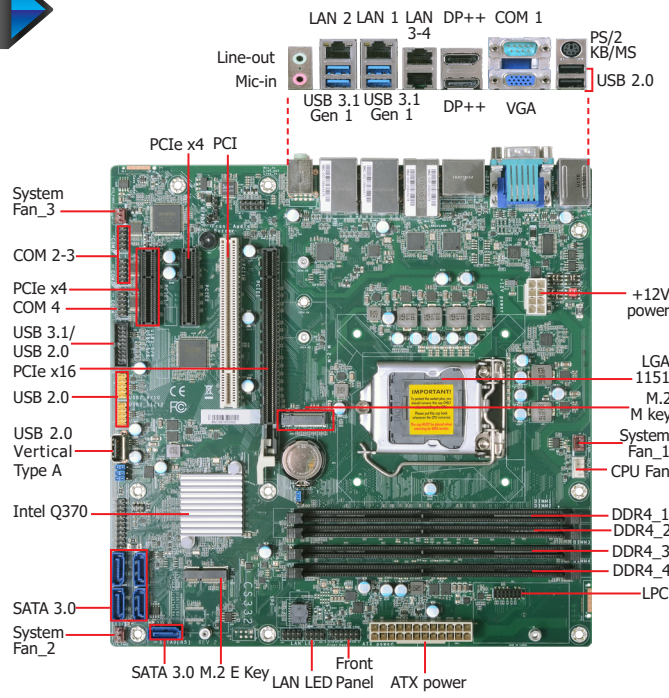


## CS332-Q370

Desktop

Q370

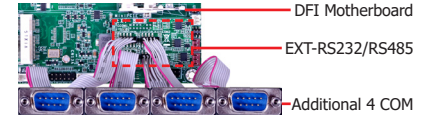


### Features

- 4 DDR4 DIMM up to 128GB
- Dual display ports: VGA + DP++ + DP++ Supports triple independent displays
- DP++ resolution up to 4096x2160 @ 60Hz  
VGA resolution up to 1920x1200 @ 60Hz
- Multiple expansion: 1 PCIe x16, 2 PCIe x4, 1 PCI, 1 M.2 M key (support Optane Memory), 1 x M.2 E key
- Rich I/O: Up to 4 GbE (2 default), 4 COM, 6 USB 3.1 Gen 1, 7 USB 2.0



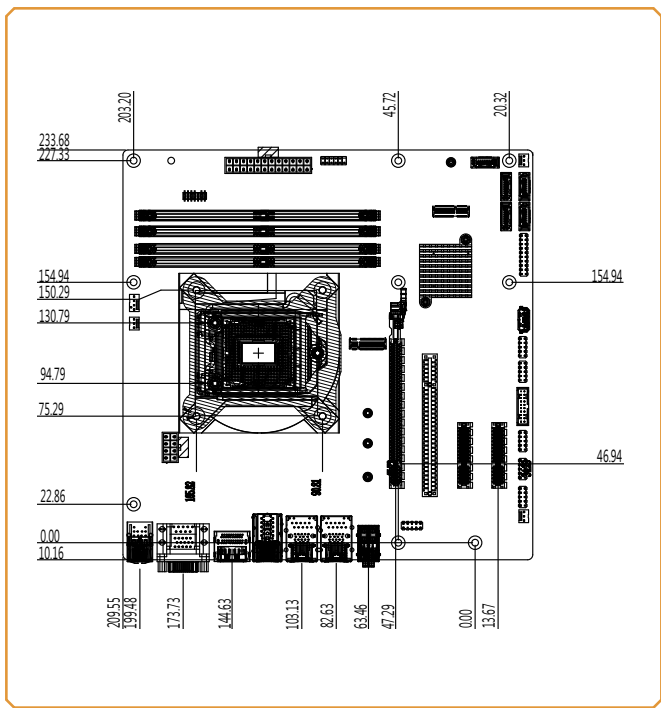
2 Extension Modules for Additional 4 COM Ports (via the LPC connector)



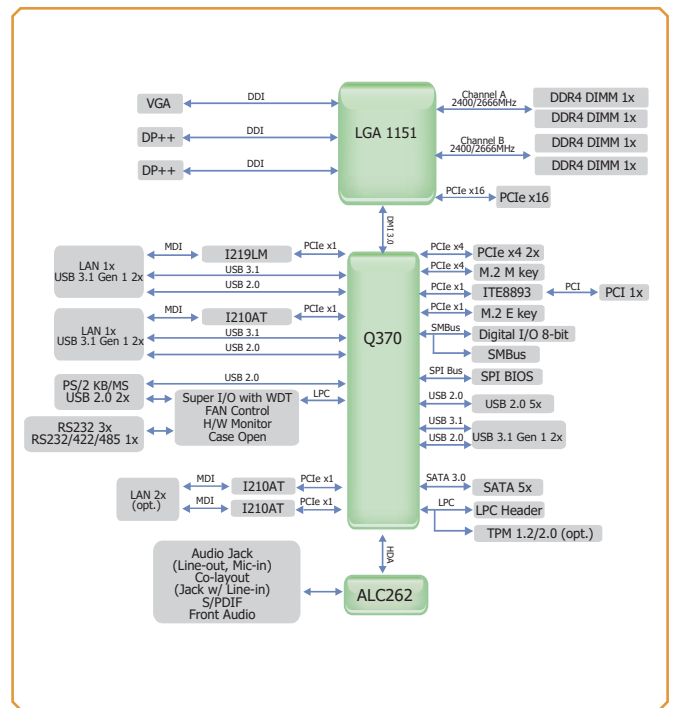
### Ordering Information

| Model Name | P/N             | Memory | GbE | RS-232/422/485 | RS-232 | USB 3.1 Gen 1 | USB 2.0 | TPM 2.0 | Power | Thermal | Temp.     |
|------------|-----------------|--------|-----|----------------|--------|---------------|---------|---------|-------|---------|-----------|
| CS332-Q370 | 770-CS3321-100G | 4 DIMM | 2   | 1              | 3      | 6             | 7       | 0       | ATX   | Active  | 0 to 60°C |
| CS332-Q370 | 770-CS3321-200G | 4 DIMM | 4   | 1              | 3      | 6             | 7       | 0       | ATX   | Active  | 0 to 60°C |
| CS332-Q370 | 770-CS3321-500G | 4 DIMM | 2   | 1              | 3      | 6             | 7       | 1       | ATX   | Active  | 0 to 60°C |

### Mechanical Drawing



### Block Diagram



## Specifications

|                       |                              |   |  |
|-----------------------|------------------------------|---|--|
| <b>SYSTEM</b>         | <b>Processor</b>             | 8th Gen Intel® Core™ /Pentium®/Celeron® LGA 1151 Socket Processors:<br>Intel® Core™ i7-8700 (6 Cores, 12M Cache, up to 4.6 GHz); 65W<br>Intel® Core™ i7-8700T (6 Cores, 12M Cache, up to 4.0 GHz); 35W<br>Intel® Core™ i5-8500 (6 Cores, 9M Cache, up to 4.1 GHz); 65W<br>Intel® Core™ i5-8500T (6 Cores, 9M Cache, up to 3.5 GHz); 35W<br>Intel® Core™ i3-8100 (4 Cores, 6M Cache, 3.6 GHz); 65W<br>Intel® Core™ i3-8100T (4 Cores, 6M Cache, to 3.1 GHz); 35W<br>Intel® Pentium® G5400 (2 Cores, 4M Cache, 3.7 GHz); 58W<br>Intel® Pentium® G5400T (2 Cores, 4M Cache, 3.1 GHz); 35W<br>Intel® Celeron® G4900 (2 Cores, 2M Cache, 3.1 GHz); 54W<br>Intel® Celeron® G4900T (2 Cores, 2M Cache, 2.9 GHz); 35W | 9th Gen Intel® Core™ LGA 1151 Socket Processors:<br>Intel® Core™ i7-9700TE (8 Cores, 12M Cache, up to 3.8 GHz); 35W<br>Intel® Core™ i5-9500E (6 Cores, 9M Cache, up to 4.2 GHz); 65W<br>Intel® Core™ i5-9500TE (6 Cores, 9M Cache, up to 3.6 GHz); 35W<br>Intel® Core™ i3-9100E (4 Cores, 6M Cache, 3.7 GHz); 65W<br>Intel® Core™ i3-9100TE (4 Cores, 6M Cache, to 3.2 GHz); 35W |
|                       | <b>Chipset</b>               | Intel® Q370 Chipset   |  |
|                       | <b>Memory</b>                | Four 288-pin DIMM up to 128GB   | Dual Channel DDR4 2400/2666 MHz (non ECC support)  |
|                       | <b>BIOS</b>                  | AMI SPI 128Mbit   |  |
|                       | <b>GRAPHICS</b>              | <b>Controller</b>   | Intel® HD Gen 9 Graphics   |
|                       | <b>Feature</b>               | OpenGL 5.0, DirectX 12, OpenCL 2.1<br>HW Decode: AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9<br>HW Encode: MPEG2, AVC/H264, JPEG, HEVC/H265, VP8, VP9   |  |
|                       | <b>Display</b>               | 1 x VGA<br>2 x DP++   | VGA: resolution up to 1920x1200 @ 60Hz<br>DP++: resolution up to 4096x2106 @ 60Hz  |
|                       | <b>Triple Displays</b>       | VGA + DP++ + DP++   |  |
| <b>EXPANSION</b>      | <b>Interface</b>             | 1 x PCIe x16 (Gen 3)<br>2 x PCIe x4 (Gen 3)<br>1 x PCI<br>1 x M.2 2242/2280 M key (PCIe Gen3 x 4 NVMe/Intel Optane Memory Support)<br>1 x M.2 2230 E key (PCIe x1/USB2.0)   |  |
| <b>AUDIO</b>          | <b>Audio Codec</b>           | Realtek ALC262-VC2  |  |
| <b>ETHERNET</b>       | <b>Controller</b>            | 1 x Intel® i219LM PCIe (10/100/1000Mbps) (only Core i7/i5 support iAMT)<br>1 x Intel® i210AT PCIe (10/100/1000Mbps)<br>2 x Intel® i210AT PCIe (10/100/1000Mbps) (opt. by request, MOQ required)   |  |
| <b>REAR I/O</b>       | <b>Ethernet</b>              | 2 x GbE (RJ-45), 4 x GbE (RJ-45) (opt. by request, MOQ required)  |  |
|                       | <b>USB</b>                   | 4 x USB 3.1 Gen 1   | 2 x USB 2.0  |
|                       | <b>Serial</b>                | 1 x RS-232/422/485 (RS-232 w/ power) (DB-9)   |  |
|                       | <b>PS/2</b>                  | 1 x PS/2 (mini-DIN-6)   |  |
|                       | <b>Display</b>               | 1 x VGA   | 2 x DP++   |
|                       | <b>Audio</b>                 | 1 x Line-out<br>1 x Line-in (colay, opt. by request, MOQ required)  | 1 x Mic-in   |
| <b>INTERNAL I/O</b>   | <b>Serial</b>                | 3 x RS-232  |  |
|                       | <b>USB</b>                   | 2 x USB 3.1 Gen 1<br>4 x USB 2.0 (2.54mm pitch) ,1 x USB 2.0 vertical Type A  |  |
|                       | <b>Audio</b>                 | 1 x S/PDIF, 1 x Front Audio Header  |  |
|                       | <b>SATA</b>                  | 5 x SATA 3.0 (up to 6Gb/s) RAID 0/1/5/10  |  |
|                       | <b>DIO</b>                   | 1 x 8-bit DIO   |  |
|                       | <b>LPC</b>                   | 1 x LPC (support LPC EXT-RS-232/485 module)   |  |
|                       | <b>SMBus</b>                 | 1 x SMBus   |  |
| <b>WATCHDOG TIMER</b> | <b>Output &amp; Interval</b> | System Reset, Programmable via Software from 1 to 255 sec/min   |  |
| <b>SECURITY</b>       | <b>TPM</b>                   | Infineon TPM 1.2/2.0 (Available Upon Request, MOQ required)   |  |
| <b>POWER</b>          | <b>Type</b>                  | ATX   |  |
|                       | <b>Connector</b>             | 8-pin ATX 12V power   | 24-pin ATX power   |
|                       | <b>Consumption</b>           | Typical: i7-8700K: 3.3V @ 0.44A (1.452Watt); 5V @ 0.62A (3.1Watt); 12V @ 0.49A (5.88Watt)<br>Max.: i7-8700K:3.3V @ 0.51A (1.683Watt); 5V @ 1.4A (7.0Watt); 12V @ 10.44A (128.25Watt)  |  |
|                       | <b>RTC Battery</b>           | CR2032 Coin Cell  |  |
| <b>OS SUPPORT</b>     |                              | Windows 10 IoT Enterprise 64-bit  | Linux  |
| <b>ENVIRONMENT</b>    | <b>Temperature</b>           | Operating: -5 to 65°C<br>Storage: -30 to 60°C with RTC Battery; -40 to 85°C without RTC Battery   |  |
|                       | <b>Humidity</b>              | Operating: 5 to 90% RH  | Storage: 5 to 90% RH   |
|                       | <b>MTBF</b>                  | 596,170 hrs @ 25°C; 341,995 hrs @ 45°C ; 213,835 hrs @ 60°C ; 182,033 hrs @ 65°C<br>Calculation Model: Telcordia Issue 4<br>Environment: GB, GC - Ground Benign, Controlled   |  |
| <b>MECHANICAL</b>     | <b>Dimensions</b>            | microATX form factor  | 244mm (9.6") x 244mm (9.6")  |
|                       | <b>Height</b>                | PCB: 1.6mm  | Top Side: 38.5mm, Bottom Side: 4.4mm   |

## Packing List

|  |                 |
|--|-----------------|
| • 1 CS332-Q370 motherboard                         |                 |
| • 1 Serial ATA data cable (W/LOCK, Length: 500mm)  | 332-553001-005G |
| • 1 I/O shield for 2 LAN default (770-CS3321-100G) | A49-CS3320-010G |
| • 1 I/O shield for 4 LAN option (770-CS3321-200G)  | A49-CS3320-000G |
| • 1 M.2 2242/2260/half mini PCIe standoff          | A33-725019-090G |
| • 2 M.2 Screw                                      | A32-112016-041G |

## Optional Items

|   |                 |
|---|-----------------|
| • USB 2.0 port cable (Length: 350mm)            | A81-001066-016G |
| • USB 3.1 Gen 1 cable (Length: 320mm)           | A81-001052-023G |
| • 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 |
| • Front Audio cable (Length: 300mm)             | A81-022022-016G |