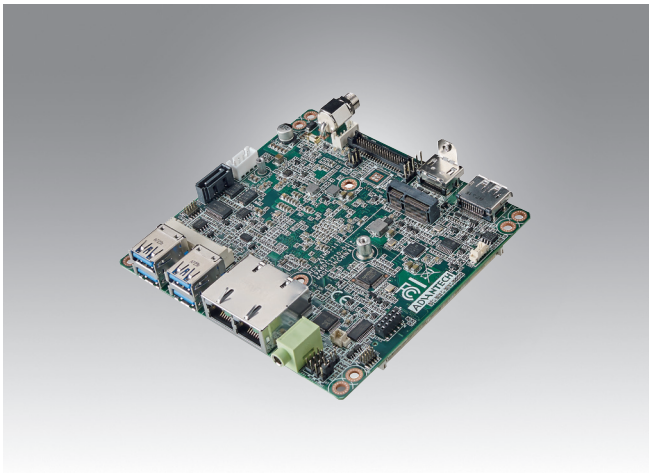
# AIMB-U117

## Intel® Atom™ E3950/E3930 DC 1.6/1.3 GHz UTX Industrial Motherboard with HDMI/eDP (LVDS)/DP++, 2 COMs and Dual LAN



ubuntu® Windows 10 WISE-PaaS/RMM CE FCC RoHS

## Features

- Supports Intel® Atom™ Quad/ Dual core E3950/E3930 1.6/ 1.3 GHz processor
- Single 204-pin SO-DIMM up to 8 GB DDR3L 1866 MHz SDRAM
- Supports HDMI/DP++, eDP (co-lay dual-channel 48-bit LVDS)
- Supports 1 Mini-PCIE expansion slot, M.2 E-Key slot, 2 COMs (RS-232, RS-422/485), 4 USB 3.0, and dual LAN
- Supports eMMC 32GB on board
- Supports wide DC in 12V to 24V
- Supports wide temperature with cooler/fanless solution

**Software APIs:** H/W Monitor, Brightness, GPIO, Watchdog

**Utilities:** BIOS flash, Monitoring

## Specifications

| | | | | |
|---|---|---|---|---|
| Processor System | CPU (14nm) | Intel Atom E3950/ E3930 | | |
| | Max. Speed | 1.6 GHz (Quad Core)/ 1.3 GHz (Dual Core) | | |
| | L2 Cache | 2 MB | | |
| | BIOS | AMI 16 Mbit SPI | | |
| Expansion Slot | Mini-PCIe | F/S co-lay mSATA | | |
| | M.2 | E-Key | | |
| Memory | Technology | Singl channel DDR3L 1866MHz SDRAM | | |
| | Max. Capacity | 8GB | | |
| | Socket | 1 x 204-pin SO-DIMM (Non-ECC) | | |
| Graphics | Controller | Intel Gen 9 Graphics Engines and media encode/decode engine; Graphics Base Frequency: 500 MHz | | |
| | HDMI | 1, Supports HDMI1.4b up to 3840 x 2160 @ 30Hz | | |
| | eDP | 1, Supports eDP1.3, max resolution up to 3840 x 2160@60 Hz, Co-lay with LVDS | | |
| | LVDS | 1, Supports 24-bit dual channel and up to 1920 x 1200, Co-lay with eDP (BOM Optional) | | |
| | Displayport | 1, Supports DP++ 1.2, max resolution up to 4096 x 2160 @ 60Hz | | |
| Ethernet | Interface | 10/100/1000 Mbps | | |
| | Controller | LAN1: Realtek 8111G; LAN2: Realtek 8111G | | |
| | Connector | RJ-45 x 2 | | |
| SATA | Max Data Transfer Rate | 600 MB/s (SATA 3.0) | | |
| | Channel | 1 | | |
| Rear I/O | HDMI | 1 | | |
| | Displayport | 1 | | |
| | Ethernet | 2 | | |
| | USB | 4 x USB3.0 | | |
| | Audio | 1 (Line-out, convert to Mic-in or Line-in) | | |
| | DC jack | 1 (2.5mm) | | |
| Internal Connector | LVDS & Inverter | 1/1 | | |
| | Serial | 1, RS-232 or MDB (BOM optional)<br>1, RS-422 or RS-485 or ccTalk (BOM optional) | | |
| | SATA | 1, (SATA 3.0) SATA PWR connector | | |
| | GPIO | 8-bit | | |
| Watchdog Timer | Output | System reset | | |
| | Interval | Programmable 1 ~ 255 sec/min | | |
| Power | Single voltage 1 | 12V ~ 24V DC input; 1 x External DC jack | | |
| | Typical Power Consumption | 12V, Windows Idle mode: 3.554W (Intel E3950 1.6GHz/ DDR3L 1866MHz 8GB)<br>24V, Windows Idle mode: 7.296W (Intel E3950 1.6GHz/ DDR3L 1866MHz 8GB) | | |
| Environment | | Operating Temperature | Non-Operating Temperature | Thermal Solution |
| | D SKU | 0 ~ 60 °C (32 ~ 140 °F)<br>with air flow 0.7m/s | -40 ~ 85 °C (-40 ~ 185 °F) | CPU Cooler |
| | D SKU | -20 ~ 70 °C (-4 ~ 158 °F)<br>with air flow 0.7m/s | -40 ~ 85 °C (-40 ~ 185 °F) | Optional Heatsink/<br>Heatspreader + Semi-Heatsink |
| | N SKU | -20 ~ 70 °C (-4 ~ 158 °F)<br>with air flow 0.7m/s | -40 ~ 85 °C (-40 ~ 185 °F) | CPU Heatsink |
| Physical Characteristics | Dimensions | 112 x 117 mm (4.4" x 4.6") | | |

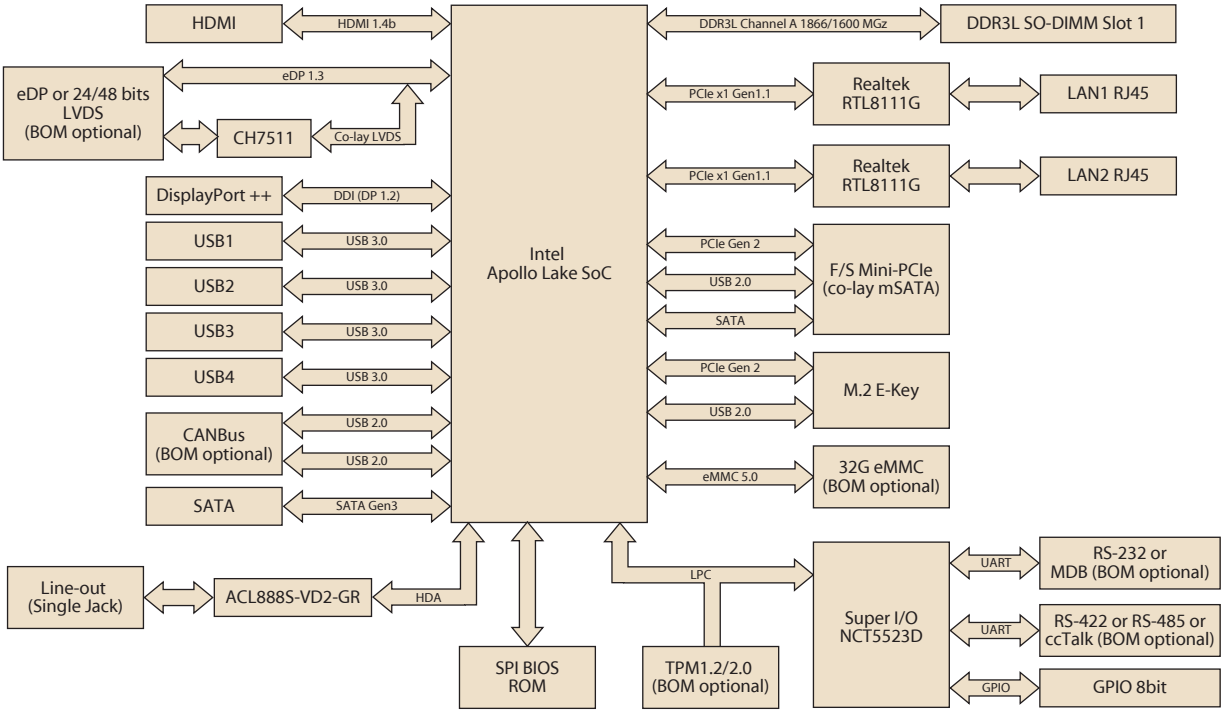
研伟科技 15323776600



All product specifications are subject to change without notice.

Last updated: 26-Feb-2021

## Block Diagram




## Ordering Information

| P/N | CPU | Memory Slot | HDMI | eDP/ LVDS | DP++ | GbE LAN | SATAIII | 32G eMMC | USB 3.0 | MiniPCIe | M.2 | RS232/ MDB | RS422/485/ ccTalk | TPM 1.2/2.0 | CANBus | Audio | Operating Temp. | Thermal Solution |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AIMB-U117D-S6A2E | E3950 | 1 | 1 | 1/(1) | 1 | 2 | 1 | (1) | 4 | 1 (F/S) | 1 | 1/ (1) | 1/ (1)/ or (1) | (1)/(1) | (1) | 1 | 0 ~ 60 °C | CPU Cooler |
| AIMB-U117NZ-S6A2E | E3930 | 1 | 1 | 1/(1) | 1 | 2 | 1 | (1) | 4 | 1 (F/S) | 1 | 1/ (1) | 1/ (1)/ or (1) | (1)/(1) | (1) | 1 | -20 ~ 70 ° C | CPU Heatsink |
| AIMB-U117NZ-FLA2E | E3930 | 1 | 1 | (1)/1 | 1 | 2 | 1 | 1 | 4 | 1 (F/S) | 1 | 1/ (1) | 1/ (1)/ or (1) | (1)/1 | 1 | 1 | -20 ~ 70° C | CPU Heatsink |

*() BOM options available on MP version.

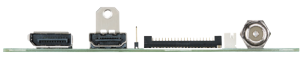
## Packing List

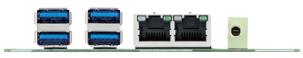
| Part Number | Description | Quantity |
|---|---|---|
| 1700008941 | SATA HDD cable | 1 |
| 1700018785 | SATA power cable | 1 |
| 1700022363-01 | Serial port cable | 2 |
| 2006U11701 | Startup manual | 1 |
| 1930001071 | MiniPCIe screw | 1 |
| 1930006770-01 | M.2 screw | 1 |
| 1960088371T001 | CPU Cooler for D SKU (E3950) | 1 |
| 1960088372T001 | CPU Heatsink for N SKU (E3930) | 1 |

## Optional Accessories

| Part Number | Description |
|---|---|
| 1700029091-01 | CANBus cable |
| 1960090365T001 | Motherboard Heat Sink |

## I/O View



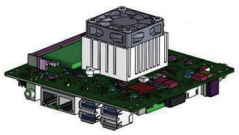


## Embedded OS/API

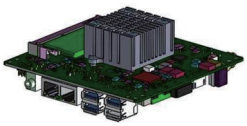
| OS/API | Part No. | Description |
|---|---|---|
| Win 10 | 20706WX9ES0021 | img W10 19EL EPC-U2117 64b 1809 ENU |
| Ubuntu 20.04 | 360SU117000101 | Ubuntu V20.04 image of AIMB-U117 |

## Thermal Solution

**CPU Cooler (CPU E3950 SKU)**



**CPU Heat Sink (CPU E3930 SKU)**



**Motherboard Heat Sink (Optional)**

