EMS-TGL-6LAN

11th Gen Intel® Core™ Processor i7/i5/i3 Fanless Rugged Embedded System w_LAN IET Module



Features

- 11th Gen. Intel® Core™ i7/i5/i3 BGA Processor
- 2 x 260-pin SODIMM socket Max. up to 64GB DDR4 3200MT/s
- Rich I/O, 4-USB3.1, 2-USB2.0, 1-DP, 1-HDMI, 2-COM, 6-LAN, 1-8bit GPIO
- Support 4 ports Bypass function. (w/ LAN Bypass IET)
- 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 +9~36V
- Support HW TPM 2.0

Modular Design | 5G/ Wi-Fi 6E Available | Vibration/ Shock 5G/55G | ST 0~70°C WT -40~70°C | Wide-DC Input 9~36Vdc

Specifications

System Information	
Processor	11th Gen Intel® Core™ Processors, BGA 1449 (former Tiger Lake-UP3) Intel® Core™ i7-1185GRE Processor, 4C8T, 12M Cache, 1.8GHz (4.4GHz), TDP: 15W, WT Intel® Core™ i5-1145GRE Processor, 4C8T, 8M Cache, 1.5GHz (4.1GHz), TDP: 15W, WT Intel® Core™ i3-1115GRE Processor, 2C4T, 6M Cache, 2.2GHz (3.9GHz), TDP: 15W, WT Intel® Core™ i7-1185G7E Processor, 4C8T, 12M Cache, 1.8GHz (4.4GHz), TDP: 15W, ST Intel® Core™ i5-1145G7E Processor, 4C8T, 8M Cache, 1.5GHz (4.1GHz), TDP: 15W, ST Intel® Core™ i3-1115G4E Processor, 2C4T, 6M Cache, 2.2GHz (3.9GHz), TDP: 15W, 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
TPM	TPM 2.0
SBC	EBM-TGLS + IET-6 LAN Bypass EBM-TGLS + IET-6 LAN Normal
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	
M.2	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	
Power Button	1 x Push Button for Power on/off
Reset Button	1 x Push Button for Reset
LED Indicator	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
COM Port	2 x COM RS232/422/485 (select via BIOS, auto flow control via HW)
Digital I/O	1 x 8-bit GPIO (DB9)
Wire-Control Power On/Off	1 x 2-Pin Terminal Block for wire-control power on/off
Antenna	2 x Antenna with dust cover
Rear I/O	
USB	2 x USB 3.1 Gen.2 (10Gbp/s), 2 x USB 3.1 Gen.1 (5Gbp/s) 2 x USB 2.0
LAN Port	6 x RJ45, 4 ports support bypass function (EMS-TGL-6 LAN Bypass) 6 x RJ45 (EMS-TGL-6 LAN Normal)
Audio	1 x Mic-In, 1 x Line-Out
DP	1 x DP++
HDMI	1 x HDMI
Antenna	2 x Antenna with dust cover
AC/DC Input	1 x 3-Pin Terminal Block (V+. V-, GND)
Right I/O & Left I/O	
Antenna	2 x Antenna with dust cover
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)
Resolution	DP++ : Max. resolution 4096x2304 @ 60Hz HDMI : Max. resolution 4096x2304 @ 60Hz
Audio	
Audio Codec	Realtek ALC888S HD codec
Ethernet	
LAN Chipset	1 x Intel® I225-LM, 1 x Intel® I219-LM 4 x Intel® I210IT(WT) or I210AT (ST)
Specification	1 x 10/100/1000/2.5G Base-Tx GbE compatible 5 x 10/100/1000Base-Tx GbE compatible
Power Requirement	
Voltage Input Spec.	DC in 12/24V (+9V ~ +36V), wide voltage single power input TVS component for surge protection Reverse current/voltage protection (Max. Currency: 13A)
Voltage 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)
Software Support	
OS	Win 10 64bit, Linux
Certification	
Certification Information	CE, FCC Class B
Mechanical & Environmental	
Operating Temp.	-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 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 (w/ IET module)
Weight	2.3 kg (System)
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)

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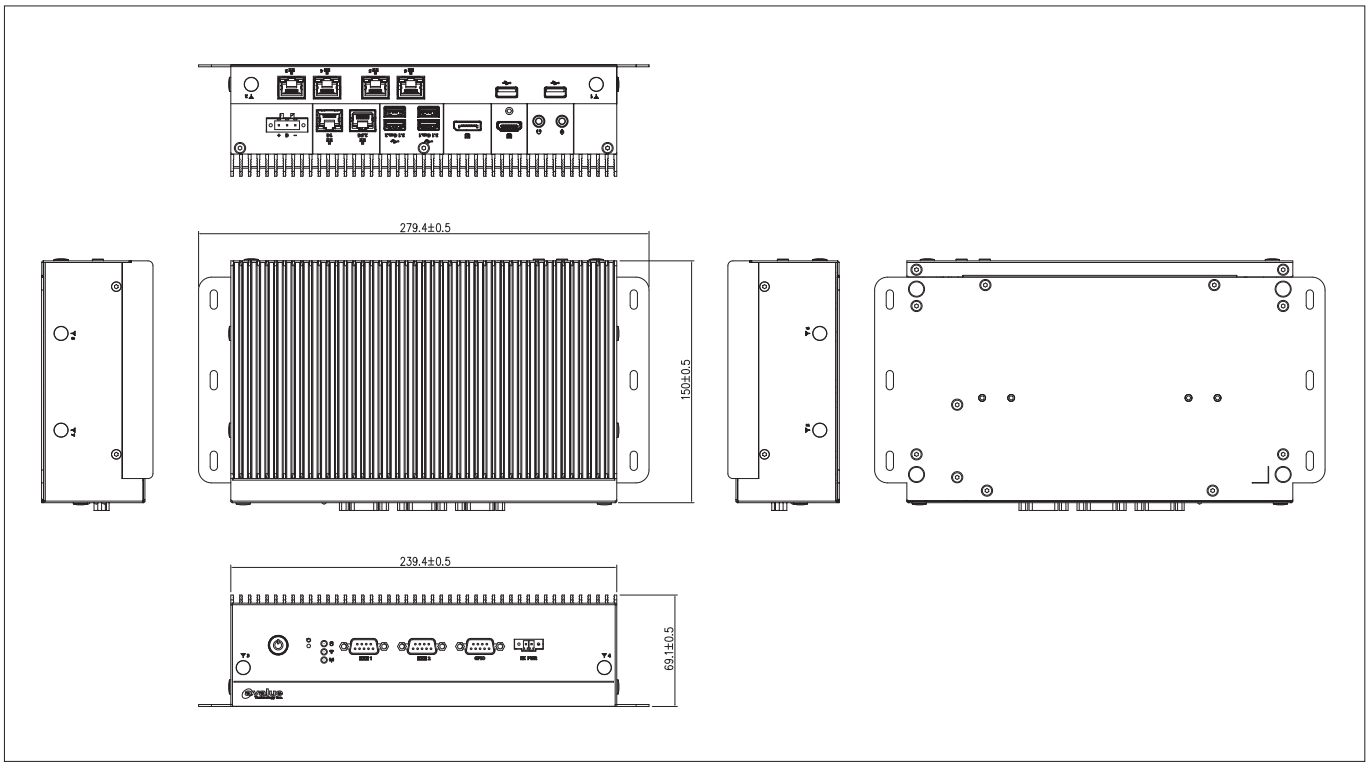
Mechanical Drawing



Ordering Information

P/N	Processor	Chipset	Memory	Storage	Adapter/ PSU	Mounting Kit	Temp.
EMS-TGL-6 LAN Bypass: w_bypass LAN IET Module, support 4 ports bypass							
EMS-TGL-W85-A1-BR	Intel® Core™ i7-1185GRE Processor	N/A	8GB DDR4 (Up to 64G Optional)	(Optional)	60W Adapter (Optional)	Wall Mount (Din Rail Optional)	-40°C ~ 70°C
EMS-TGL-W45-A1-BR	Intel® Core™ i5-1145GRE Processor	N/A	8GB DDR4 (Up to 64G Optional)	(Optional)	60W Adapter (Optional)	Wall Mount (Din Rail Optional)	-40°C ~ 70°C
EMS-TGL-W15-A1-BR	Intel® Core™ i3-1115GRE Processor	N/A	8GB DDR4 (Up to 64G Optional)	(Optional)	60W Adapter (Optional)	Wall Mount (Din Rail Optional)	-40°C ~ 70°C
EMS-TGL-S85-A1-BR	Intel® Core™ i7-1185G7E Processor	N/A	8GB DDR4 (Up to 64G Optional)	(Optional)	60W Adapter (Optional)	Wall Mount (Din Rail Optional)	0°C ~ 70°C
EMS-TGL-S45-A1-BR	Intel® Core™ i5-1145G7E Processor	N/A	8GB DDR4 (Up to 64G Optional)	(Optional)	60W Adapter (Optional)	Wall Mount (Din Rail Optional)	0°C ~ 70°C
EMS-TGL-S15-A1-BR	Intel® Core™ i3-1115G4E Processor	N/A	8GB DDR4 (Up to 64G Optional)	(Optional)	60W Adapter (Optional)	Wall Mount (Din Rail Optional)	0°C ~ 70°C
EMS-TGL-6 LAN Normal: w_LAN IET Module							
EMS-TGL-W85-A1-CR	Intel® Core™ i7-1185GRE Processor	N/A	8GB DDR4 (Up to 64G Optional)	(Optional)	60W Adapter (Optional)	Wall Mount (Din Rail Optional)	-40°C ~ 70°C
EMS-TGL-W45-A1-CR	Intel® Core™ i5-1145GRE Processor	N/A	8GB DDR4 (Up to 64G Optional)	(Optional)	60W Adapter (Optional)	Wall Mount (Din Rail Optional)	-40°C ~ 70°C
EMS-TGL-W15-A1-CR	Intel® Core™ i3-1115GRE Processor	N/A	8GB DDR4 (Up to 64G Optional)	(Optional)	60W Adapter (Optional)	Wall Mount (Din Rail Optional)	-40°C ~ 70°C
EMS-TGL-S85-A1-CR	Intel® Core™ i7-1185G7E Processor	N/A	8GB DDR4 (Up to 64G Optional)	(Optional)	60W Adapter (Optional)	Wall Mount (Din Rail Optional)	0°C ~ 70°C
EMS-TGL-S45-A1-CR	Intel® Core™ i5-1145G7E Processor	N/A	8GB DDR4 (Up to 64G Optional)	(Optional)	60W Adapter (Optional)	Wall Mount (Din Rail Optional)	0°C ~ 70°C
EMS-TGL-S15-A1-CR	Intel® Core™ i3-1115G4E Processor	N/A	8GB DDR4 (Up to 64G Optional)	(Optional)	60W Adapter (Optional)	Wall Mount (Din Rail Optional)	0°C ~ 70°C

Packing List

Item	Quantity
EMS-TGL 11th Gen Intel® Core™ Processor i7/i5/i3 Fanless Rugged Embedded System w_LAN IET Module	1
Terminal block to lockable DC Jack cable	1
DP to VGA converter	1
Wire tie for HDMI	1
Screw driver for chassis	1
Screw kits for peripheral	1

Optional Items

Item	P/N
AC/DC adapter 12V/5A 90 Screw Type	ACC-ADP-060N-14R ACC-ADP-060N-08R
Power Cord 3P(F)-3P(M) 183cm, USA type	E1702031833R
Power Cord SL-6+SL-3 183cm, EU type	E1702031000R
Power Cord 3P(F)-3P(M) 183cm, Japan w/PSE type	E1702031834R
Power Cord QP-026+SL-3 183cm, UK type	E170P060380R
Power Cord 3P(F)-3P(M) 183cm, Australia type	E1702031831R
Din Rail Kit	-

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I/O Overview

