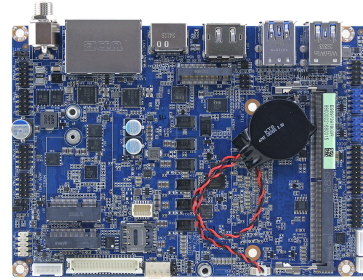


# ECM-PTL

Intel® Core™ Ultra BGA processor (Series 3) 3.5" Micro Module



## Product Features

- Bottom Layer Soldered Processor
- Four Display, 1 x DP, 1 x HDMI, 1 x 2CH LVDS or eDP, 1 x USB Type C support DP
- Two Gigabit Ethernet, 2 x 2.5GbE
- One 262-pin DDR5 6400MHz (H404), 7200MHz (H484) SO-DIMM socket, supports up to 48GB Max.
- Expansion Slot, M.2 Key-B, M.2 Key-E, M.2 Key-M
- DC in +12V ~ +24V

## Specification

System Information	
Processor	Intel® Core™ Ultra Series 3 processors
System Memory	1 x 262-pin DDR5 6400MHz (H404) SO-DIMM socket, 7200MHz (H484) SO-DIMM socket supports up to 32GB Max.
I/O Chipset	EC iTE IT5782VG
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 NPCT760AABYX supports TPM 2.0
Board	3.5"
Expansion	
Expansion	1 x M.2 Key M 2280 (with 1 x PCIe Gen5) NVME 1 x M.2 Key B 3042/3052/2242 (with 1 x PCIe x1, USB 3.2 Gen2, USB 2.0 with 1 x SIM card slot support WWAN+GNSS) support 5G (3.3V & 3.8V) * Only supports one SIM card (co-lay 1 x 10pin FPC connector for uSIM card adapter) 1 x M.2 Key E 2230 support WiFi module and CNVi (1 x PCIe x1 & USB 2.0 Signal)
Storage	
Storage	1 x M.2 (Key M, 2280) 1 x M.2 (Key B, 3042/3052/2242)
Display	
Graphic Chipset	Intel® Graphics
Spec. & Resolution	1 x DP 2.1: Max: 7680 x 4320@30 Hz 1 x USB Type C support DP: 4096 x 2160@60Hz 1 x HDMI 2.1b: 7680 x 4320@30Hz 1 x LVDS: 1920 x 1080 Dual channel 18/24-bits LVDS (Chrontel CH7513A-BF eDP to LVDS) or 1 x eDP: 1920 x 1080@60Hz (2 Lanes), default LVDS Note: EDP_LVDS1 Support 1 x LVDS or 1 x eDP
Multiple Display	Four Display

**LVDS**

1 x LVDS: 1920 x 1080 Dual channel 18/24-bits LVDS (Chrontel CH7513A-BF eDP to LVDS) or 1 x eDP: 1920 x 1080@60Hz (2 Lanes) Default LVDS.  
Note: EDP\_LVDS1 Support 1 x LVDS or 1 x eDP

**Audio**

**Audio Codec** Realtek ALC888S HD Audio Decoding Controller

**Audio Interface** Line-in, Mic-in, Line-out

**Audio Amplifier** 2 x 2W 4Ω Amplifier

**Ethernet**

**LAN Chipset** 1 x Intel® I226LM 2.5 Gigabit Ethernet Controller  
1 x Intel® I226V 2.5 Gigabit Ethernet Controller  
or  
2 x Intel® I226IT 2.5 Gigabit Ethernet Controller for extend temperature skus

**Ethernet Interface** 10/100/1000/2.5G Base-Tx GbE compatible

**LAN Port** 2 x RJ-45

**Power Requirement**

**Power Mode** AT/ATX (Default Setting: AT)

**Software Support**

**OS** Windows 11, Linux

**Certification**

**Certification Information** CE, FCC, RoHS Compliant

**I/O**

**USB** 4 x USB 2.0 by pin header  
2 x USB 3.2 Gen 2 x1 at rear I/O  
1 x USB 3.2 Gen 1 x1 at rear I/O + 1 x USB Type-C 5V 3A at I/O (with USB 3.2 Gen 2x2 & DP 2.1 signal display output)

**COM Port** 2 x RS-232, 2 x RS-232/422/485

**DIO** 1 x 16-bit GPIO

**MIO** 1 x eSPI  
1 x BIOS SPI  
1 x SIM Card Slot

**Mechanical & Environmental**

**Operating Temp.** Standard Temperature CPU SKU: 0°C ~ 60°C (-4~140°F) with 0.5m/s Air Flow  
Extend Temperature CPU SKU: TBC for extend Temp CPU SKU

**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 +12V ~ +24V

**Dimension (L x W)** 5.7" x 4" (146mm x 101mm)

**Ordering Information**

**Ordering Information** TBC