



**Embedded
High Performance
vPro AMT**

Key Features

10th Generation Intel® Core™ i9/Core™ i7/Core™ i5/Core™ i3/Pentium®/Celeron® Processor
Single Socket LGA-1200 (Socket H5) supported, CPU TDP supports Up to 125W TDP

Intel® Q470E

Intel® Q470 controller for 6 RAID 0,1,5,10

Single LAN with Intel® PHY I219LMLAN controller
Single LAN with Intel® Ethernet Controller I210-AT

Up to 128GB Unbuffered non-ECC UDIMM, DDR4-2933MHz, in 4 DIMM slots

1 PCI-E 3.0 x16 (in x16 slot),
1 PCI-E 3.0 x8,
2 PCI-E 3.0 x4

M.2 Interface: 1 PCI-E 3.0 x4, RAID 0 & 1

M.2 Form Factor: 2242/2280

M.2 Key: M-Key

1 VGA port, 1 HDMI port, 1 DP (DisplayPort) port, 1 DVI - D port

Product SKUs

- **MBD-X12SCQ** ■ X12SCQ

Physical Stats

- **Form Factor** ■ Micro-ATX
- **Dimension** ■ 9.6" x 9.6" (24.38cm x 24.38cm)

Processor

- **CPU** ■ 10th Generation Intel® Core™ i9/Core™ i7/Core™ i5/Core™ i3/Pentium®/Celeron® Processor
- Single Socket LGA-1200 (Socket H5) supported, CPU TDP supports Up to 125W TDP
- **Core** ■ Up to 10 cores
- **Note** ■ **The X12SCQ does not support the Intel 10th/11th generation processor 2M cache SKUs. These processors will not boot with the latest BIOS version.

System Memory

- **Memory Capacity** ■ 4 DIMM slots
- Up to 128GB UDIMM, DDR4-2933MHz
- **Memory Type** ■ 2933/2666/2400/2133MHz
- **DIMM Sizes** ■ 4GB, 8GB, 16GB, 32GB
- **Memory Voltage** ■ 1.2V

On-Board Devices

- **Chipset** ■ Intel® Q470E
- **SATA** ■ Intel® Q470 controller for 6 ports; RAID 0,1,5,10
- **Audio** ■ ALC 888S HD Audio
- **Graphics** ■ Intel® HD Graphics
- **Network Controllers** ■ Single LAN with Intel® PHY I219LM LAN controller
- Single LAN with Intel® Ethernet Controller I210-AT

Input / Output

- **SATA** ■ 6 SATA3 (6Gbps) port(s)
- **LAN** ■ 2 RJ45 Gigabit Ethernet LAN ports
- **USB** ■ 6 USB 3.1 Gen2 port(s) (2 via header; 2 rear type A; 2 rear type C)
- 6 USB 2.0 port(s) (4 via header; 2 rear)
- **Video Output** ■ 1 VGA port(s), 1 DP (DisplayPort) port(s), 1 HDMI port(s), 1 DVI - D port(s)
- **Serial Port** ■ 4 COM Port(s) (4 header)
- **TPM** ■ 1 TPM Header & Chip both

Expansion Slots

- **PCI-E** ■ 1 PCI-E 3.0 x16 (in x16 slot),
- 1 PCI-E 3.0 x8,
- 2 PCI-E 3.0 x4
- **M.2** ■ M.2 Interface: 1 PCI-E 3.0 x4, RAID 0 & 1
- Form Factor: 2242/2280
- Key: M-Key

System BIOS

- **BIOS Type** ■ AMI UEFI
- **BIOS Features** ■ ACPI 6.1
- SMBIOS 3.0 or later
- PCI FW 3.0
- UEFI 2.7
- RTC (Real Time Clock) Wakeup

Management

- **Software** ■ SuperDoctor® 5, SUM, AMT, vPro, Watchdog
- **Power Configurations** ■ ATX Power connector

PC Health Monitoring

- **Voltage** ■ VBAT, 4 fans with tachometer monitoring, 4 -fan status, 1.05 (PCH), +5V standby, +5V, +3.3V, +12V, +1.8V, +1.5V, +1.35V
- **LED** ■ Power LED
- **Temperature** ■ Monitoring for CPU and chassis environment
- CPU thermal trip support
- **FAN** ■ 4x 4-pin fan headers (up to 4 fans)
- 4 fans with tachometer monitoring
- **Other Features** ■ RoHS
- M.2 NGFF connector
- Chassis intrusion detection
- ATX Power connector
- ACPI power management

Operating Environment

- **Operating Temperature Range** ■ 0°C - 60°C (32°F - 140°F)
- **Non-Operating Temperature Range** ■ -40°C - 85°C (-40°F - 185°F)
- **Operating Relative Humidity Range** ■ 10% - 85% (non-condensing)
- **Non Operating Relative Humidity Range** ■ 5% - 95% (non-condensing)