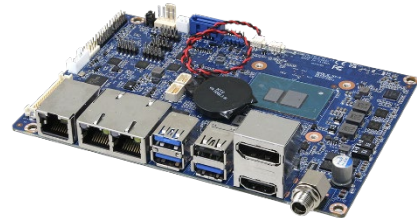




ESM-TWL3

Intel® Processor N150, N250, & Intel® Core™ 3 Processor N355 3.5”Micro

- Onboard Intel® Processor N150, N250, & Intel® Core™ 3 Processor N355
- Top Layer Soldered Processor
- Triple Display, DP 1.4a, HDMI 2.0b, 1 x 2CH LVDS/eDP
- 2 x Intel® I210AT Gigabit Ethernet, 1 x Intel® I226V 2.5 Gigabit Ethernet
- Triple Expansion Slot, M.2 Key-B, M.2 Key-E, M.2 Key-M
- DC in +9V ~ +36V



Product Specification

System information

- **Processor**

Onboard Intel® Processor N150, N250, & Intel® Core™ 3 Processor N355

- **System Memory**

1 x 262-pin DDR5 4800MHz SO-DIMM socket, supports up to 16GB 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 temperature monitoring

Voltages monitoring

CPU fan speed control



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- **TPM**

Onboard NuvoTon_NPCT760AABYX, co-lay Infineon_SLB9670VQ2.0

- **Board**

3.5"

Expansion

- **Expansion**

1 x M.2 Key B 3042/3052, BOM Optional PCIe x 1 or USB3.2 Gen1 + USB2.0 (default USB3.2), support 5G (3.3V & 3.8V), 1 x SIM card slot, support WWAN+GNSS or SSD

1 x M.2 Key E 2230 support CNVi WiFi (1 x PCIe x 1, USB2.0 Signal), not support Twin Lake & Amston Lake, only support Alder Lake processor

1 x M.2 Key M 2242/2280 (1 x PCIe Gen3 x1 / SATA auto detection)

Storage

- **Storage**

1 x M.2 (Key M, 2242/2280)

1 x M.2 (Key B, 3042/3052)

1 x SATA III

Display

- **Graphic Chipset**

Intel® UHD Graphics

- **Spec. & Resolution**

HDMI 2.0b Max resolution 4096 x 2160@60Hz

DP 1.4a Max resolution 4096 x 2160@60Hz

LVDS 1920 x 1080 Dual channel 18/24-bits or eDP 1920 x 1080@60Hz (2 Lanes)

- **Multiple Display**

Triple Display

- **LVDS**

1 x LVDS: 1920 x 1080 Dual channel 18/24-bits LVDS

Audio

- **Audio Codec**

Realtek ALC888S HD Audio Decoding Controller

- **Audio Interface**

Line-out, Line-in, Mic-in

Ethernet

- **LAN Chipset**

2 x Intel® I210AT

1 x Intel® I226V

- **Ethernet Interface**

10/100/1000/2.5G Base-Tx GbE compatible

- **LAN Port**

3 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**

3 x USB3.2 Gen2, 1 x USB2.0 at I/O

2 x USB2.0 by pin header

- **COM Port**

2 x RS-232/RS422/RS485

2 x RS-232

- **SATA**

1 x SATA III

- **DIO**

1 x 8-bit GPIO

- **MIO**

2 x 6 pin for eSPI
1 x SIM Card Slot

Mechanical & Environmental

- **Operating Temp.**

0°C ~ 60°C (-4~140°F) with 0.5m/s Air Flow

- **Storage Temp.**

-40°C ~ 85°C (-40°F ~ 185°F)

- **Operating Humidity**

40°C @ 95% Relative Humidity, Non-condensing

- **Weight**

0.44lbs (0.2kg)

- **Power Requirement**

DC in +9V ~ +36V

- **Dimension (L x W)**

5.7" x 4" (146mm x 101mm)