

# VCM 1000

13th Gen Intel® Core™ i9/i7/i5/i3 Processor  
Compact Embedded Computing System



▲ Digital Factory



- 24-core 13th Gen Intel® Core™ i9/i7/i5/i3 Processor running with Intel® H610E PCH
- 2 DDR5 4800MHz SO-DIMM, up to 64GB Memory
- 6 Independent GigE LAN with 4 IEEE 802.3at PoE+
- 12 USB, 2 COM RS-232/422/485, 36 Isolated DIO
- WiFi/4G/3G/LTE/GPRS/UMTS, M.2 Key E, M.2 Key B
- Software Ignition Control, TPM 2.0, Intel® TCC
- Compact 2U half-rack design, -25°C to 75°C wide range operating temperature
- Optional VHub AIoT Solution Service supports OpenVINO based AI accelerator and advanced Edge AI applications

▼ Mobile Robots



▲ Public Security

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VHub

Vecow

# Specifications

## System

Processor	- 24-core 13th Gen Intel® Core™ i9/i7/i5/i3 Processor (Raptor Lake-S) - 16-core 12th Gen Intel® Core™ i9/i7/i5/i3 Processor (Alder Lake-S)
Chipset	Intel® H610E
BIOS	AMI
SIO	IT8786E
Memory	2 DDR5 4800MHz SO-DIMM, up to 64GB (Non-ECC)
OS	Window 11, Windows 10, Linux

## I/O Interface

Serial	2 COM RS-232/422/485
USB	VCM-1000 : 4 USB 3.2 (External), 4 USB 2.0 (External), 2 USB 2.0 (Internal) VCM-1100 : 8 USB 3.2 (External), 4 USB 2.0 (External), 2 USB 2.0 (Internal)
Isolated DIO	VCM-1000 : NA VCM-1100 : 36 Isolated DIO : 24 DO, 4 DI
LED	Power, HDD, PoE, Wireless
SIM Card	1 SIM Card Socket (Internal)

## Expansion

M.2	- 1 M.2 Key B Socket (2280/3052/3042, PCIe, SATA, USB 2) - 1 M.2 Key E Socket (2230, PCIe)
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## Graphics

Graphics Processor	Intel® UHD Graphics 770 driven by Intel® X® Architecture
Interface	- 1 VGA : Up to 1920 x 1200 @60Hz - 1 DVI-D : Up to 1920 x 1200 @60Hz

## Storage

SATA	VCM-1000 : 1 SATA III (6Gbps) VCM-1100 : 2 SATA III (6Gbps)
M.2	1 M.2 Key M Socket (2280/22110, PCIe x2, SATA)
Storage Device	VCM-1000 : 1 2.5" SSD/HDD Bracket (Internal) VCM-1100 : 2 2.5" SSD/HDD Bracket (Internal)

## Ethernet

LAN 1	Intel® I219LM GigE LAN
LAN 2	Intel® I210 GigE LAN

## PoE (VCM-1100)

LAN 3 to LAN 6	GigE IEEE 802.3at (25.5W/48V) PoE+ by Intel® i350
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## Power

Power Input	24V DC Power Input
Power Interface	3-pin Terminal Block : V+, V-, GND
Ignition Control	16-mode Software Ignition Control
Remote Switch	3-pin Terminal Block

## Others

TPM	Infineon SLB9670 supports TPM 2.0, SPI Interface
Watchdog Timer	Reset : 1 to 255 sec./min. per step
Smart Mgmt.	Wake on LAN, PXE supported
HW Monitor	Monitoring temperature, voltages. Auto throttling control when CPU overheats.

## Mechanical

Dimensions	VCM-1000 : 200 x 200 x 55 (mm) VCM-1100 : 200 x 200 x 67 (mm)
Weight	VCM-1000 : 2.5kg (5.51 lb) VCM-1100 : 2.8kg (6.18 lb)
Mounting	- Wallmount by mounting bracket - VESA Mount (Optional) - DIN Rail Mounting (Optional)

## Environment

Operating Temp.	35W CPU Fanless : -25°C to 60°C (-13°F to 140°F) 65W CPU Fanless : -25°C to 45°C (-13°F to 113°F) 35W CPU w/Fan : -25°C to 75°C (-13°F to 167°F) 65W CPU w/Fan : -25°C to 60°C (-13°F to 140°F)
Storage Temp.	-40°C to 85°C (-40°F to 185°F)
Humidity	5% to 95% Humidity, non-condensing
Relative Humidity	95% @75°C
Shock	- IEC 60068-2-27 - SSD : 50G @wallmount, Half-sine, 11ms
Vibration	- IEC 60068-2-64 - SSD : 5Grms, 5Hz to 500Hz, 3 Axis
EMC	CE, FCC

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# Order Information

Model	LAN		USB 3.2	SSD	COM	Isolate DIO	FAN
	GigE	PoE+					
VCM-1000	2	-	4	1	2	-	Fanless
VCM-1000F	2	-	4	1	2	-	Fan
VCM-1100F	6	4	8	2	2	36	Fan

## CPU List

Series	CPU				CPU				ECC
	CPU	Cores	GHz	TDP (W)	CPU	Cores	GHz	TDP (W)	
Intel® Core™	i9-13900E	24	5.2	65	i9-12900E	16	5	65	NA
	i9-13900TE	24	5	35	i9-12900TE	16	4.8	35	
	i7-13700E	16	5.1	65	i7-12700E	12	4.8	65	
	i7-13700TE	16	4.8	35	i7-12700TE	12	4.7	35	
	i5-13500E	14	4.6	65	i5-12500E	6	4.5	65	
	i5-13500TE	14	4.5	35	i5-12500TE	6	4.3	35	
	i3-13100E	4	4.4	65	i3-12100E	4	4.2	65	
	i3-13100TE	4	4.1	35	i3-12100TE	4	4	35	

## 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 4800MHz RAM
DDR5 16G	Certified DDR5 16GB 4800MHz RAM
DDR5 8G	Certified DDR5 8GB 4800MHz RAM
PWA-120W1	120W, 24V, 90V AC to 264V AC Power Adaptor with 3-pin Terminal Block
PWA-160W-WT	160W, 24V, 85V AC to 264V AC Power Adaptor with 3-pin Terminal Block, Wide Temperature
PWA-180W	180W, 24V, 90V AC to 264V AC Power Adaptor with 3-pin Terminal Block
VESA Mount	VESA Mounting Kit
DIN-RAIL Kit	DIN Rail and VESA Mounting Kit
M.2 Storage Module	M.2 Key M Storage Module
4G Module	4G/GPS Module with Antenna
WiFi & Bluetooth	WiFi & Bluetooth Module with Antenna

# Dimensions & Drawing

Unit : mm (inch)

