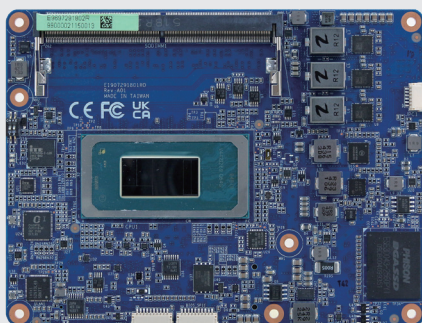




Features

- COM Express Rev. 3.1 COMe Type 6 Basic Module with Intel® Core™ Ultra Processor U/H Series (TDP 28W/15W)
- Dual-CH 2 x 262-pin DDR5 6400/5600MHz SO-DIMM up to 96GB
- 1 x Intel® i226LM 2.5G Gigabit Controller
- Intel® HD Audio integrated in SoC
- On board Storage NVMe SSD (Optional)
- Onboard NuvoTon NPCT760AABYX support TPM 2.0
- COMe Type 6 Basic Size: 4.92" x 3.74" (125 x 95 mm)
- DC in +9V ~ +19V



DDR5
SO-DIMM



USB4 &
USB3.2 Gen2,
USB2



4 Display
up to 8K
(3DDI+LVDS/eDP)

Specifications

System Information

Processor	Intel® Core™ Ultra Processor U/H Series (TDP 28W/15W)
System Memory	2 x 262-Pin DDR5 6400/5600MHz SO-DIMM Up to 96GB
I/O Chipset	EC ITE IT5782VG-I-128/BX
Watchdog Timer	65536 level, 0 ~ 65535 sec
BIOS	AMI 256Mb UEFI BIOS, 256Mbit SPI Flash ROM
H/W Status Monitor	Monitoring CPU Temperature, Voltage with Auto Throttling Control
TPM	Onboard NuvoTon NPCT760AABYX support TPM 2.0, co-lay Infineon SLB9670VQ2.0 FW7.85

Expansion

Expansion	PEG (H series): 1 x PCIe x8 Gen4, 2 x PCIe x4 Gen4 Note: NVMe share with 1 x PCIe x4 PEG (U series): 3 x PCIe x4 Gen4 Note: 1. NVMe share with 1 x PCIe x4 2. PEG [3:0] from SoC 1 x PCIe x1 Gen4, 1 x PCIe x4 Gen 4 (configurable x1, x2, or x4) It is recommended to use Discrete Graphics or Storage Devices on PEG PCIe (came from IOE).
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Storage

Storage	1 x NVMe (Option)
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Display

Graphic Chipset	Intel® Xe LPG
Spec. & Resolution	DDI (HDMI/Display Port): Up to 3 x DDI Port Support Configurable HDMI/DisplayPort -HDMI 2.1: 4096 x 2304 @ 60Hz -DisplayPort 1.4 8K30 LCD (LVDS/eDP): 1 x LVDS (via CH7511B eDP-to-LVDS): 1920 x 1200 @ 60Hz (Default); or 1 x eDP 1.4b (By BOM Optional): Max 4K
Multiple Display	Quad Simultaneous Independent Display
LVDS	1 x LVDS (via CH7511B eDP-to-LVDS): 1920 x 1200 @ 60Hz
DDI	Up to 3 x DDI Port Support Configurable HDMI/DisplayPort -HDMI 2.1: 4096 x 2304 @ 60Hz -DisplayPort 1.4 8K30

Audio

Audio Codec	Intel® HD Audio integrated in SoC
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Ethernet

LAN Chipset	1 x Intel® i226 2.5G Gigabit Controller
Ethernet Interface	10/100/1000/2500 Base-Tx GbE compatible

Software Support

OS	Windows 11, Ubuntu 24.04
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Certification

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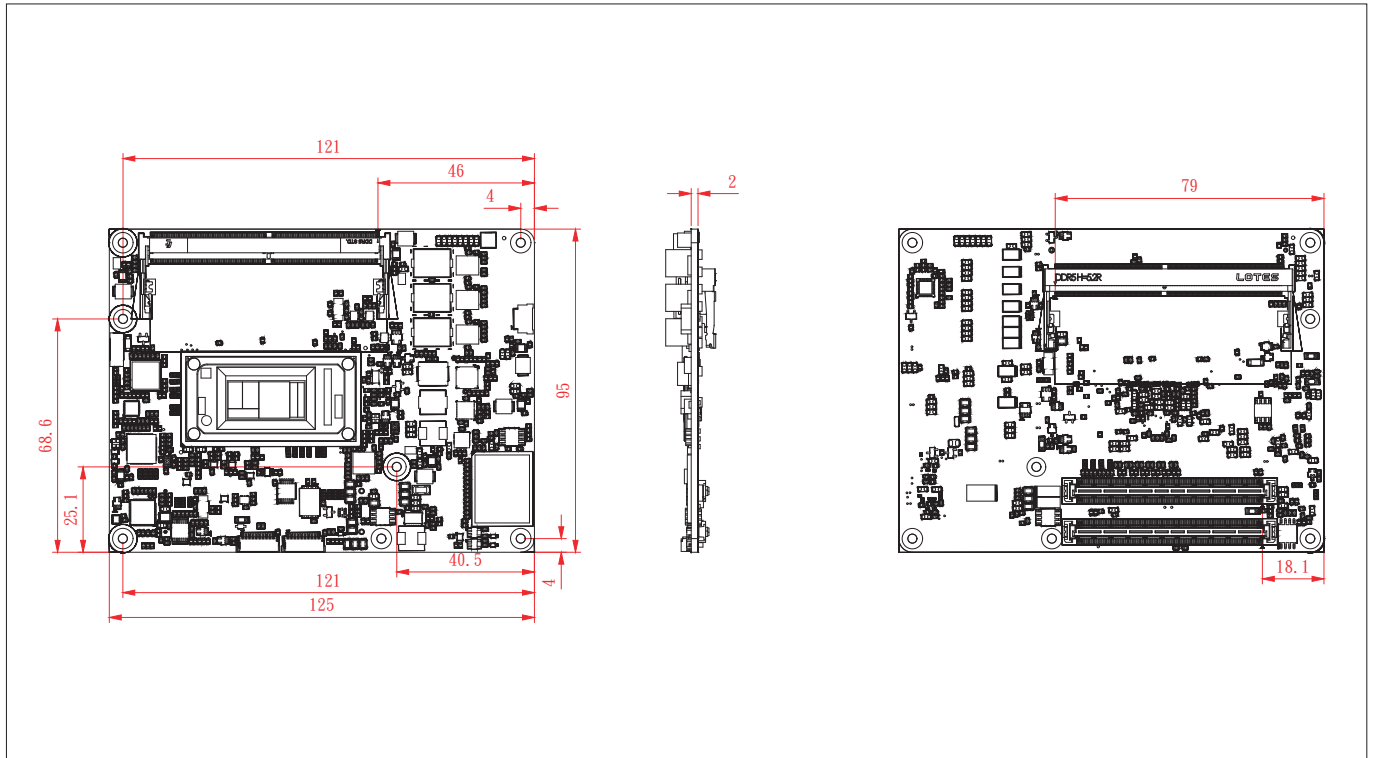
I/O

USB	USB4: Up to 2 ports, Co-lay with DDI and in place of DDI1 & DDI2 USB3.2 (Gen2): 4 Ports (10 Gbps) USB2.0: 8 Ports (480 Mbps)
COM Port	2 x UART (RX/TX Only)
SATA	2 x SATAIII (6.0Gb/s)
DIO	8 bit GPIO from EC
MIO	1 x SMBus 1 x LPC (via eSPI-to-LPC bridge IC ITE_IT8883FN) 1 x I2C 1 x SPI

Mechanical & Environmental

Operating Temp.	Standard 0°C ~ 60°C (32°F ~ 140°F)
Storage Temp.	-40°C ~ 75°C (-40°F ~ 167°F)
Operating Humidity	40°C @ 95% Relative Humidity, Non-condensing
Weight	0.226lbs (0.101Kg) without NvMe 0.227lbs (0.103Kg) with NvMe
Power Requirement	+9V ~ +19V
Power Mode	AT/ATX
Dimension (L x W)	4.92" x 3.74" (125 x 95 mm)

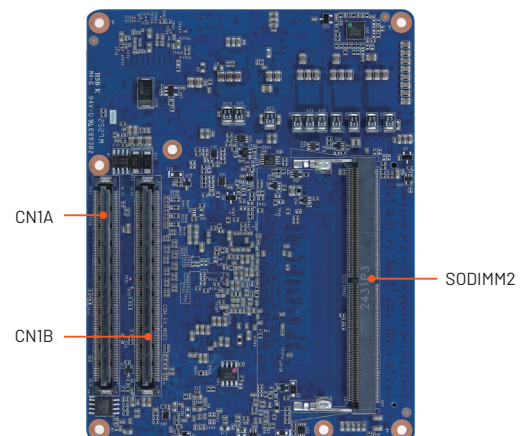
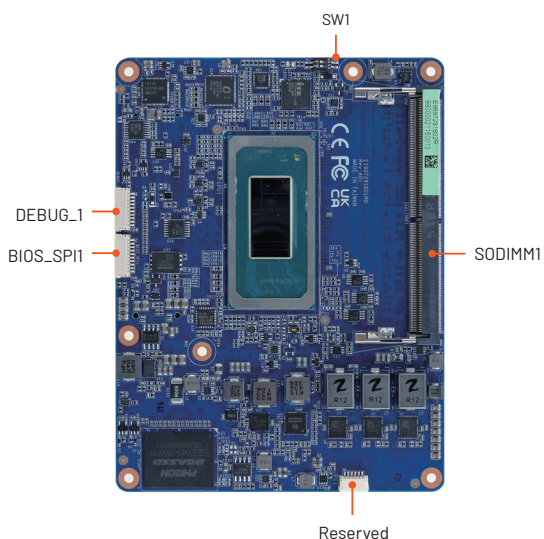
Mechanical Drawing



Ordering Information

P/N	CPU	PCH	LVDS/eDP	TPM	Memory	Storage	Operating Temp.	Thermal Solution	Note
ESM-ARL-255H-A1R	Intel® Core™ Ultra 7 255H Processor	NA	LVDS	Onboard TPM 2.0	2	On board Storage NVMe SSD (Optional)	0°C ~ 60°C (32°F ~ 140°F)	ACC-ESMARL-CL-1R W/FAN H=54.5mm	NA
ESM-ARL-225H-A1R	Intel® Core™ Ultra 5 225H Processor	NA	LVDS	Onboard TPM 2.0	2	On board Storage NVMe SSD (Optional)	0°C ~ 60°C (32°F ~ 140°F)	ACC-ESMARL-CL-1R W/FAN H=54.5mm	NA
ESM-ARL-255U-A1R	Intel® Core™ Ultra 7 255U Processor	NA	LVDS	Onboard TPM 2.0	2	On board Storage NVMe SSD (Optional)	0°C ~ 60°C (32°F ~ 140°F)	ACC-ESMARL-SK-1R W/O FAN H=30mm	NA
ESM-ARL-225U-A1R	Intel® Core™ Ultra 5 225U Processor	NA	LVDS	Onboard TPM 2.0	2	On board Storage NVMe SSD (Optional)	0°C ~ 60°C (32°F ~ 140°F)	ACC-ESMARL-SK-1R W/O FAN H=30mm	NA

I/O Overview



Block Diagram

