

TGS

1000



2.5GigE

Intel® Core™ Ultra Processor Stackable AI PC



AI Processing



- Intel® Core™ Ultra processors feature CPU/GPU/NPU hybrid AI engines, enhancing CPU productivity by up to 14%
- Intel® Core™ Ultra processors integrated with maximum 34 TOPS
- Multiple HDMI and DisplayPort display interfaces support max 5 independent displays, up to 4K resolution
- 2 USB 3.2 Gen 2, 1 USB 3.2 Gen 2x2 Type-C with DP, 2 USB 2.0, 1 2.5 LAN with Intel® TSN
- 3 M.2 Socket for storage and expansion
- Modular Design for flexible expansion: USB, Isolated DIO, COM, LAN or 4G/LTE
- DC 12V to 24V Power Input, 0°C to 55°C operation
- Optional VHub One-Stop AIoT Solution Service supports OpenVINO™ toolkit for AI Computing

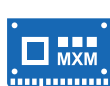
Office Communication



Gaming



OpenVINO™



Vecow

Specifications

System

Processor	Intel® Core™ Ultra 7 165H Processor (16 Cores) Intel® Core™ Ultra 5 135H Processor (14 Cores)
NPU	Integrated Intel® AI Boost neural processing unit
Chipset	Intel® SoC
GPU	- Built-in processor graphics Intel® Arc™ GPU - Independent MXM Graphics : By request (TGS-1500)
BIOS	AMI
SIO	IT8659E
Memory	2 DDR5 SO-DIMM, up to 64GB
OS	Windows 11, Windows 10, Linux

I/O Interface

Display	- 2 HDMI 2.1 : Up to 4096 x 2304 @60Hz - 1 DisplayPort 1.4 : Up to 3840 x 2160 @60Hz by USB Type-C - 2 DisplayPort 1.4 : Up to 4096 x 2304 @60Hz (TGS-1500, by MXM)
USB	- 2 USB 3.2 Gen 2 Type A - 1 USB 3.2 Gen 2x2 Type C (5V/3A) - 2 USB 2 Type A
LED	Power, HDD

Expansion

M.2	1 M.2 Key E Socket (2230, PCIe x1/USB)
Docking Expansion	2 Expansion Connector for docking module

Storage

M.2	- 1 M.2 Key M Socket (2280, PCIe 4.0 x4) - 1 M.2 Key M Socket (2242, PCIe 4.0 x4)
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Audio

Audio Codec	Realtek ALC888S-VD, 7.1 Channel HD Audio
Audio Interface	1 Mic-in, 1 Line-out

Ethernet

LAN 1	Intel® I226 2.5GigE LAN supports TSN
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Power

Power Input	TGS-1000 : DC 12V to 24V TGS-1500 : DC 24V Only
Power Interface	3-pin Terminal Block : V+, V-, Frame Ground

Others

Watchdog Timer	Reset : 1 to 255 sec./min. per step
HW Monitor	Monitoring temperature, voltages. Auto throttling control when CPU overheats.

Mechanical

Dimensions	TGS-1000 : 117mm x 120mm x 38mm (4.61"x 4.72"x 1.49") TGS-1500 : 117mm x 120mm x 88.3mm (4.61"x 4.72"x 3.47")
Weight	TGS-1000 : 0.9 kg (1.98 lb) TGS-1500 : 1.4 kg (3.09 lb)
Mounting	- Wallmount by mounting bracket - VESA Mount (Optional) - DIN Rail Mount (Optional)

Environment

Operating Temperature	TGS-1000 : 0°C to 55°C (-13°F to 131°F) TGS-1500 : 0°C to 45°C (-13°F to 113°F)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Humidity	5% to 95% Humidity, non-condensing
Relative Humidity	95% @55°C
Shock/Vibration	- IEC 61373: 2010 - Railway Applications : Rolling Stock Equipment, Shock and Vibration Tests
EMC	CE, FCC, ICES, EN50155, EN50121-3-2

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Order Information

Model Name	CPU	2.5G LAN	USB3		HDMI 2.1	DP	MXM
			Type-A	Type-C			
TGS-1000-165H	Core Ultra 7 165H	1	2	1	2	1	NA
TGS-1000-135H	Core Ultra 5 135H						
TGS-1500-165H	Core Ultra 7 165H	1	2	1	2	3	Y
TGS-1500-135H	Core Ultra 5 135H						

Optional Software

VHub AI Developer	AI Developer Kit
VHub ROS	AMR Developer Kit
VHub EtherCAT	I/O Control Platform

Accessories

DDR5 32G	Certified DDR5 32GB 5600MHz RAM
DDR5 16G	Certified DDR5 16GB 5600MHz RAM
DDR5 8G	Certified DDR5 8GB 5600MHz RAM
PWA-120W1	120W, 24V, 90V AC to 264V AC Power Adapter with 3-pin Terminal Block
PWA-180W	180W, 24V, 90V AC to 264V AC Power Adapter with 3-pin Terminal Block
TGS-101	Expansion Docking Module for 16-bit GPIO
TGS-102	Expansion Docking Module for 16-bit Isolated DIO (8DI, 8DO)
TGS-103	Expansion Docking Module for 2 COM (RS-232/422/485)
TGS-104	Expansion Docking Module for 2 Isolated COM (RS-232/422/485)
TGS-105	Expansion Docking Module for 2 USB3
TGS-106	Expansion Docking Module for 2 1G LAN
TGS-107	Expansion Docking Module for 4G Module
DIN-RAIL	DIN-RAIL Kit
VESA Mount	VESA Mount Kit
M.2 Storage Module	M.2 Key M Storage Module
WiFi & Bluetooth	WiFi & Bluetooth Module with Antenna
4G Module	Mini PCIe 4G/GPS Module with Antenna

Dimensions & Drawing

Unit : mm (inch)

TGS-1000



TGS-1500

