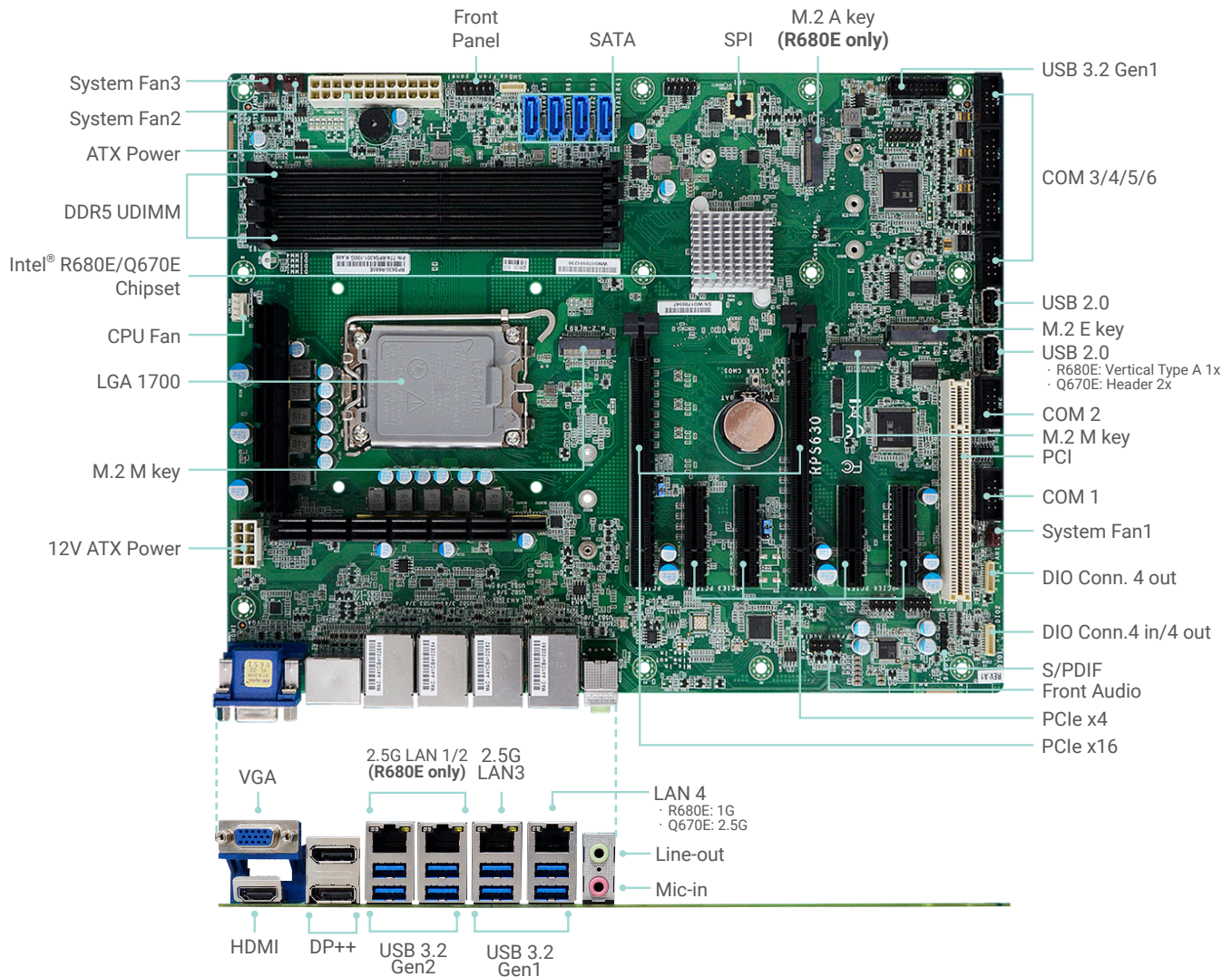


# RPS630-R680E RPS630-Q670E

14th/13th/12th Gen Intel® Core™  
ATX

Desktop



Top View  
(RPS630-R680E)

## KEY FEATURES



### DDR5

4 DDR5 UDIMM up to 192GB



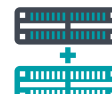
### 4K High Resolution

Supports 4K resolution



### Quad Displays

VGA, 2 DP++, HDMI



### Multiple Expansion

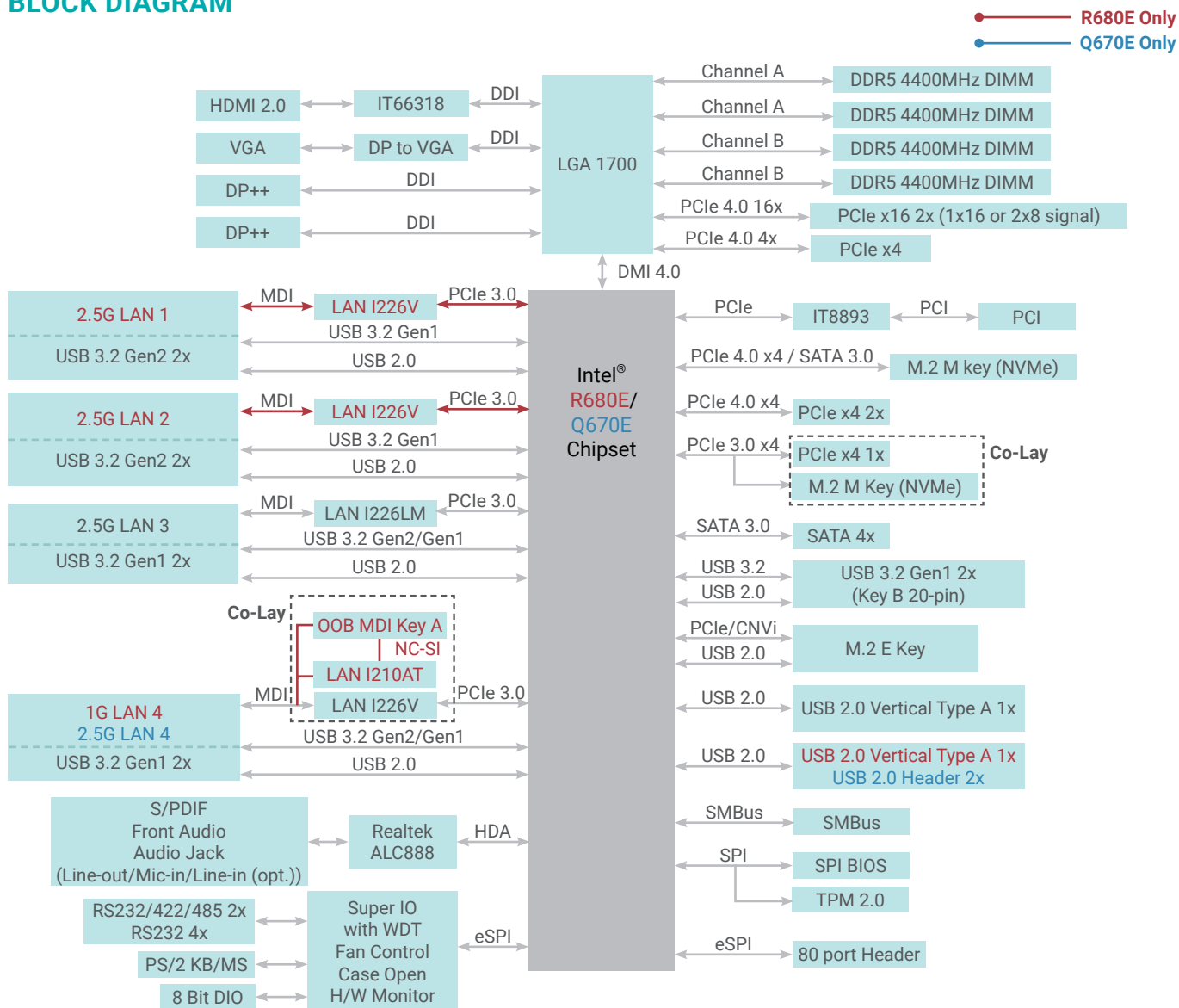
2 PCIe x16, 4 PCIe x4,  
1 PCI, 2 M.2 M key,  
1 M.2 A Key(OOB),  
1 M.2 E Key



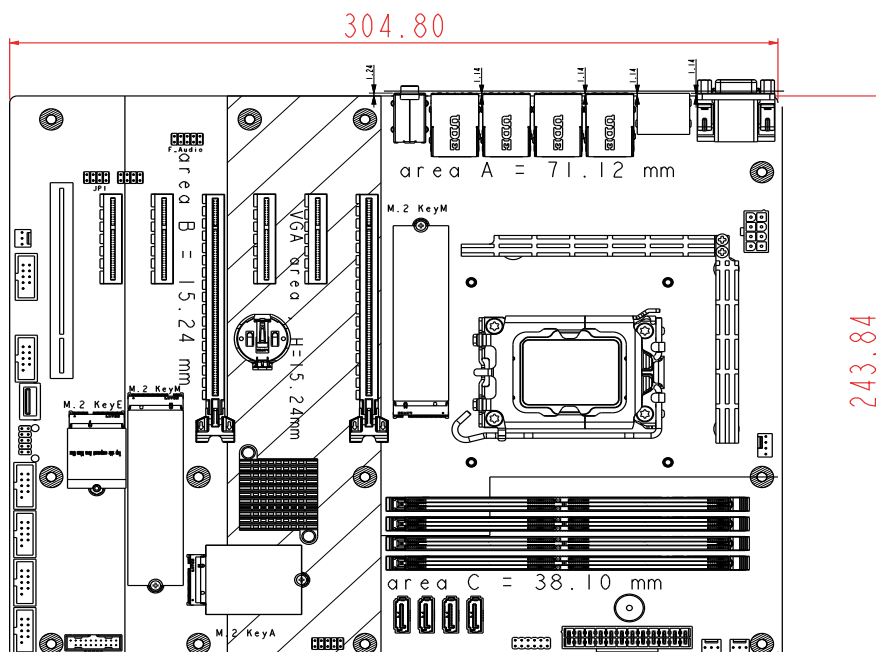
### Rich I/O

4 Intel 2.5GbE, 6 COM,  
4 USB 3.2 Gen2,  
6 USB 3.2 Gen1,  
3 USB 2.0

## BLOCK DIAGRAM



## MECHANICAL DRAWING



## SPECIFICATION

| Model Name |               | RPS630-R680E                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | RPS630-Q670E                                                                                                                                                                                  |
|------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SYSTEM     | Processor     | 14th Generation Intel® LGA 1700 Socket Processors, TDP support up to 125W<br>Intel® Core™ i9-14901E (8 Cores, 36M Cache, up to 5.6 GHz); 65W<br>Intel® Core™ i5-14401E (6 Cores, 24M Cache, up to 4.7 GHz); 65W<br>Intel® Core™ i9-14900 (24 Cores, 36M Cache, up to 5.8 GHz); 65W<br>Intel® Core™ i9-14900T (24 Cores, 36M Cache, up to 5.5 GHz); 35W<br>Intel® Core™ i7-14700 (20 Cores, 33M Cache, up to 5.4 GHz); 65W<br>Intel® Core™ i7-14700T (20 Cores, 33M Cache, up to 5.2 GHz); 35W<br>Intel® Core™ i5-14500 (14 Cores, 24M Cache, up to 5 GHz); 65W<br>Intel® Core™ i5-14500T (14 Cores, 24M Cache, up to 4.8 GHz); 35W<br>Intel® Core™ i5-14400 (10 Cores, 20M Cache, up to 4.7 GHz); 65W<br>Intel® Core™ i5-14400T (10 Cores, 20M Cache, up to 4.5 GHz); 35W<br>Intel® Core™ i3-14100 (4 Cores, 12M Cache, up to 4.7 GHz); 60W<br>Intel® Core™ i3-14100T (4 Cores, 12M Cache, up to 4.4 GHz); 35W<br>Intel® 300 (2 Cores, 6M Cache, up to 3.9 GHz); 46W<br>Intel® 300T (2 Cores, 6M Cache, up to 3.4 GHz); 35W<br>13th Generation Intel® LGA 1700 Socket Processors, TDP support up to 125W<br>Intel® Core™ i9-13900E (24 Cores, 36M Cache, up to 5.2 GHz); 65W<br>Intel® Core™ i9-13900TE (24 Cores, 36M Cache, up to 5.0 GHz); 35W<br>Intel® Core™ i7-13700E (16 Cores, 30M Cache, up to 5.1 GHz); 65W<br>Intel® Core™ i7-13700TE (16 Cores, 30M Cache, up to 4.8 GHz); 35W<br>Intel® Core™ i7-13700T (16 Cores, 30M Cache, up to 4.9 GHz); 35W<br>Intel® Core™ i5-13500E (14 Cores, 24M Cache, up to 4.6 GHz); 65W<br>Intel® Core™ i5-13500TE (14 Cores, 24M Cache, up to 4.5 GHz); 35W<br>Intel® Core™ i5-13500T (14 Cores, 24M Cache, up to 4.6 GHz); 35W<br>Intel® Core™ i5-13400E (10 Cores, 20M Cache, up to 4.6 GHz); 65W<br>Intel® Core™ i3-13100E (4 Cores, 12M Cache, up to 4.4 GHz); 65W<br>Intel® Core™ i3-13100TE (4 Cores, 12M Cache, up to 4.1 GHz); 35W<br>Intel® Core™ i3-13100T (4 Cores, 12M Cache, up to 4.2 GHz); 35W<br>12th Generation Intel® LGA 1700 Socket Processors, TDP support up to 125W<br>Intel® Core™ i9-12900E (16 Cores, 30M Cache, up to 5.0 GHz); 65W<br>Intel® Core™ i9-12900TE (16 Cores, 30M Cache, up to 4.8 GHz); 35W<br>Intel® Core™ i7-12700E (12 Cores, 25M Cache, up to 4.8 GHz); 65W<br>Intel® Core™ i7-12700TE (12 Cores, 25M Cache, up to 4.6 GHz); 35W<br>Intel® Core™ i5-12500E (6 Cores, 18M Cache, up to 4.5 GHz); 65W<br>Intel® Core™ i5-12500TE (6 Cores, 18M Cache, up to 4.3 GHz); 35W<br>Intel® Core™ i3-12100E (4 Cores, 12M Cache, up to 4.2 GHz); 60W<br>Intel® Core™ i3-12100TE (4 Cores, 12M Cache, up to 4.0 GHz); 35W<br>Intel® Pentium® G7400E (2 Cores, 6M Cache, 3.6 GHz); 46W<br>Intel® Pentium® G7400TE (2 Cores, 6M Cache, 3.0 GHz); 35W<br>Intel® Celeron® G6900E (2 Cores, 4M Cache, 3.0 GHz); 46W<br>Intel® Celeron® G6900TE (2 Cores, 4M Cache, 2.4 GHz); 35W |                                                                                                                                                                                               |
|            | Chipset       | Intel® R680E Chipset                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Intel® Q670E Chipset                                                                                                                                                                          |
|            | Memory        | Four 288-pin UDIMM up to 192GB (ECC/Non-ECC)<br>Dual Channel DDR5 up to 4400 MHz<br>*Speed support list follow User's Manual                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Four 288-pin UDIMM up to 192GB (Non-ECC)<br>Dual Channel DDR5 up to 4400 MHz<br>*Speed support list follow User's Manual                                                                      |
|            | BIOS          | AMI SPI 256Mbit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | AMI SPI 256Mbit                                                                                                                                                                               |
| GRAPHICS   | Controller    | Intel® UHD Graphics 700 series                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Intel® UHD Graphics 700 series                                                                                                                                                                |
|            | Feature       | OpenGL 4.5, DirectX 12, OpenCL 2.1<br><b>HW Decode:</b> AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9<br><b>HW Encode:</b> MPEG2, AVC/H264, JPEG, HEVC/H265, VP8, VP9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | OpenGL 4.5, DirectX 12, OpenCL 2.1<br><b>HW Decode:</b> AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9<br><b>HW Encode:</b> MPEG2, AVC/H264, JPEG, HEVC/H265, VP8, VP9           |
|            | Display       | 1 x VGA<br>2 x DP++<br>1 x HDMI 2.0a<br><br><b>VGA:</b> resolution up to 1920x1200 @ 60Hz<br><b>DP++:</b> resolution up to 4096x2304 @ 60Hz<br><b>HDMI:</b> resolution up to 4096x2160 @ 24Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1 x VGA<br>2 x DP++<br>1 x HDMI 2.0a<br><br><b>VGA:</b> resolution up to 1920x1200 @ 60Hz<br><b>DP++:</b> resolution up to 4096x2304 @ 60Hz<br><b>HDMI:</b> resolution up to 4096x2160 @ 24Hz |
|            | Quad Displays | VGA + 2 DP++ + HDMI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | VGA + 2 DP++ + HDMI                                                                                                                                                                           |
|            | Interface     | 2 x PCIe x16 (Gen 4, 16 or 8+8)<br>3 x PCIe x4 (Gen 4, open edge)<br>1 x PCIe x4 (Gen 3, open edge, co-lay M.2-M2, function selected by BIOS.)<br>1 x PCI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2 x PCIe x16 (Gen 4, 16 or 8+8)<br>3 x PCIe x4 (Gen 4, open edge)<br>1 x PCIe x4 (Gen 3, open edge, co-lay M.2-M2, function selected by BIOS.)<br>1 x PCI                                     |
| EXPANSION  | M.2           | 1 x M.2 E key<br>1 x M.2 A key for M2-OOB<br>1 x M.2 M key (PCIe x4 Gen4 NVMe, SATA)<br>1 x M.2 M key (default, co-lay PCIe x4 Gen3 slot #6, function selected by BIOS.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1 x M.2 E key<br>1 x M.2 M key (PCIe x4 Gen4 NVMe, SATA)<br>1 x M.2 M key (default, co-lay PCIe x4 Gen3 slot #6, function selected by BIOS.)                                                  |
|            | Audio Codec   | Realtek ALC888S                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Realtek ALC888S                                                                                                                                                                               |
| AUDIO      | Controller    | 1 x Intel® I226-LM (Core i9/i7/i5 support iAMT)<br>1 x Intel® I210-AT (co-lay I226-V)<br>2 x Intel® I226-V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1 x Intel® I226-LM (Core i9/i7/i5 support iAMT)<br>1 x Intel® I226-V                                                                                                                          |
| ETHERNET   |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                               |

## SPECIFICATION

| Model Name     |                   | RPS630-R680E                                                                                                                                                                             | RPS630-Q670E                                                                                                                                                                             |
|----------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| REAR I/O       | Ethernet          | 3 x 2.5GbE (RJ-45)<br>1 x 1GbE (RJ-45, opt. 2.5GbE)                                                                                                                                      | 2 x 2.5GbE (RJ-45)                                                                                                                                                                       |
|                | USB               | 4 x USB 3.2 Gen 2<br>4 x USB 3.2 Gen 1                                                                                                                                                   | 4 x USB 3.2 Gen 2<br>4 x USB 3.2 Gen 1                                                                                                                                                   |
|                | Display           | 1 x VGA<br>2 x DP++<br>1 x HDMI                                                                                                                                                          | 1 x VGA<br>2 x DP++<br>1 x HDMI                                                                                                                                                          |
|                | Audio             | 1 x Line-out<br>1 x Mic-in<br>1 x Line-in (opt.)                                                                                                                                         | 1 x Line-out<br>1 x Mic-in<br>1 x Line-in (opt.)                                                                                                                                         |
| INTERNAL I/O   | Serial            | 2 x RS-232/422/485<br>4 x RS-232                                                                                                                                                         | 2 x RS-232/422/485<br>4 x RS-232                                                                                                                                                         |
|                | USB               | 2 x USB 3.2 Gen1<br>2 x USB 2.0 Vertical Type A                                                                                                                                          | 2 x USB 3.2 Gen1<br>1 x USB 2.0 Vertical Type A<br>2 x USB 2.0 (2.54mm pitch, Colay vertical Type A, opt.: MOQ required)                                                                 |
|                | Audio             | 1 x Front Audio<br>1 x S/PDIF                                                                                                                                                            | 1 x Front Audio<br>1 x S/PDIF                                                                                                                                                            |
|                | SATA              | 4 x SATA 3.0 (up to 6Gb/s)<br>RAID 0/1/5/10                                                                                                                                              | 4 x SATA 3.0 (up to 6Gb/s)<br>RAID 0/1/5/10                                                                                                                                              |
|                | PS/2              | 1 x PS/2 (2.54mm pitch)                                                                                                                                                                  | 1 x PS/2 (2.54mm pitch)                                                                                                                                                                  |
|                | DIO               | 4-IN / 8-OUT DIO                                                                                                                                                                         | 4-IN / 8-OUT DIO                                                                                                                                                                         |
|                | eSPI              | 1 x eSPI                                                                                                                                                                                 | 1 x eSPI                                                                                                                                                                                 |
|                | SMBus             | 1 x SMBus                                                                                                                                                                                | 1 x SMBus                                                                                                                                                                                |
| WATCHDOG TIMER | Output & Interval | System Reset, Programmable via Software from 1 to 255 Seconds                                                                                                                            | System Reset, Programmable via Software from 1 to 255 Seconds                                                                                                                            |
| SECURITY       | TPM               | Nuvoton TPM2.0                                                                                                                                                                           | Nuvoton TPM2.0                                                                                                                                                                           |
| POWER          | Type              | ATX                                                                                                                                                                                      | ATX                                                                                                                                                                                      |
|                | Connector         | 8-pin ATX 12V power<br>24-pin ATX power                                                                                                                                                  | 8-pin ATX 12V power<br>24-pin ATX power                                                                                                                                                  |
|                | Consumption       | <b>Typical:</b> i9-14900K: 3.3V @ 0.69A (2.28W);<br>5V @ 0.95A (4.75W); 12V @ 1.26A (15.12W)<br><b>Max.:</b> i9-14900K: 3.3V @ 1.2A (3.96W);<br>5V @ 3.6A (18W); 12V @ 29.02A (348.24W)  | <b>Typical:</b> i9-14900K: 3.3V @ 0.69A (2.28W);<br>5V @ 0.95A (4.75W); 12V @ 1.26A (15.12W)<br><b>Max.:</b> i9-14900K: 3.3V @ 1.2A (3.96W);<br>5V @ 3.6A (18W); 12V @ 29.02A (348.24W)  |
|                | RTC Battery       | CR2032 Coin Cell                                                                                                                                                                         | CR2032 Coin Cell                                                                                                                                                                         |
| OS SUPPORT     | Microsoft         | Windows 10 IoT Enterprise 64-bit<br>Windows 11 LTSC                                                                                                                                      | Windows 10 IoT Enterprise 64-bit<br>Windows 11 LTSC                                                                                                                                      |
|                | Linux             | Linux                                                                                                                                                                                    | Linux                                                                                                                                                                                    |
| ENVIRONMENT    | Temperature       | <b>Operating:</b> -5 to 65°C<br><b>Storage:</b> -30 to 60°C with RTC Battery;<br>-40 to 85°C without RTC Battery                                                                         | <b>Operating:</b> -5 to 65°C<br><b>Storage:</b> -30 to 60°C with RTC Battery;<br>-40 to 85°C without RTC Battery                                                                         |
|                | Humidity          | <b>Operating:</b> 5 to 95% RH<br><b>Storage:</b> 5 to 95% RH                                                                                                                             | <b>Operating:</b> 5 to 95% RH<br><b>Storage:</b> 5 to 95% RH                                                                                                                             |
|                | MTBF              | 225,192 hrs @ 25°C; 146,216 hrs @ 40°C;<br>83,182 hrs @ 60°C; 63,337 hrs @ 70°C<br><b>Calculation Model:</b> Telcordia Issue 2<br><b>Environment:</b> GB, GC - Ground Benign, Controlled | 208,538 hrs @ 25°C; 135,107 hrs @ 40°C;<br>76,715 hrs @ 60°C; 58,368 hrs @ 70°C<br><b>Calculation Model:</b> Telcordia Issue 2<br><b>Environment:</b> GB, GC - Ground Benign, Controlled |
| MECHANISM      | Dimensions        | ATX Form Factor<br>305mm (12") x 244mm (9.6")                                                                                                                                            | ATX Form Factor<br>305mm (12") x 244mm (9.6")                                                                                                                                            |
|                | Height            | PCB: 1.6mm<br>Top Side: 33.3mm<br>Bottom Side: 4mm                                                                                                                                       | PCB: 1.6mm<br>Top Side: 33.3mm<br>Bottom Side: 4mm                                                                                                                                       |
| CERTIFICATIONS | Certifications    | CE, FCC Class B, RoHS, UKCA, KC                                                                                                                                                          | CE, FCC Class B, RoHS, UKCA, KC                                                                                                                                                          |

## ORDERING INFORMATION

| Model Name   | P/N              | Memory  | 2.5GbE | 1GbE | RS-232/422/485 | USB 3.2 Gen2 | USB 3.2 Gen1 | USB 2.0 | TPM 2.0 | Power                    | Temp.      |
|--------------|------------------|---------|--------|------|----------------|--------------|--------------|---------|---------|--------------------------|------------|
| RPS630-Q670E | 770-RPS6301-000G | 4 UDIMM | 2      | 0    | 2              | 4            | 6            | 3       | dTPM    | 24-pin ATX/8-pin ATX 12V | -5 to 65°C |
| RPS630-R680E | 770-RPS6301-100G |         | 3      | 1    |                |              |              | 2       |         |                          |            |

## PACKING LIST

|                                                    |
|----------------------------------------------------|
| · 1 RPS630 motherboard                             |
| · 1 COM port cables (Length: 300mm, 2 x COM ports) |
| · 1 Serial ATA data cable (Length: 500mm)          |
| · 1 I/O shield                                     |
| · 1 M.2 screw/standoff                             |

## OPTIONAL ITEMS

|                                                      |                 |
|------------------------------------------------------|-----------------|
| · USB 2.0 port cable (Length: 350/398mm)             | A81-001066-016G |
| · USB 3.2 Gen1 port cable (Length: 320mm)            | A81-001052-023G |
| · USB 3.2 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 |
| · 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-M22LN2-000G |
| · M.2-2PSE (M.2 PSE module)                          | 770-M22PS2-000G |