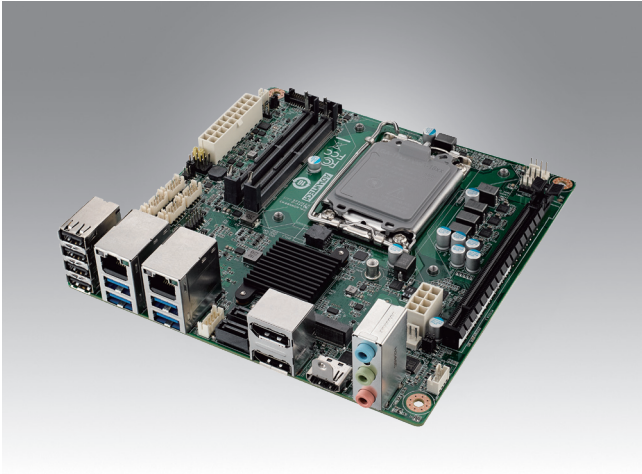


AIMB-208

Mini-ITX Motherboard 12th/13th Gen Intel® Core™ Processor (codename: Alder Lake-S/Raptor Lake-S)



Features

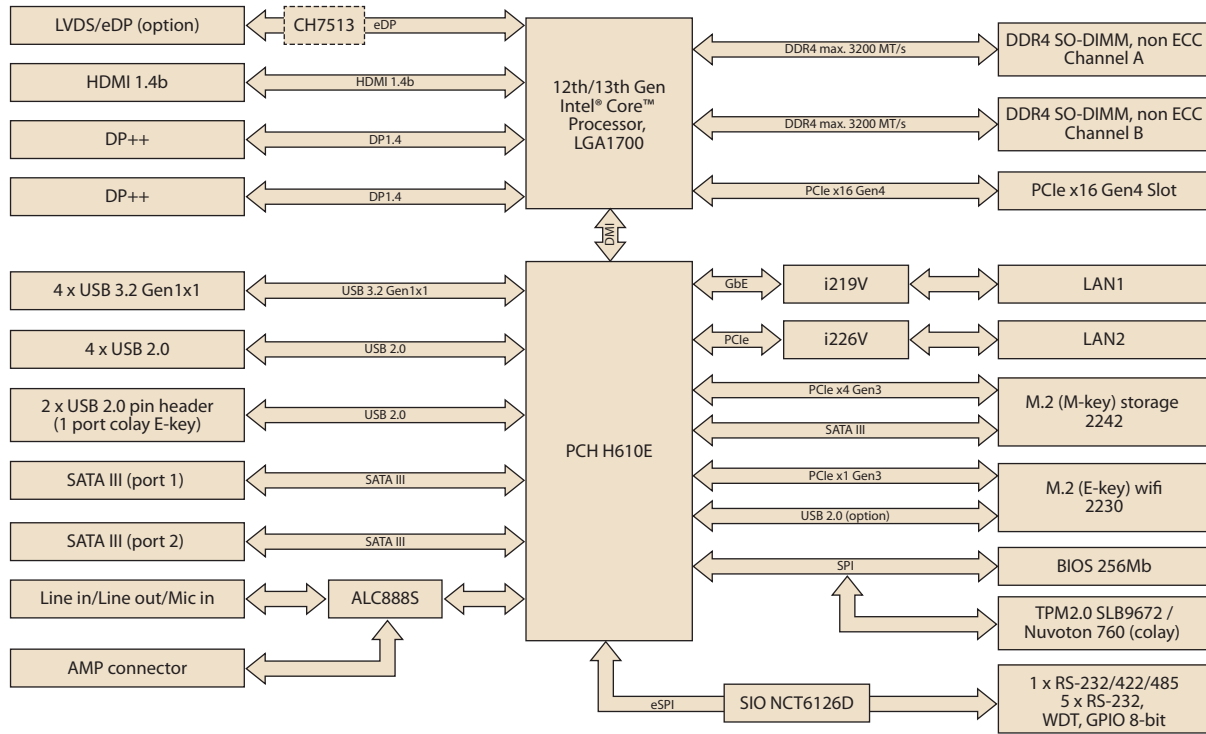
- 12th/13th Gen Intel® Core™ Desktop Processors, max. 24Core, support H610E chipset
- Up to 64GB DDR4 3200 MT/s with two SO-DIMM
- PCIe x16 Gen4
- Triple independent displays with 2 DP, 1 HDMI, 1 LVDS
- Rich expansion: 1 M.2 M-key & 1 M.2 E-key, 4 USB 3.2 Gen1x1 & 6 USB2.0, 2 SATA III and 6 COM
- WISE-DeviceOn and Embedded Software APIs



Specifications

| | | | | | | | | | | | | | |
|----------------------------|------------------------|---|---|----------------------|------------|----------------------------|------------|----------------------|----------------------|------------|---------|--------|---------|
| 13th Generation Processors | CPU | i9-13900E / i9-13900 | i9-13900TE | i7-13700E / i7-13700 | i7-13700TE | i5-13500E / i5-13500 | i5-13500TE | i5-13400E / i5-13400 | i3-13100E / i3-13100 | i3-13100TE | | | |
| | Core Number | 24 | 24 | 16 | 16 | 14 | 14 | 10 | 4 | 4 | | | |
| | Base frequency (GHz) | 1.8/2.0 | 1 | 1.9/2.1 | 0.8 | 2.4/2.6 | 1.3 | 2.4/2.5 | 3.3/3.4 | 2.4 | | | |
| | Max Speed (GHz) | 5.2/5.6 | 5 | 5.1/5.2 | 4.8 | 4.6/4.8 | 4.5 | 4.6 | 4.4/4.5 | 4.1 | | | |
| | Smart cache (MB) | 36 | 36 | 30 | 30 | 24 | 24 | 20 | 12 | 12 | | | |
| TDP (W) | 65 | 35 | 65 | 35 | 65 | 35 | 65 | 60 | 35 | | | | |
| 12th Generation Processors | CPU | i9-12900E / i9-12900 | i9-12900TE | i7-12700E / i7-12700 | i7-12700TE | i5-12500E / i5-12500/12400 | i5-12500TE | i3-12100E / i3-12100 | i3-12100TE | G7400E | G7400TE | G6900E | G6900TE |
| | Core Number | 16 | 16 | 12 | 12 | 6 | 6 | 4 | 4 | 2 | 2 | 2 | 2 |
| | Base frequency (GHz) | 2.3/2.4 | 1.1 | 2.1 | 1.4 | 2.9/3.0/2.5 | 1.9 | 3.2 | 2.1 | 3.6 | 3 | 3 | 2.4 |
| | Max Speed (GHz) | 5 | 4.8 | 4.8 | 4.7 | 4.5/4.6/4.4 | 4.3 | 4.2/4.3 | 4 | NA | NA | NA | NA |
| | Smart cache (MB) | 30 | 30 | 25 | 25 | 18 | 18 | 12 | 12 | 6 | 6 | 4 | 4 |
| TDP (W) | 65 | 35 | 65 | 35 | 65 | 35 | 60 | 35 | 46 | 35 | 46 | 35 | |
| Processor System | Chipset | H610E | | | | | | | | | | | |
| | BIOS | AMI EFI 256Mb SPI | | | | | | | | | | | |
| Expansion Slot | M.2 | 1 M-Key for SSD, 1 E-Key for Wireless connection | | | | | | | | | | | |
| | PCIe x16 | PCIe x16 Gen4 for discrete GPU card and storage devices | | | | | | | | | | | |
| Memory | Technology | Dual Channel DDR4, up to 3200 MT/s (non-ECC) | | | | | | | | | | | |
| | Max. Capacity | 64GB (up to 32GB per DIMM) | | | | | | | | | | | |
| | Socket | 2 x 260pin SO-DIMM | | | | | | | | | | | |
| Graphics | Controller | up to Intel® UHD Graphics 770 | | | | | | | | | | | |
| | HDMI | HDMI1.4b, up to 3840x2160 @ 30 Hz | | | | | | | | | | | |
| | DP | DP1.4a, up to 4096 x 2304 @ 60 Hz | | | | | | | | | | | |
| | eDP | By Option, up to 4096 x 2304 @ 60 Hz | | | | | | | | | | | |
| | LVDS | By Default, supports single/dual channel 18/24-bit, up to 1920 x 1200 @ 60 Hz (eDP coloy with LVDS) | | | | | | | | | | | |
| | Multi Displays | up to 3 display(combination of HDMI, 2DP, eDP or LVDS) | | | | | | | | | | | |
| Network | ETHERNET | 10/100/1000/2500 Mbps (by BOM option) | | | | | | | | | | | |
| | Controller | Intel i219V and Intel i226V | | | | | | | | | | | |
| | Connector | 2 x RJ45 | | | | | | | | | | | |
| Audio | Codec | Realtek ALC888S, High Definition Audio (HD), Line-in, Line out, Mic-in | | | | | | | | | | | |
| | Amplifier | Yes (Option, 2.5W) | | | | | | | | | | | |
| SATA | Max data transfer rate | 6 Gb/s | | | | | | | | | | | |
| | Channel | 2 x SATA III | | | | | | | | | | | |
| Rear I/O | DP | 2 | | | | | | | | | | | |
| | HDMI | 1 | | | | | | | | | | | |
| | Ethernet | 2 | | | | | | | | | | | |
| | USB | Up to 4 USB3.2 Gen1x1 & 4 USB2.0 | | | | | | | | | | | |
| | Audio | 1 (Line in/Line out/Mic in) | | | | | | | | | | | |
| | USB | 2 (USB2.0) | | | | | | | | | | | |
| Internal Connector | LVDS/eDP | 1 (eDP coloy with LVDS) | | | | | | | | | | | |
| | Serial | 6 (COM1-COM6 support RS-232, COM2 option RS-232/422/485) | | | | | | | | | | | |
| | SATA | 2 | | | | | | | | | | | |
| | M.2 | 1 M-key (dimension: 2242) 1 E-key (dimension: 2230) | | | | | | | | | | | |
| | GPIO | 8-bit | | | | | | | | | | | |
| Watchdog Timer | Output | System reset | | | | | | | | | | | |
| | Interval | Programmable 1 ~ 255 (second or minute) | | | | | | | | | | | |
| Power Requirements | Input voltage | 12V ATX | | | | | | | | | | | |
| | Connector | Internal ATX 20pin | | | | | | | | | | | |
| | Power consumption | Configuration | Intel® Core™ i9-13900E, 2pcs 32 GB DDR4 3200 MT/s | | | | | | | | | | |
| | | Max. | 82.2 W | | | | | | | | | | |
| | | Typical | 60 W | | | | | | | | | | |
| Environment | Temperature | Operating: 0 ~ 60° C (32 ~ 140° F) | | | | | | | | | | | |
| | Storage | Non-Operating: -40 ~ 85° C (-40 ~ 185° F) | | | | | | | | | | | |
| Physical Characteristics | Dimensions | 170 mm x 170 mm (6.69" x 6.69") | | | | | | | | | | | |

Block Diagram



Ordering Information

| P/N | Chipset | HDMI | DP | LVDS/eDP | GbE | COM | SATAIII | USB3.2 | USB2.0 | M.2 M key | M.2 E key | PCIex16 | TPM | AMP |
|-----------------|---------|------|----|----------|-----|-----|---------|--------|--------|-----------|-----------|---------|-----|-----|
| AIMB-208HF-LAA1 | H610E | 1 | 2 | 1/(1) | 2* | 6 | 2 | 4 | 6 | 1 | 1 | 1 | (1) | (1) |
| AIMB-208HL-LAA1 | H610E | 1 | 1 | eDP | 1 | 2 | 2 | 2 | 6 | 1 | 1 | 1 | (1) | (1) |

*() Supports by BOM options
 *AIMB-208HF-LAA1 support 2 GbE (default), 1 GbE and 2.5 GbE (option)

Packing List

| P/N | Description | Quality |
|----------------|--------------------------------|---------|
| AIMB-208 Board | AIMB-208 motherboard | 1 |
| 1700003194-21 | SATA HDD cable | 1 |
| 1700034404-01 | 1-to-1 serial port cable, 50cm | 1 |
| 1960113473T001 | I/O port bracket | 1 |
| 2046020800 | Startup manual for AIMB-208 | 1 |

Optional Accessories

| P/N | Description |
|----------------|--|
| 1970005349T001 | LGA1700 CPU Cooler H: 55.4mm (for TDP 65W) |
| 1970005672T001 | LGA1700 CPU Cooler H: 32mm (for TDP 35W) |
| 1700034405-01 | 1-to-1 USB cable, 50cm |

Embedded OS

| OS/API | Part Number | 968 Part Number | Description |
|------------|----------------|-----------------|------------------------------------|
| Ubuntu | 20706U22DS0023 | 968MOU204D | img UbuntuD AIMB-208 64b 22.04 ENU |
| Windows 10 | 20706WX1ES0059 | 968QW21ELE | img W10 21EL AIMB-208 64b 21H2 ENU |
| Windows 10 | 20706WX1HS0059 | 968QW21HLE | img W10 21HL AIMB-208 64b 21H2 ENU |
| Windows 10 | 20706WX1VS0059 | 968QW21VLE | img W10 21VL AIMB-208 64b 21H2 ENU |

Optional Chassis

| Part Number | Description |
|----------------|--|
| EPC-B2000-A030 | EPC-B2000 chassis w/ 350W PSU and LGA1700 cooler |

I/O View

