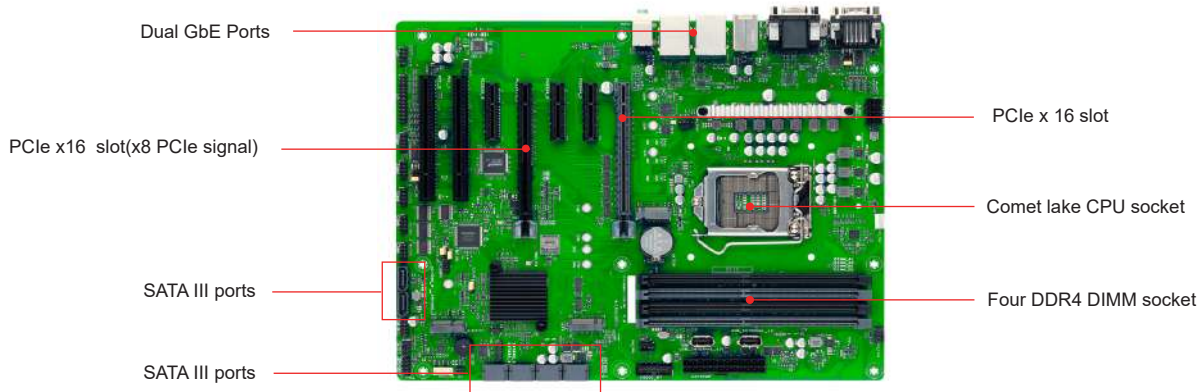


# RUBY-D812-Q470E

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



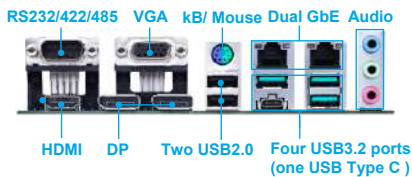
RUBY -D812is based on Intel® Q470E chipset and Desktop processors including Intel® 10<sup>th</sup> Gen Core™ i3/i5/i7 SKU. This board supports DDR4 ,PCIe 4.0, and SATAIII. Those features help you to build high performance and stabile system.

## FEATURES

- Intel® 10<sup>th</sup> Gen Core™ Processors support
- Four Long-DIMM support DDR4Non-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), threePCIe x4 , two PCI slot, one M.2 (Type B) , one M.2 (Key E) for Wireless, one M.2 (Key M) for SSD

PCIe slot 1&4 function		
slot 1	x16	x8
slot 4	/	x8

## REAR I/O



## ORDERING GUIDE

<b>AB1-3L60</b>	RUBY-D812-Q470E (R).RUBY-D812-Q470E.ATX IMB.LGA1200 Q470E. w/ DDR4 /VGA/Dual DP/HDMI Dual GbE/COM/Audio/USB
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## PACKING LIST

One RUBY-D812 motherboard
One I/O Shield
One SATA Cable

## GENERAL

Processor	Intel® 10 <sup>th</sup> Gen Core™ Processors CPU in LGA1200 package
Chipset	Intel® Q470E
BIOS	AMI uEFI BIOS (SPI ROM)
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 by embedded controller
Hardware Monitoring	System monitor(Voltage,Fan Speed and Temperature)
Expansion Interface	- 2x PCIe x16 (1x PCIe x8 signal) - 3xPCIe 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
Environment	- Operation temperature:0~60°C - Storage temperature: -20~80°C - Relative humidity:5~95%,non-condensing
MTBF	Over 100,000 hours at 40°C

