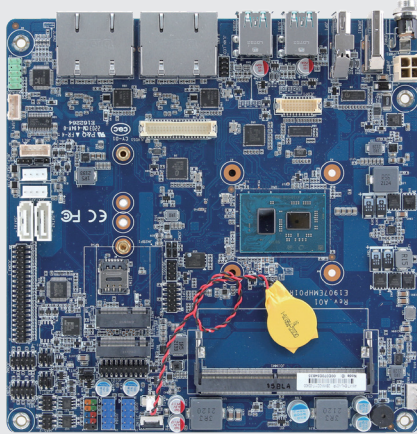




## Features

- Intel® Atom® x6000E and Celeron® Series processors
- 1 x 260-pin DDR4 3200 MHz SO-DIMM Socket, Supports Up to 32GB Max (Only Atom® x6000E Series Processors Support IB ECC)
- 1 x DP++, 1 x HDMI, 1 x LVDS co-lay eDP
- 4 x Intel® i226LM(IT)
- 4 x USB 2.0 by Pin Header, 2 x USB3.1 Gen2 and 2 x USB3.1 Gen1 at I/O
- 1 x M.2 Type B 3042/3052/2242/2260/2280, 1 x M.2 Key E 2230
- 4 x RS232, 2 x RS-232/RS422/485
- DC in +12V~24V



HDMI



DP++



DDR4  
SO-DIMM



USB 3.2



RS232/422/485

## Specifications

### System Information

|                    |                                                                                                                   |
|--------------------|-------------------------------------------------------------------------------------------------------------------|
| Processor          | Intel® Atom® x6000E and Celeron® Processor                                                                        |
| System Memory      | 1 x 260-Pin DDR4 3200MHz SO-DIMM SSocket Supports Up to 32GB (Only Atom® x6000E Series Processors Support IB ECC) |
| I/O Chipset        | EC iTE IT5571                                                                                                     |
| Watchdog Timer     | H/W Reset: 1Sec. ~ 65535Sec./Min. and 1 Sec. or 1Min./Step                                                        |
| BIOS               | AMI uEFI BIOS, 256Mbit SPI Flash ROM                                                                              |
| H/W Status Monitor | CPU Temperature Monitoring<br>Voltage Monitoring<br>CPU Fan Speed Control                                         |
| Board              | Thin Mini ITX                                                                                                     |

### Expansion

|           |                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Expansion | 1 x M.2 Type B Slot for 3042/3052/2242/2260/2280 Size with SATAIII + USB 3.1 GEN2, USB 2.0, SIM Slot for SSD/LTE/I/O Cards Support WWAN+GNSS and SSD<br>*3042/2242 Bridge Bracket to 3052<br>*SATA 2 Share with M.2 key B SATA<br>* Only Supports One SIM Card<br>* Does not support I2S and PCM Functions<br>1 x M.2 Key E 2230 Support WiFi Module (1 x PCIe x1 & USB 2.0 Signal)<br>* Does not Support PCM/I2S and UART Functions |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Display

|                    |                                                                                                                                                                                                                                                                          |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Graphic Chipset    | Intel® UHD Graphics for 10th Gen Intel® Processors                                                                                                                                                                                                                       |
| Spec. & Resolution | 1 x DP++: 4096 x 2160@60 Hz (DP: 4096 x 2160@60Hz)<br>1 x HDMI 2.0b: 4096 x 2160@60 Hz<br>LVDS: 1920 x 1080 Dual Channel 18/24-bits LVDS (Chrontel CH7511B-BFI eDP to LVDS)<br>1 x eDP 4096 x 2160@60Hz<br>LVDS and eDP Via Switch IC, Either One Display is Functional. |
| Multiple Display   | Triple Display                                                                                                                                                                                                                                                           |
| LVDS               | Dual Channel 18/24-bits LVDS (Chrontel CH7511B eDP to LVDS) eDP By BOM Option                                                                                                                                                                                            |

### Audio

|                 |                                                    |
|-----------------|----------------------------------------------------|
| Audio Codec     | Realtek ALC888S HD Audio Decoding Controller       |
| Audio Interface | Support Line-out & Mic-in & Front Audio Pin-header |
| Audio Amplifier | TI TPA3113D2 Stereo Class-D 6W                     |

### Ethernet

|                    |                                                                                                                                                                   |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LAN Chipset        | 4 x Intel® i226LM/IT(Default: i226LM/IT); (i226IT for Wide temp version) 2.5 Gigabit Ethernet (BOM optional for 1 x 2 RJ45 Thin Mini ITX Cost version design SKU) |
| Ethernet Interface | 10/100/1000/2500 Base-Tx GbE compatible Gigabit Ethernet                                                                                                          |
| LAN Port           | 4 x RJ-45                                                                                                                                                         |

### Software Support

|    |                   |
|----|-------------------|
| OS | Windows 10, Linux |
|----|-------------------|

### Certification

Certification Information CE, FCC, RoHS Compliant

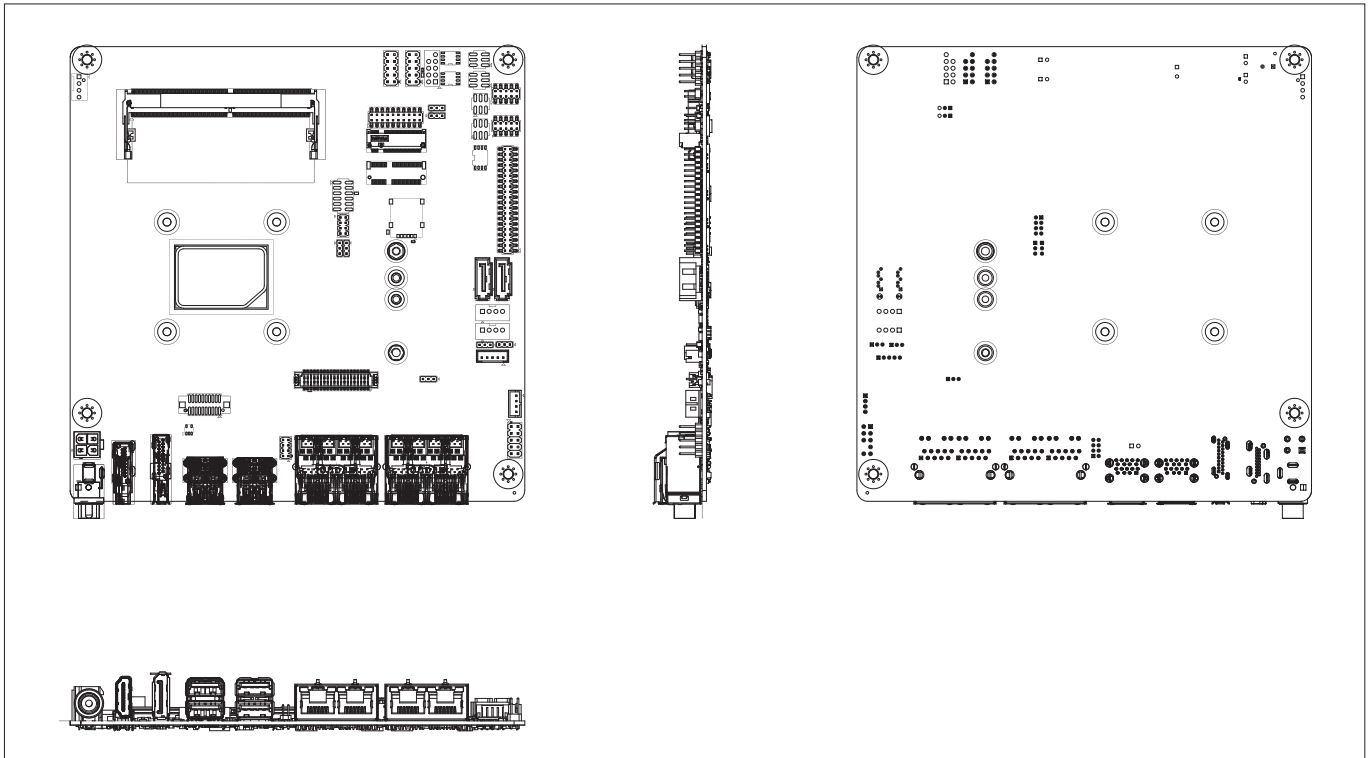
### I/O

|          |                                                     |
|----------|-----------------------------------------------------|
| USB      | 2 x USB 3.1 Gen2<br>2 x USB 3.1 Gen1<br>4 x USB 2.0 |
| COM Port | 4 x RS232<br>2 x RS-232/RS422/485                   |
| SATA     | 2 x SATA III<br>2 x SATA Power                      |
| DIO      | 1 x 16-bit GPIO                                     |

### Mechanical & Environmental

|                    |                                                                                                                                                                    |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating Temp.    | 0 ~ 60°C (32 ~ 140 °F) Intel® Pentium®/Celeron®N/J Series CPU SKU<br>-20~60°C (-8~140°F) Intel® Atom®x6000 Series CPU SKU w/HDD/SSD, ambient with 0.5 m/s Air flow |
| Storage Temp.      | -40 ~ 75°C (-40 ~ 167°F)                                                                                                                                           |
| Operating Humidity | 40°C @ 95% Relative Humidity, Non-condensing                                                                                                                       |
| Weight             | 0.88lbs (0.4Kgs)                                                                                                                                                   |
| Power Requirement  | DC in +12V~24V                                                                                                                                                     |
| Dimension (L x W)  | 6.7" x 6.7" (170mm x 170mm)                                                                                                                                        |

## Mechanical Drawing



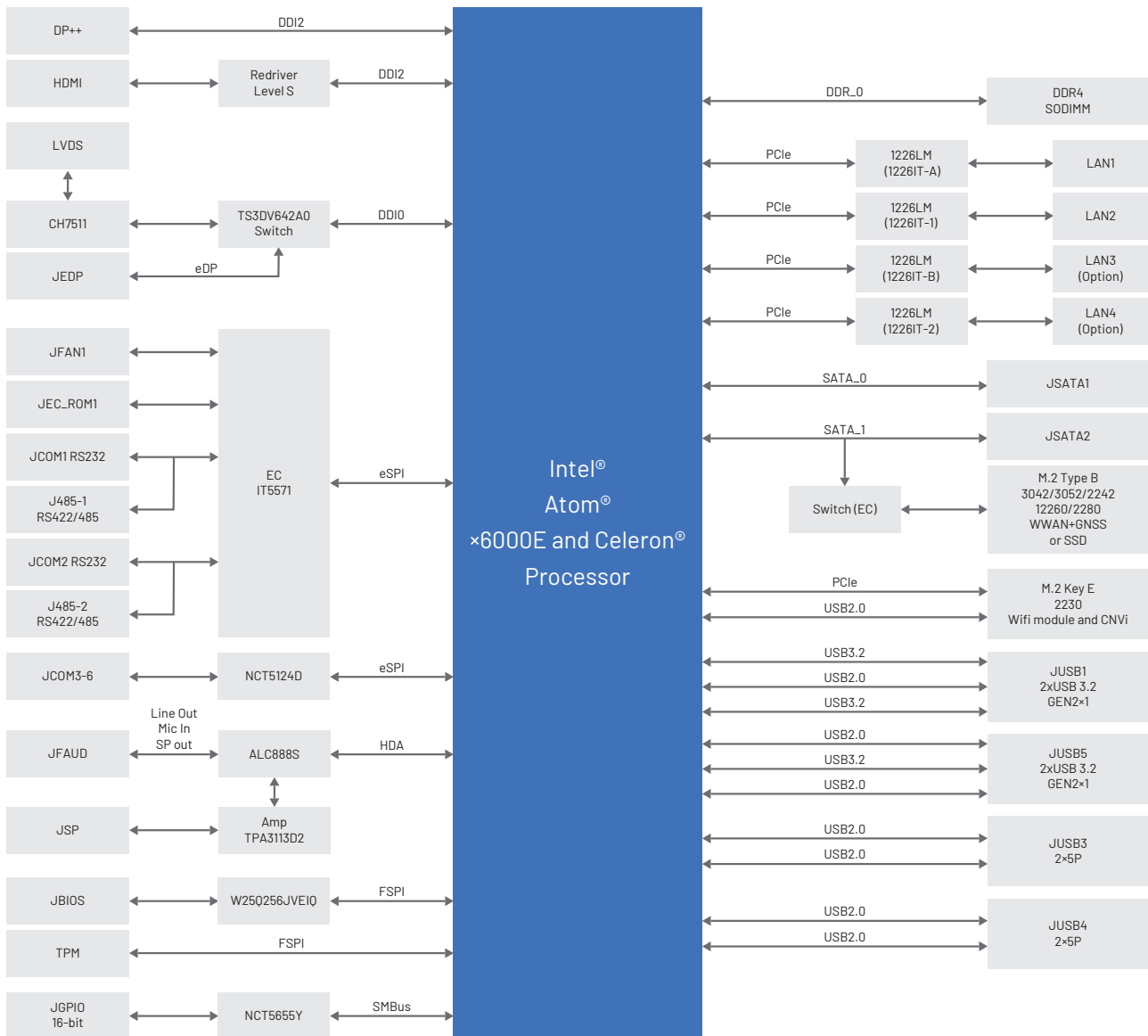
## Ordering Information

| P/N                | Processor                       | Chipset | LAN | USB | COM | PCIe Slot | Power Input       | Temp.                      |
|--------------------|---------------------------------|---------|-----|-----|-----|-----------|-------------------|----------------------------|
| EMX-EHLP-J6412-A1R | Intel® Celeron® Processor J6412 | NA      | 4   | 6   | 6   | 0         | DC in +12V ~ +24V | 0°C ~ 60°C<br>(32~140°F)   |
| EMX-EHLP-J12-A1-1R | Intel® Celeron® Processor J6412 | NA      | 2   | 6   | 6   | 0         | DC in +12V ~ +24V | 0°C ~ 60°C<br>(32~140°F)   |
| EMX-EHLP-J12-A1-1R | Intel® Celeron® Processor J6413 | NA      | 4   | 6   | 6   | 0         | DC in +12V ~ +24V | 0°C ~ 60°C<br>(32~140°F)   |
| EMX-EHLP-X13E-A1R  | Intel® Atom® Processor x6413E   | NA      | 4   | 6   | 6   | 0         | DC in +12V ~ +24V | -20°C ~ 60°C<br>(-4~140°F) |
| EMX-EHLP-X25RE-A1R | Intel® Atom® Processor x6425RE  | NA      | 4   | 6   | 6   | 0         | DC in +12V ~ +24V | -20°C ~ 60°C<br>(-4~140°F) |

## Packing List

| Item       | P/N | Quantity |
|------------|-----|----------|
| SATA Cable | -   | 2        |
| IO shield  | -   | 1        |

## Block Diagram



## I/O Overview

