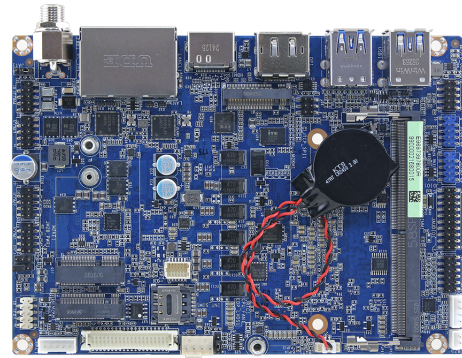


ECM-PTL

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 48GB 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)
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Storage

Storage	1 x M.2 (Key M, 2280) 1 x M.2 (Key B, 3042/3052/2242)
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Display

Graphic Chipset	Intel® Graphics
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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
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Multiple Display	Four Display
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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
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Audio

Audio Codec	Realtek ALC888S HD Audio Decoding Controller
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Audio Interface	Line-in, Mic-in, Line-out
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Audio Amplifier	2 x 2W 4Ω Amplifier
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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
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Ethernet Interface	10/100/1000/2.5G Base-Tx GbE compatible
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LAN Port	2 x RJ-45
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Power Requirement

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

OS	Windows 11, Linux
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Certification

Certification Information	CE, FCC, RoHS Compliant
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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 1.4a 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
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