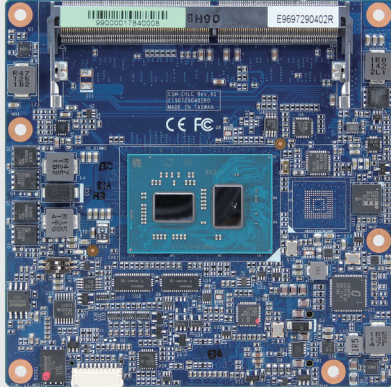




Features

- Onboard Intel® Celeron®/ Pentium®/ Atom™ SoC BGA Processor
- 2 x 260-Pin DDR4 3200MHz SO-DIMM SDRAM Slot Up to 32GB, Support In-Band ECC Memory Protection (Selected SKUs)
- 1 x Intel® I225LM/IT
- Intel® HD Audio Integrated on CPU
- eMMC 5.1 Up to 128GB (Optional)
- Onboard TPM 2.0 Optional
- COMe Type 6 Compact Size: 95x95mm
- Type 6 Rev3.0 Pin-out
- DC in +9V ~ +19V



DDR4
SO-DIMM



USB 3.2



3 Display

Specifications

System Information

Processor	Intel® Celeron® J6413 4C 1.8 GHz/ 10W Intel® Celeron® J6412 4C 1.8 GHz/ 10W Intel® Atom® x6413E 4C 1.5 GHz/ 9W Intel® Atom® x6425RE 4C 1.9 GHz/ 12W
System Memory	2 x 260-Pin DDR4 3200MHz SO-DIMM SDRAM Slot Up to 32GB, Support In-Band ECC Memory Protection (Selected SKUs)
I/O Chipset	EC iTE IT5571
Watchdog Timer	H/W Reset, 1Sec. ~ 65535Sec. and 1Sec./Step
BIOS	AMI uEFI BIOS, 256 Mbit SPI Flash ROM
H/W Status Monitor	Monitoring System Temperature Voltage and FAN Status with Auto Throttling Control
TPM	Onboard TPM 2.0 Optional

Expansion

Expansion	3 x PCIe x1 (Gen3)
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Storage

Storage	eMMC 5.1 Up to 128GB (Optional)
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Display

Graphic Chipset	Intel® SoC Processor Integrated Gen11 LP Graphics
Spec. & Resolution	HDMI 1.4b/2.0b: 4096x2160@60Hz DP 1.4: 4096x2160 @60Hz *Per Intel Design Guide, Need to Add Redriver (Redriver in Carrier Board to Fine Tune the Signal of DP1.4) eDP 1.3b (Optional): 4096x2160 @60Hz (Only Support 4Lanes 2560x1440 & 2Lanes 1920x1080) LVDS (via eDP-to-LVDS): 1920x1080 @60Hz, LVDS Via CH7511B VGA (via DP-to-VGA): 1920x1080 @60Hz, VGA Via CH7517A (DP to VGA)
Multiple Display	Triple Display Support, Display Port1.4, HDMI2.0b/1.4b, Dual Channel LVDS, VGA, eDP1.3 (Optional)
LVDS	CH7511B (eDP to LVDS)
DDI	3 x DDI DDI 1: HDMI/DP (Default) DDI 2: DP or DP VGA Supported by Build Option Via DP-to-VGA IC (In Place of DDI 2) DDI 3: DP or eDP/LVDS (BOM Optional)

Audio

Audio Interface	Intel® HD Audio Integrated on CPU
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Ethernet

LAN Chipset	1 x Intel® I225LM/IT
Ethernet Interface	10/100/1000/2500 Base-Tx GbE Compatible, above 70°C Tc, Recommended Speed is 1G

Software Support

OS	Windows 10 IoT Enterprise (64-bit) Linux
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Certification

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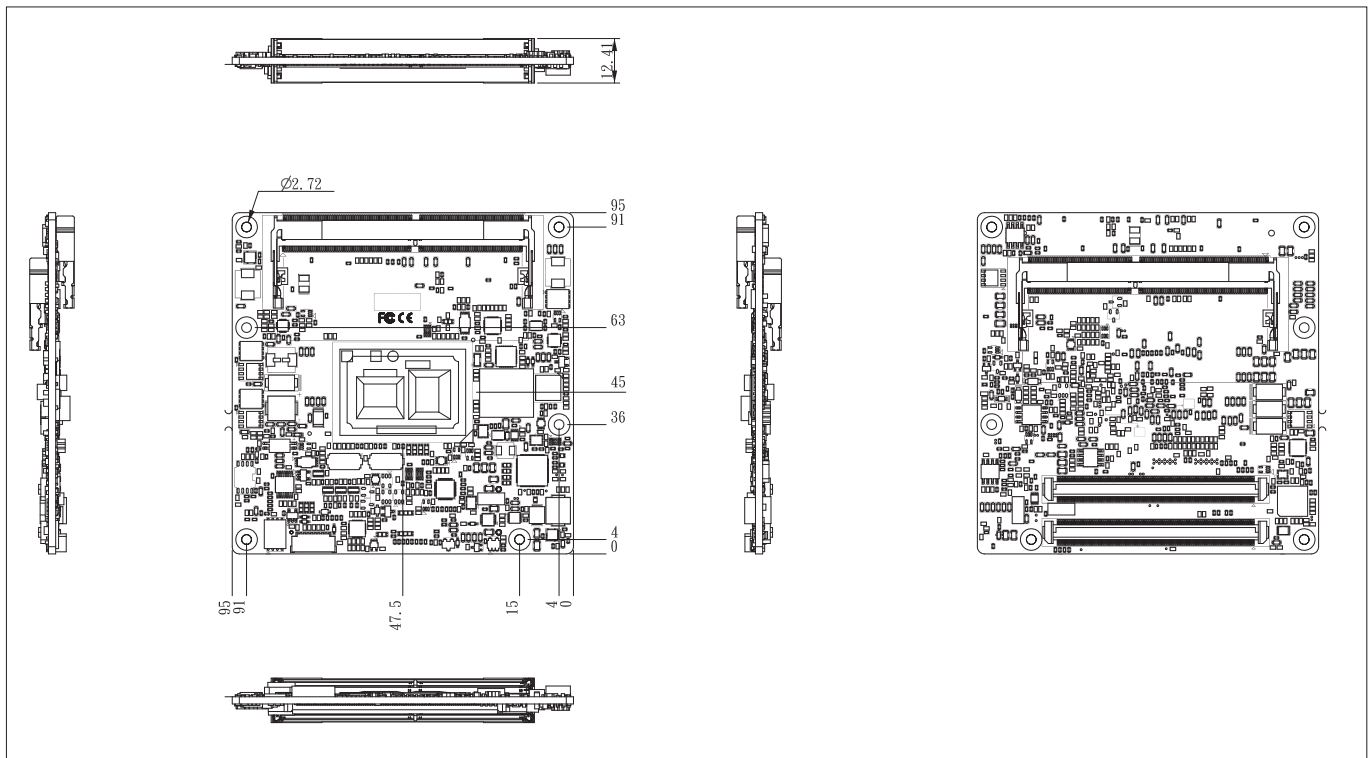
I/O

USB	4 x USB 3.2 Gen2 x 1 8 x USB 2.0
COM Port	2 x UART (RX/TX Only)
SATA	2 x SATA III
DIO	1 x 8-bit GPIO
MIO	1 x SMBus 1 x LPC (Via eSPI-to-LPC Bridge) or 1x eSPI (Only Support 20MHz), Build Option 1 x I2C

Mechanical & Environmental

Operating Temp.	Standard 0°C ~ 60°C (32°F ~ 140°F) with 0.2m/s Air Flow Conditional Extend: -40°C ~ 85°C (-40°F ~ 185°F) with 0.5m/s Air Flow (Note: Above 70°C Tc, Recommended Ethernet Speed is 1G)
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	+9V ~ +19V
Power Mode	AT/ATX
Dimension (L x W)	3.74" x 3.74" (95 x 95 mm)

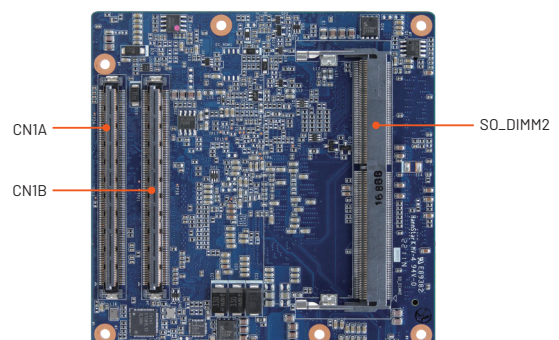
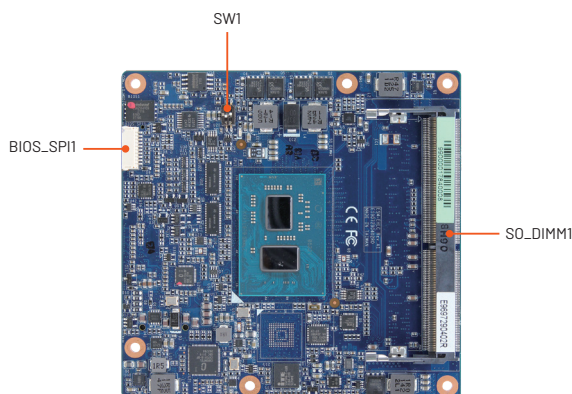
Mechanical Drawing



Ordering Information

P/N	CPU	PCH	LVDS/eDP	TPM	Memory	Storage	Operating Temp.	Thermal Solution
ESM-EHLC-J6413-A1R	Intel® Celeron® SoC Processor J6413	NA	LVDS	Onboard TPM 2.0 (optional)	2	eMMC 5.1 Up to 128GB (Optional)	0°C ~ 60°C (32°F ~ 140°F)	ACC-ESMEHLC-SK-1R W/O FAN H=34mm
ESM-EHLC-J6412-A1R	Intel® Celeron® SoC Processor J6412	NA	LVDS	Onboard TPM 2.0 (optional)	2	eMMC 5.1 Up to 128GB (Optional)	0°C ~ 60°C (32°F ~ 140°F)	ACC-EQMEHL-SK-1R W/O FAN H=20mm
ESM-EHLC-X13E-A1R	Intel® Atom® SoC Processor x6413E	NA	LVDS	Onboard TPM 2.0 (optional)	2	eMMC 5.1 Up to 128GB (Optional)	-40°C ~ 85°C (-40°F ~ 185°F)	ACC-ESMEHLC-CL-1R W/FAN H=60mm
ESM-EHLC-X25RE-A1R	Intel® Atom® SoC Processor x6425RE	NA	LVDS	Onboard TPM 2.0 (optional)	2	eMMC 5.1 Up to 128GB (Optional)	-40°C ~ 85°C (-40°F ~ 185°F)	ACC-ESMEHLC-CL-1R W/FAN H=60mm

I/O Overview



Block Diagram

