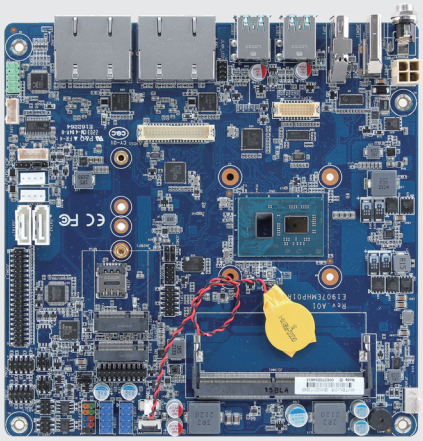
EMX-EHLP

Intel® Atom® x6000E and Celeron® Processors,
Thin Mini ITX Motherboard



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 IBECC)
- 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 IBECC)
I/O Chipset	EC iTE IT5571
Watchdog Timer	H/W Reset: 1Sec. ~ 65535Sec./Min. and1 Sec. or 1Min./Step
BIOS	AMI uEFI BIOS, 256Mbit SPI Flash ROM
H/W Status Monitor	CPU Temperature Monitoring Voltage Monitoring 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/IO Cards Support WWAN+GNSS and SSD *3042/2242 Bridge Bracket to 3052 *SATA 2 Share with M.2 key B SATA * Only Supports One SIM Card * Does not support I2S and PCM Functions 1 x M.2 Key E 2230 Support WiFi Module (1 x PCIe x1 & USB 2.0 Signal) * 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) 1 x HDMI 2.0b: 4096 x 2160@60 Hz LVDS: 1920 x 1080 Dual Channel 18/24-bits LVDS (Chrontel CH7511B-BFI eDP to LVDS) 1 x eDP 4096 x 2160@60Hz 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 2 x USB 3.1 Gen1 4 x USB 2.0
COM Port	4 x RS232 2 x RS-232/RS422/485
SATA	2 x SATA III 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 -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)

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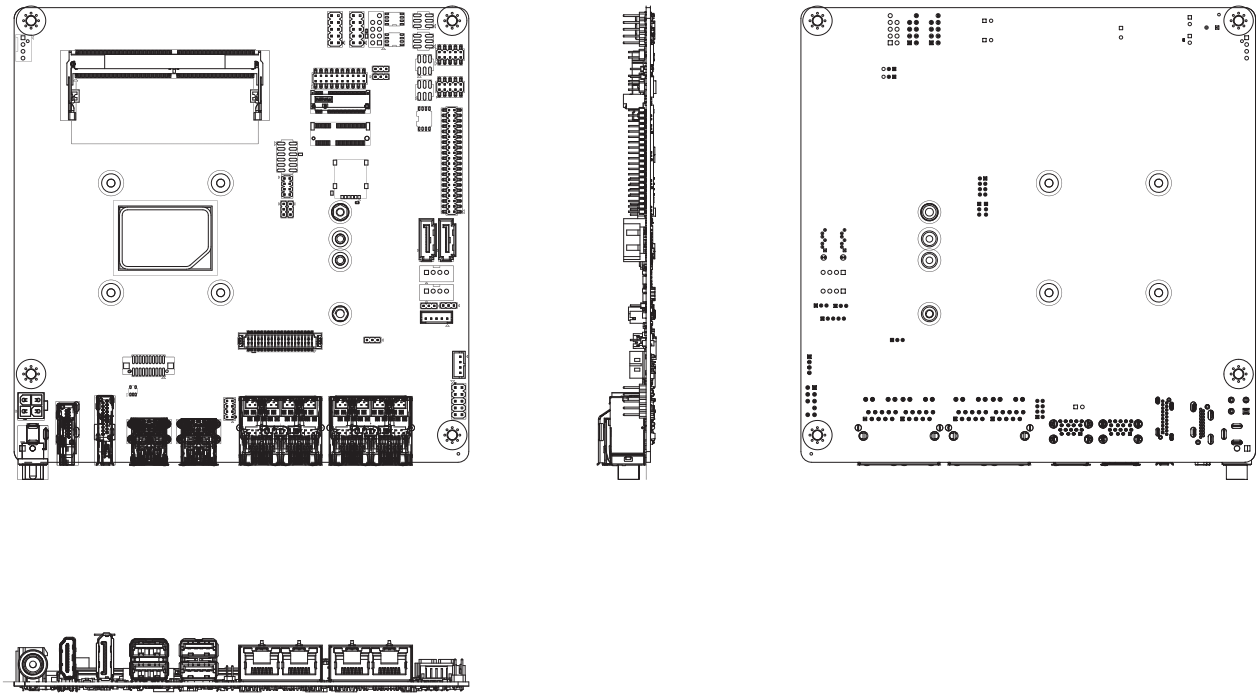
Mechanical Drawing



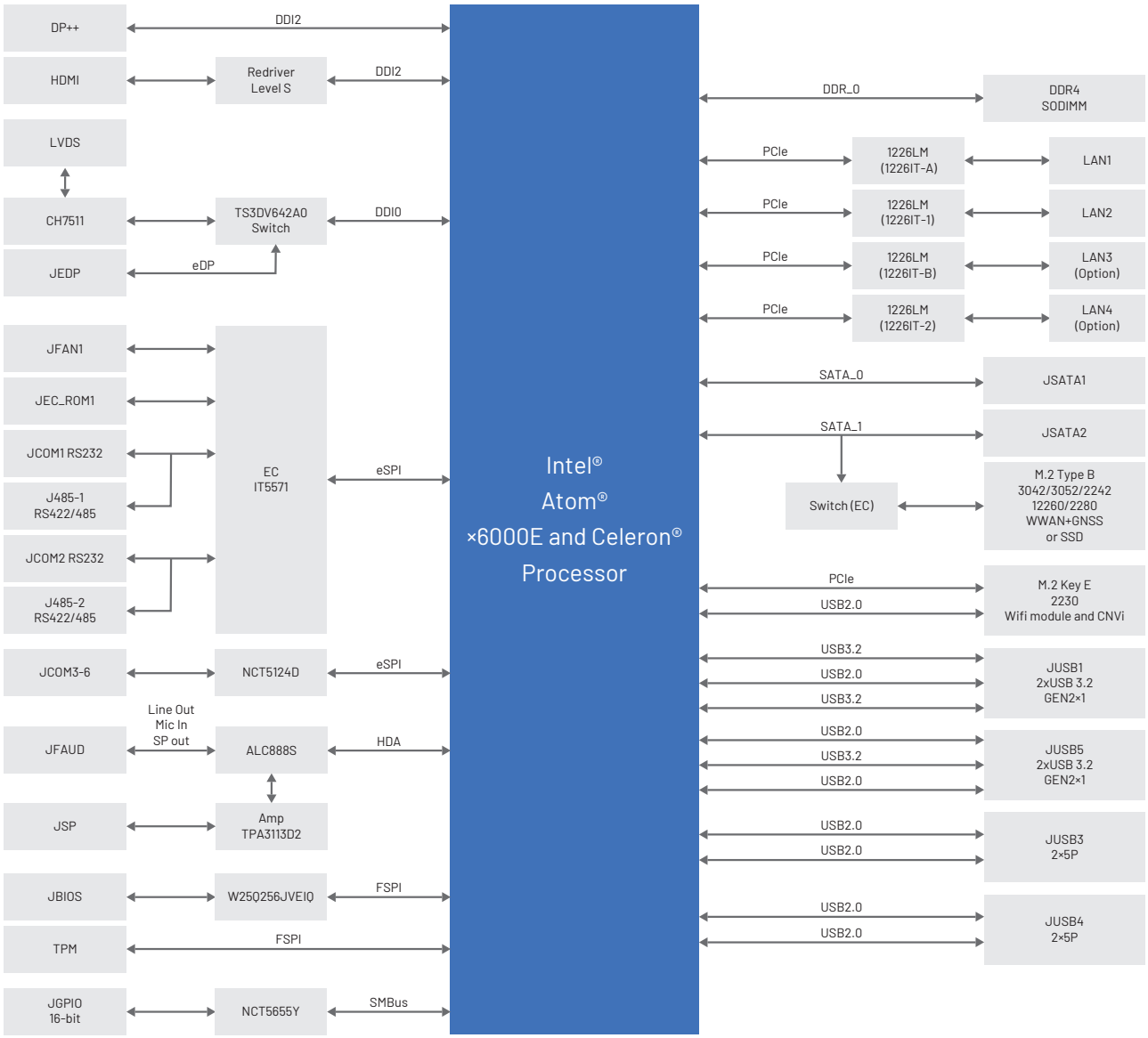
Ordering Information

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 (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 (32~140°F)
EMX-EHLP-J6413-A1R	Intel® Celeron® Processor J6413	NA	4	6	6	0	DC in +12V ~ +24V	0°C ~ 60°C (32~140°F)
EMX-EHLP-X13E-A1R	Intel® Atom® Processor x6413E	NA	4	6	6	0	DC in +12V ~ +24V	-20°C ~ 60°C (-4~140°F)
EMX-EHLP-X25RE-A1R	Intel® Atom® Processor x6425RE	NA	4	6	6	0	DC in +12V ~ +24V	-20°C ~ 60°C (-4~140°F)

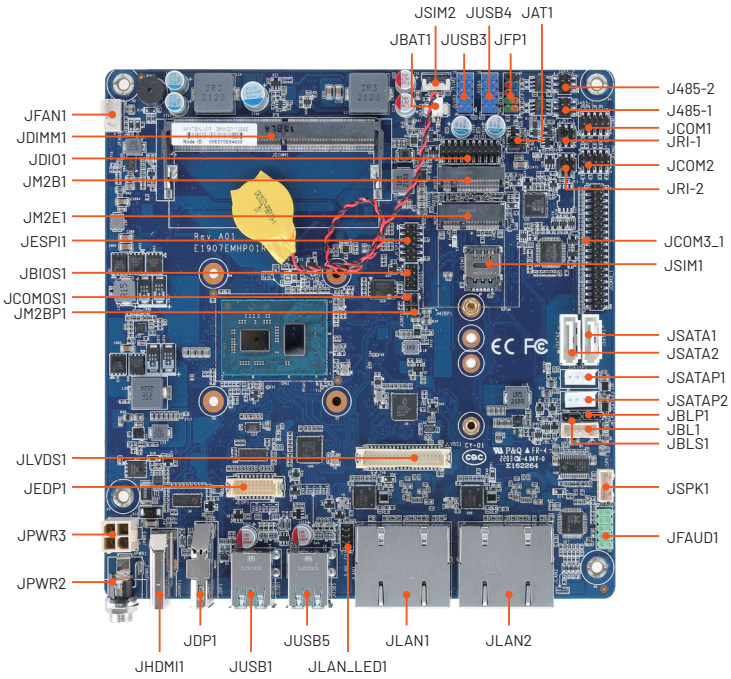
Packing List

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

Block Diagram



I/O Overview


JSIM2
JUSB4
JAT1
JBAT1
JUSB3
JFP1
JFAN1
JDIMM1
JDIO1
JM2B1
JM2E1
JESPI1
JBIOS1
JCOMOS1
JM2BP1
JLVDS1
JEDP1
JPWR3
JPWR2
J485-2
J485-1
JCOM1
JRI-1
JCOM2
JRI-2
JCOM3_1
JSIM1
JSATA1
JSATA2
JSATAP1
JSATAP2
JBLP1
JBL1
JBLS1
JSPK1
JFAUD1
JDP1
JUSB5
JLAN1
JLAN2
JHDMI1
JUSB1
JLAN_LED1