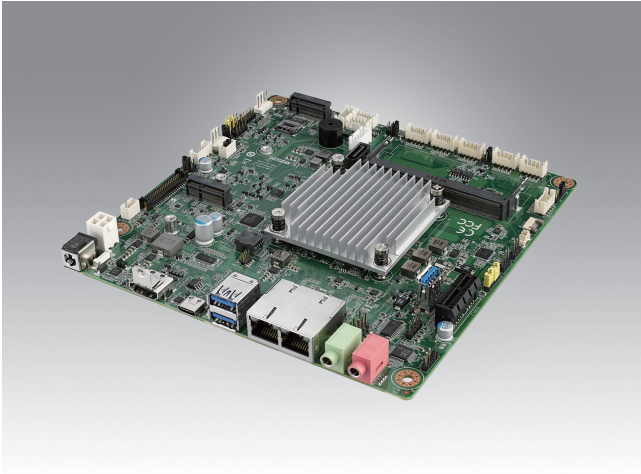


AIMB-219

Mini-ITX Motherboard Intel® Core™ i3, N series and Atom® x7000 Series Processors (Alder Lake-N/ Amston Lake)



Features

- Intel® Core™ i3, N series and Atom® x7000 Series Processors
- Up to 16GB DDR4 3200MT/s with one SO-DIMM
- Triple independent display with 1 DP, 1 HDMI, 1 LVDS(or eDP)
- Abundant I/O expansion: 1 M.2 B-key & 1 M.2 E-key, 3 USB 3.2 Gen2x1, 5 USB 2.0, 1 USB Type-C and 6 COM
- Mini-ITX low profile motherboard, fanless design
- Supports Device-On and Embedded Software APIs

Software APIs:



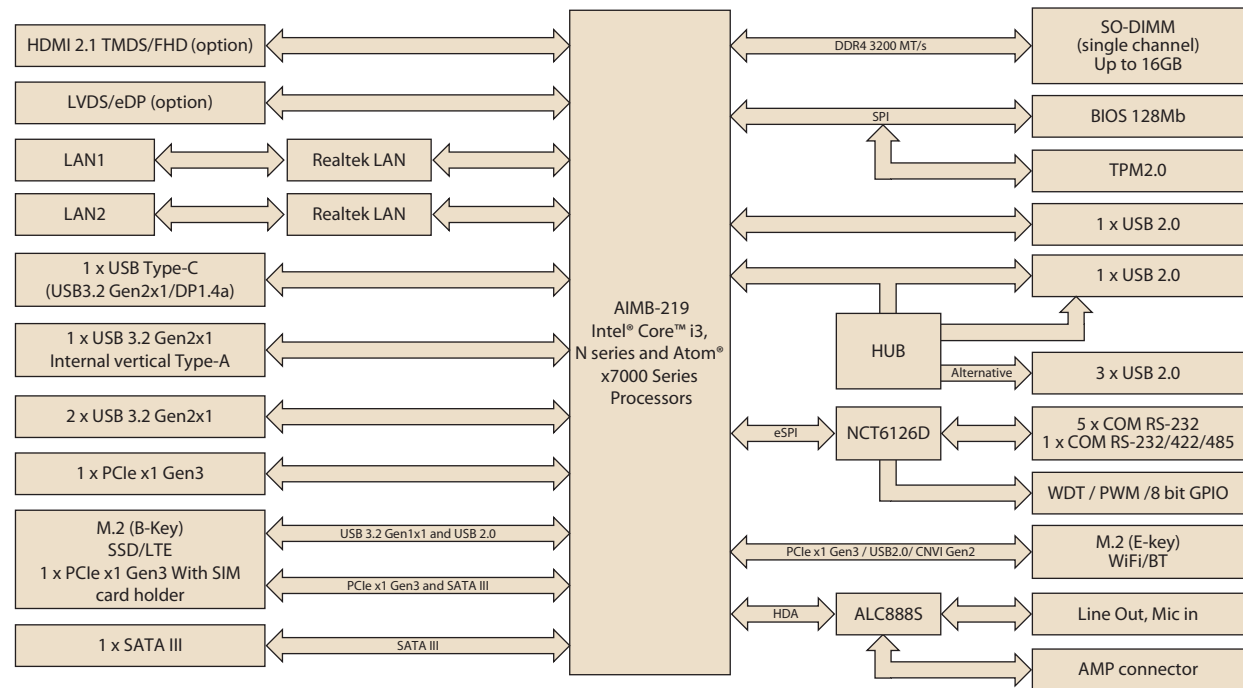
Utilities:



Specifications

| | | | | | | | | | | | |
|--------------------------|------------------------|--|--|---|-----|---------|---------|---------|---------|--|--|
| Processor System | CPU (10nm) | i3-N305 | N200 | N97 | N50 | x7835RE | x7433RE | x7213RE | x7211RE | | |
| | Core Number | 8 | 4 | 4 | 2 | 8 | 4 | 2 | 2 | | |
| | Base frequency (GHz) | 1.8 | 1 | 2 | 1 | 1.3 | 1.5 | 2 | 1 | | |
| | TDP (W) | 15 | 6 | 12 | 6 | 12 | 9 | 9 | 6 | | |
| | BIOS | AMI EFI 256Mb SPI | | | | | | | | | |
| Expansion Slot | M.2 | 1 x E-Key for wireless module (WiFi/BT), 1 x B-key for storage (SSD/LTE) | | | | | | | | | |
| | PCIe | 1 PCIe x1 Gen3 (8GT/s) | | | | | | | | | |
| Memory | Technology | Single channel DDR4 3200 MT/s (non-ECC) | | | | | | | | | |
| | Max. Capacity | 16 GB | | | | | | | | | |
| | Socket | 1 x 260pin SO-DIMM | | | | | | | | | |
| Graphics | Controller | Intel® UHD Graphics | | | | | | | | | |
| | HDMI | 1 x HDMI 2.1 TMDS, up to 4Kx2K @ 60 Hz (refer to Ordering Information) | | | | | | | | | |
| | DP | 1 x DP 1.4a, up to 4096x2304 @ 60 Hz (via USB Type-C) | | | | | | | | | |
| | LVDS | 1 (default, pin header, supports dual channel 18/24-bit, up to 1920 x 1200 @ 60 Hz) | | | | | | | | | |
| | eDP | 1 (option, pin header, up to 4096 x 2304 @ 60 Hz) | | | | | | | | | |
| | Multi Displays | Triple displays | | | | | | | | | |
| Network | Ethernet | 10/100/1000/2500 Mbps | | | | | | | | | |
| | Controller | RTL8111K (1GbE) or RTL8125BG (2.5GbE), refer to Ordering Information | | | | | | | | | |
| | Connector | 2 x RJ45 | | | | | | | | | |
| Audio | Codec | Realtek ALC888S, High Definition Audio (HD), Line out, Mic-in | | | | | | | | | |
| | Amplifier | Yes, 6W | | | | | | | | | |
| SATA | Max data transfer rate | 6.0 Gb/s | | | | | | | | | |
| | Channel | 1 x SATAIII | | | | | | | | | |
| Rear I/O | DP (via USB Type-C) | 1 | | | | | | | | | |
| | HDMI | 1 | | | | | | | | | |
| | Ethernet | 2 | | | | | | | | | |
| | USB | 2 x USB3.2 Gen2x1 + 1 x USB3.2 Gen2x1 Type-C | | | | | | | | | |
| | Audio | 1 (Line-Out, Mic-In) | | | | | | | | | |
| Internal Connector | USB | 5 x USB2.0 + 1 x USB3.2 Gen2x1 (Internal vertical Type-A) | | | | | | | | | |
| | LVDS/eDP | 1 (eDP colay with LVDS) | | | | | | | | | |
| | Serial | 6, COM1-COM2: Support RS-232 by default COM3: Support RS-232/422/485(BOM option), auto flow control by BIOS COM4: Support RS-232 by default; CClalk by BOM option COM5: Support RS-232 by default; TTL by BOM option COM6: Support RS-232 by default; Ring-in 5V/12V select by jumper | | | | | | | | | |
| | | SATA | 1 x SATAIII 6.0 Gb/s | | | | | | | | |
| | | M.2 | 1 x B-key (dimension: 2242/2280/3042) 1 x E-key (dimension: 2230) | | | | | | | | |
| | | GPIO | 8-bit | | | | | | | | |
| | | Watchdog Timer | Output | System reset | | | | | | | |
| | | | Interval | Programmable 1 ~ 255 (second or minute) | | | | | | | |
| Power Requirements | Input voltage | 12V DC-in | | | | | | | | | |
| | Connector | DC Jack, Internal 4-pin ATX | | | | | | | | | |
| | Power consumption | Configuration | Intel Core i3-N305, 1pcs 16 GB DDR4 3200MT/s SO-DIMM | | | | | | | | |
| | | Max. | 39.7 W | | | | | | | | |
| | Typical | 26.4 W | | | | | | | | | |
| Environment | Temperature | Operating: 0 ~ 60 °C (32 ~ 140 °F) or -20 ~ 70 °C (-4 ~ 158 °F) for Z SKU | | | | | | | | | |
| | 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 | CPU | HDMI 2.1 TMDS | HDMI FHD | LVDS/eDP | USB Type-C | GbE | COM | SATAIII | USB3.2 | USB2.0 | M.2 B key | M.2 E key | PCIex1 | TPM | AMP | Thermal Solution | Operating Temp. |
|-------------------|---------|---------------|----------|----------|------------|-------|-------|---------|--------|--------|-----------|-----------|--------|-----|-----|------------------|-----------------|
| AIMB-219NC3F-LDA1 | i3-N305 | 1 | 0 | 1/(1) | 1 | 2* | 6 | 1 | 3 | 5 | 1 | 1 | 1 | 1 | 1 | Passive | 0 - 60 °C |
| AIMB-219N2F-LDA1 | N200 | 0 | 1 | 1/(1) | (1) | 2 | 4/(2) | 1 | 3 | 5 | 1 | 1 | 1 | 1 | (1) | Passive | 0 - 60 °C |
| AIMB-219N9F-LDA1 | N97 | 0 | 1 | 1/(1) | 1 | 2 | 4/(2) | 1 | 3 | 5 | 1 | 1 | 1 | 1 | (1) | Passive | 0 - 60 °C |
| AIMB-219N5L-LDA1 | N50 | 0 | 1 | 0 | 0 | 1/(1) | 2/(4) | 1 | 3 | 2/(3) | 1 | 1 | 1 | (1) | (1) | Passive | 0 - 60 °C |
| AIMB-219M8F-LDA1 | x7835RE | 1 | 0 | 1/(1) | 1 | 2* | 6 | 1 | 3 | 5 | 1 | 1 | 1 | 1 | 1 | Passive | 0 - 60 °C |
| AIMB-219M4F-LDA1 | x7213RE | 0 | 1 | 1/(1) | (1) | 2 | 4/(2) | 1 | 3 | 5 | 1 | 1 | 1 | 1 | (1) | Passive | 0 - 60 °C |
| AIMB-219M6F-LDA1 | x7433RE | 0 | 1 | 1/(1) | 1 | 2 | 4/(2) | 1 | 3 | 5 | 1 | 1 | 1 | 1 | (1) | Passive | 0 - 60 °C |
| AIMB-219Z6F-LDA1 | x7433RE | 0 | 1 | 1/(1) | 1 | 2 | 4/(2) | 1 | 3 | 5 | 1 | 1 | 1 | 1 | (1) | Passive | -20 - 70 °C |
| AIMB-219M2L-LDA1 | x7211RE | 0 | 1 | 0 | 0 | 1/(1) | 2/(4) | 1 | 3 | 2/(3) | 1 | 1 | 1 | (1) | (1) | Passive | 0 - 60 °C |

*() Supports by BOM options

* AIMB-219NC3F-LDA1 and AIMB-219M8F-LDA1: default 2.5 GbE x2; the other SKU support 2.5GbE by option.

Packing List

| Part Number | Description | Quantity |
|----------------|---|----------|
| AIMB-219 Board | AIMB-219 motherboard | 1 |
| 1700003194-21 | SATA HDD cable | 1 |
| 1700034404-01 | 1-to-1 serial port cable, 50cm | 1 |
| 1960115632T001 | I/O port bracket | 1 |
| 2046021900 | Startup manual for AIMB-219 | 1 |
| 1970005854T001 | Fanless heatsink for CPU i3-N305 or N97 | 1 |
| 1960064228T011 | Fanless heatsink for CPU N200 or N50 | 1 |
| 19350304A0 | M.2 Screw, M3x4L R/S D=5.3 H=2 (2+) | 2 |
| 1910003418-01 | M.2 Post, F=M3x4L M=M3x3L B=5 H=5.2 | 1 |
| 1700018785-01 | SATA power cable | 1 |

I/O View



Optional Chassis

| Part Number | Description |
|-----------------|---|
| AIMB-B2000-00YE | Mini-ITX chassis with optional DC Adaptor |

Optional Accessories

| Part Number | Description |
|-------------------|-----------------------------|
| 1700034405-01 | 1-to-1 USB cable, 50cm |
| 96PSA-A120W12V1-3 | Adapter AC100-240V 120W 12V |

Embedded OS/API

| OS | Part No. | Description |
|------------|----------------|------------------------------------|
| Ubuntu | 20706U22DS0039 | img UbuntuD AIMB-219 64b 22.04 ENU |
| Windows 10 | 20706WX1ES0083 | img W10 21EL AIMB-219 64b 21H2 ENU |
| Windows 10 | 20706WX1HS0083 | img W10 21HL AIMB-219 64b 21H2 ENU |
| Windows 10 | 20706WX1VS0083 | img W10 21VL AIMB-219 64b 21H2 ENU |