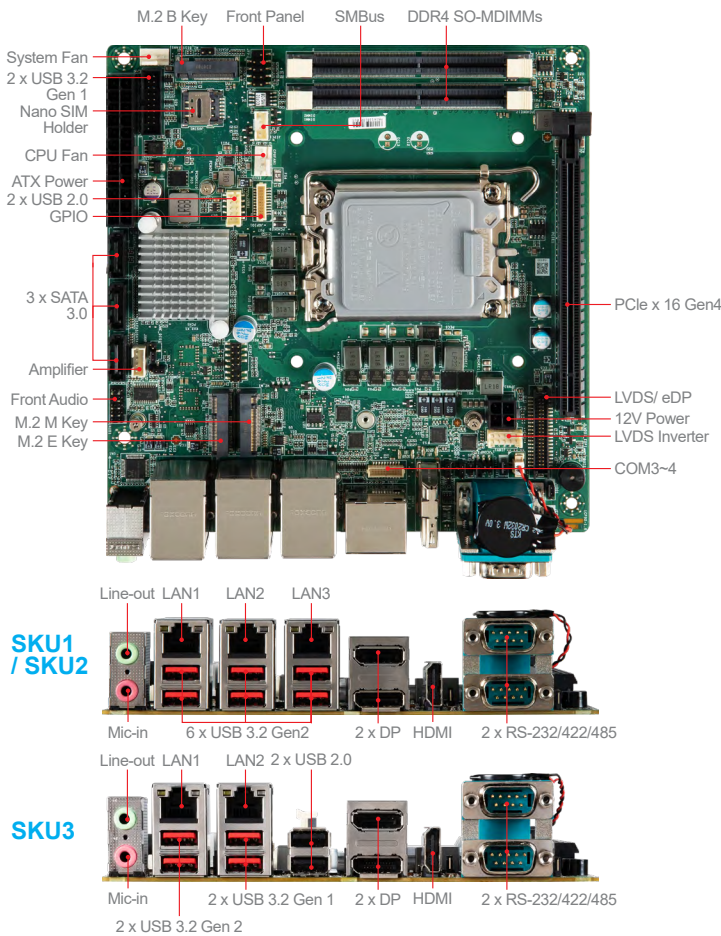


MS-CF02

Mini-ITX 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



Specifications

		SKU1	SKU2	SKU3
System Processor	CPU	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	1.6 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
Memory	BIOS	AMI UEFI		
	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		
	Controller	Intel® UHD Graphics		
	Graphic Memory	Depends on CPU		
Graphic	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® I225-LM 2.5GbE LAN	2 x Intel® I225-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	M.2	1 x M key (PCIe x4 NVMe), 2242/2280		1 x M key (PCIe x4 NVMe), 2242/2280
		1 x E key (PCIe x1, USB 2.0, CNVi), 2230		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)		
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)
				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)
	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		
Power Supply	GPIO	16-bits (8 x GPI; 8 x GPO), 5V		
	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		
Physical characteristics Certification	Storage Humidity	10 ~ 90%, non-condensing		
	Dimensions (WxDxH)	170 x 170 mm (Mini-ITX)		
	Weight	0.43 Kg	0.41 Kg	
Software Platform	OS Support	CE, FCC Class B, BSMI, RCM, VCCI, UKCA		
		Windows 10 IoT Enterprise 2021 LTSC (64-bit) Windows 11 IoT Enterprise LTSC (64-bit) Linux Kernel 5.15 (ADL-S)/ Linux Kernel 5.19 (RPL-S)(by request)		

Features

- Intel® 13th/12th Gen 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 OPTA 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 OPTB 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