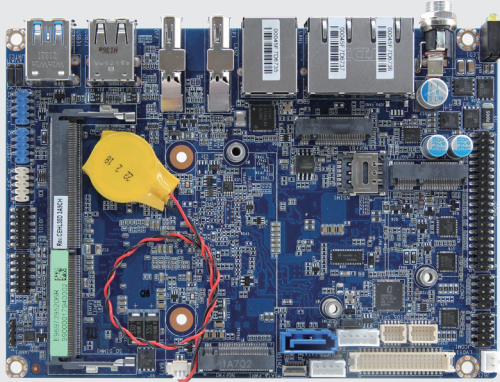




Features

- Bottom Layer Soldered Processor
- Single DRAM Socket, Max, Up to 32GB DDR4 3200MTs (non-ECC Supported)
- Triple Display, 2 x DP++, 1 x 2CH LVDS (Share with eDP, default LVDS)
- Triple Expansion Slot, M.2 Key-B, M.2 Key-E, M.2 Key-M
- Three Gigabit Ethernet, 1 x 2.5GbE, 2 x 1GbE
- DC in +9V ~ +36V



DP++



DDR4
SO-DIMM



USB 3.1



RS232/422/485

Specifications

System Information

Processor	Intel® Atom® x6000E and Celeron® Processor (with CPU Bottom Mounted) Intel® Celeron® J6412 Processor (1.5M Cache, up to 2.60 GHz) Intel® Celeron® J6413 Processor (1.5M Cache, up to 3.00 GHz) Intel Atom® x6413E Processor (1.5M Cache, up to 3.00 GHz) Intel Atom® x6425RE Processor (1.5M Cache)
System Memory	1 x 260-pin DDR4 3200MHz SO-DIMM Socket, Supports Up to 32GB Max. (non ECC only)
I/O Chipset	EC iTE IT5571
Watchdog Timer	H/W Reset, 1sec. ~ 65535sec and 1sec. or 1min./step
BIOS	AMI BIOS, 256Mbit SPI Flash ROM
H/W Status Monitor	CPU & system temperature monitoring Voltages monitoring
TPM	Onboard NuvoTon NPCT754AADYX supports TPM 2.0
Board	3.5"

Expansion

Expansion	1 x M.2 Type E 2230 supports WiFi module (PCIe x1 & USB 2.0 Signal) 1 x M.2 Type B 3042/2242, standard package with 3042 to 3052 bracket + screw set (with SATA and USB 3.0/USB 2.0, with 1 x SIM card slot, supports WWAN+GNSS or SSD) 1 x M.2 Type M supports 2260 slot, standard package with 2260 to 2242 bracket + screw set (with 1 x PCIe x1 signal)
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Storage

Storage	1 x M.2 (Type B) 1 x M.2 (Type M) 1 x SATA III
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Display

Graphic Chipset	Intel® UHD Graphics
Spec. & Resolution	DP++ Max resolution 4096 x 2160 @ 60Hz LVDS Max resolution 1920 x 1080 Dual channel 18/24-bits eDP1.3 Max resolution 4096 x 2160 @ 60Hz
Multiple Display	Triple Display
LVDS	1 x LVDS: 1920 x 1080 Dual channel 18/24-bits LVDS (Chrontel CH7511B-BF eDP to LVDS) share with eDP by switch IC, default LVDS

Audio

Audio Codec	Realtek ALC888S HD Audio Decoding Controller
Audio Interface	Line-in, Mic-in, Line-out
Audio Amplifier	2 x 2W 4Q Amplifier

Ethernet

LAN Chipset	1 x Intel® I226LM, 2 x I210AT
Ethernet Interface	1 x 10/100/1000/2.5G Base-Tx GbE compatible 2 x 10/100/1000 Base-Tx GbE compatible
LAN Port	3 x RJ-45

Power Requirement

Power Mode	AT/ATX (Default Setting: AT)
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Software Support

OS	Windows 10, Linux
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Certification

Certification Information	CE, FCC Class, RoHS Compliant
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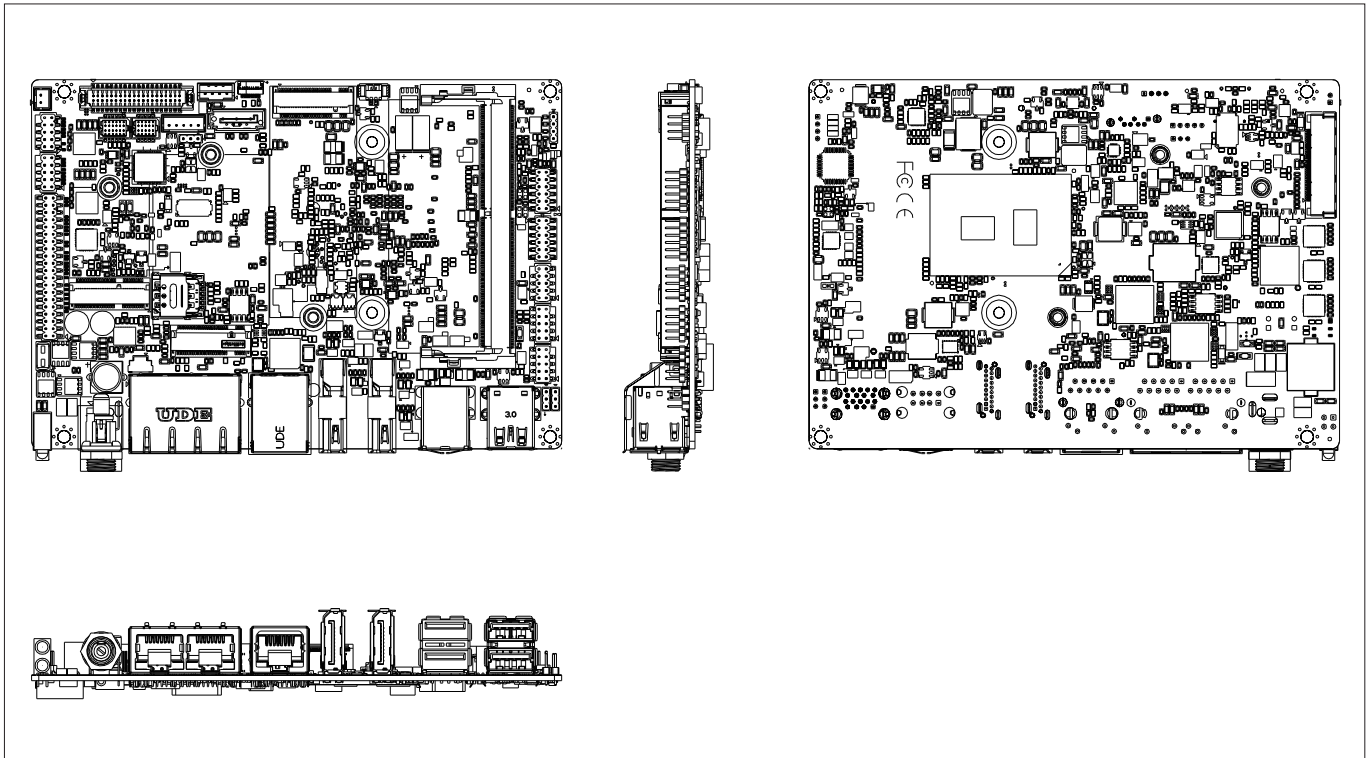
I/O

USB	2 x USB 3.1 Gen2, 2 x USB2.0 At I/O 4 x USB 2.0 By Pin Header
COM Port	4 x RS232 2 x RS-232/422/485
SATA	1 x SATA III
DIO	1 x 8-bit GPIO
MIO	1 x eSPI 1 x SIM Card Slot

Mechanical & Environmental

Operating Temp.	0°C ~ 60°C with 0.5m/s Air Flow
Storage Temp.	-40°C ~ 75°C (-40°F ~ 167°F)
Operating Humidity	40°C @ 95% Relative Humidity, Non-condensing
Weight	0.44lbs (0.2kg)
Power Requirement	DC in +9V ~ +36V
Dimension (L x W)	5.7" x 4" (146mm x 101mm)

Mechanical Drawing



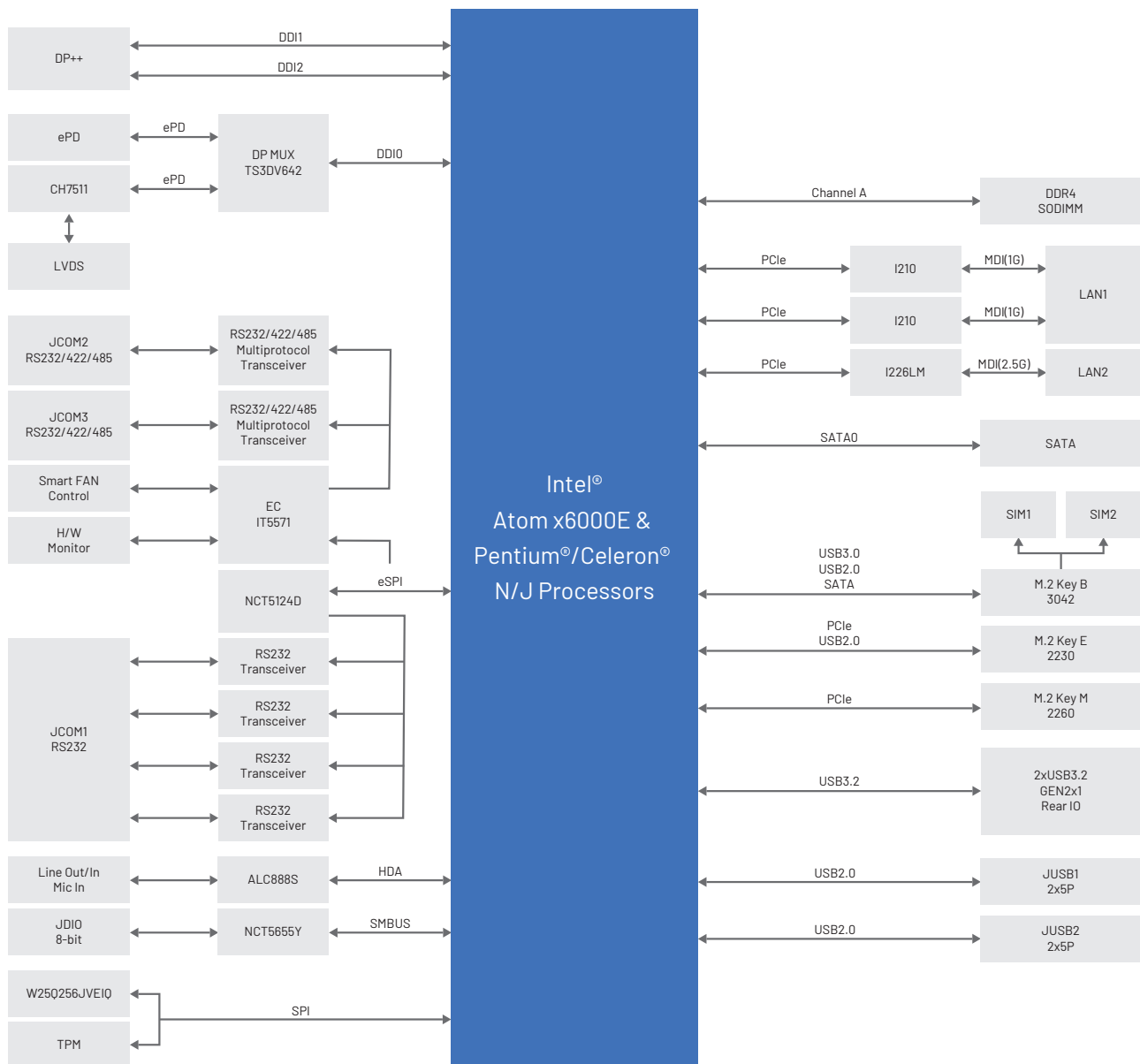
Ordering Information

P/N	Processor	Chipset	LAN	USB	COM	PCIe Slot	Power Input	Temp.
ECM-EHL3-J6412-A1R	Intel® Celeron® Processor J6412	NA	3	8	6	0	+9~36V DC	0°C ~ 60°C (32°F ~ 140°F)
ECM-EHL3-J6413-A1R	Intel® Celeron® Processor J6413	NA	3	8	6	0	+9~36V DC	0°C ~ 60°C (32°F ~ 140°F)
ECM-EHL3-X13E-A1R	Intel Atom® Processor x6413E	NA	3	8	6	0	+9~36V DC	0°C ~ 60°C (32°F ~ 140°F)
ECM-EHL3-X25RE-A1R	Intel Atom® Processor x6425RE	NA	3	8	6	0	+9~36V DC	0°C ~ 60°C (32°F ~ 140°F)
ECM-EHL3-J12-A1-1R	Intel® Celeron® Processor J6412	NA	2	8	4	0	+9~36V DC	0°C ~ 60°C (32°F ~ 140°F)

Packing List

Item	P/N	Quantity
Serial ATA cable (7-pin, standard)	-	1
Wire SATA power cable (15-pin, 4P/2.0mm)	-	1
Flat cable 9P(M)-PHD 10P/2.0mm)	-	1
CPU Heatsink	-	1
3M foam (VHB-4622 10mm*20mm*1.1mm)	-	1
M.2 Module mounting bracket screw set	-	1

Block Diagram



I/O Overview

