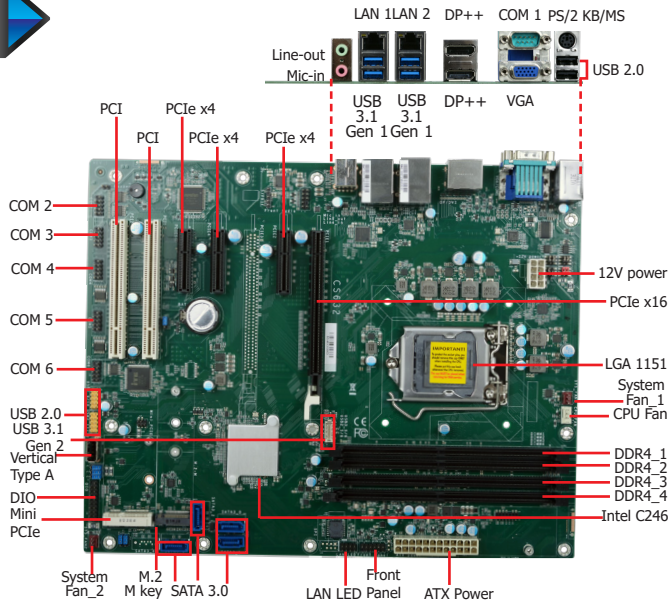


CS632-C246

Workstation

C246

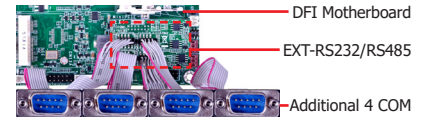


Features

- 4 DDR4 DIMM up to 128GB (ECC/non ECC)
- 3 independent displays: VGA + DP++ + DP++
- DP++ resolution up to 4096x2160 @ 60Hz
- Multiple expansion: 1 PCIe x16 (x8/x8 signals as opt.), 3 PCIe x4, 2 PCI, 1 Mini PCIe, 1 M.2 M key, 1 SMBus, 1 LPC
- Rich I/O: 2 Intel GbE, 6 COM, 2 USB 3.1 Gen 2, 4 USB 3.1 Gen 1, 7 USB 2.0



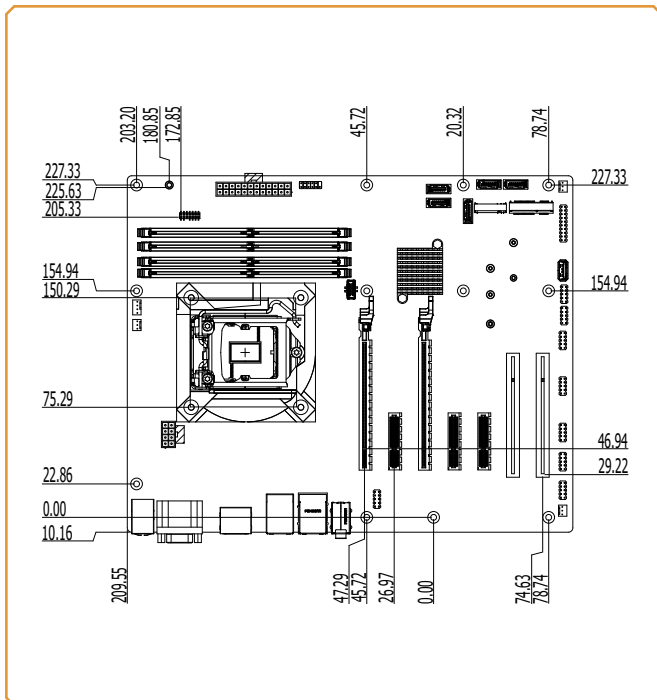
2 Extension Modules for Additional 4 COM Ports (via the LPC connector)



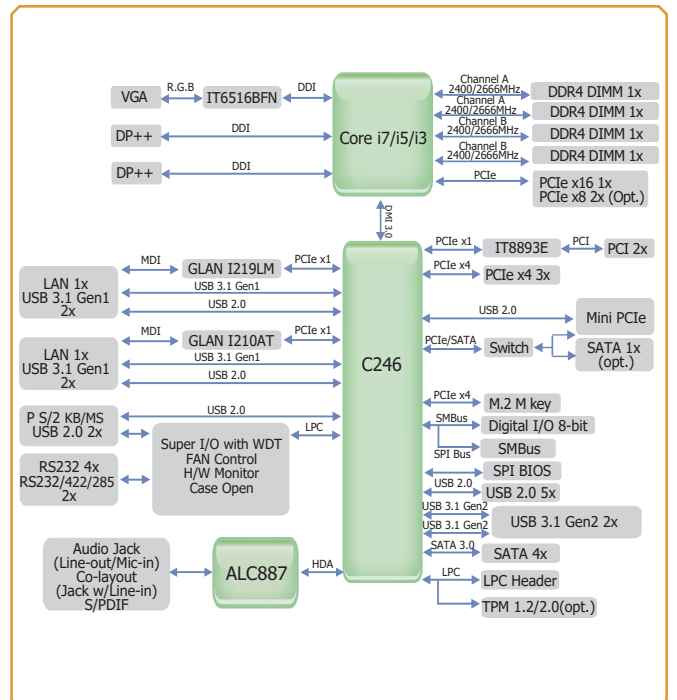
Ordering Information

| Model Name | P/N | Memory | GbE | RS-232/422/485 | RS-232 | USB3.1 Gen 2 | USB3.1 Gen 1 | USB 2.0 | TPM 2.0 | PCIe x16 slot | Power | Thermal | Temp. |
|---------------|-----------------|--------|-----|----------------|--------|--------------|--------------|---------|---------|---------------|------------|---------|-----------|
| CS632-C246CRM | 770-CS6322-000G | 4 DIMM | 2 | 2 | 4 | 2 | 4 | 7 | 0 | 1 | 24-pin ATX | Active | 0 to 60°C |
| CS632-C246CRM | 770-CS6322-200G | 4 DIMM | 2 | 2 | 4 | 2 | 4 | 7 | 1 | 1 | 24-pin ATX | Active | 0 to 60°C |
| CS632-C246CRM | 770-CS6322-400G | 4 DIMM | 2 | 2 | 4 | 2 | 4 | 7 | 0 | 2 | 24-pin ATX | Active | 0 to 60°C |

Mechanical Drawing



Block Diagram



Specifications

| | | | |
|-----------------------|--|---|--|
| SYSTEM | Processor | 8th Generation Intel® Core™ /Pentium®/Celeron® LGA 1151 Socket Processors: Intel® Xeon® E-2176G (6 Cores, 12M Cache, up to 4.7 GHz); 80W Intel® Xeon® E-2124G (4 Cores, 8M Cache, up to 4.5 GHz); 71W Intel® Core™ i7-8700 (6 Cores, 12M Cache, up to 4.6 GHz); 65W Intel® Core™ i7-8700T (6 Cores, 12M Cache, up to 4.0 GHz); 65W Intel® Core™ i5-8500 (6 Cores, 9M Cache, up to 4.1 GHz); 65W Intel® Core™ i5-8500T (6 Cores, 9M Cache, up to 3.5 GHz); 35W Intel® Core™ i3-8100 (4 Cores, 6M Cache, 3.6 GHz); 65W Intel® Core™ i3-8100T (4 Cores, 6M Cache, to 3.1 GHz); 35W Intel® Pentium® G5400 (2 Cores, 4M Cache, 3.7 GHz); 58W Intel® Pentium® G5400T (2 Cores, 4M Cache, 3.1 GHz); 35W Intel® Celeron® G4900 (2 Cores, 2M Cache, 3.1 GHz); 54W Intel® Celeron® G4900T (2 Cores, 2M Cache, 2.9 GHz); 35W | 9th Generation Intel® Core™ LGA 1151 Socket Processors: Intel® Xeon® E-2278GEL (8 Cores, 16M Cache, up to 3.9 GHz); 35W Intel® Xeon® E-2226GE (6 Cores, 12M Cache, up to 4.6 GHz); 80W Intel® Core™ i7-9700TE (8 Cores, 12M Cache, up to 3.8 GHz); 35W Intel® Core™ i5-9500E (6 Cores, 9M Cache, up to 4.2 GHz); 65W Intel® Core™ i5-9500TE (6 Cores, 9M Cache, up to 3.6 GHz); 35W Intel® Core™ i3-9100E (4 Cores, 6M Cache, 3.7 GHz); 65W Intel® Core™ i3-9100TE (4 Cores, 6M Cache, to 3.2 GHz); 35W |
| | Chipset | Intel® C246 Chipset | |
| | Memory | Four 288-pin ECC DIMM up to 128GB (Core™ i5/i7 only support non-ECC) | Dual Channel DDR4 2400/2666MHz |
| | BIOS | SPI 128Mbit | |
| | GRAPHICS | Controller Intel® HD Gen 9 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 2 x DP++ | VGA: resolution up to 1920x1200 @ 60Hz DP++: resolution up to 4096x2160 @ 60Hz | |
| | Triple Displays VGA + DP++ + DP++ | | |
| EXPANSION | Interface 1 x PCIe x16 (Gen 3) (x8/x8 signals as opt., MOQ required) 3 x PCIe x4 (Gen 3) 2 x PCI 1 x Mini PCIe (PCIe/mSATA, share w/SATA conn. as opt./USB2.0) 1 x M.2 2242/2280 M key (PCIe x4 NVMe, Intel Optane Memory Support) | | |
| AUDIO | Audio Codec Realtek ALC887 (ALC888 as opt.) | | |
| ETHERNET | Controller 1 x Intel® I210AT PCIe (10/100/1000Mbps) 1 x Intel® I219LM PCIe with iAMT12.0 (10/100/1000Mbps) (only Xeon/Core i7/i5 supports iAMT) | | |
| REAR I/O | Ethernet | 2 x GbE (RJ-45) | |
| | USB | 4 x USB 3.1 Gen1 2 x USB 2.0 | |
| | Serial | 1 x RS-232/422/485 (RS-232 w/ power) (DB-9) | |
| | PS/2 | 1 x PS/2 (mini-DIN-6) | |
| | Display | 1 x VGA 2 x DP++ | |
| | 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) | |
| | USB | 2 x USB 3.1 Gen 2 (2.00mm pitch) 5 x USB 2.0 (2.54mm pitch) (4 x Pin Header, 1 x USB 2.0 vertical Type A) | |
| | Audio | 1 x S/PDIF, 1 Front Audio Header | |
| | SATA | 4 x SATA 3.0 RAID 0/1/5/10 | |
| | DIO | 1 x 8-bit DIO | |
| | LPC | 1 x LPC (supports LPC EXT-RS232/RS485 module) | |
| | SMBus | 1 x SMBus | |
| | WATCHDOG TIMER | Output & Interval System Reset, Programmable via Software from 1 to 255 Seconds | |
| SECURITY | TPM Infineon TPM1.2/2.0 (opt., MOQ required) | | |
| POWER | Type | ATX | |
| | Connector | 8-pin ATX 12V power 24-pin ATX power | |
| | Consumption | Typical: i7-8700K: 3.3V @ 0.35A (1.155Watt); 5V @ 0.62A (3.1Watt); 12V @ 0.54A (6.48Watt) Max.: i7-8700K: 3.3V @ 0.35A (1.155Watt); 5V @ 1.35A (6.75Watt); 12V @ 12.3A (147.6Watt) | |
| | RTC Battery | CR2032 Coin Cell | |
| | OS SUPPORT | Windows 10 IoT Enterprise 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 | 582,202 hrs @ 25°C; 332,716 hrs @ 45°C; 207,812 hrs @ 60°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: 38.5mm Bottom Side: 4.4mm | |
| CERTIFICATIONS | CE, FCC Class B, RoHS | | |

Packing List

| | |
|---|-----------------|
| • 1 CS632-C246 motherboard | |
| • 1 Serial ATA data cable (Length: 500mm) | 332-553001-005G |
| • 1 I/O shield | A49-CS6310-000G |
| • 1 M.2 2242/half mini PCIe standoff | A33-725019-090G |
| • 1 M.2 screw | A32-112016-041G |
| • 1 mini PCIe screw | A32-112016-041G |

Optional Items

| | |
|---|-----------------|
| • USB 2.0 port cable (Length: 350mm) | A81-001066-016G |
| • USB 3.1 Gen2 port cable (Length: 300mm) | A81-001075-017G |
| • COM port cable (Length: 300mm, 2 x COM ports) | A81-015026-023G |
| • Serial ATA data cable (Length: 500mm, W/LOCK) | 332-553001-005G |
| • Thermal solution (For 35W, Height: 37.3mm) | A71-101107-000G |
| • Thermal solution (For 65W, Height: 74.47mm) | A71-101158-000G |
| • Thermal solution (For 95W, Height: 77.2mm) | 761-103001-000G |
| • LPC EXT-RS232 module (4 x RS232 ports) | 770-EXTRS1-000G |
| • LPC EXT-RS485 module (4 x RS485 ports) | 770-EXTRS1-100G |
| • DP to HDMI dongle | 612-D2H13M-000G |