EDGE AI WORKSTATION

VCO-6000-RPL-3-2PWR

Rugged Edge AI Workstation with Intel® Core™ Series 2/14th/13th/12th Gen Processors & R680E PCH, 3x PCIe, 3x Expansion Slots, 2x Power Input

Features

- Intel® Core™ Processors (BTL, Series 2) / 14th / 13th / 12th Gen RPL/ADL Series, LGA1700
- Intel® R680E chipset
- 2x DDR5 4800/5600MHz SODIMM. Max. up to 96GB
- Triple Independent Display: 2x DisplayPort, 1x DVI-I
- 2x Intel® 2.5GbE supporting Wake-on-LAN and PXE
- 2x 2.5" SATA HDD Bay (1x Internal) and with RAID 0, 1 support
- 1x Full-size Mini PCIe (1x shared by 1x mSATA), 2x SIM socket
- 1x M.2 (E Key, 2230), 1x M.2 (B Key, 2242/3042/3052)
- 1x PCIe x16 (16-Lane, Gen4); 2x PCIe x4 (1-Lane, Gen 3)
- 6x RS-232/422/485 (4x internal), 4x USB 3.2 Gen 2, 5x USB 3.2 Gen 1 (internal)
- 8x DI + 8x DO with isolation
- 9 to 48VDC Wide Range Power Input Supporting AT/ATX Mode
- 48VDC 600W Power Board for GPU Expansion
- Wide Operating Temperature -25°C up to 70°C
- TPM 2.0 Supported

Specifications

System	
Processor	
Standard 13th Gen Intel® Core™ Processors (Raptor Lake-S) - Intel® Core™ i7-13700TE, 35W - Intel® Core™ i5-13500TE, 35W 12th Gen Intel® Core™ Processors (Alder Lake-S) - Intel® Core™ i7-12700TE, 35W - Intel® Core™ i5-12500TE, 35W	
Project Based - Intel® Core™ 3 / 5 / 7 (Series 2, Bartlett Lake-S, 45W) - 14th Gen Intel® Core™ i3 / i5 / i7 / i9 (Raptor Lake-S Refresh, 35W~65W) - 13th Gen Intel® Core™ i3 / i5 / i7 / i9 (Raptor Lake-S, 35W~65W) - 12th Gen Intel® Core™ i3 / i5 / i7 / i9 (Alder Lake-S, 35W~65W)	
System Chipset	Intel® R680E Express Chipset
LAN Chipset	2.5 GbE1: Intel I226, 2.5 GbE2: Intel I226, Support Wake-on-LAN and PXE, Support TSN
Audio Codec	Realtek ALC888S
System Memory	2x 262-Pin DDR5 4800/5600 MT/s SODIMM. Max. up to 96GB (ECC and Non-ECC)
Graphics	Intel® UHD Graphics 770/710
BIOS	AMI 256Mbit SPI BIOS
Watchdog	Software Programmable Supports 1~255 sec. System Reset
TPM	TPM 2.0

Display	
Display Port	2x DisplayPort 1.4a, Support resolution 5120 x 3200, Up to 7680 x 4320
DVI	1x DVI-I, support resolution 1920 x 1200
Multiple Display	Triple Display
VGA	Yes (by optional split cable)

Storage	
M.2	1x M.2 B Key, 2242/3042/3052 (PCIe x2, Support AI Module/NVMe Storage) (PCIe x1 & USB 3.2 Gen1, Support 4G/5G)
mSATA	1x mSATA (Shared by 1x Mini PCI Express)
SIM Socket	2x Internal SIM socket (Mini PCIE/M.2 B Key attached)
SSD/HDD	1x Internal 2.5" SATA/SSD HDD Bay (support H=9mm) 1x Removable 2.5" SATA HDD Bay (support H=7mm, Hot-swappable) Support RAID 0, 1 Configuration Options: • 4x Removable 2.5" SATA HDD Bay (support H=7mm, Hot-swappable, Optional) Support RAID 0, 1, 5, 10 • 2x Removable 2.5" SATA HDD Bay (support H=15mm, Hot-swappable, Optional) Support RAID 0, 1, 5, 10 • 2x Removable 2.5" U.2 NVMe Bay (support H=15mm, Hot-swappable, Optional) Support RAID 0, 1

Expansion	
Mini PCIe	1x Full-size Mini PCIe (1x shared by 1x mSATA)
M.2	1x M.2 (E Key, PCIe x1, USB 2.0, 2230)
PCIe	1x PCIe x16 (16-Lane, Gen4) 2x PCIe x4 (1-Lane, Gen 3)
Card Dimension	310 (L) x 112 (H) mm

I/O	
COM	2x RS-232/422/485 ; 4x RS-232/422/485 (internal)
DIO	8 in / 8 out (Isolated)
LAN	2x RJ45
Universal I/O Bracket	2x Universal I/O Bracket (By mini PCIe interface)
USB	4x USB 3.2 Gen 2 (10 Gbps) 1x USB 3.2 Gen 1 (5 Gbps, Internal) 1x USB 3.2 Gen 1 header (5 Gbps, internal)
Others	4x WiFi Antenna Holes 1x Power Switch, 1x AT/ATX Switch, 1x Remote Power On/Off 1x PC/Car Mode Switch, 1x Delay Time Switch 1x Removable CMOS Battery (internal) 1x 6CM FAN Module (Optional)
CAN	2x Internal CAN Bus

Operating System	
Windows	Windows 10/11
Linux	Linux kernel

Power	
Power Adapter	Optional AC/DC 24V/11.67A, 280W Optional AC/DC 24V/15A, 360W Optional AC/DC 48V/12.5A, 600W
Power Mode	AT, ATX
Power Ignition Sensing	Power Ignition Management
Power Supply Voltage	• 9~48VDC • 48VDC (For GPU Expansion)
Power Connector	5-pin Terminal Block 4-pin Terminal Block (second power supply for GPU)
Power Protection	OVP (Over Voltage Protection) OCP (Over Current Protection) Reverse Protection

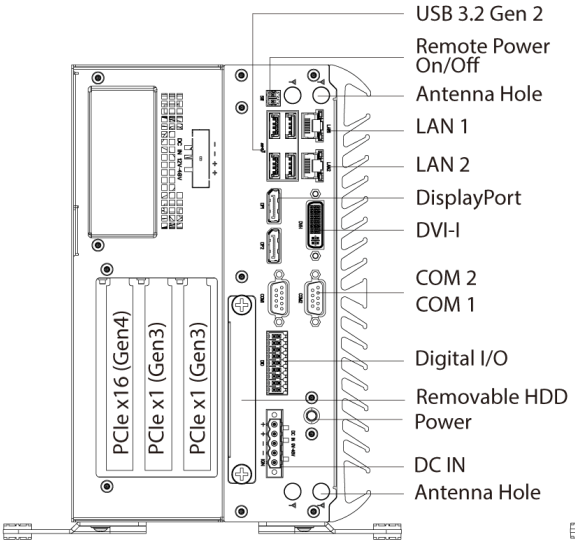
Environment	
Operating Temperature	-25°C to 70°C (35W/45W CPU) -25°C to 60°C (65W CPU)
Storage Temperature	-30°C to 85°C
Relative Humidity	10% to 95% (non-condensing)
Certification	UL 62368 Ed. 3, CE, FCC Class A
Vibration	With HDD: 1 Grms (5 - 500 Hz, 0.5 hr/axis) With SSD: 3 Grms (5 - 500 Hz, 0.5 hr/axis)
Shock	With SSD: 20G half-sin 11ms

Physical	
Dimensions	157 (W) x 340 (D) x 240 (H) mm
Weights	9.2 KG
Construction	Extruded Aluminum with Heavy Duty Metal
Mounting Options	Wall Mounting

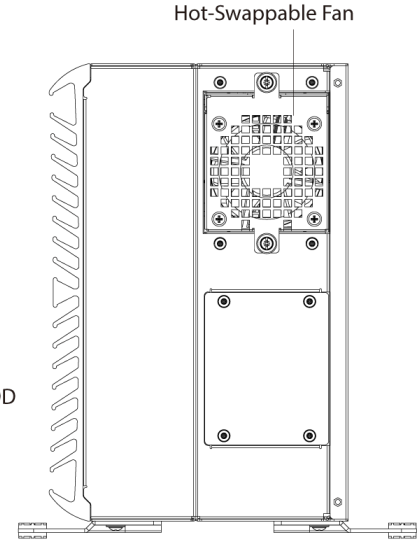
* Processor Base Power: 35W, 45W, 60W, 65W (CPU-dependent); View appendix table for complete supported CPUs.
** 65W CPUS may experience thermal throttling depending on extreme application workloads; this is also due to an increase in the physical CPU cores from the Intel silicon (up to 24 cores). Please note, this does not indicate system malfunction or problems in the fanless design. Please consult our embedded engineers for the best configuration to match your application requirements.
*** All specifications and photos are subject to change without notice.

External I/O Mechanical Layout

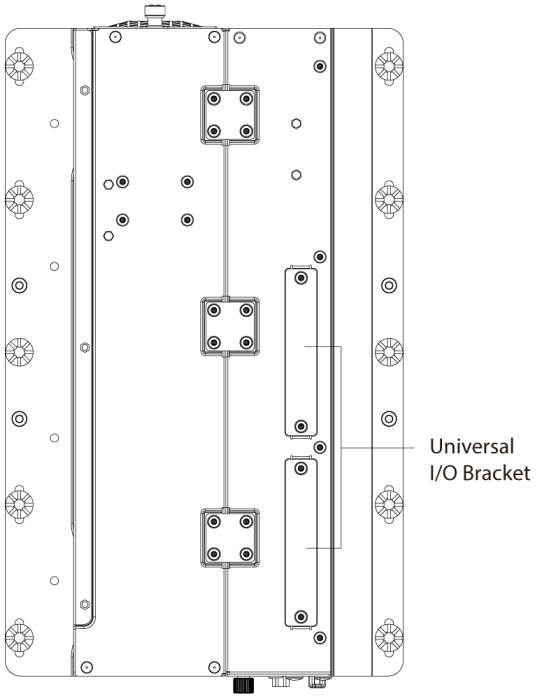
Front Panel



Rear Panel

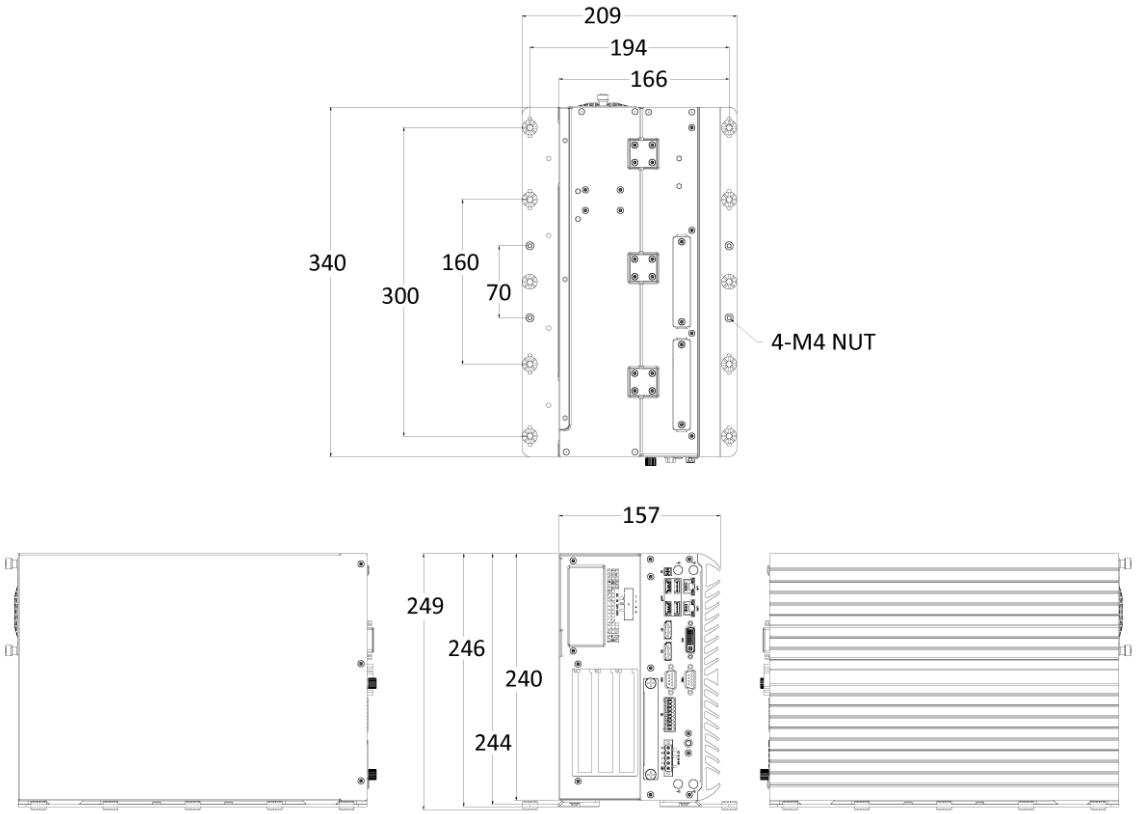


Top Panel

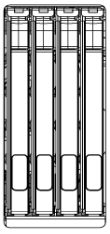


Dimension

Unit: mm



Expansion

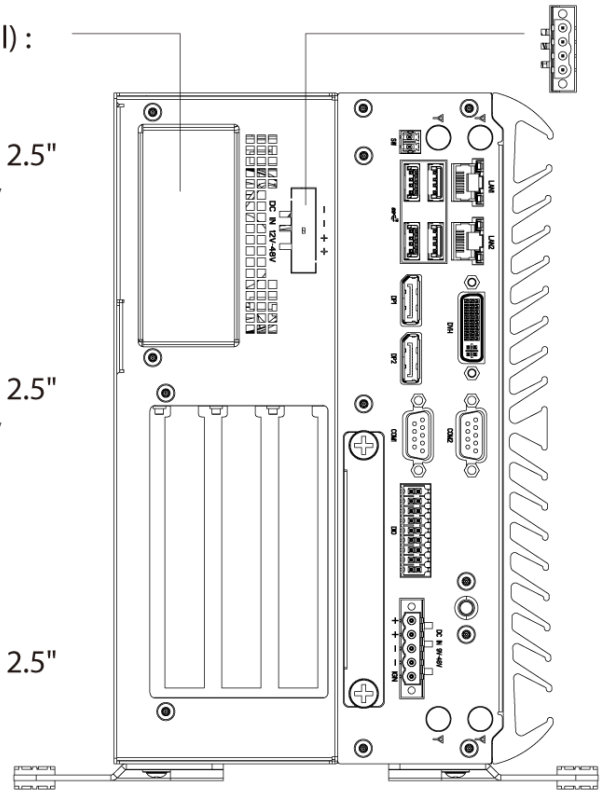


Storage (optional) :

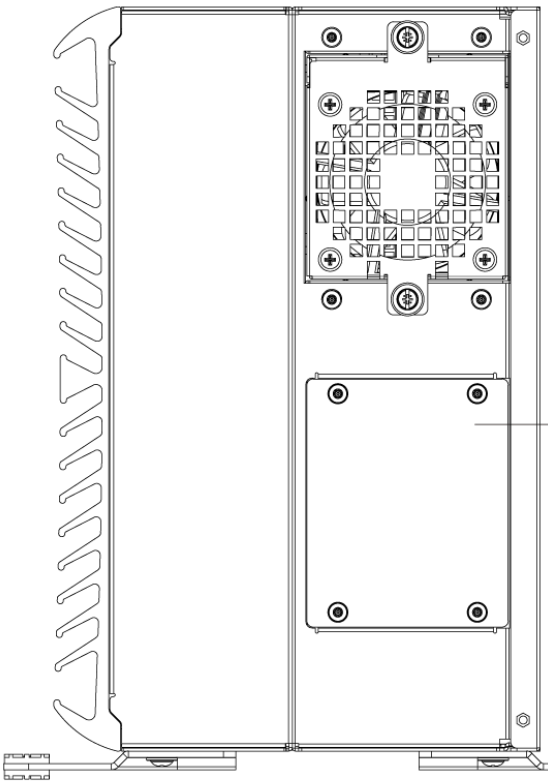
- 4B7M:
  4x Removable 2.5"
  SATA HDD Bay

- 2B15M:
  2x Removable 2.5"
  SATA HDD Bay

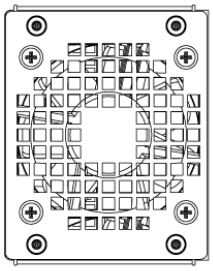
- 2N15M:
  2x Removable 2.5"
  U.2 NVMe Bay



48VDC
(For GPU Expansion)



Internal
6 CM FAN
(Optional)



Compatible CPU Support List

Generation and Code Name	Processor	P + E Cores	P-core Base Frequency	L3 Cache	Base Power
Intel® Core™ Series 2 Bartlett Lake-S	Intel® Core™ 7 Processor 251TE	8P + 16E	1.4 GHz	36 MB	45W
	Intel® Core™ 5 Processor 221TE	6P + 8E	1.8 GHz	24 MB	45W
	Intel® Core™ 3 Processor 201TE	4P	2.9 GHz	12 MB	45W
14th Gen Raptor Lake-S Refresh	Intel® Core™ i9 processor 14900	8P + 16E	2 GHz	36 MB	65W
	Intel® Core™ i9 processor 14900T	8P + 16E	1.1 GHz	36 MB	35W
	Intel® Core™ i7 processor 14700	8P + 12E	2.1 GHz	33 MB	65W
	Intel® Core™ i7 processor 14700T	8P + 12E	1.3 GHz	33 MB	35W
	Intel® Core™ i5 processor 14500	6P + 8E	2.6 GHz	24 MB	65W
	Intel® Core™ i5 processor 14500T	6P + 8E	1.7 GHz	24 MB	35W
	Intel® Core™ i3 processor 14100	4P	3.5 GHz	12 MB	60W
	Intel® Core™ i3 processor 14100T	4P	2.7 GHz	12 MB	35W
13th Gen Raptor Lake-S	Intel® Core™ i9 processor 13900E	8P + 16E	1.80 GHz	36 MB	65W
	Intel® Core™ i9 processor 13900TE	8P + 16E	1.00 GHz	36 MB	35W
	Intel® Core™ i7 processor 13700E	8P + 8E	1.90 GHz	30 MB	65W
	Intel® Core™ i7 processor 13700TE	8P + 8E	1.10 GHz	30 MB	35W
	Intel® Core™ i5 processor 13500E	6P + 8E	2.40 GHz	24 MB	65W
	Intel® Core™ i5 processor 13500TE	6P + 8E	1.30 GHz	24 MB	35W
	Intel® Core™ i3 processor 13100E	4P	3.30 GHz	12 MB	60W
	Intel® Core™ i3 processor 13100TE	4P	2.40 GHz	12 MB	35W
12th Gen Alder Lake-S	Intel® Core™ i9 processor 12900E	8P + 8E	2.30 GHz	30 MB	65W
	Intel® Core™ i9 processor 12900TE	8P + 8E	1.10 GHz	30 MB	35W
	Intel® Core™ i7 processor 12700E	8P + 4E	2.10 GHz	25 MB	65W
	Intel® Core™ i7 processor 12700TE	8P + 4E	1.40 GHz	25 MB	35W
	Intel® Core™ i5 processor 12500E	6P	2.90 GHz	18 MB	65W
	Intel® Core™ i5 processor 12500TE	6P	1.90 GHz	18 MB	35W
	Intel® Core™ i3 processor 12100E	4P	3.20 GHz	12 MB	60W
	Intel® Core™ i3 processor 12100TE	4P	2.10 GHz	12 MB	35W

Compatible GPU AVL

Model	GPU Memory	Memory Bandwidth	CUDA Cores	Tensor Cores	RT Cores	AI TOPS	Dimensions	Power & Thermal
NVIDIA RTX PRO 6000 Blackwell Max-Q Workstation Edition	96GB GDDR7 ECC	1792 GB/s	24,064	752	188	3,511	4.4" H X 10.5" L, FHFL Dual Slot	300 W
NVIDIA RTX PRO 5000 Blackwell	48GB GDDR7 ECC	1344 GB/s	14,080	440	110	2,064	4.4" H X 10.5" L, FHFL Dual Slot	300 W
NVIDIA RTX PRO 4500 Blackwell	32GB GDDR7 ECC	896 GB/s	10,496	328	82	1,687	4.4" H X 10.5" L, FHFL Dual Slot	200 W
NVIDIA RTX PRO 4000 Blackwell	24GB GDDR7 ECC	672 GB/s	8,960	280	70	1,247	4.4" H X 9.5" L, FHML Single Slot	140 W
NVIDIA RTX PRO 4000 Blackwell SFF Edition	24GB GDDR7 ECC	432 GB/s	8,960	280	70	770	2.7" H x 6.6" HHHL, Dual Slot	70 W
NVIDIA RTX PRO 2000 Blackwell	16GB GDDR7 ECC	288 GB/s	4,352	136	34	545	2.7" H x 6.6" L, HHHL Dual Slot	70 W
NVIDIA RTX 5000 Ada Generation	32GB GDDR6 ECC	576 GB/s	12800	400	100	1044	4.4" x 10.5" FH | DS	250 W
NVIDIA RTX 4500 Ada Generation	24GB GDDR6 ECC	432 GB/s	7680	240	60	634	4.4" x 10.5" FH | DS	210 W
NVIDIA RTX 4000 Ada Generation	20GB GDDR6 ECC	360 GB/s	6144	192	48	428	4.4" x 9.5" FH | SS	130 W
RTX 4000 SFF Ada Generation	20GB GDDR6 ECC	320 GB/s	6144	192	48	307	2.7" x 6.6" LP | DS	70 W
NVIDIA RTX 2000 Ada Generation	16 GB GDDR6 with ECC	224 GB/s	2816	88	22	192	2.7" x 6.6" LP | DS	70 W
NVIDIA RTX A1000	8GB GDDR6	192 GB/s	2304	72	18	108	2.7" H x 6.4" LP | SS	50 W

Compliances and Standards

Vibration	With HDD: 1 Grms (5 - 500 Hz, 0.5 hr/axis) With SSD: 3 Grms (5 - 500 Hz, 0.5 hr/axis) IEC60068-2-64:2008 Designed to comply with MIL-STD-810H Method 514.8 Procedure I
Shock	With SSD: 20G half-sin 11ms IEC60068-2-27:2008 Designed to comply with MIL-STD-810H Method 516.8 Procedure I
Operating Temperature	-25°C to 70°C (35W/45W CPU) -25°C to 60°C (65W CPU) IEC60068-2-1:2007 (Cold test procedure) IEC60068-2-2:2007 (Dry heat test procedure) IEC60068-2-3:2007 (Damp heat, steady state, test procedure) IEC60068-2-14:2009 (Wide temperature range thermal shock)
EMC	• FCC Class A • CE • ICES-003 • UKCA • Industrial EMC Compliance - EN 61000-4-2: 2009 - EN IEC 61000-4-3: 2020 - EN 61000-4-4: 2012 - EN 61000-4-5: 2014 +A1: 2017 - EN 61000-4-6: 2014
Safety	• UL Safety: UL62368-1, 3rd Ed., (cULus) • Test procedure: CB Scheme • Standard: IEC 62368-1:2018

VCO-6000-RPL-3-2PWR

Available Models

Model No.	Description
VCO-6000-RPL-3-2PWR-P	Rugged Edge AI Workstation with Intel® Core™ (Series 2)/14th/13th/12th Gen Processors & R680E PCH, 2x LAN, 3x PCIe, 3x Expansion Slots, 600W GPU Power Board, w/ Power Adapter
VCO-6000-RPL-3-2PWR-2B-P	Rugged Edge AI Workstation with Intel® Core™ (Series 2)/14th/13th/12th Gen Processors & R680E PCH, 2x LAN, 3x PCIe, 3x Expansion Slots, 2 Bay 15mm SATA, 600W GPU Power Board, w/ Power Adapter
VCO-6000-RPL-3-2PWR-2N-P	Rugged Edge AI Workstation with Intel® Core™ (Series 2)/14th/13th/12th Gen Processors & R680E PCH, 2x LAN, 3x PCIe, 3x Expansion Slots, 2 Bay 15mm NVMe, 600W GPU Power Board, w/ Power Adapter
VCO-6000-RPL-3-2PWR-4B-P	Rugged Edge AI Workstation with Intel® Core™ (Series 2)/14th/13th/12th Gen Processors & R680E PCH, 2x LAN, 3x PCIe, 3x Expansion Slots, 4 Bay 7mm SATA, 600W GPU Power Board, w/ Power Adapter
VCO-6000-RPL-3-2PWR	Rugged Edge AI Workstation with Intel® Core™ (Series 2)/14th/13th/12th Gen Processors & R680E PCH, 2x LAN, 3x PCIe, 3x Expansion Slots, 600W GPU Power Board
VCO-6000-RPL-3-2PWR-2B	Rugged Edge AI Workstation with Intel® Core™ (Series 2)/14th/13th/12th Gen Processors & R680E PCH, 2x LAN, 3x PCIe, 3x Expansion Slots, 2 Bay 15mm SATA, 600W GPU Power Board
VCO-6000-RPL-3-2PWR-2N	Rugged Edge AI Workstation with Intel® Core™ (Series 2)/14th/13th/12th Gen Processors & R680E PCH, 2x LAN, 3x PCIe, 3x Expansion Slots, 2 Bay 15mm NVMe, 600W GPU Power Board
VCO-6000-RPL-3-2PWR-4B	Rugged Edge AI Workstation with Intel® Core™ (Series 2)/14th/13th/12th Gen Processors & R680E PCH, 2x LAN, 3x PCIe, 3x Expansion Slots, 4 Bay 7mm SATA, 600W GPU Power Board

Optional Accessories

Model No.	Description
1-E09A28001	Adapter AC/DC 24V/11.67A 280W with 5pin Terminal Block Plug 5.0mm Pitch
1-E09A36003	Adapter AC/DC 24V/15A 360W with 5pin Terminal Block Plug 5.0mm Pitch
1-E09A60001	Adapter AC/DC 48V/12.5A 600W with 4pin Terminal Block 5.0mm Pitch
999930	Power Cord, 3-pin US Type, 180cm
1-TPCD00002	Power Cord, European Type, 180cm
1-TPCD00001	Power Cord, 3-pin UK Type, 180cm

Packing List

1x VCO-6000-RPL
1x Wall Mount Kit
1x DVI to VGA Adapter

US Exports And Tariff Codes

ECCN	5A992.c
HTS	8471.50.0150
Schedule B	84.71

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