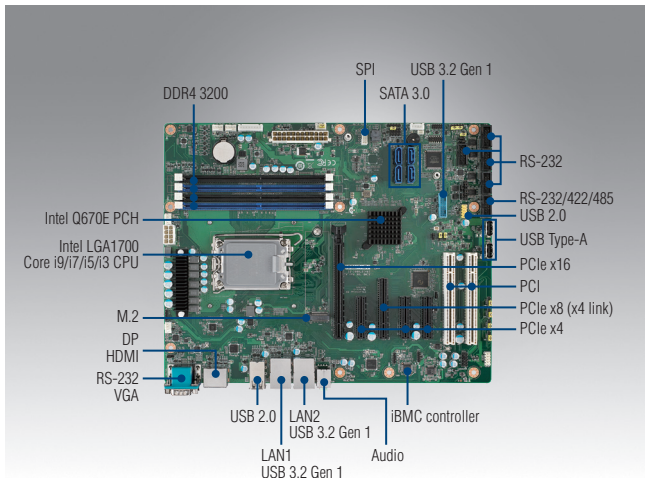


AIMB-788

LGA1700 12th/13th Generation Intel® Core™ i9/i7/i5/i3 ATX Motherboard with DP/HDMI/VGA, DDR4, USB 3.2, M.2



Features

- Intel® 12th/13th generation Core™ i9/i7/i5/i3 & Pentium®/Celeron® processor with Q670E chipset
- Four DIMM sockets up to 128 GB DDR4 3200
- Triple display DP/HDMI/VGA and dual GbE LAN
- M.2, SATA RAID 0, 1, 5, 10, USB 3.2 Gen 2
- Advantech iBMC remote out-of-band power management solution on DeviceOn
- Qualified for AWS (Amazon Web Service) IoT Greengrass

Note 1: Legacy platform is not supported.

Note 2: dTPM 2.0 module is required to enable Intel vPro and TPM technologies.

Note 3: Intel® Platform Trust Technology (Intel® PTT) ready for Windows 11.

Quiet Specifications



| | | | | | | | | | | | | | | | |
|----------------------------|-------------------------------|--|------------|-------------|--------------|-------------|--------------|-------------|-------------|-----------------------------|----------------|-----------------|----------------|-----------------|--|
| 13th Generation Processors | CPU | i9-13900(E) | i9-13900TE | i7-13700(E) | i7-13700T(E) | i5-13500(E) | i5-13500T(E) | i5-13400(E) | i3-13100(E) | i3-13100T(E) | | | | | |
| | P-core Base Frequency (Up to) | 2.0 GHz | 1.1 GHz | 2.1 GHz | 1.4 GHz | 2.5 GHz | 1.6 GHz | 2.5 GHz | 3.4 GHz | 2.5 GHz | | | | | |
| | L3 Cache | 36 MB | 36 MB | 30 MB | 30 MB | 24 MB | 24 MB | 20MB | 12 MB | 12 MB | | | | | |
| | Cores | 24 | 24 | 16 | 16 | 14 | 14 | 10 | 4 | 4 | | | | | |
| | Processor Base Power | 65 W | 35 W | 65 W | 35 W | 65 W | 35 W | 65W | 60 W | 35 W | | | | | |
| 12th Generation Processors | CPU | i9-12900(E) | i9-12900TE | i7-12700(E) | i7-12700T(E) | i5-12500(E) | i5-12400 | i5-12500TE | i3-12100(E) | i3-12100TE | Pentium G7400E | Pentium G7400TE | Celeron G6900E | Celeron G6900TE | |
| | P-core Base Frequency (Up to) | 2.4 GHz | 1.1 GHz | 2.1 GHz | 1.4 GHz | 3.0 GHz | 2.5 GHz | 1.9 GHz | 3.3 GHz | 2.1 GHz | 3.6 GHz | 3.0 GHz | 3.0 GHz | 2.4 GHz | |
| | L3 Cache | 30 MB | 30 MB | 25 MB | 25 MB | 18 MB | 18 MB | 18 MB | 12 MB | 12 MB | 6 MB | 6 MB | 4 MB | 4 MB | |
| | Cores | 16 | 16 | 12 | 12 | 6 | 6 | 6 | 4 | 4 | 2 | 2 | 2 | 2 | |
| | Processor Base Power | 65 W | 35 W | 65 W | 35 W | 65 W | 65 W | 35 W | 60 W | 35 W | 46 W | 35 W | 46 W | 35 W | |
| | Socket | LGA 1700 | | | | | | | | | | | | | |
| | Chipset | Q670E | | | | | | | | | | | | | |
| | BIOS | AMI 256Mbit SPI Flash | | | | | | | | | | | | | |
| Expansion Slot | PCI | 2 | | | | | | | | | | | | | |
| | PCIe x4 (Gen 3) | 3 | | | | | | | | | | | | | |
| | PCIe x8 (Gen 3) | 1 (x4 link) | | | | | | | | | | | | | |
| | PCIe x16 (Gen 4)* | 1 | | | | | | | | | | | | | |
| Memory | Technology | Dual Channel DDR4 3200 Non-ECC UDIMM | | | | | | | | | | | | | |
| | Max Capacity | 128 GB | | | | | | | | | | | | | |
| Graphics | Sockets | 4 x 288-pin DIMM | | | | | | | | | | | | | |
| | Controller | Chipset integrated Intel UHD Graphics | | | | | | | | | | | | | |
| Ethernet | VRAM | Shares system memory is subjected to OS | | | | | | | | | | | | | |
| | Interface | 10/100/1000 Mbps | | | | | | | | | | | | | |
| | Controller | GbE LAN1: Intel I219-LM (PHY); GbE LAN2: Intel I210-AT | | | | | | | | | | | | | |
| SATA | Connector | 2 x RJ-45 | | | | | | | | | | | | | |
| | Max. Data Transfer Rate | 600 MB/s | | | | | | | | | | | | | |
| Rear I/O | Channel | 4 | | | | | | | | | | | | | |
| | RAID | 0, 1, 5, 10 | | | | | | | | | | | | | |
| | VGA | 1 (Resolution up to 1920 x 1200 @ 60Hz) | | | | | | | | | | | | | |
| | HDMI | 1 (Resolution up to 3840 x 2160 @ 60Hz) | | | | | | | | | | | | | |
| | DisplayPort | 1 (Resolution up to 4096 x 2304 @ 60Hz) | | | | | | | | | | | | | |
| | Ethernet | 2 | | | | | | | | | | | | | |
| | USB | 8 (2 x USB 3.2 Gen 2, 2 x USB 3.2 Gen 1, 4 x USB 2.0) | | | | | | | | | | | | | |
| Watchdog Timer | Audio | 2 (Line-out, Mic-in) | | | | | | | | | | | | | |
| | Serial | 1 (RS-232) | | | | | | | | | | | | | |
| Power Requirement | Output | System reset | | | | | | | | | | | | | |
| | Interval | Programmable 1 ~ 255 sec | | | | | | | | | | | | | |
| | Power On | Intel Core i 65W , DDR4 32 GB x 4 | | | | | | | | | | | | | |
| Internal Connectors | Voltage | +3.3 V | | | | +5 V | | +12 V | | +5 Vsb | | -12 V | | -5 V | |
| | Current | 1.41 A | | | | 2.42 A | | 0.24 A | | 0.13 A | | 0.04 A | | 0.05 A | |
| | USB | 6 (2 x USB 3.2 Gen 1 via pin header, 2 x USB 2.0 via pin header, 2 x USB 2.0 type A connector) | | | | | | | | | | | | | |
| | Serial | 5 (4 x RS-232, 1 x RS-232/422/485) | | | | | | | | | | | | | |
| | SATA | 4 | | | | | | | | | | | | | |
| | M.2 | 1 (PCIex4 Gen 4 M-key 2280 type) | | | | | | | | | | | | | |
| Environment | SPI | 1 (Optional dTPM 2.0 module available) | | | | | | | | | | | | | |
| | GPIO | 8-bit | | | | | | | | | | | | | |
| | Operating | 0 ~ 60 °C (32 ~ 140 °F), depends on CPU loading and system thermal solution | | | | | | | | Non-Operating | | | | | |
| Physical Characteristics | Temperature | -40 ~ 85 °C | | | | | | | | | | | | | |
| | Humidity | 95% @ 40 °C, non-condensing | | | | | | | | 95% @ 60 °C, non-condensing | | | | | |
| Dimension (L x H) | 304.8 x 244 mm (12" x 9.6") | | | | | | | | | | | | | | |

* The PCIe x16 slot, from CPU, can only support graphic cards and storage cards according to the specification recommended by Intel. Other types of add-on cards might not work properly. For the compatible device list validated on the PCIe x16 slot, please refer to the user manual.

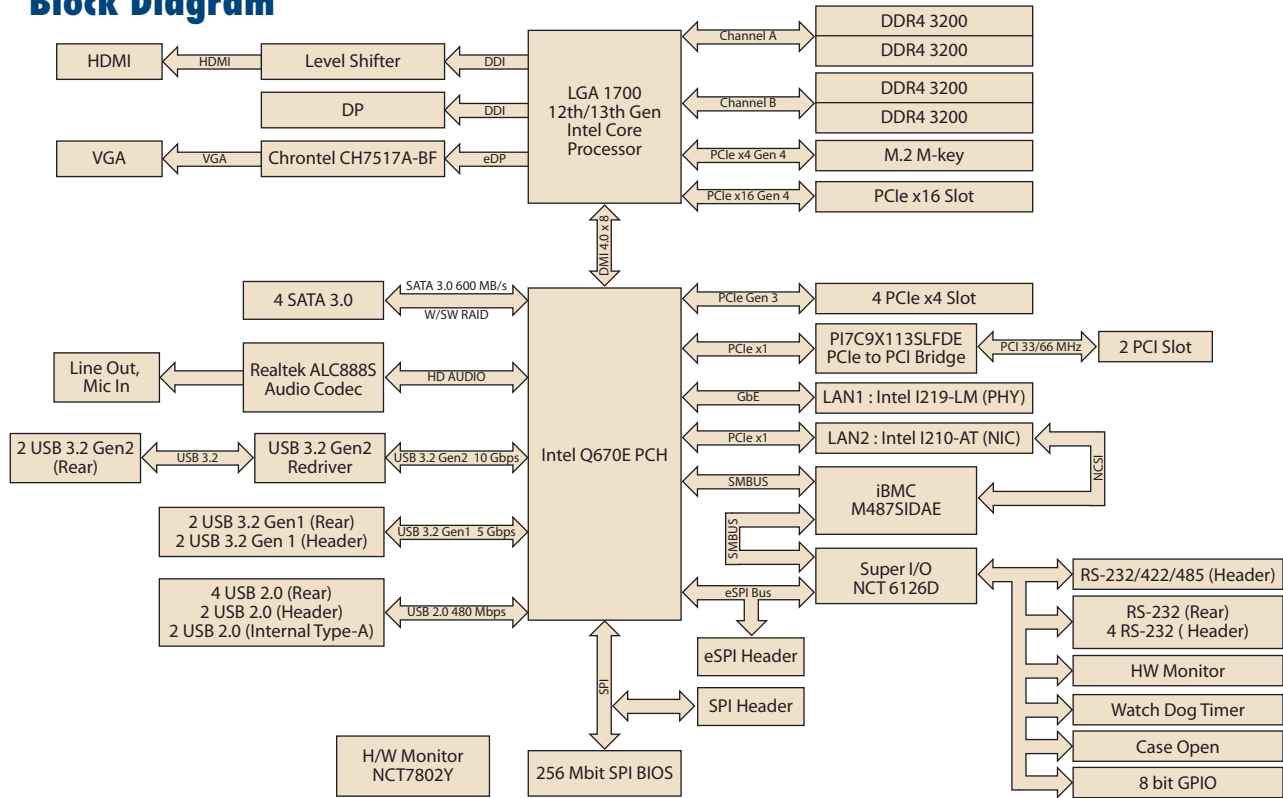


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AIMB-788

Block Diagram



Ordering Information

| Part number | Chipset | Memory | Display | USB 3.2 Gen 2 | USB 3.2 Gen 1 | USB 2.0 | COM | GbE LAN | AMT | M.2 | SATA 3.0 | SW RAID | iBMC |
|-----------------|---------|--------------------------------------|-----------------|---------------|---------------|---------|-----|---------|-----|-----|----------|---------|------|
| AIMB-788G2-00A1 | Q670E | Non-ECC UDIMM DDR4 3200 up to 128 GB | VGA + HDMI + DP | 2 | 4 | 8 | 6 | 2 | Yes | 1 | 4 | Yes | Yes |

Packing List

| Part Number | Description | Qty |
|----------------|---|-----|
| 1700003194 | SATA data cable | 2 |
| 1960104181T001 | I/O port bracket (for 2U chassis or higher) | 1 |
| 2041078800 | Startup manual | 1 |

Note: Driver CD is not provided. Please visit Advantech support website for driver download.

I/O View



AIMB-788G2-00A1

Optional Accessories

| Part number | Description |
|---|---|
| 1700002204 | 2-port USB 2.0 cable w/ BKT(27 cm) |
| 1700028292-01 | 2-port USB 3.0 cable w/ BKT(30 cm) |
| 1970005349T000 | CPU cooler for 2U, 4U, and wallmount chassis (for CPU Base Power=35~125W) |
| 1701090401 | Single COM port cable(40 cm) |
| 1701092300 | Dual COM port cable(28.5 cm) |
| 1700022749-11/ 1700022749-12/ 1700022749-13 | SATA power cable |
| PCA-TPMSPI-00A1 | dTPM 2.0 SPI module to enable TPM and vPro technologies |

Note: Purchasing AIMB-788's proprietary CPU cooler from Advantech is highly recommended. Other brands' CPU coolers are NOT compatible with AIMB-788. Especially the cooler type with fan aside is not allowed to use on AIMB-788 due to heat dissipation on MOSFET.

Riser Card

| Part Number | Description |
|------------------|---|
| AIMB-R430P-03A2E | 2U riser card with 3 PCI expansion |
| AIMB-R431F-21A1E | 2U riser card with 1 PCIe x16 & 1 PCIe x1 expansion |
| AIMB-R43PF-21A1E | 2U riser card with 1 PCIe x16 & 2 PCI expansion |
| AIMB-R4301-03A2E | 2U riser card with 1 PCIe x1 expansion |

Note: AIMB-788 is not compatible with 1U chassis.