B key (PCIe x2), 2242/2280	1 x M key (Signal from CPU) 2280/22110, 1 x M key (Signal Shared by PCIe Slot5) 2242/2280
Storage	SATA	4 x SATA 3.0 (RAID 0/1/5/10)	
Power Supply	ATX	ATX-Power 24P, 12V-8P	
Environment	Operating Temperature	0 ~ 60°C	
	Operating Humidity	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	
	Storage Humidity	10 ~ 90%, non-condensing	
Form Factor	Dimensions	305 x 244 mm (ATX)	
	Weight	0.779 Kg	
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI	
Software Platform	OS Support	Windows 10 IoT Enterprise 2021 LTSC (64-bit) Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request) Noted : All driver base on Intel & chip vendor supported	

Packing List

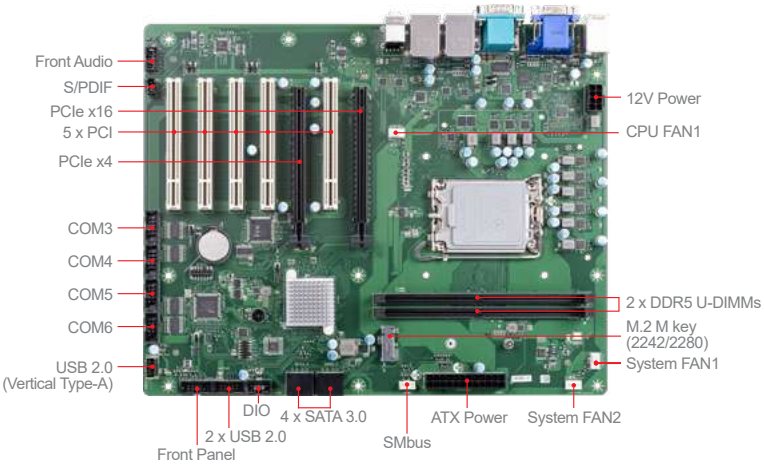
Part Number	Description	Quantity
K1D-1008261-V03	SATA Cable 500mm	2
K1B-3008012-E06	USB 2.0 Cable, 330mm	1
E21-CF05010-C22	I/O SHIELDING For 4 LANs	1
E21-CF05020-C22	I/O SHIELDING For 2 LANs	

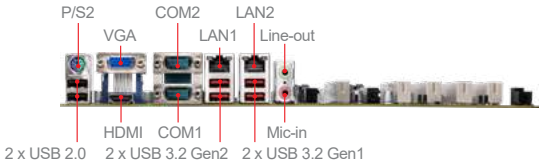
MSI reserves the right to change the specifications without prior notices.

MS-CF06 V2.0

ATX with 14th/13th/12th Gen Intel® Raptor Lake-S Refresh/ Raptor Lake-S/Alder Lake-S, Core™ i9/i7/i5/i3, Pentium®, Celeron® Processor, Bartlett Lake-S Core™ i7/i5/i3/300 & Intel® H610E for Mainstream Solution

NEW





Features

- Intel® 14th/13th/12th Gen Raptor Lake-S Refresh/Raptor Lake-S/Alder Lake-S Series/Bartlett Lake-S with H610E
- 2 DDR5 5600 MT/s non-ECC UDIMM slots up to 64GB
- Dual independent displays: VGA, HDMI
- 1 2.5GbE LAN with RJ-45, 1 GbE LAN with RJ-45
- 1 PCIe x16 (Gen 5) , 1 PCIe x4 (Gen3), 5 PCI
- 1 M.2 M key, 4 SATA 3.0 for storage
- 2 USB 3.2 Gen 2, 2 USB 3.2 Gen 1, 5 USB 2.0, 6 COM (1 RS-485), GPIO, PS/2, Audio, 2 System FAN
- Onboard TPM 2.0
- SMBus, Chassis Intrusion
- ATX Power

Ordering Information

Part Number	Description
916-CF06-001	MS-CF06 20 Intel ADL-S, RPL-S, BTL-S, H610E, 2*DDR5,HD-MI+VGA,1*M.2 M key, 1*PCIe x16,1*PCIe x 4,5*PCI,1*GbE,1*2.5GbE-LAN,4*SATA 3.0, 4*USB 3.2,5*USB 2.0,4*COM,TPM2.0, ATX, SINGLE
916-CF06-102	Intel ADL-S, RPL-S, BTL-S, H610E, 2*DDR5,HDMI+VGA,1*M.2 M key, 1*PCIe x16,1*PCIe x 4,5*PCI,1*GbE,1*2.5GbELAN,4*SATA 3.0, 4*USB 3.2,5*USB 2.0,4*COM,TPM2.0, ATX BULK

Packing List

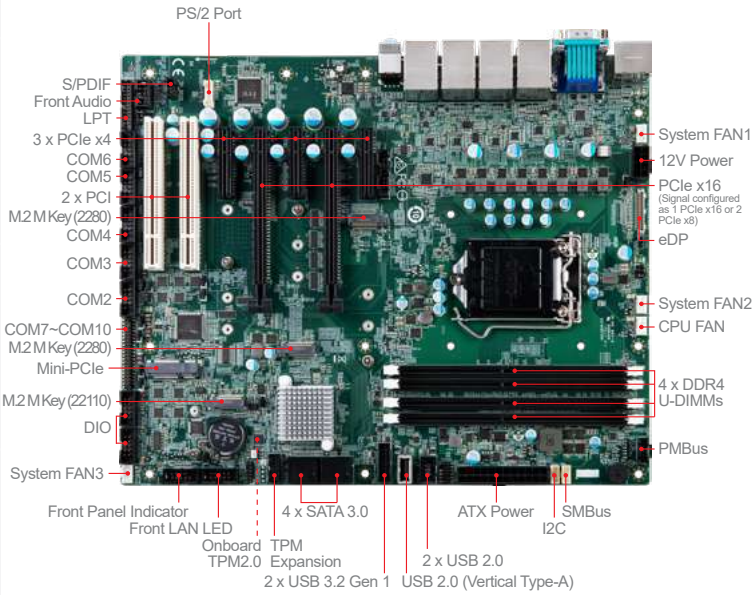
Part Number	Description	Quantity
K1D-1008261-V03	SATA CABLE, SIGNAL, 500mm	2
E21-CF06010-C22	I/O SHIELDING	1

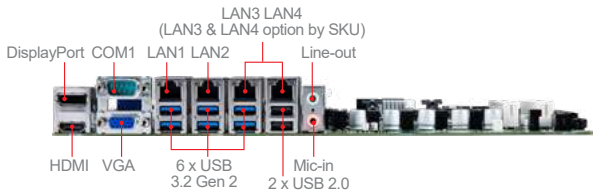
Specifications

Processor	CPU	12th Gen Intel® Alder Lake-S i9/i7/i5/i3/ Pentium®/Celeron® IOTG Series Processor, Max 65W 13th Gen Intel® Raptor Lake-S i9/i7/i5/i3/ Pentium®/Celeron® IOTG Series Processor, Max 65W 14th Gen Intel® Raptor Lake-S Refresh i9/i7/i5/ i3/Pentium®/Celeron® IOTG Series Processor, Max 65W Intel® Bartlett Lake-S i7/i5/i3/300 IOTG Series Processor, Max 65W
	Frequency	P-Core 1.1GHz~5.6GHz (Depends on CPU) E-Core 0.9GHz~4.4GHz (Depends on CPU)
	L2 Cache	4MB~36MB (Depends on CPU)
	CPU Type	Socket (LGA1700)
	Chipset	Intel® H610E Express
	BIOS	AMI UEFI
Memory	Technology	Dual-channel DDR5 (non-ECC) 5600 MT/s
	Max. Capacity	Up to 64GB
	Socket	2 x 288-pin UDIMMs
Display	Controller	Intel® UHD Graphics
	Graphic Memory	Depends on CPU
	VGA	1
	HDMI	1
	DisplayPort	N/A
	Multiple Display	2 independent displays
	Display Interface	VGA up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @24Hz
Ethernet	Controller	1 x Intel® I219LM GbE LAN PHY 1 x Intel® I226-V 2.5GbE LAN
Audio	Controller	Realtek® ALC897 Audio Codec (Co-lay ALC888S)
Super I/O	Controller	FINTEK F81966D-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes
TPM	Controller	Infineon® SLB9672VU2.0
I/O Interface	USB	2 x USB 3.2 Gen 2 x1 (2 x rear) 2 x USB 3.2 Gen 1 x1 (2 x rear) 5 x USB 2.0 (2 x rear, 3 x internal with one Vertical Type-A)
	Serial	6 x COM ports (2 rear, 4 x internal) COM1: RS-232/422/485 0V/5V/12V, Auto-flow Control COM2: RS-232, 0V/5V/12V COM3~6: RS-232
	Parallel	N/A
	PS/2	1 x PS/2 port by Y-cable for keyboard and mouse
	GPIO	8-bits (4 x GPI; 4 x GPO), 5V
Expansion Slot	PCIe x16	1
	PCIe x4	1
	PCI	5
	M.2	1 x M.2 M key (SATA 3.0, signal shared with SATA port 1), 2242/2280
Storage	SATA	4 x SATA 3.0 (SATA port 1 shared with M.2 M Key)
Power Supply	ATX	ATX-Power 24P, 12V-8P
Environment	Operating Temperature	0 ~ 60°C
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
Form Factor	Dimensions	305 x 244 mm (ATX)
	Weight	0.728 Kg
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI, UKCA, CN
Software Platform	OS Support	Windows 10 IoT Enterprise 21H2 LTSC (64-bit) Windows 11 IoT Enterprise 24H2 LTSC (64-bit) Linux (Support by request) Noted : All driver base on Intel & chip vendor supported

MS-98N9

ATX with 10th Gen Intel® Comet Lake-S Xeon®, Core™ i9/i7/i5/i3, Pentium®, Celeron® Processor & Intel® W480E/Q470E for High-Performance Solution





Features

- Intel® 10th Gen Comet Lake-S Series with W480E/Q470E
- 4 DDR4 2933 MHz ECC/non-ECC UDIMMs up to 128GB
- Triple independent displays: VGA, DP, HDMI, eDP
- 4 GbE LAN with RJ-45
- 1 PCIe x16 (Gen 3) or 2 PCIe x8 (Gen 3), 3 PCIe x4 (Gen 3), 2 PCI, 1 Mini-PCIe (Full/Half-size) slots
- 3 M.2 M key, 4 SATA 3.0 for storage
- SATA RAID 0/1/5/10
- 6 USB 3.2 Gen 2, 2 x USB 3.2 Gen 1, 5 USB 2.0, 10 COM, GPIO, LPT, PS/2, Audio, S/PDIF, 3 System FAN
- Onboard TPM 2.0
- SMBus, I2C, PMBus, iAMT 14.x, Chassis Intrusion
- ATX Power

Ordering Information

Part Number	Description
919-98N9-001	MS-98N9\609-98N9-010\809-98N9-005 10 OPT:A Intel CML-S LGA1200, W480E,4*DDR4, 1*VGA, 1*HD-MI,1*DP,1*eDP,4*LAN,6*USB 3.2 Gen 2,2*USB 3.2 Gen 1,5*USB2.0,4*SATA3.0,3*M.2,10*COM,2*PCIe x16,4*P-CIe x4,2*PCI,TPM2.0,ATX,RoHS,SINGLE,For Channel
919-98N9-002	MS-98N9\609-98N9-020\809-98N9-006 10 OPT:B Intel CML-S LGA1200, Q470E,4*DDR4, 1*VGA, 1*HD-MI,1*DP,1*eDP,2*LAN,6*USB 3.2 Gen 2,2*USB 3.2 Gen 1,5*USB2.0,4*SATA3.0,3*M.2,6*COM,2*PCIe x16,4*P-CIe x4,2*PCI,TPM2.0,ATX,RoHS,SINGLE,For Channel

Packing List

Part Number	Description	Quantity
K1B-3008012-E06	USB 2.0 CABLE, 330mm	1
K1D-1008261-V03	SATA CABLE, 500mm	2
E21-98N9010-C22	I/O SHIELDING (SKU1)	1
E21-98N9020-C22	I/O SHIELDING (SKU2)	1

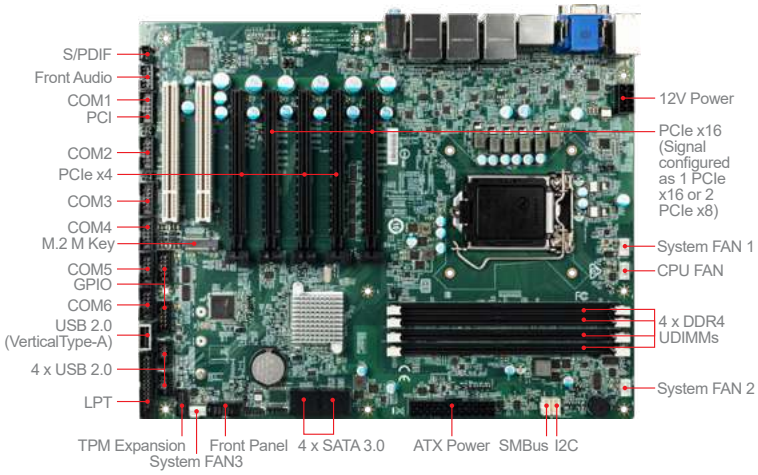
Specifications

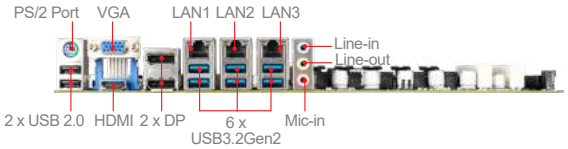
		SKU1	SKU2
Processor	CPU	10th Gen Intel® Comet Lake-S Xeon®, Core™ i9/i7/i5/i3, Pentium®, Celeron® Processor, Max 125W	10th Gen Intel® Comet Lake-S Core™ i9/i7/i5/i3, Pentium®, Celeron® Processor, Max 125W
	Frequency	1.8GHz~4.8GHz (Depends on CPU)	
	L2 Cache	2MB~20MB (Depends on CPU)	
	CPU Type	Socket (LGA 1200)	
	Chipset	Intel® W480E Express	Intel® Q470E Express
	BIOS	AMI UEFI	
Memory	Technology	Dual-channel DDR4 (ECC/non-ECC) 2933 MHz	Dual-channel DDR4 (non-ECC) 2933 MHz
	Max. Capacity	Up to 128GB	
	Socket	4 x 288-pin UDIMMs	
Display	Controller	Intel® UHD Graphics	
	Graphic Memory	Depends on CPU	
	LVDS	N/A	
	eDP	1	
	VGA	1	
	DVI	N/A	
	HDMI	1	
	DisplayPort	1	
	Multiple Display	3 independent displays	
	Display Interface	VGA up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @30Hz DP up to 4096 x 2304 @60Hz eDP up to 4096 x 2304 @60Hz	
Ethernet	Controller	1 x Intel® I219-LM GbE LAN PHY 3 x Intel® I210-AT GbE LAN	1 x Intel® I219-LM GbE LAN PHY 1 x Intel® I210-AT GbE LAN
Audio	Controller	Realtek® ALC888S-VD2-GR Audio Codec	
Super I/O	Controller	Fintek F81966D-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	Yes	
TPM	Controller	Infineon SLB 9670VQ2.0	
I/O Interface	USB	6 x USB 3.2 Gen 2 (6 x rear) 2 x USB 3.2 Gen 1 (2 x internal) 5 x USB 2.0 (2 x rear, 3 x internal with one Vertical Type-A Connector)	
	Serial	10 x COM ports (1 x rear, 9 x internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control COM3~6: RS-232/422/485 with 0V/5V/12V Auto-flow Control COM7~10: RS-232, 0V/5V/12V	6 x COM ports (1 x rear, 5 x internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control COM3~6: RS-232/422/485 with 0V/5V/12V Auto-flow Control
	Parallel	Yes	
	PS/2	1 (wafer Connector)	
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V	
Expansion Slot	PCIe x16	1 (Signal configured as 1 PCIe x16 or 2 PCIe x8)	
	PCIe x4	3	
	PCIe x1	N/A	
	PCI	2	
	M.2	3 x M.2 M key (PCIe x4 NVMe, signal shared with PCIe Slot 1 & 3 & 5), two with 2242/2260/2280, one with 2242/2260/2280/22110	
	Mini-PCIe	1 x Full-size/Half-size	
Storage	SATA	4 x SATA 3.0 (RAID 0/1/5/10)	
	IDE	N/A	
	eSATA	N/A	
	CFast	N/A	
	mSATA	N/A	
	CompactFlash	N/A	
Power Supply	DC	N/A	
	ATX	ATX-Power 24P, 12V-8P	
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	
	Operating Humidity	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	
	Storage Humidity	10 ~ 90%, non-condensing	
Form Factor	Dimensions	305 x 244 mm (ATX)	
	Weight	0.735 Kg	
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI	
Software Platform	OS Support	Windows 10 IoT Enterprise 2019 SAC (64-bit, RS5) Windows 10 Enterprise LTSC (64-bit, RS5) Windows 11 IoT Enterprise LTSC (64-bit) Linux (Support by request)	

MSI reserves the right to change the specifications without prior notices.

MS-98K9 V2.1

ATX with 8th/9th Gen Intel® Coffee Lake-S & Coffee Lake Refresh-S Xeon®, Core™ i7/i5/i3, Pentium®, Celeron® Processor & Intel® C246/Q370 for High-Performance Solution





Features

- Intel® 9th/8th Gen Coffee Lake Refresh-S/Coffee Lake-S Series with C246/Q370
- 4 DDR4 2666 MHz ECC/non-ECC UDIMMs up to 128GB
- Triple independent displays: VGA, 2 DP, HDMI
- 3 GbE LAN with RJ-45
- 1 PCIe x16 (Gen 3) or 2 PCIe x8 (Gen3), 3PCIe x4 (Gen 3), 2 PCI slots
- M.2 M key, 4 SATA 3.0 for storage
- SATA RAID 0/1/5/10
- 6 USB 3.2 Gen 2, 7 USB 2.0, 6 COM (2 RS-485), GPIO, LPT, PS/2, Audio, S/PDIF, 3 System FAN
- Onboard TPM 2.0 (by option)
- SMBus, I2C, iAMT 12.x, Chassis Intrusion
- ATX Power

Ordering Information

Part Number	Description
919-98K9-004	MS-98K9 VER 21,ATX,Intel Coffee Lake-S Refresh,Intel C246,4*DDR4,1*VGA, 1*HD-MI,2*DP,3*LAN,6*USB3.2,7*USB2.0,4*SA-TA3.0,1*M.2,6*COM,5*PCIe x16,2*PCI,TPM2.0,2*SATA CABLE,1*COM CABLE,1*USB 2.0 CABLE,1*I/O SHIELD, SINGLE, For Channel
919-98K9-005	MS-98K9 VER 21,ATX,Intel Coffee Lake-S Refresh,Intel Q370,4*DDR4,1*VGA, 1*HD-MI,2*DP,3*LAN,6*USB3.2,7*USB2.0,4*SA-TA3.0,1*M.2,6*COM,5*PCIe x16,2*PCI,TPM2.0,2*SATA CABLE,1*COM CABLE,1*USB 2.0 CABLE,1*I/O SHIELD, SINGLE, For Channel

Packing List

Part Number	Description	Quantity
K1B-3008012-E06	USB2.0 Cable,330mm	1
K14-1018004-V03	COM Port Cable, 510mm	1
K1D-1008261-V03	SATA Cable, 550mm	2
E21-98K9010-C22	IO Shielding	1

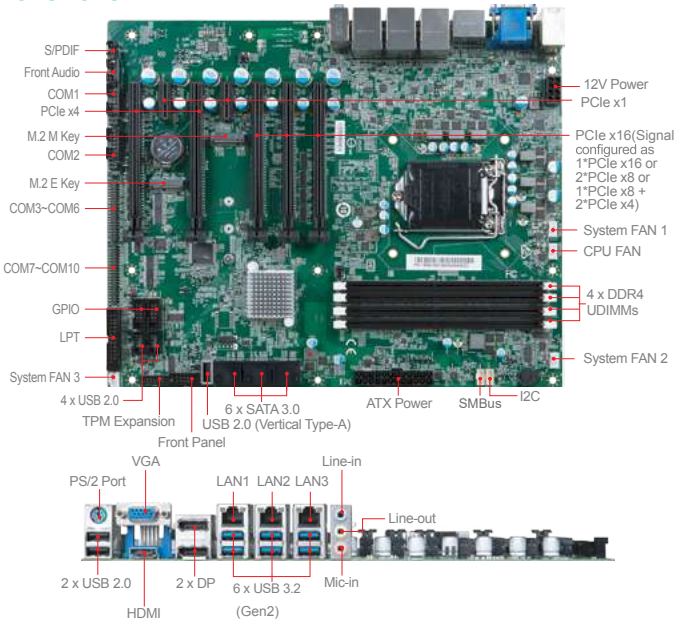
Specifications

		SKU1	SKU2
System Processor	CPU	9th/8th Gen Intel® Coffee Lake Refresh-S/Coffee Lake-S Xeon®, Core™ i7/i5/i3, Pentium®, Celeron® Processor, Max 95W	9th/8th Gen Intel® Coffee Lake Refresh-S/Coffee Lake-S , Core™ i7/i5/i3, Pentium®, Celeron® Processor, Max 95W
	Frequency	2.1GHz~4.7GHz (Depends on CPU)	
	L2 Cache	2MB~12MB (Depends on CPU)	
	CPU Type	Socket (LGA 1151)	
	Chipset	Intel® C246 Express	Intel® Q370 Express
	BIOS	AMI UEFI	
Memory	Technology	Dual-channel DDR4 (ECC/non-ECC) 2666 MHz	Dual-channel DDR4 (non-ECC) 2666 MHz
	Max. Capacity	Up to 128GB	
	Socket	4 x 288-pin UDIMMs	
Display	Controller	Intel® UHD Graphics	
	Graphic Memory	Depends on CPU	
	VGA	1	
	HDMI	1	
	DisplayPort	2	
	Multiple Display	3 independent displays	
	Display Interface	VGA up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @24Hz DP up to 4096 x 2304 @60Hz	
Ethernet	Controller	1 x Intel® I219-LM GbE LAN PHY 2 x Intel® I210-AT GbE LAN	
Audio	Controller	Realtek® ALC887-VD2-CG Audio Codec	
Super I/O	Controller	Fintek F81866AD-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	Yes	
TPM	Controller	Infineon SLB 9665TT2.0	
I/O Interfaces	USB	7 x USB 2.0 (2 x rear, 5 x internal with one Vertical Type-A) 6 x USB 3.2 Gen 2 (rear)	
	Serial	6 x COM ports (internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control COM3~6: RS-232, 0V/5V/12V	
	Parallel	Yes	
	PS/2	1 x PS/2 port by Y-cable for keyboard and mouse	
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V	
Expansion Slot	PCIe x16	2 (Signal configured as 1 PCIe x16 or 2 PCIe x8)	
	PCIe x4	3 (PCIe x16 Slot Type; 2*PCIe x4 NVMe)	
	PCIe x1	N/A	
	M.2	1 x M.2 M key (PCIe x4 NVMe, Intel® Optane™ Memory Support, SATA 3.0), 2242/2260/2280	
	Mini-PCIe	N/A	
Storage	SATA	4 x SATA 3.0 (RAID 0/1/5/10, SATA port 4 share with M.2 M Key)	
Power Supply	ATX	ATX-Power 24P, 12V-8P	
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	
	Operating Humidity	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	
	Storage Humidity	10 ~ 90%, non-condensing	
Form Factor	Dimensions (W x D x H)	305 x 244 mm (ATX)	
	Weight	0.70 kg	
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI	
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)	

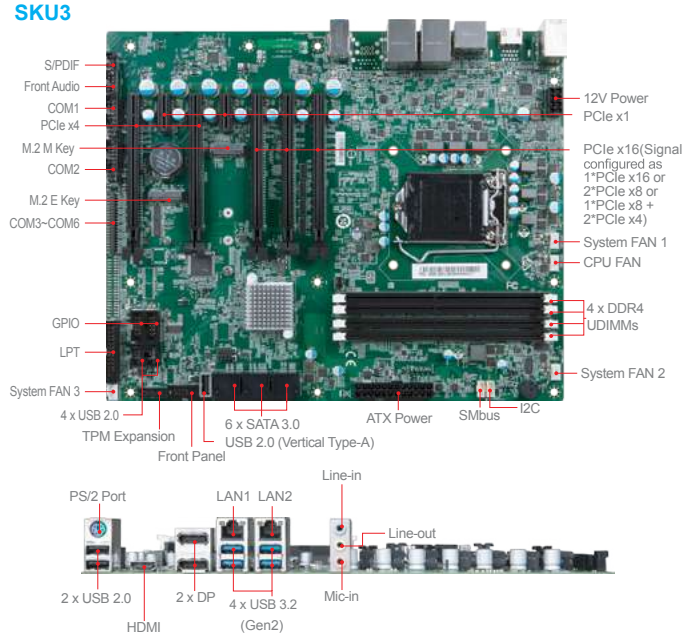
MS-98K9

ATX with 8th Gen Intel® Coffee Lake-S Xeon®, Core™ i7/i5/i3, Pentium®, Celeron® Processor & Intel® C246/Q370 for High-Performance Solution

SKU1/SKU2



SKU3



Features

- Intel® 8th Gen Coffee Lake-S Series with C246/Q370
- 4 DDR4 2666 MHz ECC/non-ECC UDIMM slots up to 64GB
- Triple independent displays: VGA, 2DP, HDMI
- 3 GbE LAN with RJ-45
- 1 PCIe x16 (Gen 3) or 2 PCIe x8 (Gen3) or 1 PCIe x8 (Gen3) & 2 PCIe x4 (Gen3), 2 PCIe x4 (Gen3), 2 PCIe x1 (Gen3), 1 M.2 E key slots
- M.2 M key, 6 SATA 3.0 for storage
- SATA RAID 0/1/5/10
- 6 USB 3.2 Gen 2, 7 USB 2.0, 10 COM (2 RS-485), GPIO, LPT, PS/2, Audio, S/PDIF, 3 System FAN
- Onboard TPM 2.0 (by option)
- SMBus, I2C, iAMT 12.x, Chassis Intrusion
- ATX Power

Ordering Information

Part Number	Description
919-98K9-001	MS-98K9\609-98K9-010\809-98K9-005 VER10 Intel Coffee Lake-S C246, 4*DDR4 Long DIMM,3*PCIex16,2*PCIex4,2*PCIex1,HDMI, 2*DP,VGA,T-PM2.0,3*LAN,6*USB3.1,7*USB2.0,6*SATA3.0,2*M.2,10*COM,ATX POWER, RoHS,SINGLE,For Channel
919-98K9-002	MS-98K9\609-98K9-020\809-98K9-006 VER10 OPT:A Intel Coffee Lake-S Q370,4*DDR4 Long DIMM,3*PCIe x16,2*PCIe x4,2*PCIe x1,HDMI,2*DP,VGA,TPM2.0,3*LAN,6*USB3.1,7*USB2.0,6*SATA3.0,2*M.2,10*COM,ATX POWER, RoHS,SINGLE,For Channel
919-98K9-003	MS-98K9\609-98K9-030\809-98K9-007 VER10 OPT:B Intel Coffee Lake-S Q370,4*DDR4 Long DIMM,3*PCIe x16,2*PCIe x4,2*PCIe x1,HDMI,2*DP,2*LAN,4*USB3.1,7*USB2.0,6*SATA3.0,2*M.2,6*COM,ATX POWER, RoHS,SINGLE,For Channel

Specifications

		SKU1	SKU2	SKU3
System Processor	CPU	8th Gen Intel® Desktop Coffee Lake-S Xeon®/i7/i5/i3/Pentium®/Celeron® Series Processor, Max 95W	8th Gen Intel® Desktop Coffee Lake-S i7/i5/i3/Pentium®/Celeron® Series Processor, Max 95W	
	Frequency	2.1GHz~4.7GHz (Depends on CPU)		
	L2 Cache	2MB~12MB (Depends on CPU)		
	CPU Type	Socket (LGA 1151)		
	Chipset	Intel® C246 Express	Intel® Q370 Express	
	BIOS	AMI UEFI		
Memory	Technology	Dual-channel DDR4 (ECC/non-ECC) 2666 MHz	Dual-channel DDR4 (non-ECC) 2666 MHz	
	Max. Capacity	Up to 64GB		
	Socket	4 x 288-pin UDIMMs		
Display	Controller	Intel® UHD Graphics		
	Graphic Memory	Depends on CPU		
	LVDS	1 x Dual channel 18/24-bit		
	VGA	1		N/A
	HDMI	1		
	DisplayPort	2		
	Multiple Display	3 independent displays		
	Multiple Display	VGA up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @24Hz DP up to 4096 x 2304 @60Hz		HDMI up to 4096 x 2160 @24Hz DP up to 4096 x 2304 @60Hz
Ethernet	Controller	1 x Intel® I219-LM GbE LAN PHY 2 x Intel® I210-AT GbE LAN		1 x Intel® I219-LM GbE LAN PHY 1 x Intel® I210-AT GbE LAN
Audio	Controller	Realtek® ALC887-VD2-CG Audio Codec		
H/W Monitor	Watchdog Timer	256-level Watchdog Timer		
	Smart Fan	Yes		
I/O Interfaces	USB	7 x USB 2.0 (2 x rear, 5 x internal with one Vertical Type-A) 6 x USB 3.2 Gen 2 (rear)		7 x USB 2.0 (2 x rear, 5 x internal with one Vertical Type-A) 4 x USB 3.2 Gen 2 (rear)
	Serial	10 x COM ports (internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control COM3~10: RS-232, 0V/5V/12V		6 x COM ports (internal) COM1~2: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control COM3~6: RS-232, 0V/5V/12V
	Parallel	Yes		
	PS/2	1 x PS/2 port by Y-cable for keyboard and mouse		
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V		
TPM	Controller	Infineon SLB 9665TT2.0		Box header (Default) Infineon SLB9665TT2.0 (by BOM option)
Expansion Slot	PCIe x16	3 (Signal configured as 1 PCIe x16 or 2 PCIe x8 or 1 PCIe x8 + 2 PCIe x4)		
	PCIe x4	2 (PCIe x16 Slot Type; 1*PCIe x4 NVMe)		
	PCIe x1	2		
	M.2	1 x M key (PCIe x4 NVMe, SATA 3.0), 2242/2260/2280 1 x E key (PCIe x1, USB 2.0), 2230		
	Mini-PCIe	N/A		
Storage	SATA	6 x SATA 3.0 (RAID 0/1/5/10, SATA port 6 share with M.2 M Key)		
Power Supply	DC Input	N/A		
	AC Input	ATX-Power 24P, 12V-8P		
	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s		
	Operating Humidity	10 ~ 90%, non-condensing		
	Storage Temperature	-20 ~ 80°C		
	Storage Humidity	10 ~ 90%, non-condensing		
Form Factor	Dimensions (W x D x H)	305 x 244 mm (ATX)		
	Weight	0.70 kg		
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI		
Software Platform	OS Support	Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)		

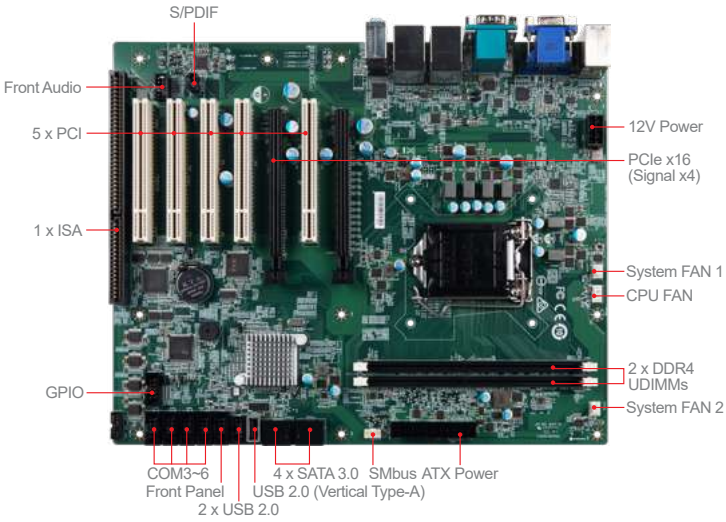
Packing List

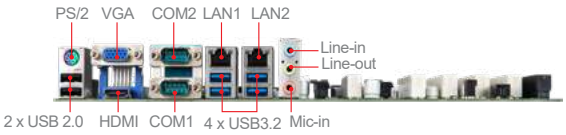
Part Number	Description	Quantity
K1B-3008012-E06	IO SHIELD FOR MS-98D6	1
K14-1018004-V03	INT COM PORT CABLE, 510mm	1
K1D-1008261-V03	INT SATA CABLE, 500mm	2
E21-98K9010-C22	I/O Shielding	1

MSI reserves the right to change the specifications without prior notices.

MS-98L9 V2.0

ATX with 7th/6th Gen Intel® Kaby Lake/Skylake Core™ i7/i5/ i3, Pentium®, Celeron® Processor & Intel® H110 for Mainstream with ISA Solution





Features

- Intel® 7th/6th Gen Kaby Lake-S/Skylake-S Series with H110
- 2 DDR4 2133/2400 MHz UDIMM slots up to 32GB
- Dual independent displays: VGA, HDMI
- 2 GbE LAN with RJ-45
- 1 PCIe x16 (Gen 3), 1 PCIe x4 (Gen 3), 5 PCI, 1 ISA slots
- 4 SATA 3.0 for storage
- 4 USB 3.2 Gen 1, 5 USB 2.0, 6 COM ports (1 RS-485), GPIO, PS/2, Audio, S/PDIF, 2 System FAN
- SMBus, Chassis Intrusion
- ATX Power

Ordering Information

Part Number	Description
919-98L9-002	MS-98L9\609-98L9-020\809-98L9-006 VER:20 ATX, Intel Kaby Lake-S/Skylake-S H110,2*DDR4, 1*PCIe x16, 1*PCIe x4, 5*PCI , 1*ISA, HDMI, VGA, 2*LAN, 4*USB3.0, 5*USB2.0, Single, for channel.
919-98L9-101	MS-98L9\609-98L9-020\809-98L9-101 VER:20 ATX, Intel Kaby Lake-S/Skylake-S H110, 2*DDR4, 1*PCIe x16,1*P-CIe x4, 5*PCI, 1*ISA, HDMI, VGA, 2*LAN, 4*USB3.0, 5*USB2.0, Bulk, for channel.

Packing List

Part Number	Description	Quantity
K1D-1008261-V03	SATA Cable ,500mm	2
E21-98L9010-C22	I/O Shielding	1

Optional Item

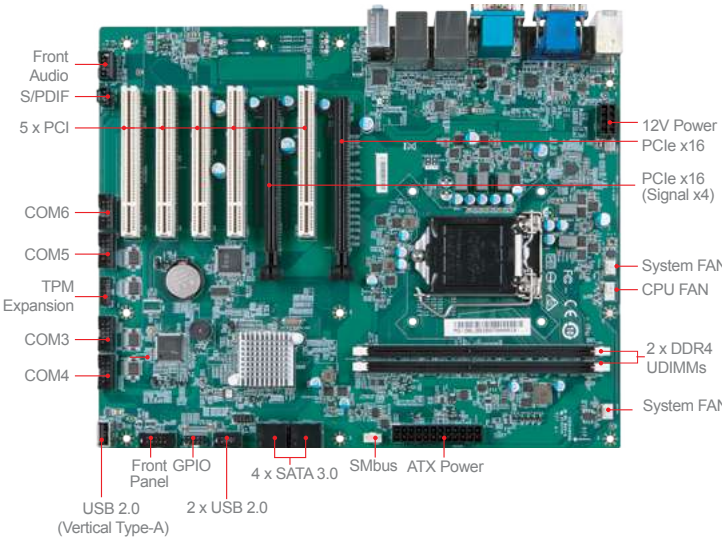
Part Number	Description
K1B-3008012-E06	USB3.0 Cable, 330mm
K14-1018004-V03	COM Port Cable, 510mm
K39-3002004-E06	PS/2 Y-Cable, 190mm

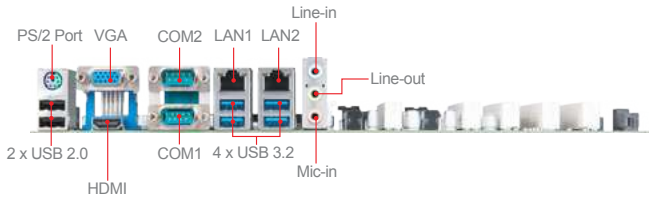
Specifications

System Processor	CPU	7th/6th Gen Intel® Desktop Kaby Lake/Skylake i7/i5/i3/Pentium®/Celeron® Series Processor, Max 95W
	Frequency	2.3GHz~4.2GHz (Depends on CPU)
	L2 Cache	2MB~8MB (Depends on CPU)
	CPU Type	Socket (LGA 1151)
	Chipset	Intel® H110 Express
	BIOS	AMI UEFI
Memory	Technology	Dual-channel DDR4 2133/2400 MHz
	Max. Capacity	Up to 32GB
	Socket	2 x 288-pin UDIMMs
Display	Controller	Intel® HD Graphics
	Graphic Memory	Depends on CPU
	LVDS	N/A
	eDP	N/A
	VGA	1
	DVI	N/A
	HDMI	1
	DisplayPort	N/A
	Multiple Display	2 independent dislays
	Display Interface	VGA up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @24Hz
Ethernet	Controller	1 x Intel® I219-LM GbE LAN PHY 1 x Intel® I211-AT GbE LAN
Audio	Controller	Realtek® ALC887-VD2-CG Audio Codec
Super I/O	Controller	Fintek F81866AD-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes
TPM	Controller	Box header
I/O Interfaces	USB	5 x USB 2.0 (2 x rear, 3 x internal with one Vertical Type-A) 4 x USB 3.2 Gen 1 (rear)
	Serial	6 x COM ports (2 x rear, 4 x internal) COM1: RS-232/422/485, 0V/5V/12V, Auto-flow Control COM2~6: RS-232, COM2: 0V/5V/12V
	Parallel	N/A
	PS/2	1 x PS/2 port by Y-cable for keyboard and mouse
	GPIO	8-bits (4 x GPI; 4 x GPO by default), 5V 8-bits (8 x GPI or 8 x GPO by request), 5V
Expansion Slot	PCIe x16	1
	PCIe x4	1 (PCIe x16 Slot Type)
	PCIe x1	N/A
	PCI	5
	M.2	N/A
	Mini-PCIe	N/A
Storage	SATA	4 x SATA 3.0
Power Supply	ATX	ATX-Power 24P, 12V-8P
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
Form Factor	Dimensions (W x D x H)	305 x 244 mm (ATX)
	Weight	0.70 kg
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI
Software Platform	OS Support	Windows 7 (32/64-bit) (Skylake-S Series CPU Only) Windows 8.1 (64-bit) (Skylake-S Series CPU Only) Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)

MS-98L9

ATX with 7th/6th Gen Intel® Kaby Lake/Skylake Core™ i7/i5/ i3, Pentium®, Celeron® Processor & Intel® H110 for Mainstream Solution





Features

- Intel® 7th/6th Gen Kaby Lake-S/Skylake-S Series with H110
- 2 DDR4 2133/2400 MHz UDIMM slots up to 32GB
- Dual independent displays: VGA, HDMI
- 2 GbE LAN with RJ-45
- 1 PCIe x16 (Gen 3), 1 PCIe x4 (Gen 3), 5 PCI slots
- 4 SATA 3.0 for storage
- 4 USB 3.2 Gen 1, 5 USB 2.0, 6 COM ports (1 RS-485), GPIO, PS/2, Audio, S/PDIF, 2 System FAN
- SMBus, Chassis Intrusion
- ATX Power

Ordering Information

Part Number	Description
919-98L9-001	MS-98L9\609-98L9-010\809-98L9-005 VER11 Intel Kaby Lake-S/Skylake-S H110,2*DDR4,1*PCIe x16,1*PCIe x4, 5*PCI,HDMI,VGA,2*LAN,4*USB3.0,5*USB2.0,4*SATA3.0,6*COM,ATX POWER,RoHS,SINGLE,For Channel

Packing List

Part Number	Description	Quantity
K1D-1008261-V03	SATA Cable, 500mm	2
E21-98L9010-C22	I/O SHIELDING	1

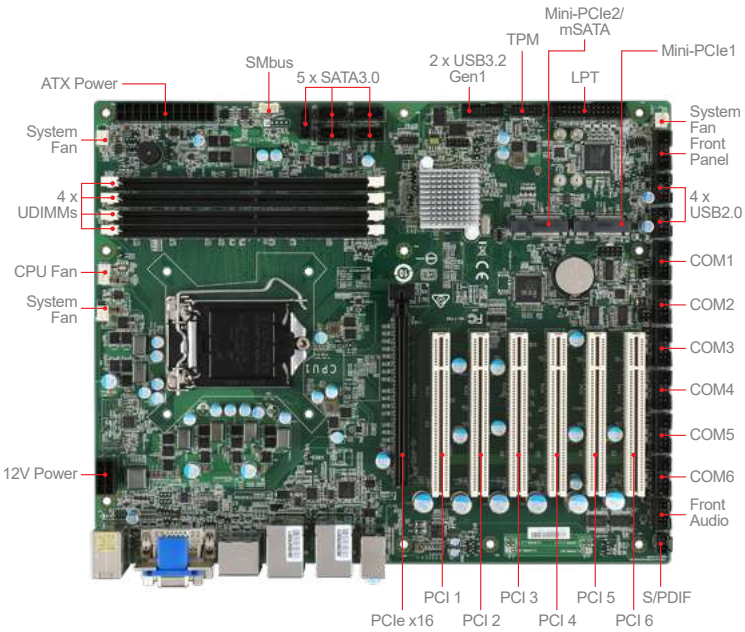
Specifications

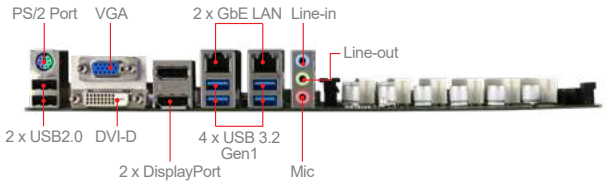
Processor	CPU	7th/6th Gen Intel® Desktop Kaby Lake/ Skylake i7/i5/i3/Pentium®/Celeron® Series Processor, Max 65W
	Frequency	2.3GHz~4.2GHz (Depends on CPU)
	L2 Cache	2MB~8MB (Depends on CPU)
	CPU Type	Socket (LGA 1151)
	Chipset	Intel® H110 Express
	BIOS	AMI UEFI
Memory	Technology	Dual-channel DDR4 2133/2400 MHz
	Max. Capacity	Up to 32GB
	Socket	2 x 288-pin UDIMMs
Display	Controller	Intel® HD Graphics
	Graphic Memory	Depends on CPU
	VGA	1
	DisplayPort	N/A
	Multiple Display	2 independent dislays
	Display Interface	VGA up to 1920 x 1200 @60Hz HDMI up to 4096 x 2160 @24Hz
Ethernet	Controller	1 x Intel® I219-LM GbE LAN PHY 1 x Intel® I211-AT GbE LAN
Audio	Controller	Realtek® ALC887-VD2-CG Audio Codec
Super I/O	Controller	Fintek F81866AD-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes
TPM	Controller	Box header
I/O Interface	USB	5 x USB 2.0 (2 x rear, 3 x internal with one Vertical Type-A) 4 x USB 3.2 Gen 1 (rear)
	Serial	6 x COM ports (2 x rear, 4 x internal) COM1: RS-232/422/485, 0V/5V/12V, Auto-flow Control COM2~6: RS-232, COM2: 0V/5V/12V
	Parallel	N/A
	PS/2	1 x PS/2 port by Y-cable for keyboard and mouse
	GPIO	GPIO 1: 8-bits (4 x GPI; 4 x GPO by default), 5V GPIO 2 : 8-bits (8 x GPI or 8 x GPO by request), 5V
Expansion Slot	PCIe x16	1
	PCIe x4	1 (PCIe x16 Slot Type)
	PCI	5
	M.2	N/A
	Mini-PCIe	N/A
Storage	SATA	4 x SATA 3.0
	mSATA	N/A
Power Supply	DC	N/A
	ATX	ATX-Power 24P, 12V-8P
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
Form Factor	Dimensions	305 x 244 mm (ATX)
	Weight	0.70 kg
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI
Software Platform	OS Support	Windows 7 (32/64-bit) (Skylake-S Series CPU Only) Windows 8.1 (64-bit) (Skylake-S Series CPU Only) Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)

MSI reserves the right to change the specifications without prior notices.

MS-98H9 V2.0

ATX with 7th/6th Gen Intel® Kaby Lake/Skylake Core™ i7/i5/i3, Pentium®, Celeron® Processor & Intel® Q170 for High-Performance Solution





Features

- Intel® 7th/6th Gen Kaby Lake-S/Skylake-S Series with ith Q170
- 4 DDR4 2133 MHz UDIMM slots up to 64GB
- Triple independent displays: VGA, DVI-D, 2DP
- 2 GbE LAN with RJ-45
- 1 PCIe x16 (Gen 3), 6 PCI, 1 Mini-PCIe (Full-size, with mSATA), 1 Mini-PCIe (Full-size) slots
- mSATA, 5 SATA 3.0 for storage
- SATA RAID 0/1/5/10
- 6 USB 3.2 Gen 1, 6 USB 2.0, 6 COM (2 RS-485), GPIO, LPT, PS/2, Audio, S/PDIF, 3 System FAN
- SMBus, Chassis Intrusion
- ATX Power

Ordering Information

Part Number	Description
919-98H9-006	MS-98H9 VER:20 Intel Kaby Lake-S/Skylake-S, Intel Q170, 4*DDR4, 1*DVI-D+1*VGA+2*DP+ 6*USB3.2 Gen 1+6*USB 2.0+ 5*SATA 3.0+1*PCIe x16+6*P-CI+2*Mini-PCIe+1*mSATA+6*COM+2*LAN+ATX POWER

Packing List

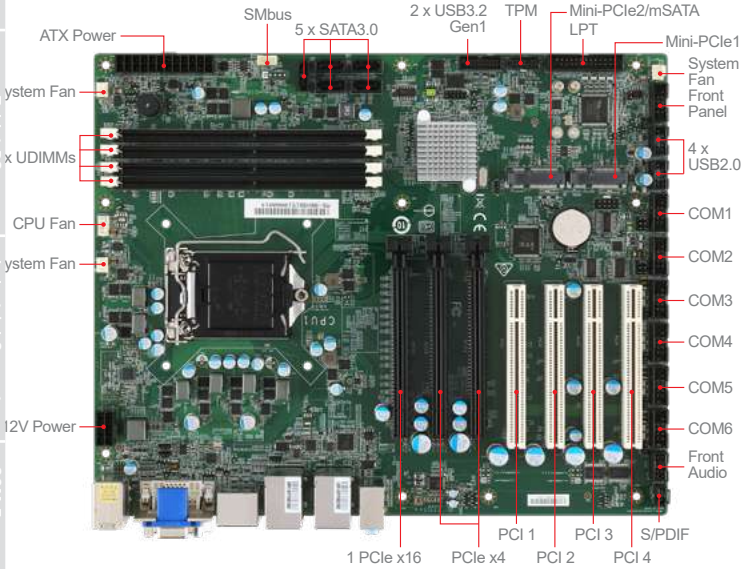
Part Number	Description	Quantity
K1B-3008012-E06	USB Cable, 330mm	1
K14-1018004-V03	COM Port Cable, 510mm	1
K39-3002004-E06	PS/2 Y-Cable, 190mm	1
K18-1025011-V03	LPT Cable, 300mm	1
K1D-1008261-V03	SATA Cable, 500mm	2
E21-98H9010-C22	I/O SHIELDING	1

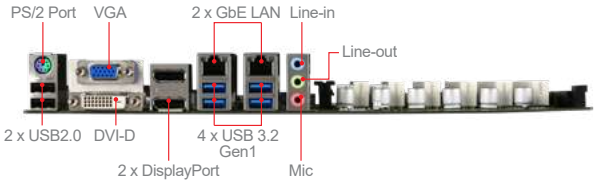
Specifications

Processor	CPU	7th/6th Gen Intel® Desktop Kaby Lake/ Skylake i7/i5/i3/Pentium®/ Celeron® Series Processor, Max 95W
	Frequency	2.6GHz~4.5GHz(Depends on CPU)
	L2 Cache	2MB~8MB (Depends on CPU)
	CPU Type	Socket (LGA 1151)
	Chipset	Intel® Q170 Express
	BIOS	AMI UEFI
Memory	Technology	Dual-channel DDR4 (non-ECC) 2133 MHz
	Max. Capacity	Up to 64GB
	Socket	4 x 288-pin UDIMMs
Display	Controller	Intel® HD Graphics
	Graphic Memory	Depends on CPU
	LVDS	N/A
	eDP	N/A
	VGA	1 (Non Hot Plug)
	DVI	1 (DVI-D)
	HDMI	N/A
	DisplayPort	2
	Multiple Display	3 independent displays
	Display Interface	VGA up to 1920 x 1080 @60Hz DVI-D up to 1920 x 1200 @60Hz DP up to 4096 x 2304 @60Hz
Ethernet	Controller	1 x Intel® I219-LM GbE LAN PHY 1 x Intel® I210-AT GbE LAN
Audio	Controller	Realtek® ALC887 HD Audio Codec
Super I/O	Controller	Fintek F81866AD-I
H/W Monitor	Watchdog Timer	256-level Watchdog Timer
	Smart Fan	Yes
TPM	Controller	Box header
I/O Interface	USB	6 x USB 2.0 (2 x rear, 4 x internal) 6 x USB 3.2 Gen 1 (4 x rear, 2 x internal)
	Serial	6 x COM ports (internal) COM1~2: RS-232/422/485, 0V/5V/12V COM3~6: RS-232, 0V/5V/12V
	Parallel	Yes
	PS/2	1 x PS/2 port by Y-cable for keyboard and mouse
	GPIO	8-bits (4 x GPI; 4 x GPO), 5V
Expansion Slot	PCIe x16	1
	PCIe x4	N/A
	PCIe x1	N/A
	PCI	6
	M.2	N/A
	Mini-PCIe	2 x Full-size (one w/ mSATA)
Storage	SATA	5 x SATA 3.0 (RAID 0/1/5/10)
	IDE	N/A
	eSATA	N/A
	CFast	N/A
	mSATA	1
	CompactFlash	N/A
Power Supply	DC	N/A
	ATX	ATX-Power 24P, 12V-8P
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s
	Operating Humidity	10 ~ 90%, non-condensing
	Storage Temperature	-20 ~ 80°C
	Storage Humidity	10 ~ 90%, non-condensing
Form Factor	Dimensions	305 x 244 mm (ATX)
	Weight	0.70 kg
Certification	EMC	FCC, CE, RCM, VCCI, BSMI (Class B)
Software Platform	OS Support	Windows 7 (32/64-bit) (Skylake-S Series CPU Only) Windows 8.1 (64-bit) (Skylake-S Series CPU Only) Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)

MS-98H9

ATX with 7th/6th Gen Intel® Kaby Lake/Skylake Core™ Xeon®/i7/i5/i3, Pentium®, Celeron® Processor & Intel® C236/Q170/H110 for High-Performance Solution





Features

- Intel® 7th/6th Gen Intel® Kaby Lake-S/Skylake-S Series with ith C236/Q170/H110
- 4 DDR4 2133 MHz ECC/non-ECC UDIMM slots up to 64GB
- Triple independent displays: VGA, DVI-D, 2DP
- 2 GbE LAN with RJ-45
- 1 PCIe x16 (Gen 3), 2 PCIe x4 (Gen 3), 4 PCI, 1 Mini-PCIe (Full-size, with mSATA), 1 Mini-PCIe (Full-size) slots
- mSATA, 5 SATA 3.0 for storage
- SATA RAID 0/1/5/10
- 6 USB 3.2 Gen 1, 6 USB 2.0, 6 COM (2 RS-485), GPIO, LPT, PS/2, Audio, S/PDIF, 3 System FAN
- SMBus, Chassis Intrusion
- ATX Power

Ordering Information

Part Number	Description
919-98H9-001	MS-98H9 VER:10 Intel Kaby Lake-S/Skylake-S, Intel C236, 4*DDR4, 1*DVI-D+1*VGA+2*DP+6*USB3.2 Gen 1+6*USB 2.0+5*SATA 3.0+1*PCIe x16+2*PCIe x4+4*P-CI+2*Mini-PCIe+1*mSATA+6*COM+2*LAN+ATX POWER
919-98H9-002	MS-98H9 VER:10 Intel Kaby Lake-S/Skylake-S, Intel Q170, 4*DDR4, 1*DVI-D+1*VGA+2*DP+6*USB3.2 Gen 1+6*USB 2.0+5*SATA 3.0+1*PCIe x16+2*PCIe x4+4*P-CI+2*Mini-PCIe+1*mSATA+6*COM+2*LAN+ATX POWER
919-98H9-003	MS-98H9 VER:10 Intel Kaby Lake-S/Skylake-S, Intel H110, 2*DDR4, 1*DVI-D+1*VGA+2*DP+4*USB3.2 Gen 1+4*USB 2.0+4*SATA 3.0+1*PCIe x16+1*PCIe x4+4*P-CI+6*COM+2*LAN+ATX POWER

Packing List

Part Number	Description	Quantity
K1B-3008012-E06	USB 2.0 Cable, 330mm	1
K14-1018004-V03	COM Port Cable, 510mm	1
K39-3002004-E06	PS/2 Y-Cable, 190mm	1
K18-1025011-V03	LPT Cable, 300mm	1
K1D-1008261-V03	SATA Cable, 500mm	2
E21-98H9010-C22	I/O SHIELDING	1

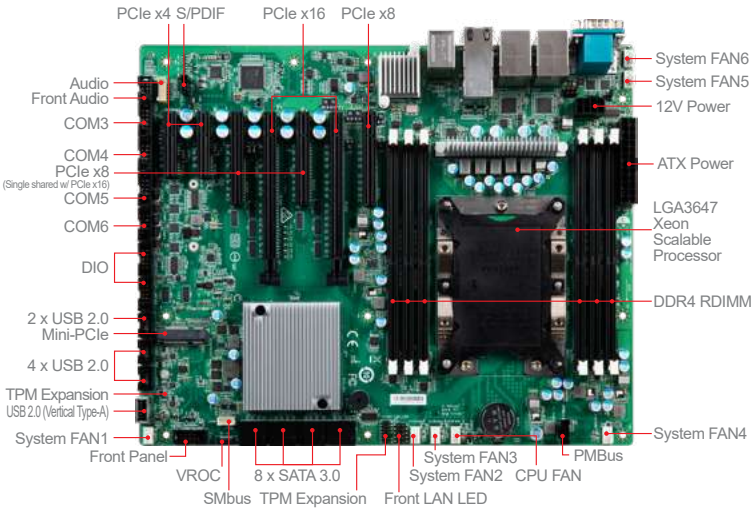
Specifications

Processor	CPU	C236 SKU	Q170 SKU	H110 SKU
		7th/6th Gen Intel® Desktop Kaby Lake/ Skylake Xeon/ i7/i5/ i3/Pentium®/ Celeron® Series Processor, Max 95W	7th/6th Gen Intel® Desktop Kaby Lake/Skylake i7/ i5/i3/Pentium®/Celeron® Series Processor, Max 95W	
	Frequency	2.6 GHz~4.5 GHz (Depends on CPU)		
	L2 Cache	2MB~8MB (Depends on CPU)		
	CPU Type	Socket (LGA 1151)		
	Chipset	Intel® C236 Express	Intel® Q170 Express	Intel® H110 Express
	BIOS	AMI UEFI		
Memory	Technology	Dual-channel DDR4 (ECC) 2133 MHz		Dual-channel DDR4 (non-ECC) 2133 MHz
	Max. Capacity	Up to 64GB		Up to 32GB
	Socket	4 x 288-pin UDIMMs		2 x 288-pin UDIMMs
Display	Controller	Intel® HD Graphics		
	Graphic Memory	Depends on CPU		
	VGA	1 (Non Hot Plug)		
	DVI	1 (DVI-D)		
	DisplayPort	2		
	Multiple Display	3 independent displays		2 independent displays
	Display Interface	VGA up to 1920 x 1080 @60Hz DVI-D up to 1920 x 1200 @60Hz DP up to 4096 x 2304 @60Hz		
Ethernet	Controller	1 x Intel® I219-LM GbE LAN PHY (Support Intel® AMT 11) 1 x Intel® I210-AT GbE LAN		
Audio	Controller	Realtek® ALC887 HD Audio Codec		
Super I/O	Controller	Fintek F81866AD-I		
H/W Monitor	Watchdog Timer	256-level Watchdog Timer		
	Smart Fan	Yes		
TPM	Controller	Box header		
I/O Interface	USB	6 x USB 2.0 (2 x rear, 4 x internal) 6 x USB 3.2 Gen 1 (4 x rear, 2 x internal)		4 x USB 2.0 (2 x rear, 2 x internal) 4 x USB 3.2 Gen 1 (rear)
	Serial	6 x COM ports (internal) COM1~2: RS-232/422/485, 0V/5V/12V COM3~6: RS-232, 0V/5V/12V		
	Parallel	1		
	PS/2	1 x PS/2 port by Y-cable for keyboard and mouse		
	GPIO	8-bits (4 x GPI; 4 x GPO), 5V		
Expansion Slot	PCIe x16	1		
	PCIe x4	2		1
	PCI	4		
	M.2	N/A		
	Mini-PCIe	2 x Full-size (one w/ mSATA)		N/A
Storage	SATA	5 x SATA 3.0 (RAID 0/1/5/10)		4 x SATA 3.0
	mSATA	1		N/A
Power Supply	DC	N/A		
	ATX	ATX-Power 24P, 12V-8P		
Environment	Operating Temperature	-10 ~ 60°C Note: Thermal w/ Airflow:0.7m/s		
	Operating Humidity	10 ~ 90%, non-condensing		
	Storage Temperature	-20 ~ 80°C		
	Storage Humidity	10 ~ 90%, non-condensing		
Form Factor	Dimensions	305 x 244 mm (ATX)		
	Weight	0.70 kg		
Certification	EMC	FCC, CE, RCM, VCCI, BSMI (Class B)		
Software Platform	OS Support	Windows 7 (32/64-bit) (Skylake-S Series CPU Only) Windows 8.1 (64-bit) (Skylake-S Series CPU Only) Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) Linux (Support by request)		

MSI reserves the right to change the specifications without prior notices.

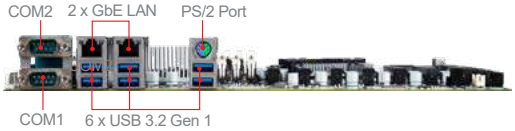
MS-98M9

ATX with 2nd/1st Gen Intel® Cascade Lake/Skylake Xeon® Scalable Processors & Intel® C622/C621 Chipset for Ultra-High Performance Solution



SKU1

SKU2



Features

- Intel® 2nd/1st Gen Cascade Lake-SP/Skylake-SP Series with C622/C621
- 6 DDR4 2666 MHz ECC RDIMMs up to 192GB
- 2 GbE LAN, 2 10GbE LAN with RJ-45
- 2 PCIe x16 (Gen 3) or 4 PCIe x8 (Gen3), 1 PCIe x8 (Gen 3), 2 PCIe x4 (Gen 3), 1 Mini-PCIe (Full/Half-size, with mSATA) slots
- mSATA, 8 SATA 3.0 for storage
- SATA RAID 0/1/5/10
- 6 USB 3.2 Gen 1, 7 USB 2.0, 6 COM (2 RS-485), GPIO, PS/2, Audio, 6 System FAN
- Onboard TPM 2.0
- Intel® VROC for RAID function with NVMe storage
- SMBus, Chassis Intrusion, PMBus
- ATX Power

Ordering Information

Part Number	Description
919-98M9-001	MS-98M9\609-98M9-010\809-98M9-003 Ver 1.0 Intel Xeon-SP C622, 4*DDR4 RDIMM, 2*PCIe x16, 3*PCIe x8, 2*PCIe x4, 1*Mini-PCIe, TPM2.0,4*LANs, 6*USB3.0, 7*USB2.0, 8*SATA-3.0, 6*COM, ATX POWER, RoHS,SINGLE
919-98M9-002	MS-98M9\609-98M9-020\809-98M9-004 Ver 1.0 Intel Xeon-SP C621,4*DDR4 RDIMM, 2*PCIe x16, 3*PCIe x8, 2*PCIe x4, 1*Mini-PCIe, TPM2.0, 2*LANs, 6*USB3.0, 7*USB2.0, 8*SATA-3.0, 6*COM, ATX POWER, RoHS, SINGLE

Packing List

Part Number	Description	Quantity
K1D-1008261-V03	SATA Cable, 500mm	2
K1B-3008012-E06	USB 2.0 Cable, 330mm	1
E21-98M9020-C22	I/O SHIELDING (SKU1)	1
E21-98M9010-C22	I/O SHIELDING (SKU2)	1

Optional Item

Part Number	Description
K14-1018004-V03	COM Port Cable, 510mm

Specifications

		SKU1	SKU2
System Processor	CPU	2nd/1st Gen Intel® Cascade Lake/Skylake Xeon® Scalable Processors, Max 205W	
	Frequency	1.9GHz~2.5GHz (Depends on CPU)	
	L2 Cache	11MB~27.5MB (Depends on CPU)	
	CPU Type	Socket (LGA 3647)	
	Chipset	Intel® C622 Express	Intel® C621 Express
	BIOS	AMI UEFI	
Memory	Technology	Six-channel DDR4 (ECC) 2666 MHz	
	Max. Capacity	Up to 192GB	
	Socket	6 x 288-pin RDIMMs	
Display	Controller	N/A	
	Graphic Memory	N/A	
	LVDS	N/A	
	eDP	N/A	
	VGA	N/A	
	DVI	N/A	
	HDMI	N/A	
	DisplayPort	N/A	
	Multiple Display	N/A	
	Display Interface	N/A	
Ethernet	Controller	1 x Intel® PHY X557-AT2 GbE LAN 2 x Intel® I210-AT GbE LAN	2 x Intel® I210-AT GbE LAN
Audio	Controller	Realtek® ALC887-VD2-CG HD Audio Codec	
Super I/O	Controller	Fintek F81866AD-I	
H/W Monitor	Watchdog Timer	256-level Watchdog Timer	
	Smart Fan	Yes	
TPM	Controller	Infineon SLB9665TT2.0	
I/O Interfaces	USB	7 x USB 2.0 (7 x internal with one Vertical Type-A) 6 x USB 3.2 Gen 1 (rear)	
	Serial	6 x COM ports (2 x rear, 4 x internal) COM1: RS-232/422/485, Ring/0V/5V/12V, Auto-flow Control COM2: RS-232/422/485, 0V/5V/12V, Auto-flow Control COM3~6: RS-232, 0V/5V/12V	
	Parallel	N/A	
	PS/2	1 x PS/2 port by Y-cable for keyboard and mouse	
	GPIO	16-bits (8 x GPI; 8 x GPO), 5V	
Expansion Slot	PCIe x16	2 (Signal configured as 2 PCIe x16 or 4 PCIe x8 or 1 PCIe x16 + 2 PCIe x8)	
	PCIe x8	3 (Slot3&5 single shared with PCIe x16)	
	PCIe x4	2	
	PCIe x1	N/A	
	PCI	N/A	
	M.2	N/A	
	Mini-PCIe	1 x Full-size/Half-size (mSATA)	
Storage	SATA	8 x SATA 3.0 (RAID 0/1/5/10)	
	mSATA	1 (shared w/ Mini-PCIe)	
Power Supply	ATX	ATX-Power 24P, 12V-8P	
Environment	Operating Temperature	0 ~ 60°C Note: Thermal w/ Airflow:0.7m/s	
	Operating Humidity	10 ~ 90%, non-condensing	
	Storage Temperature	-20 ~ 80°C	
	Storage Humidity	10 ~ 90%, non-condensing	
Form Factor	Dimensions (W x D x H)	305 x 244 mm (ATX)	
	Weight	0.90 kg	
Certification	EMC	CE, FCC Class B, BSMI, RCM, VCCI	
Software Platform	OS Support	Windows Server 2012 (64-bit) (Skylake-SP Series CPU Only) Windows Server 2016 (64-bit) (Skylake-SP & Cascade Lake Series CPU) Windows Server 2019 (64-bit) (Cascade Lake Series CPU) Windows 10 IoT Enterprise LTSC/SAC 1809 (64-bit, RS5) (by request) Linux (Support by request)	

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