



EMS-TGL

11th Gen Intel® Core™ Processor i7/i5/i3 Fanless Rugged Embedded 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, 1-DP, 1-HDMI, 2-COM, 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 ~ 70°C (WT) / 0°C ~ 70°C (ST)
- > CE, FCC Class B, IP50
- > Wide range DC power input from +9~32V
- > Support HW TPM 2.0

+ Spec

System Information	
Processor	Intel® Core™ i7-1185GRE (15W, 12M Cache, up to 2.80 GHz), WT Intel® Core™ i5-1145GRE (15W, 8M Cache, up to 2.60 GHz), WT Intel® Core™ i3-1115GRE (15W, 6M Cache, up to 3.00 GHz), WT Intel® Core™ i7-1185G7E (15W, 12M Cache, up to 2.80 GHz), ST Intel® Core™ i5-1145G7E (15W, 8M Cache, up to 2.60 GHz), ST Intel® Core™ i3-1115G4E (15W, 6M Cache, up to 3.00 GHz), ST
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
SBC	EBM-TGLS
Expansion	
Expansion	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(CNV1) 1 x IET interface (1 x DDI, 2x PCIe3 x 2, 3 x USB2.0, 1 x Line-Out(R/L), 1 x SMBus, LPC)
Storage	
Storage	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)
I/O	
USB Port	2 x USB 3.1 Gen.2 (10Gbp/s) 2 x USB 3.1 Gen.1 (5Gbp/s)
COM Port	2 x COM RS232/422/485 (select via BIOS, auto flow control via HW)
GPIO	1 x 8-bit GPIO (DB9)
SIM Slot	1 x internal SIM slot
Antenna	8 x Antenna with dust cover (6 x LTE+GPS / 2 x Wifi)
Wire-Control Power On/Off	2-Pin Terminal Block
Display	
Graphic Chipset	Intel® Iris® Xe Graphics (i7-1185GRE/i5-1145GRE/i7-1185G7E/i5-1145G7E) Intel® UHD Graphics for 11th Gen Intel® Processors (i3-1115GRE/i3-1115G4E)
Spec. & Resolution	DP++ 1.4: 4096x2304 @ 60Hz HDMI 2.0b : Max. resolution 4096x2304 @ 60Hz
Multiple Display	Dual Displays
Audio	
Audio Codec	Realtek ALC888S HD codec
Audio Interface	Mic-In, Line-Out
Certifications	
Certification Information	CE FCC Class B
Ethernet	
LAN Chipset	1 x Intel® I225-LM 1 x Intel® I219-LM
Ethernet Interface	1 x 10/100/1000/2.5G Base-Tx GbE compatible 1 x 10/100/1000Base-Tx GbE compatible.
LAN Port	2 x RJ-45
Power Requirement	
DC Input	DC in 12/24V (+9V ~ +32V), wide voltage single power input TVS component for surge protection Reverse current/voltage protection (Max. Currency: 13A)
DC Input Connector	3-Pin Terminal Block (V+, V-, GND)



ACPI	Single power ATX Support S0,S3, S4, S5 ACPI 5.0 Compliant
Power Mode	AT/ATX (ATX is default setting)
Mechanical & Environmental	
Operating Temperature	-40°C ~ 70°C (w/SSD) ambient w/ air flow, WT sku 0°C ~ 70°C (w/SSD) ambient w/ air flow, ST sku
Storage Temperature	-40°C ~ 75°C (-40°F ~ 167°F)
Operating Humidity	40°C @ 95% Relative Humidity, Non-condensing
Dimension (W x L x H)	240mm x 150mm x 48 mm (Standard) 240mm x 150mm x 69 mm (w/ IET module)
Weight	2.1 kg (System) 2.9 kg (w/ Package)
Vibration Test	With SSD : 5Grms, IEC 60068-2-64, Random, 5 ~ 500Hz, 1hr/axis
Shock Test	With SSD : 55Grms, IEC 60068-2-27, Half Sine, 11ms
IP Rating	IP 50
Mounting Kit	Wall mount kit (standard) DIN RAIL (optional)
Software Support	
OS Information	Win 10 64bit Linux
Ordering Information	
Ordering Information	EMS-TGL 11th Gen Intel® Core™ Processor i7/i5/i3 Fanless Rugged Embedded System EMS-TGL-W85-A1-1R (i7-1185GRE) EMS-TGL-W45-A1-1R (i5-1145GRE) EMS-TGL-W15-A1-1R (i3-1115GRE) EMS-TGL-S85-A1-1R (i7-1185G7E) EMS-TGL-S45-A1-1R (i5-1145G7E) EMS-TGL-S15-A1-1R (i3-1115G4E)