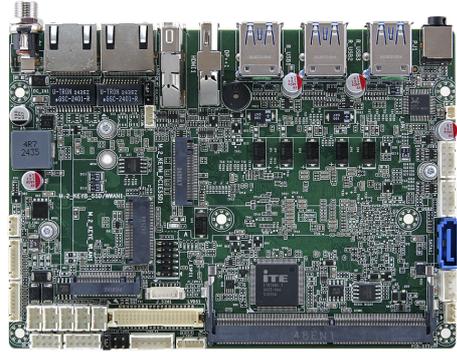# ECM-ALUC

12th Gen Intel® Core™ SoC i5/i3 BGA Processor 3.5" Micro Module

Product Features

- 12th Gen Intel® Core™ SoC i5/i3 BGA Processor

- HDMI, DP++, LVDS, Supports up to triple independent display

- 1 x Intel® i226V, 1x Intel® WGI219V Gigabit Ethernet Controller

- 2 x RS-232, 3 x RS-232/TTL, 1 x RS-232/485

- 1 x 260-Pin DDR4 3200MHz non-ECC SO-DIMM Socket, Supports up to 32GB Max

- 1 x M.2 Key-B, 1 x M.2 Key-E, 1 x M.2 Key-M

- 6 x USB 3.2 Gen1, 3 x USB 2.0

- DC in +12V

Specification

System Information	
Processor	12th Gen. Intel® Core™ SoC i5/i3 BGA Processor, support Up to 15W Max
System Memory	1 x 260-Pin DDR4 3200MHz non-ECC SO-DIMM Socket, Supports up to 32GB
I/O Chipset	ITE: IT8786E-I
Watchdog Timer	H/W Reset, 1sec. – 65535sec./min.1sec. or 1min. step
BIOS	AMI uEFI BIOS, 128Mbit SPI Flash ROM
H/W Status Monitor	CPU temperature monitoring, Voltage monitoring, CPU fan speed control
TPM	fTPM
Board	3.5-inch SBC (146mm x 105.1mm)

Expansion

Expansion	1 x M.2 Key-B 2242/3052 with USB3.2 Gen1x1 or PCIe x1 Signal, SIM card wafer for LTE/IO Cards support WWAN+GNSS or PCIe x1 SSD, and USB2.0. 1 x 6 pin, pitch 1.25mm wafer connector for SIM Card (J_SIM1) 1 x M.2 Key E 2230 support Wi-F module (1 x PCIe x1 Signal) 1 x M.2 Key-M 2280 (PCIe x4/SATA) slot for storage NVMe/SATA SSD *Default PCIe x4.

Storage

Storage	1 x M.2 Key-M 2280 (PCIe x4/SATA) slot for storage NVMe/SATA SSD *Default PCIe x4. 1 x SATA III

Display

Graphic Chipset	Iris® Xe Graphics CPU integrated
Spec. & Resolution	1 x HDMI 2.0: 2048 x 1080@60 Hz 1 x DP++: Max: 4096 x 2340@60 Hz 1 x LVDS: 1920 x 1200@60 Hz Dual channel 18/24-bits
Multiple Display	Triple Display
LVDS	1 x LVDS: 1920 x 1200 Dual channel 18/24-bits LVDS (CapStone CS5211)

Audio

Audio Codec	Realtek ALC897 HD Audio Decoding Controller
Audio Interface	Line-out + Mic-in 2in1 3.5mm Jack on rear I/O
Audio Amplifier	Nsiway NS4150B Mono Class-D 3W 4Ω x 1

Ethernet

LAN Chipset	1 x Intel® i226V Gigabit Ethernet Controller 1 x Intel® WGI219V Gigabit Ethernet Controller
Ethernet Interface	10/100/1000/2.5G Base-Tx GbE compatible
LAN Port	2 x RJ-45

Power Requirement

Power Mode	ATX

Software Support

OS	Windows 10, Windows 11, Linux

Certification

Certification Information	CE, FCC, RoHS Compliant

I/O

USB	6 x USB3.2 Gen1 3 x USB2.0
COM Port	2 x RS-232 3 x RS-232/TTL 1 x RS-232/485
SATA	1 x SATA III
DIO	1 x 8-bit GPIO (4 x GPI, 4 x GPO)

Mechanical & Environmental

Operating Temp.	0°C ~ 60°C (-4~140°F) with 0.5m/s Air Flow
Storage Temp.	-20 ~ +75°C (-4 ~ +167°F)
Operating Humidity	40°C @ 95% Relative Humidity, Non-condensing
Weight	0.44lbs (0.2kg)
Dimension (L x W)	5.75" x 4.13" (146mm x 105mm)

Ordering Information

Ordering Information	ECM-ALUC-1235-A1R 3.5" w/i5-1235U/6COM/9USB/I226,I219V/15W/A1