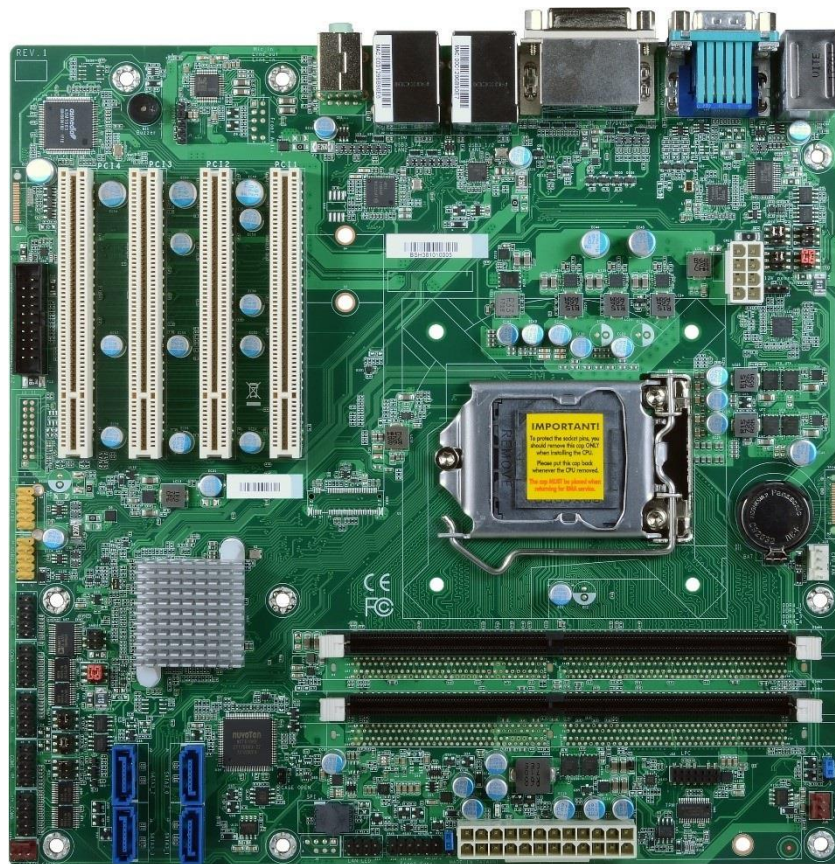


MBU4190

Industrial Motherboard Series



MBU4190

PRODUCT HIGHLIGHTS

- ▶ Intel 6th/7th Gen Intel® Core™ with Intel® H110
- ▶ 2 DDR4 DIMM up to 32GB
- ▶ Multiple expansion: 4 PCI
- ▶ 3 independent displays: VGA+DVI-I+DP++
- ▶ Rich I/O: 2 Intel GbE, 6 COM, 4 USB 3.0, 6 USB 2.0
- ▶ 15-Year CPU Life Cycle Support Until Q1 '32 (Based on Intel IOTG Roadmap)



TECHNICAL INFORMATION

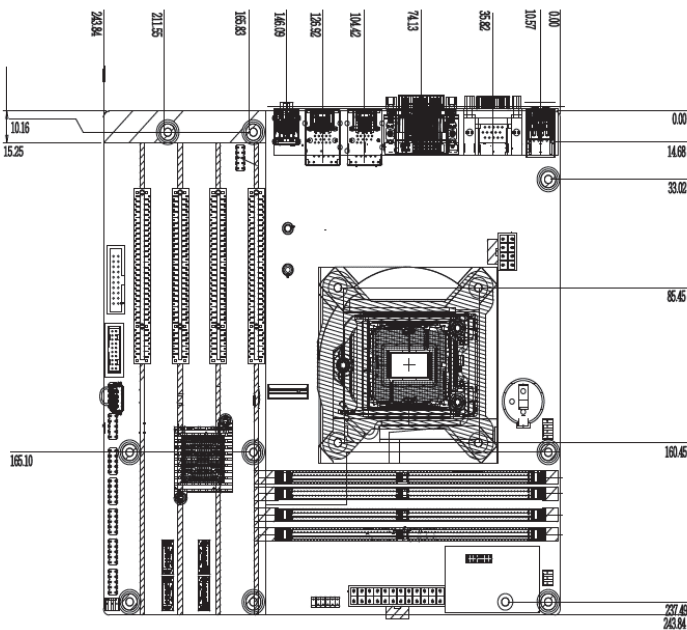
SYSTEM	PROCESSOR	7th Gen Intel® Core™/Pentium®/Celeron® LGA 1151 Processors TDP up to 95W: Intel® Core™ i7-7700K (4 Cores, 8M Cache, up to 4.5 GHz); 91W (Non-LTS) Intel® Core™ i7-7700 (4 Cores, 8M Cache, up to 4.2 GHz); 65W Intel® Core™ i7-7700T (4 Cores, 8M Cache, up to 3.8 GHz); 35W Intel® Core™ i5-7500 (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 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
	CHIPSET	Intel® H110 Chipset
	MEMORY	Two 288-pin DIMM up to 64GB Dual Channel DDR4 2133/2400MHz
	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 DP++ VGA: resolution up to 1920x1200 @ 60Hz DVI-D: resolution up to 1920x1200 @ 60Hz DP++: resolution up to 4096x2160 @ 60Hz
	TRIPLE DISPLAYS	VGA + DVI-D + DP++
	EXPANSION	4 x PCI
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)

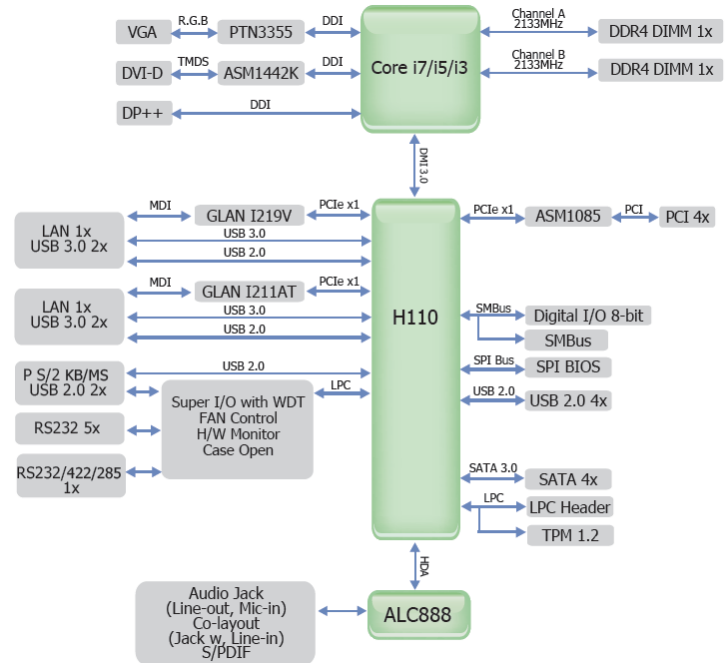
REAR I/O	ETHERNET	2 x GbE (RJ-45)
	SERIAL	1 x RS-232/422/485 (RS-232 w/power (DB-9)
	USB	4 x USB 3.0 2 x USB 2.0
	PS/2	1 x PS/2 (mini-DIN-6)
	DISPLAY	1 x VGA 1 x DVI-I (DVI-D signal) 1 x DP++
	AUDIO	1 x Line-out 1 x Mic-in 1 x Line-in (opt., MOQ required)
INTERNAL I/O	SERIAL	1 x RS-232/422/485 (RS-232 w/ power) (2.54mm pitch) 4 x RS-232 (default), 4 x RS-232 (available upon request – MOQ required)
	USB	4 x USB 2.0 (2.54mm pitch)
	AUDIO	1 x S/PDIF
	SATA	4 x SATA 3.0
	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 (opt., MOQ required)
	TYPE	ATX
	CONNECTOR	8-pin ATX 12V power 24-pin ATX power
	CONSUMPTION	Typical: i7-7700: 3.3V @ 0.35A (1.155Watt); 5V @ 0.71A (3.55Watt); 12V @ 0.6A (7.2Watt) Max.: i7-7700: 3.3V @ 0.36A (1.188Watt); 5V @ 1.07A (5.35Watt); 12V @ 7.06A (84.72Watt)
	RTC BATTERY	CR2032 Coin Cell
OS SUPPORT		Windows 7 32/64-bit Window 8.1 64-bit Windows 10 Pro 64-bit Linux Note: 7th Gen CPU SKU ONLY support Windows 10 64-bit & Linux
ENVIRONMENT	TEMPERATURE	Operating: 0 to 60°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	527,696 hrs @ 25°C; 296,924 hrs @ 45°C ; 184,794 hrs @ 60°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: 38.5mm Bottom Side: 4.4mm
CERTIFICATIONS		CE, FCC, RoHS

MBU4190

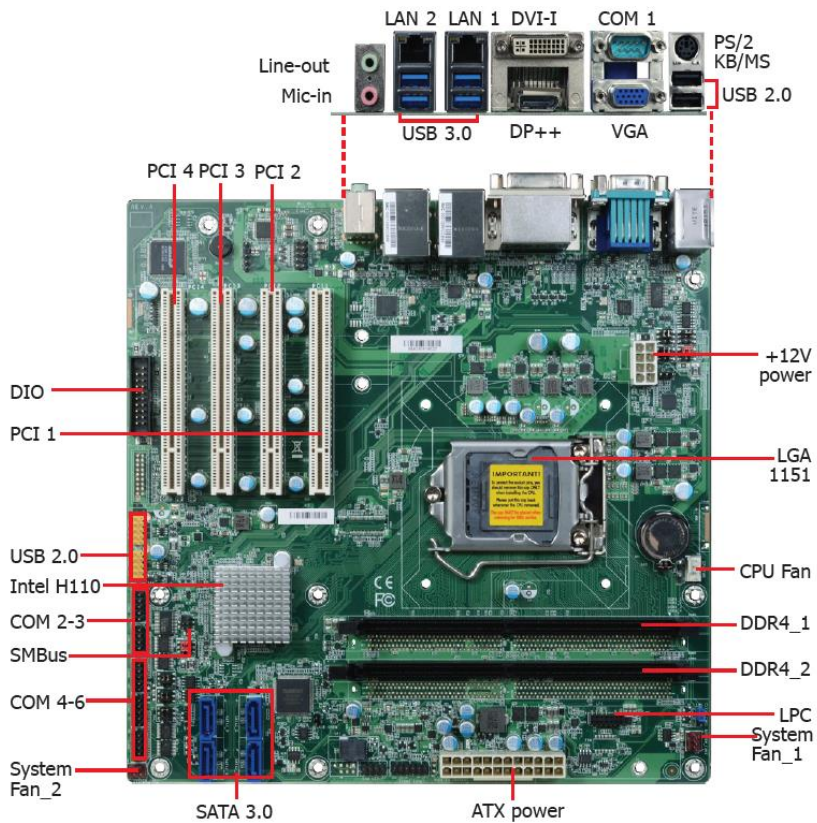
MECHANICAL DRAWING



BLOCK DIAGRAM



MOTHERBOARD LAYOUT



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