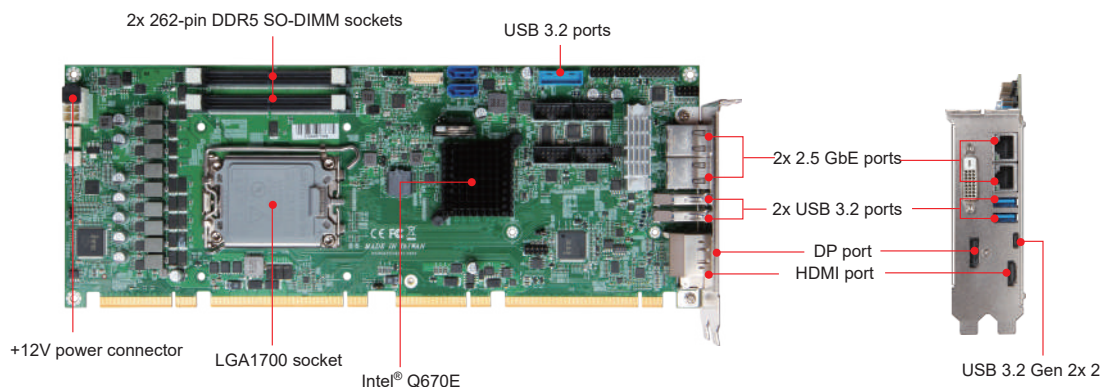


# ROBO-8116G2AR-Q670E-R

Intel® 12<sup>th</sup>/13<sup>th</sup>/14<sup>th</sup> Generation chipset  
600 series with processor based on  
PICMG 1.3 SHB with DDR5 SDRAM,  
HDMI, DVI-D, DP, Dual 2.5Gigabit Ether-  
net, Audio and USB



ROBO-8116G2AR-Q670E-R is based on Intel® 600 series chipset and workstation processors. Built with flexible PCI express expansions, ROBO-8116G2AR-Q670E is suitable for Medical, Industrial automation, and Digital Signage application.

## FEATURES

- Supports Intel® 12<sup>th</sup>/13<sup>th</sup>/14<sup>th</sup> Generation Core processors Family in LGA 1700 package
- Two SO-DIMM support DDR5 DRAM up to 96GB
- Supports multiple display by DVI-D, DP and HDMI
- High speed dual 2.5Gigabit Ethernet based on PCI express x1, high bandwidth I/O interface
- Support two USB 3.2 Gen2 and USB 3.2 Gen2x2 on REAR I/O
- Support on board TPM2.0

## ORDERING GUIDE

|          |                                                                                                                                                                                             |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AB1-3S33 | (R). ROBO-8116G2AR-Q670E-R.<br>PICMG 1.3(PCI-E+PCI).LGA1700. Q670E<br>PCH. Intel Core i3/i5/i7/i9 processors. SHB.<br>w/DP/HDMI/DVI/Dual GbE/Audio/four COM<br>ports(Raptor lake-s refresh) |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## PACKING LIST

|          |                                                                                                                                                                                         |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standard | B6902932 SATA III cable<br>B8981980 PICMG SBC Handling and Installa<br>B6902352 *(GP).Cable.DB9x2 to HSG(5x2)x2<br>L=300mm W/Bracket for Ruby-9717/Ruby-9718.<br>CY-8A08006R.CHUAN YANG |
| Optional | B6903090 USB 3.0 cable with bracket<br>B6902230 USB port cable with bracket                                                                                                             |



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## GENERAL

|                     |                                                                                                                                                                                                                                                                                                     |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Processor           | - Intel® 12 <sup>th</sup> /13 <sup>th</sup> /14 <sup>th</sup> Generation Core processors family in LGA1700 package<br>- DMI x4 Link : 16GT/s<br>- Support Intel® Turbo Boost, Hyper-Threading, Virtualization, Thermal Monitoring, Trusted Execution and Speed Step Technology (depends on CPU sku) |
| Chipset             | Intel® Q670E                                                                                                                                                                                                                                                                                        |
| BIOS                | AMI uEFI BIOS                                                                                                                                                                                                                                                                                       |
| Memory              | - Supports two DDR5 dual channel up to 96GB SO-DIMM sockets<br>- Supports DDR5-5600 MT/s 1DPC 1R and DDR5-5200 MT/s 1DPC 2R SO-DIMM memory on all i9,i7 and select i5 SKUs                                                                                                                          |
| Storage Devices     | - 4x SATAIII drives (Dual ports via Backplane)<br>- Supports RAID 0, 1, 5, 10<br>- 1x M.2 Type M 2280 (on bottom side)                                                                                                                                                                              |
| Watchdog Timer      | Programmable watchdog timer, time out period from 0.5 sec to 254.5 secs                                                                                                                                                                                                                             |
| Hardware Monitoring | System monitor(Voltage,Fan Speed and Temperature)                                                                                                                                                                                                                                                   |
| Expansion Interface | - From CPU: 1x PCIe x16(Gen5) or 2x PCIe x8(Gen5) and 1x PCIe x4(Gen4) setting (Gen5 up to 32 GT/s)<br>- From PCH: 1x PCIe x4 or 4x PCIe x1 by different bios support (Gen 3 up to 8.0 GT/s), 4x PCI devices at 32bit 33MHz                                                                         |

## I/O INTERFACE

|                  |                                                                                                                                                                                                                                  |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Super I/O        | ITE IT5121E-I                                                                                                                                                                                                                    |
| Audio            | - Intel® PCH built-in High Definition Audio up to 192-kHz 32-bit<br>- Realtek ALC888S HDA codec, 7.1 channels one on board audio pin header                                                                                      |
| Ethernet         | - Dual Intel® WGI225LM Gigabit Ethernet controller<br>- Dual 10BASE-T / 100BASE-TX / 1000BASE-T / 2500BASE-T Ethernet<br>- PCI Express x1 interface based on Gigabit Ethernet<br>- Dual RJ-45 connectors with two LED indicators |
| Serial Port      | - 2x RS-232 ports<br>- 2x RS-232/422/485 ports selectable<br>- LPC to COM port IC: Fintek F81216DG                                                                                                                               |
| USB              | - 4x USB 2.0 ports (through backplane)<br>- 2x USB 3.2(Gen1) ports on board<br>- 2x USB 3.2(Gen2) ports on bracket<br>- 1x USB 3.2(Gen2 x2) type-C port on bracket                                                               |
| Keyboard & Mouse | TDB                                                                                                                                                                                                                              |
| GPIO             | On board programmable 8-bit Digital I/Os                                                                                                                                                                                         |

## DISPLAY

|                    |                                                                                                                                                                                   |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Graphic Controller | Intel® Core™ i3/i5/i7/i9 processors integrated graphics engine Provides improved 3D multimedia capabilities including Microsoft DirectX 12, OpenGL 4.5                            |
| Display Interface  | - Support independent triple display by DP on bracket: Resolution up to 4096x2160 @ 60Hz<br>- DVI-D on bracket: up to 1920x1200 @ 60Hz<br>- HDMI on board: up to 4096x2160 @ 30Hz |

## Mechanical & Environment

|               |                                                                                                                            |
|---------------|----------------------------------------------------------------------------------------------------------------------------|
| Dimension     | - 338.5mm(L) x 126.39mm(W),13.33"(L) x 4.98"(W) PCB: 12 layers                                                             |
| Power Supply  | - Typical: +12V, +5V<br>- Support ATX mode                                                                                 |
| Environment   | - Operation Temperature: 0°C to 60°C<br>- Storage Temperature: -20°C to 80°C<br>- Relative Humidity: 5~95%, non-condensing |
| Certification | CE,FCC Class A                                                                                                             |
| MTBF          | Over 100,000 hours at 40°C                                                                                                 |