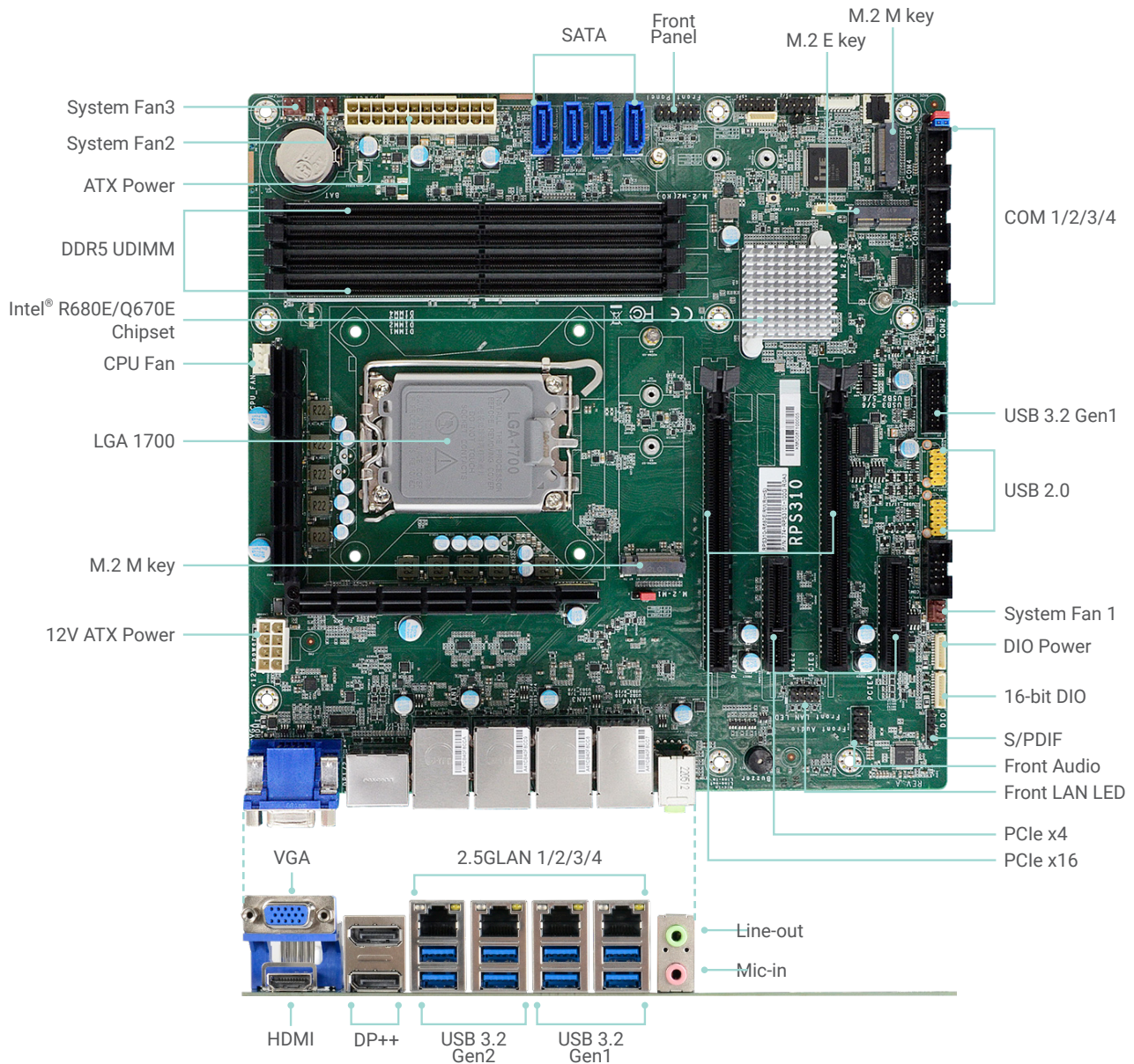


RPS310-R680E/Q670E

14th/13th/12th Gen Intel® Core™
Desktop
microATX



Top View

KEY FEATURES



DDR5

4 DDR5 UDIMM up to 192GB



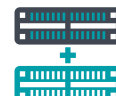
4K High Resolution

Supports 4K resolution



Quad Displays

VGA, 2 DP++, HDMI



Multiple Expansion

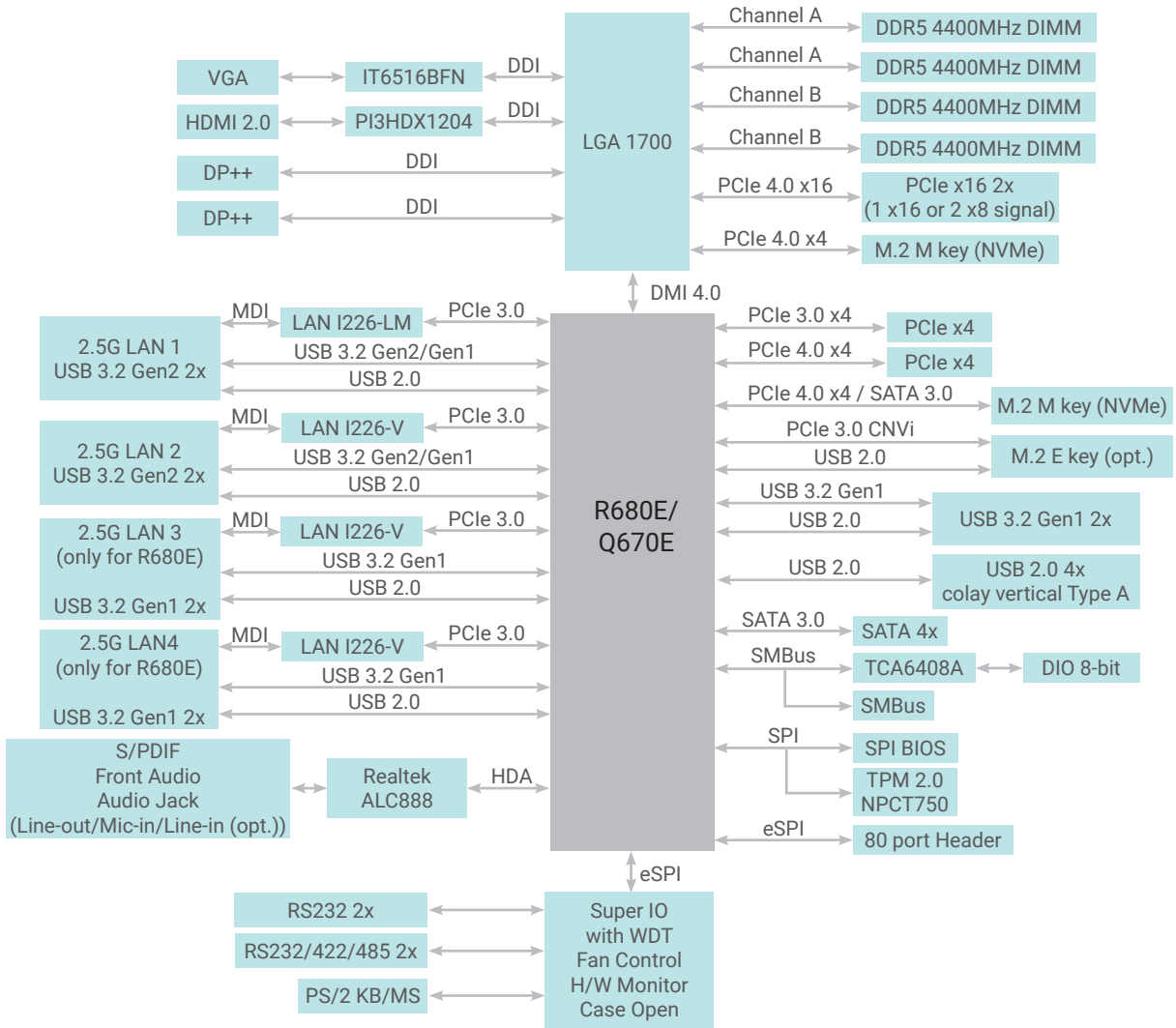
2 PCIe x16, 2 PCIe x4, 1 M.2 E key, 2 M.2 M key, 4 SATA 3.0



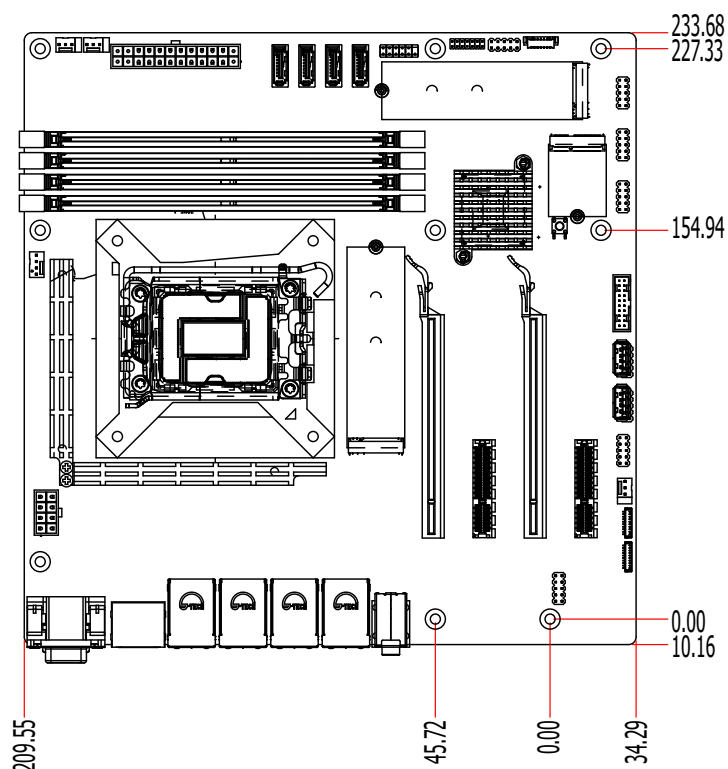
Rich I/O

4 Intel 2.5GbE, 4 COM, 4 USB 3.2 Gen 2, 6 USB 3.2 Gen 1, 4 USB 2.0

BLOCK DIAGRAM



MECHANICAL DRAWING



SPECIFICATION

| | | | |
|---------------|----------------------------|---|--|
| SYSTEM | Processor | <p>14th Generation Intel® LGA 1700 Socket Processors, TDP support up to 125W Intel® Core™ i9-14900 (24 Cores, 36M Cache, up to 2.0 GHz); 65W Intel® Core™ i9-14900T (24 Cores, 36M Cache, up to 1.1 GHz); 35W Intel® Core™ i7-14700 (20 Cores, 33M Cache, up to 2.1 GHz); 65W Intel® Core™ i7-14700T (20 Cores, 33M Cache, up to 1.3 GHz); 35W Intel® Core™ i5-14500 (14 Cores, 24M Cache, up to 2.6 GHz); 65W Intel® Core™ i5-14500T (14 Cores, 24M Cache, up to 1.7 GHz); 35W Intel® Core™ i5-14400 (10 Cores, 20M Cache, up to 2.5 GHz); 65W Intel® Core™ i5-14400T (10 Cores, 20M Cache, up to 1.5 GHz); 35W Intel® Core™ i3-14100 (4 Cores, 12M Cache, up to 3.5 GHz); 60W Intel® Core™ i3-14100T (4 Cores, 12M Cache, up to 2.7 GHz); 35W Intel® i300 (2 Cores, 6M Cache, up to 3.9 GHz); 46W Intel® i300T (2 Cores, 6M Cache, up to 3.4 GHz); 35W</p> <p>13th Generation Intel® LGA 1700 Socket Processors, TDP support up to 125W Intel® Core™ i9-13900E (24 Cores, 36M Cache, up to 5.2 GHz); 65W Intel® Core™ i9-13900TE (24 Cores, 36M Cache, up to 5.0 GHz); 35W Intel® Core™ i7-13700E (16 Cores, 30M Cache, up to 5.1 GHz); 65W Intel® Core™ i7-13700TE (16 Cores, 30M Cache, up to 4.8 GHz); 35W Intel® Core™ i7-13700T (16 Cores, 30M Cache, up to 4.9 GHz); 35W Intel® Core™ i5-13500E (14 Cores, 24M Cache, up to 4.6 GHz); 65W Intel® Core™ i5-13500TE (14 Cores, 24M Cache, up to 4.5 GHz); 35W Intel® Core™ i5-13500T (14 Cores, 24M Cache, up to 4.6 GHz); 35W Intel® Core™ i5-13400E (10 Cores, 20M Cache, up to 4.6 GHz); 65W Intel® Core™ i3-13100E (4 Cores, 12M Cache, up to 4.4 GHz); 65W Intel® Core™ i3-13100TE (4 Cores, 12M Cache, up to 4.1 GHz); 35W Intel® Core™ i3-13100T (4 Cores, 12M Cache, up to 4.2 GHz); 35W</p> <p>12th Generation Intel® LGA 1700 Socket Processors, TDP support up to 125W Intel® Core™ i9-12900E (16 Cores, 30M Cache, up to 5.0 GHz); 65W Intel® Core™ i9-12900TE (16 Cores, 30M Cache, up to 4.8 GHz); 35W Intel® Core™ i7-12700E (12 Cores, 25M Cache, up to 4.8 GHz); 65W Intel® Core™ i7-12700TE (12 Cores, 25M Cache, up to 4.6 GHz); 35W Intel® Core™ i5-12500E (6 Cores, 18M Cache, up to 4.5 GHz); 65W Intel® Core™ i5-12500TE (6 Cores, 18M Cache, up to 4.3 GHz); 35W Intel® Core™ i3-12100E (4 Cores, 12M Cache, up to 4.2 GHz); 60W Intel® Core™ i3-12100TE (4 Cores, 12M Cache, up to 4.0 GHz); 35W Intel® Pentium® G7400E (2 Cores, 6M Cache, 3.6 GHz); 46W Intel® Pentium® G7400TE (2 Cores, 6M Cache, 3.0 GHz); 35W Intel® Celeron® G6900E (2 Cores, 4M Cache, 3.0 GHz); 46W Intel® Celeron® G6900TE (2 Cores, 4M Cache, 2.4 GHz); 35W</p> | |
| | Chipset | Intel® R680E/Q670E Chipset | |
| | Memory | Four 288-pin UDIMM up to 192GB (ECC/Non-ECC) Dual Channel DDR5 up to 4400 MHz *only R680E support ECC memory *Speed support list follow User's Manual | |
| | BIOS | AMI SPI 256Mbit | |
| GRAPHICS | Controller | Intel® UHD Graphics 700 series | |
| | Feature | OpenGL 4.5, 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 | VGA: resolution up to 1920x1200 @ 60Hz |
| 2 x DP++ | | DP++: resolution up to 4096x2304 @ 60Hz | |
| 1 x HDMI 2.0a | | HDMI: resolution up to 4096x2160 @ 24Hz | |
| Quad Displays | VGA + 2 DP++ + HDMI | | |
| EXPANSION | Interface | 2 x PCIe x16 (Gen 4) (1 x16 signals or 2 x8 signals) | |
| | | 2 x PCIe x4 (Gen 4) | |
| | | 1 x M.2 2230 E key (opt. PCIe/USB 2.0/Intel CNVi support) (Discrete Wifi 6E support) | |
| | | 1 x M.2 2242/2260/2280 M key (PCIe x4 Gen4 NVMe/SATA support) | |
| | | 1 x M.2 2242/2260/2280 M key (PCIe x4 Gen4 NVMe support) | |
| AUDIO | Audio Codec | Realtek ALC888 | |
| ETHERNET | Controller | 1 x Intel® I226-LM (Core i9/i7/i5 support iAMT) | |
| | | 1 x Intel® I226-V 2 x Intel® I226-V (only R680E support) | |
| REAR I/O | Ethernet | 2 x 2.5GbE (RJ-45) or 4 x 2.5GbE (RJ-45) (only R680E support) | |
| | USB | 4 x USB 3.2 Gen 2 | |
| | | 4 x USB 3.2 Gen 1 | |
| | Display | 2 x DP++ 1 x HDMI 2.0a 1 x VGA | |
| Audio | 1 x Line-out 1 x Mic-in | 1 x Line-in (opt. by request, MOQ required) | |

SPECIFICATION

| | | |
|-------------------------------------|-----------------------|---|
| INTERNAL I/O | Serial | 2 x RS-232/422/485 (RS-232 w/ power) (2.54mm pitch) 2 x RS-232 (2.54mm pitch) |
| | USB | 2 x USB 3.2 Gen1 4 x USB 2.0 (2.54mm pitch) (1 x USB 2.0 colay vertical Type A) |
| | Audio | 1 x Front Audio Header 1 x S/PDIF |
| | SATA | 4 x SATA 3.0 (up to 6Gb/s) RAID 0/1/5/10 |
| | PS/2 | 1 x PS/2 (2.54mm pitch) |
| | DIO | 4-IN / 8-OUT DIO |
| | SMBus | 1 x SMBus |
| | WATCHDOG TIMER | Output & Interval |
| SECURITY | TPM | Nuvoton TPM 2.0 |
| POWER | Type | ATX |
| | Connector | 8-pin ATX 12V power 24-pin ATX power |
| | Consumption | Typical: i9-13900K: 3.3V @ 0.31A (1.023W); 5V @ 1.50A (7.5W); 12V @ 7.78A (93.36W) Max.: i9-13900K: 3.3V @ 1.16A (3.828W); 5V @ 2.71A (13.55W); 12V @ 26.34A (316.08W) |
| | RTC Battery | CR2032 Coin Cell |
| OS SUPPORT | Microsoft | Windows 10 IoT Enterprise 64-bit Windows 11 Enterprise |
| | Linux | Linux |
| ENVIRONMENT | Temperature | Operating: -5 to 65°C Storage: -30 to 60°C with RTC Battery; -40 to 85°C without RTC Battery |
| | | Humidity |
| | MTBF | |
| | MECHANISM | Dimensions |
| Height | | PCB: 1.6mm Top Side: TBD Bottom Side: TBD |
| STANDARDS AND CERTIFICATIONS | Certifications | CE, FCC Class B, RoHS |

ORDERING INFORMATION

| Model Name | P/N | Memory | 2.5 GbE | RS-232/422/485 | USB 3.2 Gen2 | USB 3.2 Gen1 | USB 2.0 | TPM 2.0 | Power | Thermal | Temp. |
|--------------|------------------|---------|---------|----------------|--------------|--------------|---------|---------|--------------------------|---------|------------|
| RPS310-Q670E | 770-RPS3101-000G | 4 UDIMM | 2 | 2 | 4 | 6 | 4 | dTPM | 24-pin ATX/8-pin ATX 12V | Active | -5 to 65°C |
| RPS310-R680E | 770-RPS3101-100G | 4 UDIMM | 4 | 2 | 4 | 6 | 4 | dTPM | 24-pin ATX/8-pin ATX 12V | Active | -5 to 65°C |
| RPS310-Q670E | 770-RPS3101-200G | 4 UDIMM | 2 | 2 | 4 | 6 | 4 | fTPM | 24-pin ATX/8-pin ATX 12V | Active | -5 to 65°C |
| RPS310-R680E | 770-RPS3101-300G | 4 UDIMM | 4 | 2 | 4 | 6 | 4 | fTPM | 24-pin ATX/8-pin ATX 12V | Active | -5 to 65°C |

PACKING LIST

| | |
|---|-----------------|
| 1 RPS310-R680E/Q670E motherboard | |
| 1 COM port cable (Length: 300mm, 2 x COM ports) | A81-015026-023G |
| 1 Serial ATA data cable (Length: 500mm) | 332-553001-005G |
| 1 I/O shield | A49-RPS310-000G |

OPTIONAL ITEMS

| | |
|--|-----------------|
| USB 2.0 port cable (Length: 350/398mm) | A81-001066-016G |
| USB 3.2 Gen2 port cable (Length: 350mm) | 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 |
| Serial ATA data cable (Length: 500mm, W/LOCK, 90D) | A81-002128-017G |
| Thermal solution (For 35W, Height: 29.39mm) | A71-101136-000G |
| Thermal solution (For 65W, Height: 46mm) | A71-101137-000G |
| Thermal solution (For 95W/125W, Height: 110mm) | A71-101145-000G |
| DP to HDMI Dongle | 612-D2H13M-000G |
| M.2-COM4 (M.2 serial port module) | 770-M2COM1-000G |
| M.2-2LAN (M.2 LAN port module) | 770-M22LN1-000G |
| M.2-2PSE (M.2 PSE module) | 770-M22PS1-000G |