

# EMS-TGL-Marine

**11th Generation Intel® Core™ i7/i5/i3 Marine Fanless Rugged Embedded System**



## Product Features

- Intel® 11th Tiger Lake-U Processor
- 2-Memory Socket, Max. Up to 64GB DDR4 3200
- Wide Operating Temp. -40°C ~ 60°C, Wide Voltage 9~36Vdc
- CE, FCC Class A, IEC 60945 Certified
- Intel® Iris® Xe/UHD Graphics, Max. Up to 96EU
- Rich I/O, 4-USB3.2, 2-USB2.0, 1-DP, 1-HDMI, 6-COM (4COM w/2.5KV isolation), 2-LAN, 1-8bit GPIO
- dTPM 2.0, vPro, iAMT 15.0

## Specification

### System Information

**Processor**  
 Intel® Core™ i7-1185GRE Processor (15W, 12M Cache, up to 2.80 GHz)  
 Intel® Core™ i5-1145GRE Processor (15W, 8M Cache, up to 2.60 GHz)  
 Intel® Core™ i3-1115GRE Processor (15W, 6M Cache, up to 3.00 GHz)

**System Memory** 2 x 260-pin SODIMM socket Max. up to 64GB DDR4 3200 MT/s

**I/O Chipset** EC ITE IT8528E

**BIOS Information** AMI uEFI BIOS 256 Mbit SPI Flash ROM

**Watchdog Timer** H/W Reset, 1sec. ~ 65535sec.

**H/W Status Monitor** CPU & system temperature monitoring and Voltages monitoring

**TPM** TPM 2.0

**iAMT** iAMT 15.0 (Above i5 CPU)

**SBC** EBM-TGLS, EPM-1722, AUX-M07

### Expansion

**M.2** 1 x M.2 Key-B 2242/3042/3052 support SATA3/ PCIeIII x1/ USB3.1 and SIM slot1  
 1 x M.2 Key-E 2230 for Wi-Fi & BT Module(CNVi)

## Storage

<b>M.2</b>	1 x M.2 Key-M 2242/2280, support PCIe Gen. III x 4 (NVMe SSD) 1 x M.2 Key-B 2242, support SATA (share with expansion slot)
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## Front I/O

<b>Power Button</b>	1 x Push Button for Power on/off
<b>Reset Button</b>	1 x Push Button for Reset
<b>COM Port</b>	2 x COM RS232/422/485 (select via BIOS, auto flow control via HW)
<b>LED Indicator</b>	1 x Power LED (Blue) 1 x Storage LED (Yellow)- M.2 B-key SATA 1 x LTE LED (Green)- M.2 B-key PCIe 1 x Wifi LED (Green)- M.2 E key
<b>Wire-Control Power On/Off</b>	1 x 2-Pin Terminal Block
<b>Digital I/O</b>	1 x 8-bit GPIO (DB9)
<b>Antenna</b>	2 x Antenna with dust cover

## Rear I/O

<b>USB</b>	2 x USB 3.1 Gen.2 (10Gbp/s) 2 x USB 3.1 Gen.1 (5Gbp/s) 2 x USB 2.0
<b>COM Port</b>	4 x COM RS232/422/485 w/ 2.5KV Isolation
<b>LAN Port</b>	2 x RJ-45
<b>DP</b>	1 x DP++ 1.4
<b>SIM Slot</b>	1 x Internal SIM slot
<b>Audio</b>	1 x Mic-In 1 x Line-Out
<b>HDMI</b>	1 x HDMI 2.0b
<b>Antenna</b>	2 x Antenna with dust cover
<b>AC/DC Input</b>	1 x 3-Pin Terminal Block (V+, V-, GND)

## Right I/O

<b>Antenna</b>	2 x Antenna with dust cover
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## Left I/O

<b>Antenna</b>	2 x Antenna with dust cover
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## Display

**Graphic Chipset** Intel® Iris® Xe Graphics (i7-1185GRE/i5-1145GRE)  
Intel® UHD Graphics for 11th Gen Intel® Processors (i3-1115GRE)

**Resolution** DP++ 1.4: 4096x2304 @ 60Hz  
HDMI 2.0b : Max. resolution 4096x2304 @ 60Hz

## Audio

**Audio Codec** Realtek ALC888S HD codec

## Ethernet

**LAN Chipset** 1 x Intel® I225-LM  
1 x Intel® I219-LM

**Specification** 1 x 10/100/1000/2.5G Base-Tx GbE compatible  
1 x 10/100/1000Base-Tx GbE compatible.

## Power Requirement

**ACPI** Single power ATX Support S0,S3, S4, S5  
ACPI 5.0 Compliant

**Power Mode** AT/ATX (ATX is default setting)

**Voltage Input Spec.** 9Vdc~36Vdc w/1.5KV Isolation  
TVS component for surge protection  
Reverse current/voltage protection

## Software Support

**OS** Win 10 / Win11 / Linux

## Certification

**Certification Information** CE, FCC Class A, IEC 60945 Certified

## Mechanical & Environmental

**Operating Temp.** -40°C ~ 60°C (w/SSD) ambient w/ air flow,

**Storage Temp.** -30°C ~ 70°C (-22°F ~ 158°F)

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

**Dimension (W x L x H)** 240mm x 150mm x 69 mm

**Weight** 2.4 kg (System)  
3.4 kg (w\_Package)

**Vibration Test** With SSD : 5Grms, IEC 60068-2-64, Random, 5 ~ 500Hz, 0.5hr/axis

**Shock Test** With SSD : 10G, IEC 60068-2-27, Half Sine, 11ms

**IP Rating**

IP 50

**Mounting Kit**

Wall mount kit (standard)  
DIN RAIL (optional)

## Ordering Information

**Ordering Information**

Intel® 11th Tiger Lake Core™ Processor i7/i5/i3 Marine Fanless Rugged Embedded System

EMS-TGL-W85-A1-9R (i7-1185GRE)

EMS-TGL-W45-A1-9R (i5-1145GRE)

EMS-TGL-W15-A1-9R (i3-1115GRE)



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