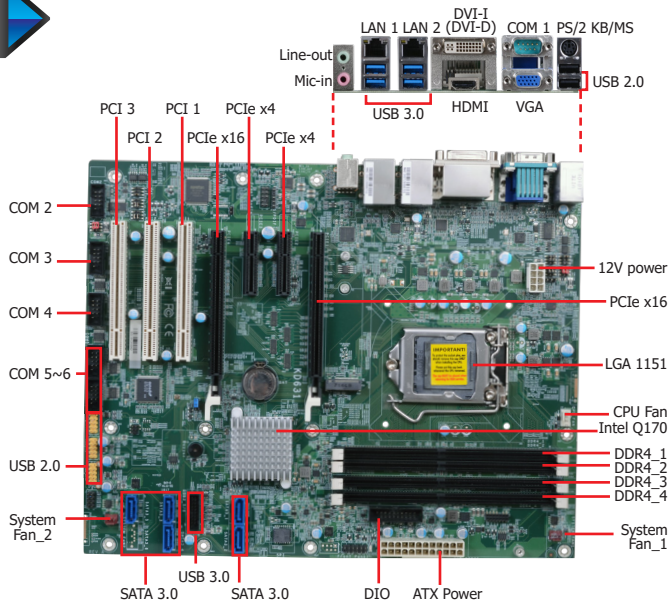




KD631-Q170

Desktop

Q170

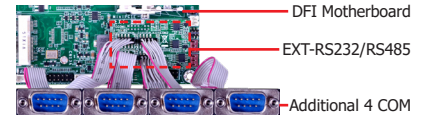


Features

- 4 DDR4 DIMM up to 64GB
- 3 independent displays: VGA + DVI-I (DVI-D signal) + HDMI
- HDMI resolution up to 4096x2160 @ 24Hz
- Multiple expansion: 2 PCIe x16 (1 x16 or 2 x8 signal), 2 PCIe x4, 3 PCI, 1 M.2
- Rich I/O: 2 Intel GbE, 6 COM, 6 USB 3.0, 8 USB 2.0
- LPC EXT-RS232/485 module extends additional 4 COM ports



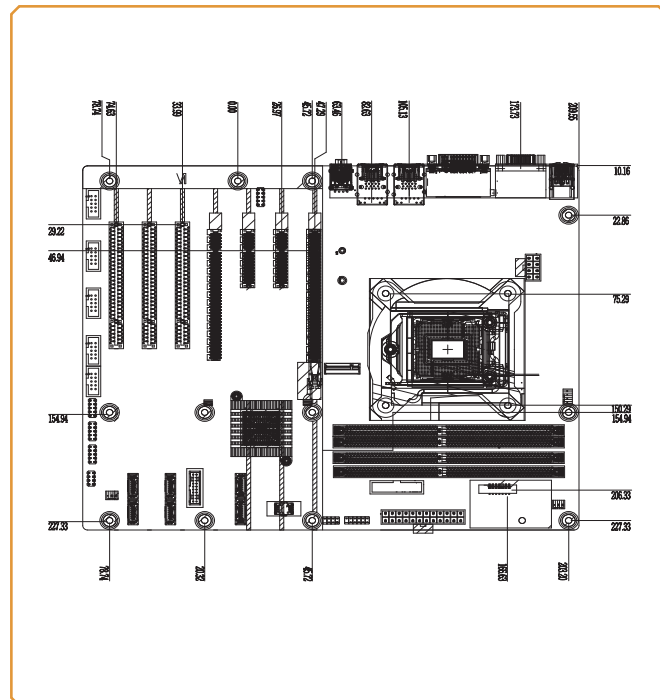
2 Extension Modules for Additional 4 COM Ports (via the LPC connector)



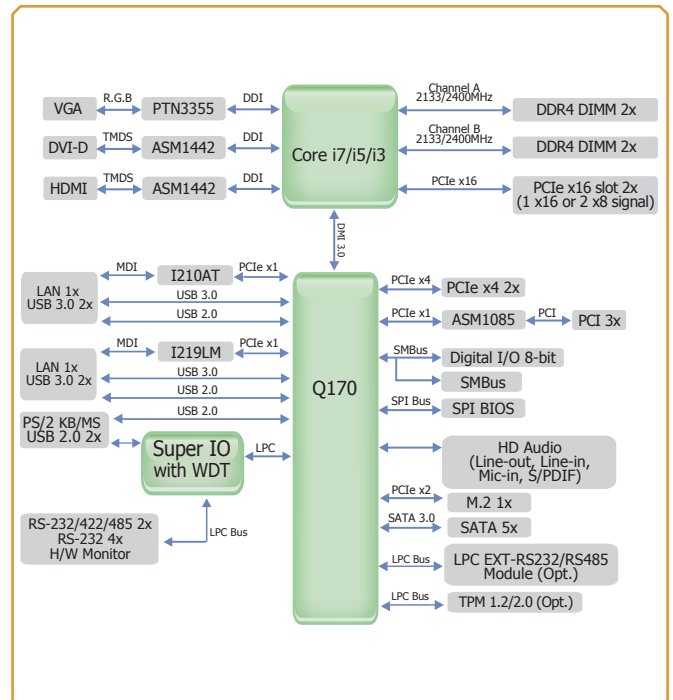
Ordering Information

| Model Name | P/N | Memory | GbE | RS-232/422/485 | RS-232 | USB 3.0 | USB 2.0 | TPM | Power | Thermal | Temp. |
|---------------|-----------------|--------|-----|----------------|--------|---------|---------|---------|------------|---------|-----------|
| KD631-Q170CRM | 770-KD6312-000G | 4 DIMM | 2 | 2 | 4 | 6 | 8 | 0 | 24-pin ATX | Active | 0 to 60°C |
| KD631-Q170CRM | 770-KD6312-200G | 4 DIMM | 2 | 2 | 4 | 6 | 8 | TPM 2.0 | 24-pin ATX | Active | 0 to 60°C |
| KD631-Q170CRM | 770-KD6312-300G | 4 DIMM | 2 | 2 | 4 | 6 | 8 | TPM 1.2 | 24-pin ATX | Active | 0 to 60°C |

Mechanical Drawing



Block Diagram



Specifications

| | | | |
|-----------------------|------------------------|---|--|
| SYSTEM | Processor | 7th Gen Intel® Core™/Pentium®/Celeron® LGA 1151 Socket Processors with TDP up to 95W: 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 Socket Processors with TDP up to 95W: 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® Q170 Chipset | |
| | Memory | Four 288-pin DIMM up to 64GB (Non-ECC Support) | Dual Channel DDR4 2133/2400MHz |
| | BIOS | Insyde 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 1 x DVI-I (DVI-D signal) 1 x HDMI | VGA: resolution up to 1920x1200 @ 60Hz DVI-D: resolution up to 1920x1200 @ 60Hz HDMI: resolution up to 4096x2160 @ 24Hz |
| | Triple Displays | VGA + DVI-I (DVI-D signal) + HDMI | |
| EXPANSION | Interface | 2 x PCIe x16 (1 x16 or 2 x8 signal) (Gen 3) 2 x PCIe x4 (Gen 3) | 3 x PCI 1 x M.2 2260/2280 M key (SATA3.0/PCIe Gen3 x2 NVMe) |
| | Audio Codec | Realtek ALC888S-VD2-GR | |
| AUDIO | Controller | 1 x Intel® I210AT PCIe (10/100/1000Mbps) 1 x Intel® I219LM PCIe with iAMT11.0 (10/100/1000Mbps) (only Core i7/i5 supports iAMT) | |
| REAR I/O | Ethernet | 2 x GbE (RJ-45) | |
| | USB | 4 x USB 3.0 | 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 1 x DVI-I (DVI-D signal) | 1 x HDMI |
| | Audio | 1 x Line-out, 1 x Mic-in, 1 x Line-in (opt. by request, 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 3.0 (2.00mm pitch) 6 x USB 2.0 (2.54mm pitch) or 4 x USB 2.0 (2.54mm pitch) + 1 x Vertical USB 2.0 type A (available upon request) | |
| | Audio | 1 x Front Audio Header | 1 x S/PDIF |
| | SATA | 5 x SATA 3.0 (up to 6Gb/s) | 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 TPM2.0/1.2 (optional) | |
| POWER | Type | ATX | |
| | Connector | 8-pin ATX 12V power | 24-pin ATX power |
| | Consumption | Typical: i7-7700: 3.3V @ 0.3422A (1.129Watt); 5V @ 0.5672A (2.836Watt); 12V @ 0.7255A (8.706Watt) Max.: i7-7700: 3.3V @ 0.3254A (1.0738Watt); 5V @ 0.5636A (2.818Watt); 12V @ 10.583A (126.996Watt) | |
| | 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: 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 | 378,982 hrs @ 25°C; 218,492 hrs @ 45°C; 139,687 hrs @ 60°C Calculation model: Telcordia Issue 2 Environment: GB, GC – Ground Benign, Controlled | |
| MECHANICAL | Dimensions | ATX Form Factor | 305mm (12") x 244mm (9.6") |
| | Height | PCB: 1.6mm | Top Side: 31.47mm, Bottom Side: 4.4mm |
| CERTIFICATIONS | CE, FCC, RoHS | | |

Packing List

| | |
|--|-----------------|
| • 1 KD631-Q170 motherboard | |
| • 1 COM port cables (Length: 400mm, 2 x COM ports) | A81-015012-001G |
| • 1 Serial ATA data cable (Length: 500mm) | 332-553001-005G |
| • 1 I/O shield | A49-KD6310-000G |
| • 1 M.2 standoff | A33-725019-090G |
| • 1 M.2 screw for 2260 | A32-112016-041G |
| • 1 M.2 screw for 2280 | A32-112016-041G |

Optional Items

| | |
|---|-----------------|
| • USB 2.0 port cable (Length: 350mm) | A81-001066-016G |
| • USB 3.0 port cable (Length: 320mm) | A81-001052-023G |
| • COM port cable (Length: 400mm, 2 x COM ports) | A81-015012-001G |
| • Serial ATA data cable (Length: 500mm, W/LOCK) | 332-553001-005G |
| • Thermal solution (For 35W, Height: 37.3mm) | A71-103004-000G |
| • 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 |