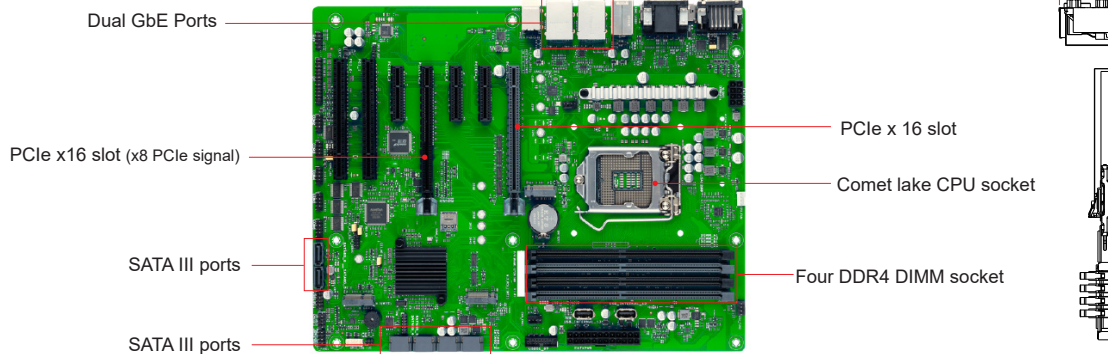


RUBY-D812-Q470E

Support Desktop Intel® 10th Gen Core™ Processors ATX with DDR4 Long-DIMM up to 128Gb, VGA 2x DP port, HDMI, Dual GbE LAN, Six COM Ports

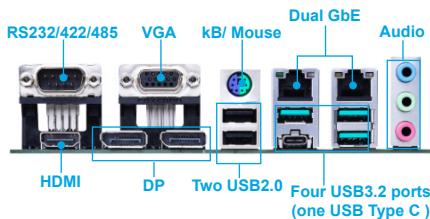


RUBY-D812 is based on Intel® Q470E chipset and Desktop processors including Intel® 10th Gen Core™ i3/i5/i7/i9 SKU. This board supports DDR4, PCIe 4.0, and SATAIII. Those features help you to build high performance and stable system

FEATURES

- Intel® 10th Gen Core™ Processors support
- Four Long-DIMM support DDR4 Non-ECC DRAM up to 128GB
- Support dual Ethernet, 6x COM Ports, 6x USB 3.2 Ports, 6x SATA III Ports and Audio
- Two PCIe x16 (1x PCIe x8 signal), three PCIe x4, two PCI slot, one M.2 (Type B), one M.2 (Key E) for Wireless, one M.2 (Key M) for SSD

REAR I/O



ORDERING GUIDE

AB1-3L60	(R).RUBY-D812-Q470E.ATX ESB.Q470E w/o ECC LGA1200.w/DDR4/VGA/Dual DP/HDMI Dual GbE/COM/Audio/USB
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PACKING LIST

One RUBY-D812-Q470E Main board
One I/O shield
One SATA cable
One CPU cooler bracket

GENERAL

Processor	Intel® 10 th Gen Core™ Processors CPU in LGA1200 package
Chipset	Intel® Q470E
BIOS	AMI uEFI BIOS
Memory	Support up to 128GB DDR4 2400/2666/2933 Non-ECC on four Long-DIMM socket
Storage Devices	6x SATAIII ports (port1/port2 shared with M.2 Key M)
Watchdog Timer	Programmable watchdog timer, time out period from 1 sec to 255 secs
Hardware Monitoring	System monitor (Voltage, Fan Speed and Temperature)
Expansion Interface	- 2x PCIe x16 (1x PCIe x8 signal) - 3x PCIe x4 slots, 2x PCI slots - 1x M.2 (Key M) for SSD, 1x M.2 (Key E) for Wireless, 1x M.2 (Key B) for 4G/5G module

I/O INTERFACE

Super I/O	NCT6116D
Audio	Audio Jack on rear I/O with Line-out / Mic-in with Realtek ALC897 Audio controller
Ethernet	Intel® I219LM (1G) and Intel® I225V (2.5G) Ethernet controller 2x RJ45 connectors on rear I/O
Serial Port	2x RS232/422/485 port one on REAR I/O, one on board header 4x RS232 port on pin header
USB	4x USB3.2 (Gen2) on rear I/O (3x Type A + 1x Type C), 2x USB3.2 (Gen1) on pin header 2x USB2.0 on pin header, 2x vertical connectors
GPIO	8-bit configurable controlled by embedded controller

DISPLAY

Graphic Controller	Intel® graphic UHD 630 supports DirectX 12, OpenGL 4.5
Display Interface	- DP: Two DP port on rear I/O, resolution up to 4K (4096x2160@60Hz) - VGA: One VGA port on rear I/O resolution up to 1920x1200 - HDMI: One HDMI connector on rear I/O, resolution up to 4096x2160@ 30Hz

Mechanical & Environment

Dimension	304.8mm (L) x 243.8mm (W) x 1.6mm (H)
Power Supply	ATX power input
Environment	- Operation Temperature: 0°C to 60°C - Storage Temperature: -20°C to 80°C - Relative Humidity: 5% to 95%, non-condensing
MTBF	Over 100,000 hours at 40°C

