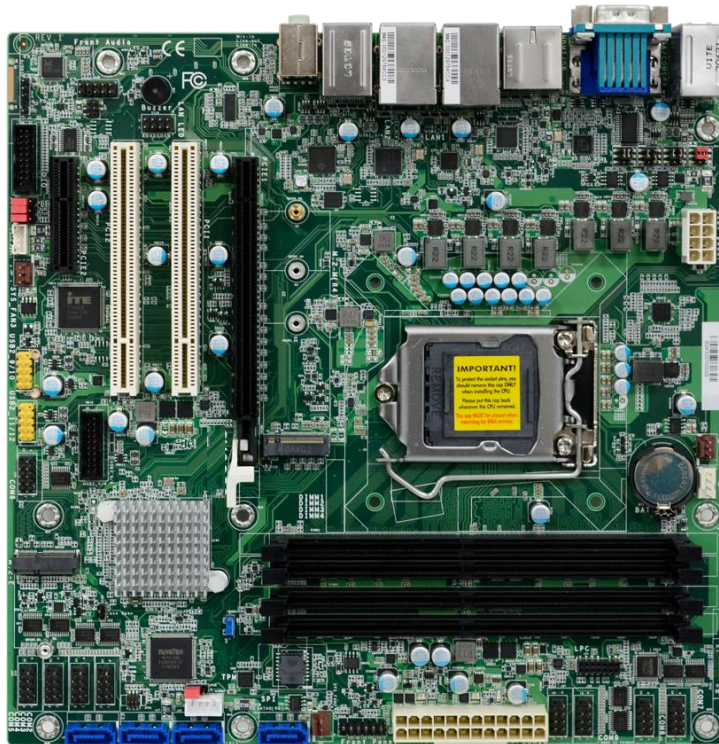


MBU4199

Industrial Motherboard Series



MBU4199

PRODUCT HIGHLIGHTS

- ▶ Intel 10th Gen Core™ with Intel® Q470E
- ▶ 4 DDR4 DIMM up to 128GB
- ▶ Multiple expansion: 1 PCIe x16, 1 PCIe x4, 2 PCI, M.2 M & E key
- ▶ 3 independent displays: VGA, DP++, HDMI
- ▶ Rich I/O: 2 GbE, 6 COM, 2 USB 3.2, 2 USB 3.2 Gen1, 2 USB 2.0
- ▶ 15-Year CPU Life Cycle Support until Q2 '34 (Based on Intel IOTG Roadmap)



Above picture shows optional extra USBs

TECHNICAL INFORMATION

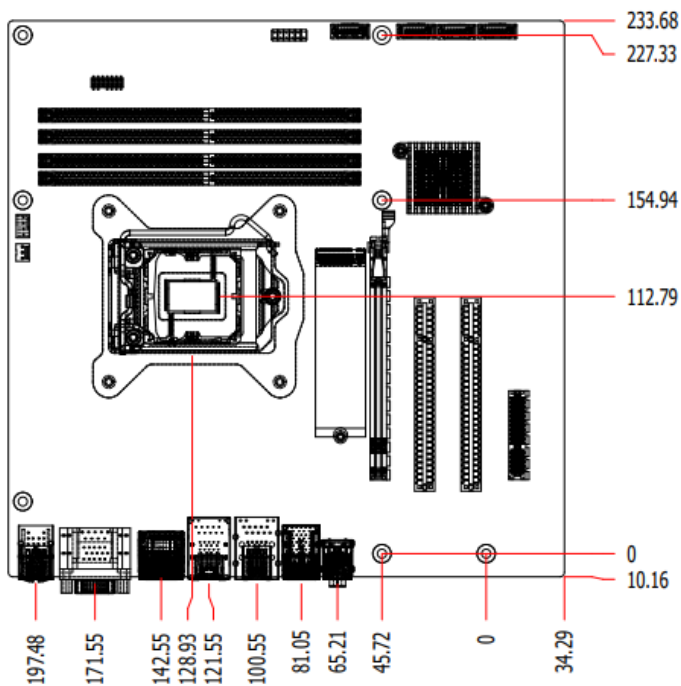
SYSTEM	PROCESSOR	10th Generation Intel® LGA 1200 Socket Processors, TDP support up to 125W Intel® Core™ i9-10900E (10 Cores, 20M Cache, up to 4.7 GHz); 65W Intel® Core™ i9-10900TE (10 Cores, 20M Cache, up to 4.5 GHz); 35W Intel® Core™ i7-10700E (8 Cores, 16M Cache, up to 4.5 GHz); 65W Intel® Core™ i7-10700TE (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 Non-ECC UDIMM up to 128GB Dual Channel DDR4 2400/2666/2933MHz
	BIOS	AMI 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 1 x DP++ 1 x HDMI 1.4b VGA: resolution up to 1920x1200 @ 60Hz DP++: resolution up to 4096x2160 @ 60Hz HDMI: resolution up to 4096x2160 @ 24Hz
	TRIPLE DISPLAYS	VGA + DP++ + HDMI

► TECHNICAL INFORMATION (CONTINUED)

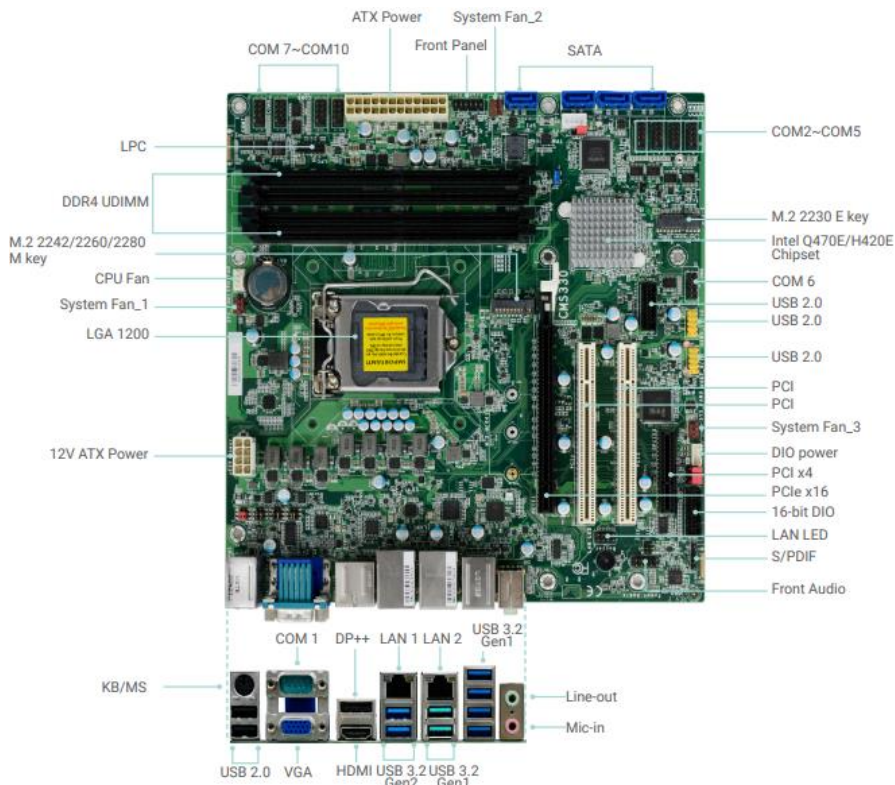
EXPANSION	INTERFACE	1 x PCIe x16 (Gen 3) 1 x PCIe x4 (Gen 3) 2 x PCI 1 x M.2 2242/2260/2280 M key (PCIe Gen3 x4 NVMe/SATA/Intel® Optane Memory and intel RST support) 1 x M.2 2230 E key (USB 2.0/PCIe)
AUDIO	AUDIO CODEC	Realtek ALC888
ETHERNET	CONTROLLER	1 x Intel® I211AT PCIe (10/100/1000Mbps) 1 x Intel® I219LM PHY with iAMT12.0 (10/100/1000Mbps) (Core i9/i7/i5 supports iAMT)
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 Gen2 2 x USB 3.2 Gen1 (Up to 6 x USB 3.2 Gen1, MOQ required) 2 x USB 2.0
	PS/2	1 x PS/2 (mini-DIN-6)
	DISPLAY	1 x VGA 1 x DP++ 1 x HDMI
	AUDIO	1 x Line-out 1 x Mic-in 1 x Line-in (opt., MOQ required)
INTERNAL I/O	SERIAL	5 x RS-232 (2.54mm pitch) (Up to 9 x RS-232, MOQ required)
	USB	2 x USB 3.2 Gen 1 4 x USB 2.0 (2.54mm pitch, Colay vertical Type A, opt.: MOQ required)
	AUDIO	1 x Front Audio Header 1 x S/PDIF
	SATA	4 x SATA 3.0 (up to 6Gb/s, SATA 3) 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 @ 0.36A (1.19W); 5V @ 1.02A (5.1W); 12V @ 3.8A (45.6W) Max.: i9-10900K: 3.3V @ 0.38A (1.25W); 5V @ 1.82A (9.1W); 12V @ 15.64A (187.68W)
	RTC BATTERY	CR2032 Coin Cell
OS SUPPORT		Windows 10 Pro 64-bit Windows 10 IoT Enterprise 64-bit Linux
ENVIRONMENT	TEMPERATURE	Operating: -5 to 65°C Storage: -30 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	504,615 hrs @ 25°C; 283,232 hrs @ 45°C ; 176,865 hrs @ 60°C ; 128,658 hrs @ 70°C Calculation Model: Telcordia Issue 4 Environment: GB, GC - Ground Benign, Controlled
MECHANICAL	DIMENSIONS	microATX Form Factor 244mm (9.6") x 244mm (9.6")
	HEIGHT	PCB: 1.6mm; Top Side: 33mm; Bottom Side: 3mm
CERTIFICATIONS		CE, FCC Class B, UKCA

MBU4199

MECHANICAL DRAWING



MOTHERBOARD LAYOUT



Company Address

Kontron UK Limited
 Units 3, 4, 5, 9 & 10 New Bury Park
 Marsh Lane, Easthampnett, UK
 TEL: +44 (0) 1243 380780
 uksales@kontron.com
www.industrial-computers.com

BLOCK DIAGRAM

