



## EMS-TGL-Marine

### 11th Gen Intel® Core™ Processor i7/i5/i3 Fanless Rugged Embedded Maritime System



- > On board 11th Gen. Intel® Core™ i7/i5/i3 BGA Processor
- > 2x 260-pin SODIMM socket Max. up to 64GB DDR4 3200MT/s
- > Rich I/O, 4-USB3.1, 2-USB2.0, 1-DP, 1-HDMI, 6-COM (4COM w/ 2.5KV isolation), 2-LAN, 1-8bit GPIO.
- > Support 5G (Sub-6G) module, M.2 NVMe SSD Gen. III x 4, HDMI 2.0b (4K @ 60Hz), LAN 2.5G Base-Tx GbE
- > Fanless operation temperature from -40°C ~ 60°C
- > IEC 60945 Certified
- > Wide range DC power input from +9~36V
- > Support HW TPM 2.0

#### + Spec

System Information	
<b>Processor</b>	Intel® Core™ i7-1185GRE (15W, 12M Cache, up to 2.80 GHz) Intel® Core™ i5-1145GRE (15W, 8M Cache, up to 2.60 GHz) Intel® Core™ i3-1115GRE (15W, 6M Cache, up to 3.00 GHz)
<b>System Memory</b>	2 x 260-pin SODIMM socket Max. up to 64GB DDR4 3200 MT/s
<b>I/O Chipset</b>	EC ITE IT8528E
<b>BIOS Information</b>	AMI uEFI BIOS 256 Mbit SPI Flash ROM
<b>Watchdog Timer</b>	H/W Reset, 1sec. ~ 65535sec.
<b>H/W Status Monitor</b>	CPU & system temperature monitoring and Voltages monitoring
<b>SBC</b>	EBM-TGLS + AUX-M07 + EPM-1722
-Expansion-	
<b>M.2</b>	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)
-Front I/O-	
<b>COM Port</b>	2 x COM RS232/422/485 (select via BIOS, auto flow control via HW)
<b>Power Button</b>	1 x Push Button for Power on/off
<b>Reset Button</b>	1 x Push Button for Reset
<b>Wire-Control Power On/Off</b>	1 x 2-Pin Terminal Block for wire-control power on/off
<b>LED Indicator</b>	1 x Power LED (Blue) 1 x Storage LED (Yellow)- M.2 B-key SATA/ M.2 M-key PCIe Storage 1 x LTE LED (Green)- M.2 B-key PCIe/USB3 1 x Wifi LED (Green)- M.2 E key
<b>Digital I/O</b>	1 x 8-bit GPIO (DB9)
<b>SIM Slot</b>	1 x internal SIM slot
<b>Antenna</b>	2 x Antenna with dust cover
-Rear I/O-	
<b>USB Port</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>HDMI</b>	1 x HDMI 2.0b
<b>DP</b>	1 x DP 1.4
<b>Audio</b>	1 x Mic-In, 1 x Line-Out
<b>RJ-45</b>	2 x RJ45
<b>Antenna</b>	2 x Antenna with dust cover
-Right I/O-	
<b>Antenna</b>	2 x Antenna with dust cover
-Left I/O-	
<b>Antenna</b>	2 x Antenna with dust cover
-Display-	
<b>Graphic Chipset</b>	Intel® Iris® Xe Graphics (i7-1185GRE/i5-1145GRE) Intel® UHD Graphics for 11th Gen Intel® Processors (i3-1115GRE)
<b>Resolution</b>	DP++ 1.4: Max. resolution 4096x2304 @ 60Hz HDMI 2.0b : Max. resolution 4096x2304 @ 60Hz
-Audio-	
<b>Audio Codec</b>	Realtek ALC888S HD codec
-Ethernet-	
<b>LAN Chipset</b>	1 x Intel® I225-LM 1 x Intel® I219-LM



<b>Specification</b>	1 x 10/100/1000/2.5G Base-Tx GbE compatible 1 x 10/100/1000Base-Tx GbE compatible
<b>-Power Requirement-</b>	
<b>DC Input Voltage</b>	DC in 12/24V (+9V ~ +36V), wide voltage single power input TVS component for surge protection Reverse current/voltage protection (Max. Currency: 13A)
<b>DC Input Connector</b>	3-Pin Terminal Block (V+, V-, GND)
<b>ACPI</b>	Single power ATX Support S0,S3, S4, S5 ACPI 5.0 Compliant
<b>Power Mode</b>	AT/ATX (ATX is default setting)
<b>-Software Support-</b>	
<b>OS Information</b>	Win 10 64bit Linux
<b>Mechanical &amp; Environmental</b>	
<b>Operating Temperature</b>	-40°C ~ 60°C (w/SSD) ambient w/ air flow
<b>Storage Temperature</b>	-30°C ~ 70°C (-22°F ~ 158°F)
<b>Operating Humidity</b>	40°C @ 95% Relative Humidity, Non-condensing
<b>Dimension (W x L x H)</b>	240mm x 150mm x 69 mm
<b>Weight</b>	TBD
<b>Vibration Test</b>	Sweep 2 Hz – 13,2 Hz at ± 1 mm, 13,2 Hz – 100 Hz at 7 m/s <sup>2</sup> and for 2 h on each resonance, otherwise 2 h at 30 Hz in all three axes (follow IEC 60945 protected standard)
<b>Shock Test</b>	With SSD : 55Grms, IEC 60068-2-27, Half Sine, 11ms
<b>IP Rating</b>	IP 50
<b>Mounting Kit</b>	Wall mount kit (standard) DIN RAIL (optional)
<b>Ordering Information</b>	
<b>Ordering Information</b>	EMS-TGL-Marine 11th Gen Intel® Core™ Processor i7/i5/i3 Fanless Rugged Embedded Maritime System EMS-TGL-W85-A1-9R (i7-1185GRE) EMS-TGL-W45-A1-9R (i5-1145GRE) EMS-TGL-W15-A1-9R (i3-1115GRE)