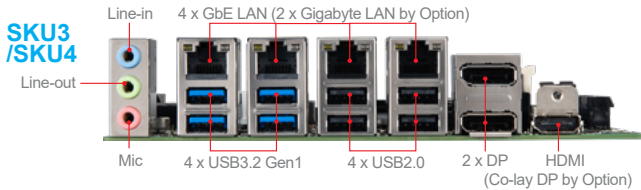
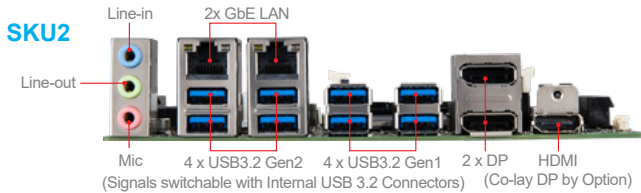
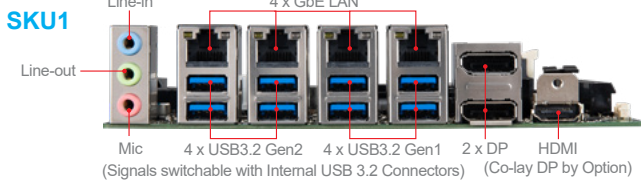
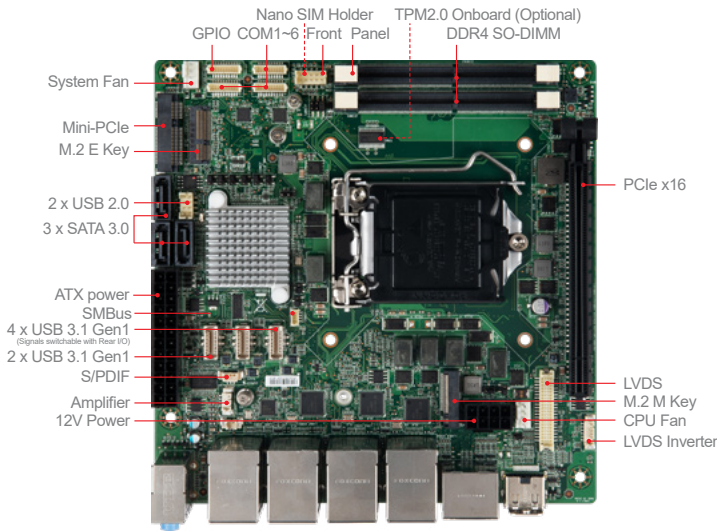


# MS-98L1

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



## Features

- Intel® 8th Gen Coffee Lake-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

MS-98L1-C246	Art. N° 156318
MS-98L1-H310	Art. N° 156320
MS-98L1-H310-SKU4	Art. N° 156321
MS-98L1-Q370	Art. N° 156319

## Specifications

		SKU1	SKU2	SKU3	SKU4
<b>System Processor</b>	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	2.0GHz~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			
<b>Memory</b>	Technology	Dual-channel DDR4 (ECC/non-ECC) 2666MHz	Dual-channel DDR4 (non-ECC) 2666MHz		
	Max. Capacity	Up to 32 GB			
	Socket	2 x 260-pin DDR4 SO-DIMMs			
	Controller	Intel® UHD Graphics			
<b>Display</b>	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		
<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	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
		<b>Audio</b>	Controller	Realtek® ALC887 Audio Codec (Co-lay ALC888S)	
<b>Super I/O</b>	Controller	Fintek F81866AD-1			
<b>H/W Monitor</b>	Watchdog Timer	256-level Watchdog Timer			
	Smart Fan	Yes			
<b>TPM</b>	Controller	Box header (Default) Infineon SLB9665TT2.0 (by BOM option)			
<b>I/O Interfaces</b>	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)		
		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		
<b>Expansion Slot</b>	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		
<b>Storage</b>	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)		
<b>Power Supply</b>	AC Input	ATX-Power 24P, 12V-8P			
<b>Environment</b>	Operating Temperature	-10 ~ 60°C			
	Operating Humidity	10 ~ 90%, non-condensing			
	Storage Temperature	-20 ~ 80°C			
	Storage Humidity	10 ~ 90%, non-condensing			
<b>Form Factor</b>	Dimensions (W x D x H)	170 x 170mm (Mini-ITX)			
	Weight	0.405 kg	0.375 kg	0.39 kg	0.375 kg
	<b>Certification</b>	EMC	CE, FCC Class B, BSMI, RCM, VCCI		
<b>Software Platform</b>	OS Support	Windows 10 (64-bit) Linux Kernel 4.x (by request)			