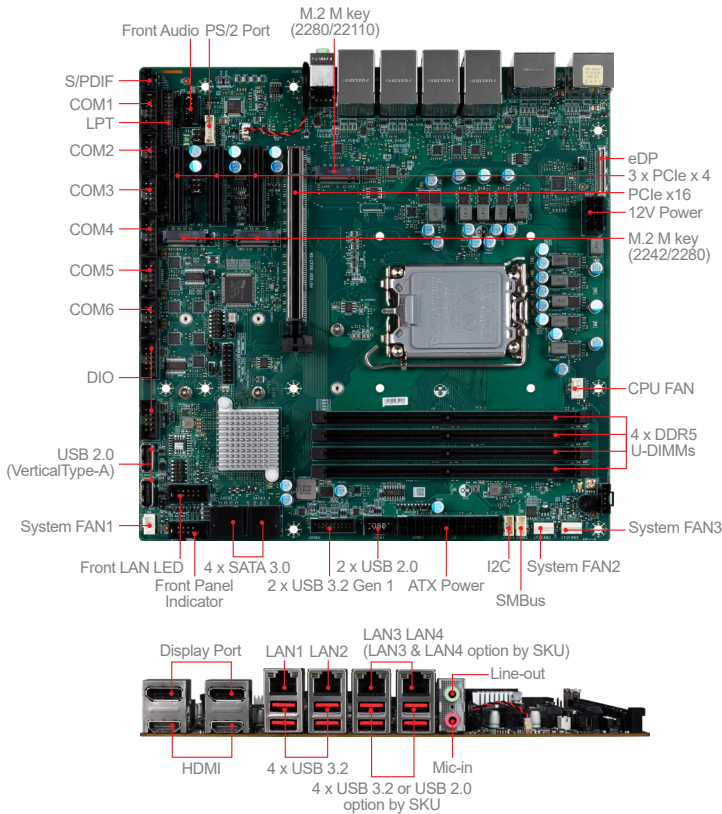


MS-CF09

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

NEW



Features

- Intel® 13th/12th Gen Raptor Lake-S/Alder 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
Coming Soon	

Packing List

Part Number	Description
Coming Soon	

Specifications

		SKU1	SKU2	SKU3	SKU4
System Processor	CPU	Intel® IOTG Alder Lake-S Processor Core i9/i7/i5/i3, Pentium, Celeron Intel® IOTG Raptor Lake-S Processor Core i9/i7/i5/i3, Pentium, Celeron, 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			
Graphic	Socket	4 x 288-pin UDIMMs		2 x 288-pin UDIMMs	
	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	4 x Intel® i226-V 2.5GbE LAN	2 x Intel® i226-V 2.5GbE LAN
		Realtek® ALC897 Audio Codec			
Audio Super I/O	Controller	FINTEK F81966D-I			
H/W Monitor	Watchdog Timer	256-level Watchdog Timer			
	Smart Fan	Yes			
TPM	Controller	Infineon® SLB9672VUJ.0			
	PCIe x16	1			
Expansion Slot	PCIe x4	3			
	M.2	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 CPU), 2280/22110	1	
		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 PCH), 2242/2280*	N/A	
	SATA	4 x SATA 3.0 (RAID 0/1/5/10)		4 x SATA 3.0	
Storage	USB	8 x USB 3.2 Gen 2 x1 Ports (8 x rear)		2 x USB 3.2 Gen 2 x1 Ports (2 x rear)	
		2 x USB 3.2 Gen 1 Ports (2 x internal)		2 x USB 3.2 Gen 1 Ports (2 x rear)	
I/O Interface	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 COM2~4: 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			
Power Supply	GPIO	16-bits (8 x GPI; 8 x GPO), 5V			
	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			
Physical characteristics	Storage Humidity	10 ~ 90%, non-condensing			
	Dimensions (WxDxH)	244 x 244mm (uATX)			
Weight	TBD				
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 (64-bit) Linux Kernel 5.xx, Ubuntu 22.04 LTS Pre-scan			