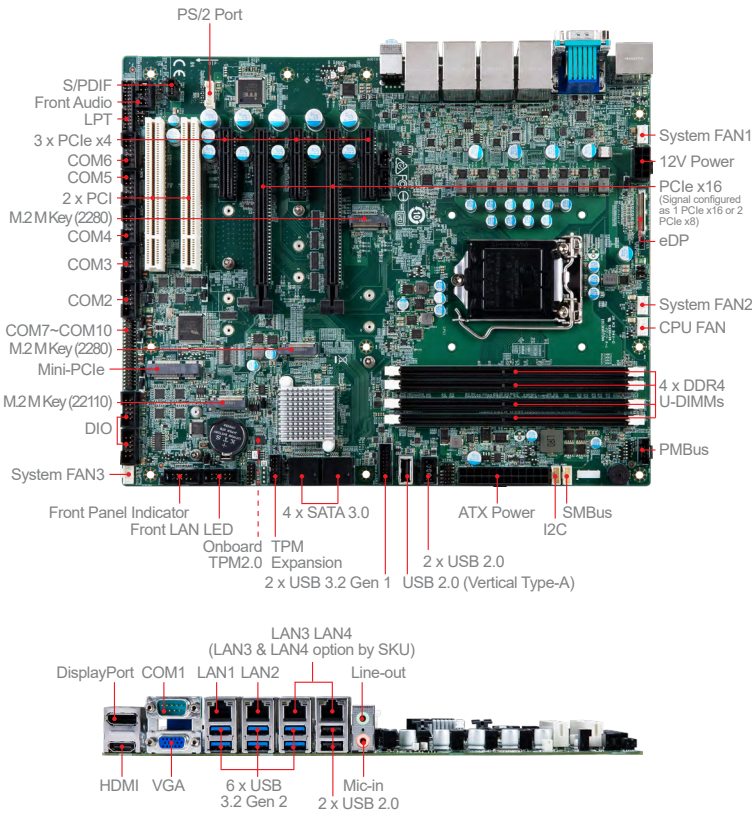


# MS-98N9

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-98N91609-98N9-010/809-98N9-005 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*PCIe x4, 2*PCI, TPM2.0, ATX, RoHS, SINGLE, For Channel
919-98N9-002	MS-98N91609-98N9-020/809-98N9-006 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, 2.6*COM, 2*PCIe x16, 4*PCIe 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	
<b>Processor</b>	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		
<b>Memory</b>	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		
	Controller	Intel® UHD Graphics		
<b>Display</b>	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		
<b>Ethernet</b>	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	
	<b>Audio Super I/O</b>	Controller	Realtek® ALC888S-VD2-GR Audio Codec	
<b>H/W Monitor</b>	Controller	Fintek F81966D-I		
	Watchdog Timer	256-level Watchdog Timer		
<b>TPM</b>	Smart Fan	Yes		
	Controller	Infineon SLB 9670VQ2.0		
<b>I/O Interface</b>	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	COM1~2: RS-232/422/485, Ring/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
			COM3~6: RS-232/422/485 with 0V/5V/12V Auto-flow Control Supported	COM3~6: RS-232/422/485 with 0V/5V/12V Auto-flow Control Supported
		Parallel	Yes	
		PS/2	1 (wafer Connector)	
	<b>Expansion Slot</b>	GPIO	16-bits (8 x GPI; 8 x GPO), 5V	
		PCIe x16	1 (Signal configured as 1 PCIe x16 or 2 PCIe x8)	
		PCIe x4	3	
		PCIe x1	N/A	
		PCI	2	
<b>Storage Power Supply</b>	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		
	SATA	4 x SATA 3.0 (RAID 0/1/5/10)		
	IDE	N/A		
<b>Environment</b>	eSATA	N/A		
	DC	N/A		
<b>Form Factor</b>	ATX	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		
<b>Certification</b>	Storage Humidity	10 ~ 90%, non-condensing		
	Dimensions	305 x 244 mm (ATX)		
<b>Software Platform</b>	Weight	0.735 Kg		
	OS Support	CE, FCC Class B, BSMI, RCM, VCCI		
		Windows 10 IoT Enterprise 2019 SAC (64-bit, RS5) Windows 10 IoT Enterprise LTSC (64-bit, RS5) Windows 11 IoT Enterprise LTSC (64-bit) Linux Kernel 5.4		