



Dual 1GbE

Key Features

Intel® Xeon® E-2300 Processor, 10th Generation Intel® Pentium® Processor, Single Socket LGA-1200 (Socket H5) supported, CPU supports Up to 95W TDP

Intel® C256

Up to 128GB ECC UDIMM, DDR4-3200MHz, in 4 DIMM slots

1 PCI-E 4.0 x16
1 PCI-E 4.0 x4 (in x8 slot)
1 PCI-E 3.0 x4 (in x8 slot)

M.2 Interface: PCI-E 3.0 x4
M.2 Form Factor: 2280, 22110
M.2 Key: M-Key

Dual LAN with Intel® Ethernet Controller I210

Intel® C256 controller for 8 SATA3 (6 Gbps) ports; RAID 0,1,5,10

2 SuperDOM with built-in power

I/O: 1 VGA, 2 COM, 1 TPM header

5x USB 3.2 Gen1 (2 rear, 1 Type-A, 2 via header), 6x USB 2.0 (2 rear, 4 via headers)

Gen12 iGPU support

Product SKUs

- MBD-X12STH-F ■ X12STH-F

Physical Stats

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

Processor

- **CPU** ■ 10th Generation Intel® Pentium® Processor, Intel® Xeon® E-2300 Processor
 - Single Socket LGA-1200 (Socket H5) supported, CPU TDP supports Up to 95W TDP
- **Core** ■ Up to 8 cores, 16 threads

System Memory

- **Memory Capacity** ■ 4 DIMM slots
 - Up to 128GB ECC UDIMM, DDR4-3200MHz
- **Memory Type** ■ 3200/2933/2666MHz SDRAM
- **DIMM Sizes** ■ 4GB, 8GB, 16GB, 32GB
- **Memory Voltage** ■ 1.2V
- **Error Detection** ■ Corrects single-bit errors

On-Board Devices

- **Chipset** ■ Intel® C256
- **SATA** ■ Intel® C256 controller for 8 SATA3 (6 Gbps) ports; RAID 0,1,5,10
- **IPMI** ■ ASPEED AST2600 BMC
- **Graphics** ■ ASPEED AST2600 BMC
- **Network Controllers** ■ Dual LAN with Intel® Ethernet Controller I210

Input / Output

- **SATA** ■ 8 SATA3 (6Gbps) port(s)
- **LAN** ■ 2 RJ45 Gigabit Ethernet LAN ports
- **USB** ■ 6 USB 2.0 port(s) (4 via header; 2 rear)
 - 5 USB 3.2 Gen1 port(s) (2 via header; 2 rear; 1 type A)
- **Video Output** ■ 1 VGA port(s)
- **Serial Port** ■ 2 COM Port(s) (1 header; 1 rear)
- **DOM** ■ 2 SATA DOM (Disk on Module) power connector support
- **TPM** ■ 1 TPM Header

Expansion Slots

- **PCI-E** ■ 1 PCI-E 3.0 x4 (in x8 slot),
 - 1 PCI-E 4.0 x16,
 - 1 PCI-E 4.0 x4 (in x8 slot)
- **M.2** ■ M.2 Interface: 1 PCI-E 3.0 x4
 - Form Factor: 2280/22110
 - Key: M-Key

System BIOS

- **BIOS Type** ■ 256MB UEFI
- **BIOS Features** ■ ACPI 6.0
 - SMBIOS 2.7
 - Plug and Play (PnP)
 - RTC (Real Time Clock) Wakeup
 - UEFI 2.7
 - USB Keyboard support
 - PCI 3.0

Management

- **Software** ■ SuperDoctor® 5, NMI, SUM, SPM, Intel® Node Manager, SSM, IPMI2.0, Watchdog
- **System Management Software** ■ IPMI (Intelligent Platform Management Interface) v1.5 / 2.0 with KVM support
- **Power Configurations** ■ Power-on mode for AC power recovery, ACPI Power Management

PC Health Monitoring

- **Voltage** ■ VBAT, System level control, Supports system management utility, Monitors CPU voltages, Chipset Voltage, Chassis intrusion header, 6 -fan status, +5V standby, +5V, +3.3V, +12V, Memory Voltages
- **LED** ■ UID/Remote UID
 - CPU / System Overheat LED
- **Temperature** ■ Monitoring for CPU and chassis environment
 - CPU thermal trip support
 - Thermal Monitor 2 (TM2) support
 - PECI
- **FAN** ■ 6x 4-pin fan headers (up to 6 fans)
 - Thermal control tachometer fan connectors
 - Fan speed control
 - 6 fans with tachometer status monitoring
 - Overheat LED indication
- **Other Features** ■ WOL, UID, Node Manager Support, M.2 NGFF connector, Dual Cooling Zones, CPU thermal trip support for processor protection, Control of power-on for recovery from AC power loss, Chassis intrusion header, Chassis intrusion detection, ACPI power management

Operating Environment

- **Operating Temperature Range** ■ 0°C - 50°C (32°F - 122°F)
- **Non-Operating Temperature Range** ■ -40°C - 70°C (-40°F - 158°F)
- **Operating Relative Humidity Range** ■ 8% - 90% (non-condensing)
- **Non Operating Relative Humidity Range** ■ 5% - 95% (non-condensing)