

TGS 1000



Intel® Core™ Ultra Processor Stackable AI PC



AI Processing

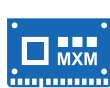


- Intel® Core™ Ultra processors feature CPU/GPU/NPU hybrid AI engines, enhancing CPU productivity by up to 14%
- Intel® Core™ Ultra processors integrated with maximum 34 TOPS
- Multiple HDMI and DisplayPort display interfaces support max 5 independent displays, up to 4K resolution
- 2 USB 3.2 Gen 2, 1 USB 3.2 Gen 2x2 Type-C with DP, 2 USB 2.0, 1 2.5G 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



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 96GB
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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Vecow info@vecow.com



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 48G	Certified DDR5 48GB 5600MHz RAM
DDR5 32G	Certified DDR5 32GB 5600MHz RAM
DDR5 24G	Certified DDR5 24GB 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 *Recommended with TGS-1500
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 Type A MXM GPU (Without MXM GPU)
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

