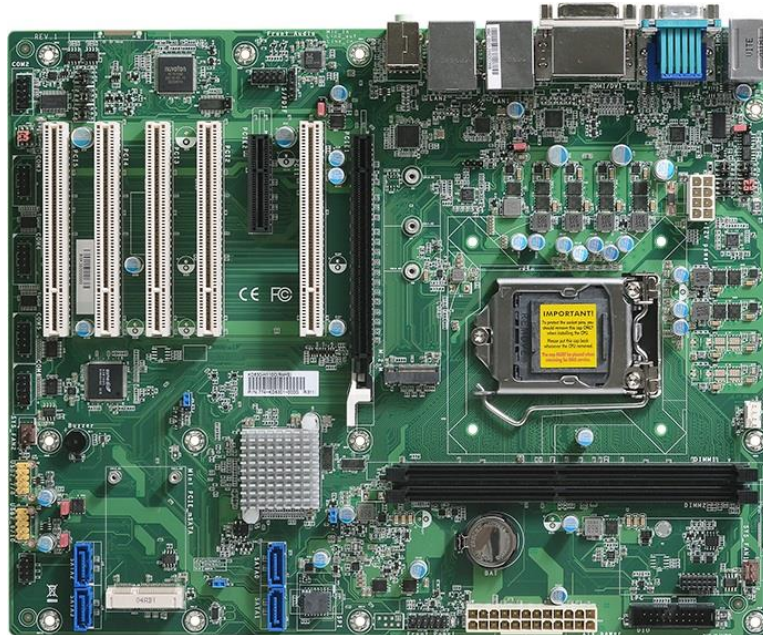


MBU4193

Industrial Motherboard Series



MBU4193

PRODUCT HIGHLIGHTS

- ▶ Intel 6th/7th Gen Intel® Core™ with Intel® H110
- ▶ 2 DDR4 UDIMM up to 64GB
- ▶ Multiple expansion: 1 PCIe x16, 1 PCIe x4, 5 PCI, 1 M.2
- ▶ 2 independent displays: VGA+DVI-I / VGA+HDMI / DVI-I+HDMI
- ▶ Rich I/O: 2 Intel GbE, 6 COM, 4 USB 3.1, 6 USB 2.0
- ▶ 15-Year CPU Life Cycle Support Until Q1 '32 (Based on Intel IOTG Roadmap)



TECHNICAL INFORMATION

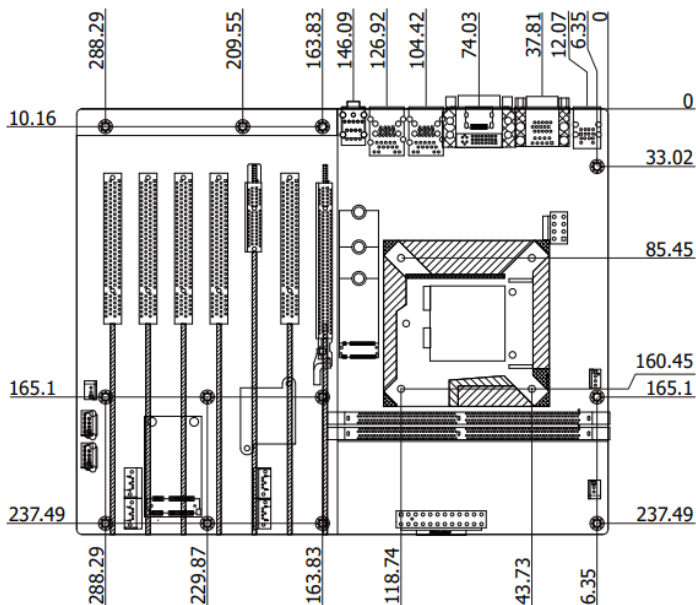
SYSTEM	PROCESSOR	6th Gen Intel® Core™/Pentium®/Celeron® LGA 1151 Processors TDP up to 95W: Intel® Core™ i7-6700K (Cores, 8M Cache, up to 4.2 GHz); 91W (Non-LTS) Intel® Core™ i7-6700 (4 Cores, 8M Cache, up to 4.0 GHz); 65W Intel® Core™ i7-6700TE (4 Cores, 8M Cache, up to 3.4 GHz); 35W Intel® Core™ i5-6500 (4 Cores, 6M Cache, up to 3.6 GHz); 65W Intel® Core™ i5-6500TE (4 Cores, 6M Cache, up to 3.3 GHz); 35W Intel® Core™ i3-6101E (2 Cores, 4M Cache, 3.7 GHz); 65W Intel® Core™ i3-6101TE (2 Cores, 4M Cache, to 2.7 GHz); 35W Intel® Pentium® G4400 (2 Cores, 3M Cache, 3.3 GHz); 65W Intel® Pentium® G400TE (2 Cores, 3M Cache, 2.9 GHz); 35W Intel® Celeron® G3900 (2 Cores, 2M Cache, 2.8 GHz); 65W Intel® Celeron® G3900TE (2 Cores, 2M Cache, 2.6 GHz); 35W 7th Gen Intel® Core™/Pentium®/Celeron® LGA 1151 Processors TDP up to 95W: Intel® Core™ i7-7700K (4 Cores, 8M Cache, up to 4.5 GHz); 91W (Non-LTS) Intel® Core™ i7-7700 (4 Cores, 8M Cache, up to 4.2 GHz); 65W Intel® Core™ i7-7700T (4 Cores, 8M Cache, up to 3.8 GHz); 35W Intel® Core™ i5-7500 (4 Cores, 6M Cache, up to 3.8 GHz); 65W Intel® Core™ i5-7500T (4 Cores, 6M Cache, up to 3.3 GHz); 35W Intel® Core™ i3-7101E (2 Cores, 3M Cache, 3.9 GHz); 65W Intel® Core™ i3-7101TE (2 Cores, 3M Cache, to 3.4 GHz); 35W
	CHIPSET	Intel® H110 Chipset
	MEMORY	Two 288-pin UDIMM up to 32GB Dual Channel DDR4 2666MHz
	BIOS	Insyde SPI 128Mbit
	GRAPHICS	Intel® HD Gen 9 Graphics
GRAPHICS	FEATURE	OpenGL 5.0, 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 DVI-I (DVI-D signal) 1 x HDMI1.4b VGA: resolution up to 1920x1200 @ 60Hz DVI-I: resolution up to 1920x1200 @ 60Hz HDMI1.4b: resolution up to 4096x2160 @ 24Hz
	DUAL DISPLAYS	VGA + DVI-I VGA + HDMI DVI-I + HDMI
	EXPANSION	1 x PCIe x16 (Gen 3) 1 x PCIe x4 (Gen 2) 5 x PCI 1 x M.2 2242/2260/2280 M key (PCIe Gen3 x 4 NVMe, share with PCIe x4 slot) 1 x mSATA (Share with SATA connector)
AUDIO	AUDIO CODEC	Realtek ALC888S-VD2-GR
ETHERNET	CONTROLLER	1 x Intel® I211AT PCIe (10/100/1000Mbps) 1 x Intel® I219V PCIe (10/100/1000Mbps)

► TECHNICAL INFORMATION (CONTINUED)

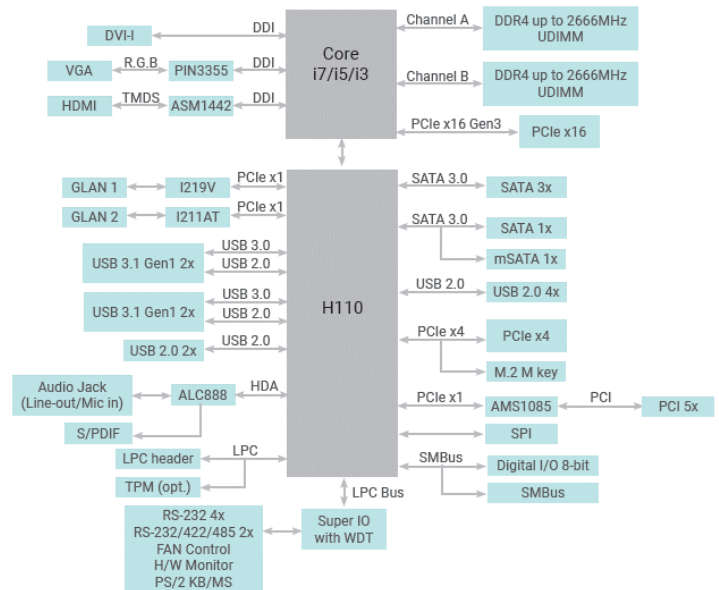
REAR I/O	ETHERNET	2 x GbE (RJ-45)
	SERIAL	1 x RS-232/422/485 (RS-232 w/power (DB-9)
	USB	4 x USB 3.1 Gen 1 2 x USB 2.0
	PS/2	1 x PS/2 (mini-DIN-6)
	DISPLAY	1 x VGA 1 x DVI-I 1 x HDMI
	AUDIO	1 x Line-in (opt., MOQ required) 1 x Line-out 1 x Mic-in
INTERNAL I/O	SERIAL	1 x RS-232/422/485 (RS-232 w/ power) (2.54mm pitch) 4 x RS-232 (2.54mm pitch)
	USB	4 x USB 2.0 (2.54mm pitch) or up to 2 x Vertical USB 2.0 (type A) (opt., MOQ required)
	AUDIO	1 x S/PDIF 1 x Audio
	SATA	4 x SATA 3.0 (up to 6Gb/s)
	DIO	1 x 8-bit DIO
	LPC	1 x LPC
	SMBUS	1 x SMBus
	OUTPUT & INTERVAL	System Reset, Programmable via Software from 1 to 255 Seconds
	SECURITY TPM	Infineon TPM2.0/1.2 (opt., MOQ required)
	TYPE	ATX
	CONNECTOR	8-pin ATX 12V power 24-pin ATX power
	CONSUMPTION	Typical: i7-7700K: 3.3V @ 0.28A (0.924W); 5V @ 0.36A (1.8W); 12V @ 0.17A (2.04W) Max.: i7-7700K: 3.3V @ 0.29A (0.957W); 5V @ 1.22A (6.1W); 12V @ 10.13A (121.56W)
	RTC BATTERY	CR2032 Coin Cell
OS SUPPORT		Windows 7 32/64-bit Window 8.1 64-bit Windows 10 64-bit Linux Note: 7th Gen CPU SKU ONLY support Windows 10 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	537,439 hrs @ 25°C; 306,531 hrs @ 45°C; 192,776 hrs @ 60°C; 164,675 hrs @ 65°C
MECHANICAL	DIMENSIONS	ATX Form Factor 305mm (12") x 244mm (9.6")
	HEIGHT	PCB: 1.6mm Top Side: 38.1mm Bottom Side: 3mm
CERTIFICATIONS		CE, FCC, RoHS

MBU4193

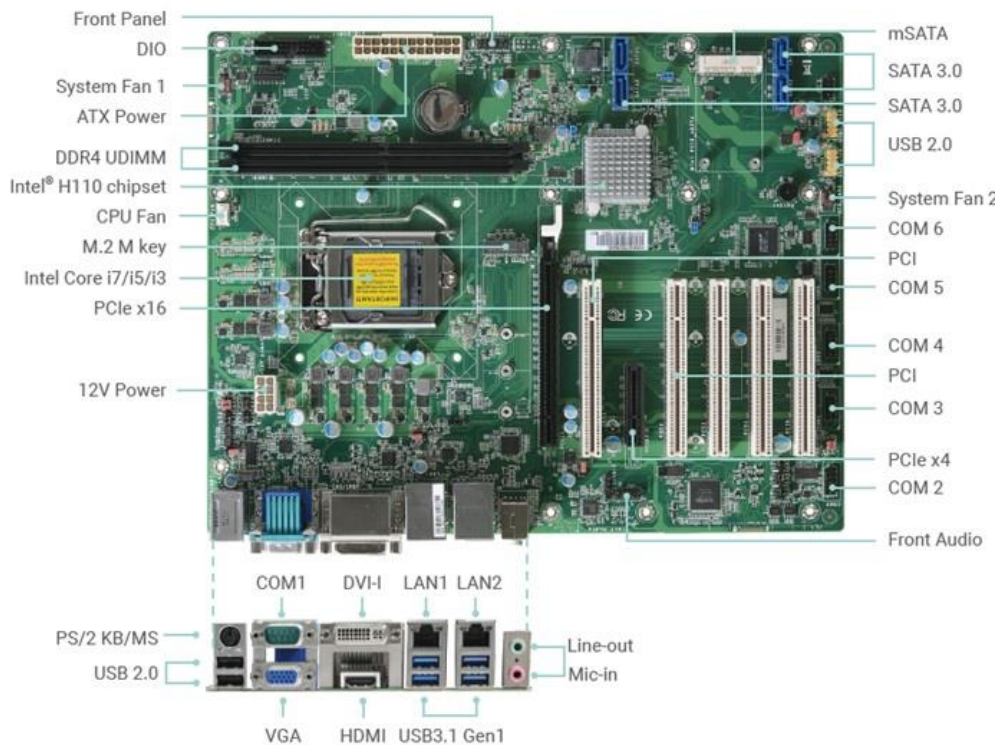
MECHANICAL DRAWING



BLOCK DIAGRAM



MOTHERBOARD LAYOUT



Company Address

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