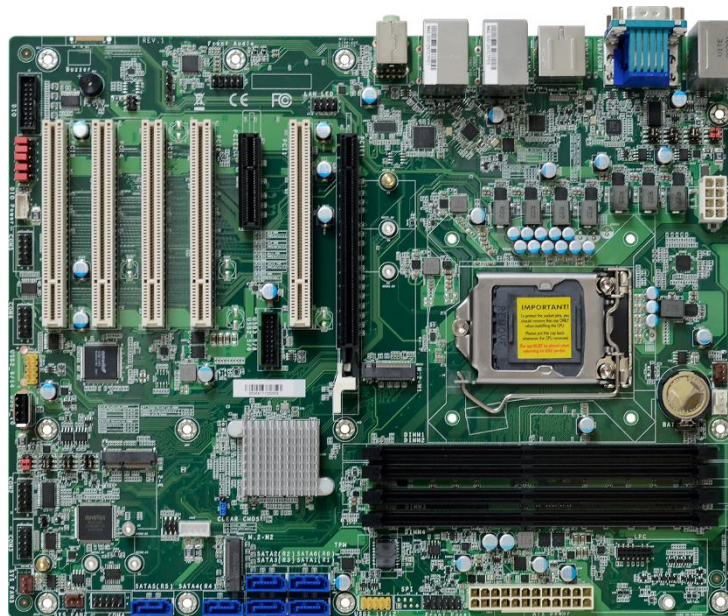


MBU4194

Industrial Motherboard Series



MBU4194

PRODUCT HIGHLIGHTS

- ▶ Intel 10th Gen Intel® Core Processors with Q470E chipset
- ▶ 4 DDR4 UDIMM up to 128GB
- ▶ Multiple expansion: 1 PCIe x16, 1 PCIe x4, 5 PCI, 1 M.2 M key, 1 M.2 E key
- ▶ 3 independent displays: VGA + DP++ + HDMI
- ▶ Rich I/O: 2 Intel GbE, 6 COM, 13 USB
- ▶ 15-Year CPU Life Cycle Support Until Q2' 34 (Based on Intel IOTG Roadmap)



TECHNICAL INFORMATION

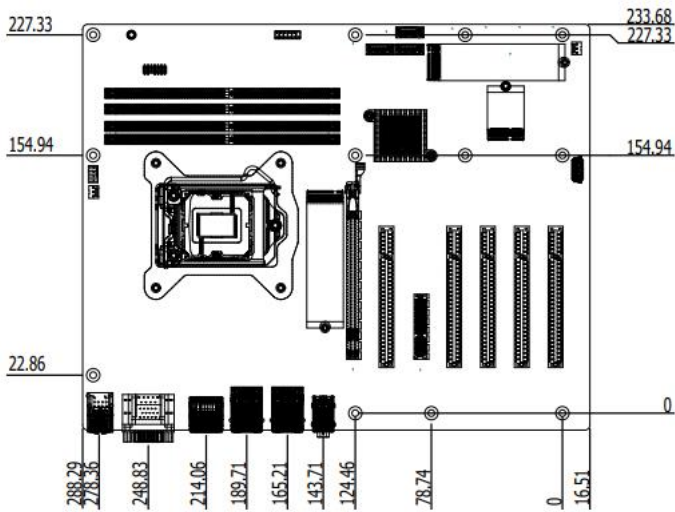
SYSTEM	PROCESSOR	10th Generation Intel® LGA 1200 Socket Processors, TDP support up to 125W Intel® Core™ i9-10900E (10 Cores, 20M Cache, up to 4.7 GHz); 65W Intel® Core™ i9-10900TE (10 Cores, 20M Cache, up to 4.5 GHz); 35W Intel® Core™ i7-10700E (8 Cores, 16M Cache, up to 4.5 GHz); 65W Intel® Core™ i7-10700TE (8 Cores, 16M Cache, up to 4.4 GHz); 35W Intel® Core™ i5-10500E (6 Cores, 12M Cache, up to 4.2 GHz); 65W Intel® Core™ i5-10500TE (6 Cores, 12M Cache, up to 3.7 GHz); 35W Intel® Core™ i3-10100E (4 Cores, 6M Cache, 3.8 GHz); 65W Intel® Core™ i3-10100TE (4 Cores, 6M Cache, to 3.6 GHz); 35W Intel® Pentium® G6400E (2 Cores, 4M Cache, 3.8 GHz); 58W Intel® Pentium® G6400TE (2 Cores, 4M Cache, 3.2 GHz); 35W Intel® Celeron® G5900E (2 Cores, 2M Cache, 3.2 GHz); 58W Intel® Celeron® G5900TE (2 Cores, 2M Cache, 3.0 GHz); 35W
	CHIPSET	Intel® Q470E Chipset
	MEMORY	Four 288-pin up to 128GB Dual Channel DDR4 2400/2666/2933MHz
	BIOS	Insyde SPI 256Mbit
GRAPHICS	CONTROLLER	Intel® HD Gen 9 Graphics
	FEATURE	OpenGL 4.5, DirectX 12, OpenCL 2.1 HW Decode: AVC/H.264,MPEG2,VC1/WMV9,JPEG/MJPEG,HEVC/H265,VP8,VP9 HW Encode: MPEG2, AVC/H264, JPEG, HEVC/H265, VP8, VP9
	DISPLAY	1 x VGA, VGA: resolution up to 1920x1200 @ 60Hz 1 x DP++, DP++: resolution up to 4096x2160 @ 60Hz 1 x HDMI 1.4b, HDMI: resolution up to 4096x2160 @ 24Hz
	TRIPLE DISPLAYS	VGA + DP++ + HDMI
EXPANSION	INTERFACE	1 x PCIe x16 (Gen 3) 1 x PCIe x4 (Gen 3) 5 x PCI Up to 2 x M.2 2242/2260/2280 M key (PCIe Gen3 x4 NVMe/SATA/Intel® Optane Memory support, one port shared with PCIe x4 slot as option, MOQ required) 1 x M.2 E 2230 Key (PCIe Gen3 x2/USB 2.0)

► TECHNICAL INFORMATION (CONTINUED)

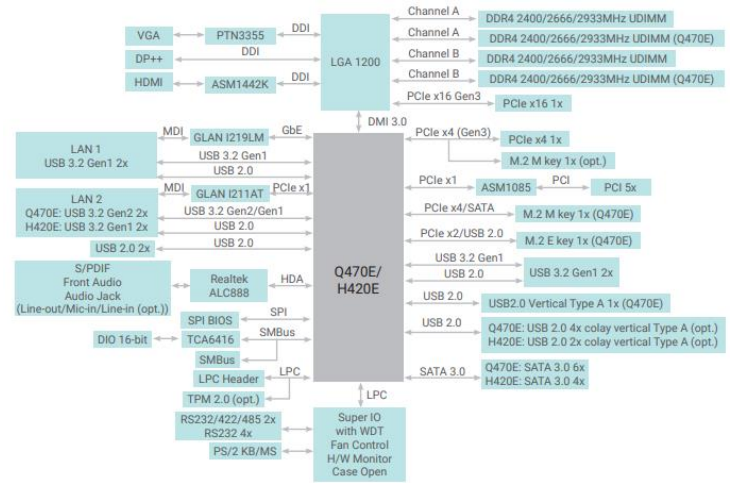
AUDIO	AUDIO CODEC	Realtek ALC888
ETHERNET	CONTROLLER	1 x Intel® I211AT PCIe (10/100/1000Mbps) 1 x Intel® I219LM/I219V with iAMT12.0 (10/100/1000Mbps)
REAR I/O	ETHERNET	2 x GbE (RJ-45)
	SERIAL	1 x RS-232/422/485 (RS-232 w/power (DB-9)
	USB	2 x USB 3.2 Gen 2 2 x USB 3.2 Gen 1 2 x USB 2.0
	PS/2	1 x PS/2 (mini-DIN-6)
	DISPLAY	1 x VGA 1 x DP++ 1 HDMI
	AUDIO	1 x Line-out, 1 x Mic-in, 1 x Line-in (opt., MOQ required)
INTERNAL I/O	SERIAL	1 x RS-232/422/485 (RS-232 w/ power) (2.54mm pitch) 4 x RS-232 (2.54mm pitch)
	USB	2 x USB 3.2 Gen 1 4 x USB 2.0 (2.54mm pitch, Colay vertical Type A, opt.: MOQ required) 1 x USB 2.0 vertical Type A
	AUDIO	1 x S/PDIF 1 x Front Audio Header
	SATA	6 x SATA 3.0 RAID 0/1/5/10
	DIO	1 x 16-bit DIO
	LPC	1 x LPC (supports LPC EXT-RS232/RS485 module)
	SMBUS	1 x SMBus
	OUTPUT & INTERVAL	System Reset, Programmable via Software from 1 to 255 Seconds
	SECURITY TPM	Infineon TPM2.0 (opt., MOQ required)
	TYPE	ATX
	CONNECTOR	8-pin ATX 12V power 24-pin ATX power
	CONSUMPTION	Typical: i9-10900K: 3.3V @ 0.13A (0.429W); 5V @ 0.7A (3.5W); 12V @ 0.44A (5.28W) Max.: i9-10900K: 3.3V @ 0.18A (0.594W); 5V @ 1.59A (7.95W); 12V @ 14.22A (170.64W)
	RTC BATTERY	CR2032 Coin Cell
OS SUPPORT		Windows 10 Pro 64-bit Windows 10 IoT Enterprise 64-bit Linux Ubuntu 20.04
ENVIRONMENT	TEMPERATURE	Operating: -5 to 65°C Storage: -40 to 60°C with RTC Battery; -40 to 85°C without RTC Battery
	HUMIDITY	Operating: 5 to 90% RH Storage: 5 to 90% RH
	MTBF	504,168 hrs @ 25°C ; 278,849 hrs @ 45°C ; 172,277 hrs @ 60°C ; 146,454 hrs @ 65°C Calculation Model: Telcordia Issue 4 Environment: GB, GC - Ground Benign, Controlled
MECHANICAL	DIMENSIONS	ATX Form Factor 305mm (12") x 244mm (9.6")
	HEIGHT	PCB: 1.6mm / Top Side: TBD Bottom Side: TBD
CERTIFICATIONS		CE, RoHS

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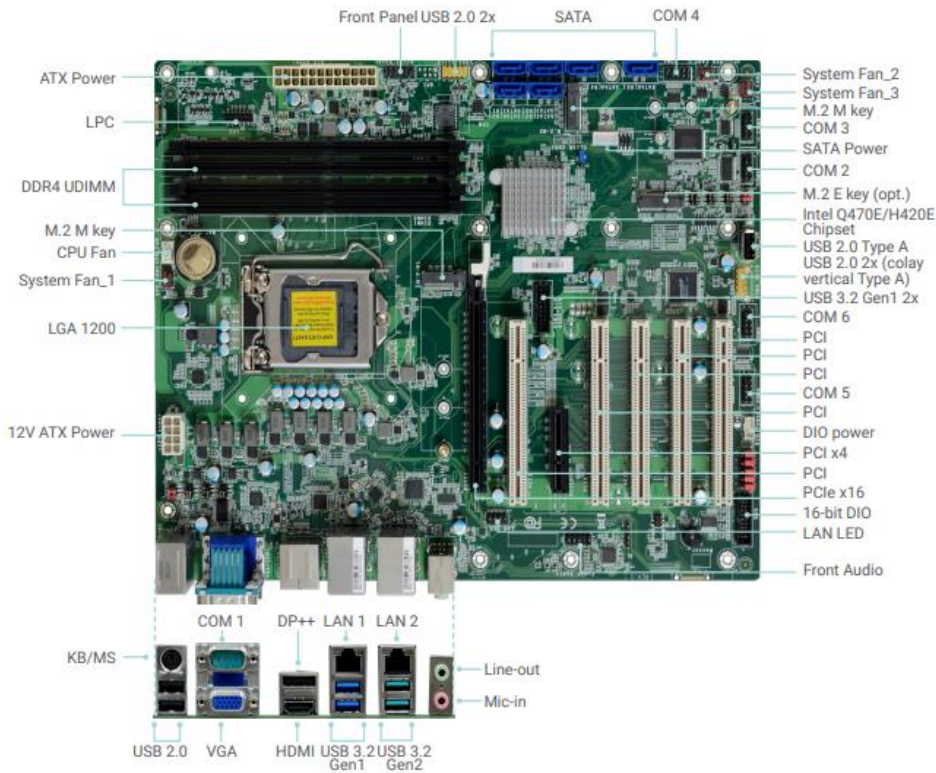
MECHANICAL DRAWING



BLOCK DIAGRAM



MOTHERBOARD LAYOUT



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