

IVX

1000

Intel® Core™ i9/i7/i5/i3 Processor (14th Gen)
In-Vehicle Computing Workstation



IVX-1000 ICY



IVX-1000



- Workstation-grade Platform: Intel® Core™ i9/i7/i5/i3 Processor (14th gen, codename : RPL-S Refresh/RPL-S/ADL-S) running with Intel® R680E PCH supports max 65W TDP CPU
- Optional supports outstanding AI computing productivity by advanced and compact NVIDIA® Quadro® MXM graphics
- 16V to 160V DC Power Input with 4kV DC Isolation, up to 500V Surge Protection, Software Ignition Power Control, optional UPS supported
- Fanless design for railway in-vehicle applications, fully compliant with EN50155 : 2017
- 8 Independent 2.5GigE LAN M12 X-coded
- Up to 6 front-access 7mm to 15mm height SSD/HDD Tray
- Supports Intel® vPro, TCC, Time-Sensitive Networking (TSN), and TPM 2.0

Advanced Digital Rail Platform | Rugged Reliability Railway-oriented Consideration | Optimized Manageability

The IVX-1000 Computing Workstation is equipped with Intel® Core™ i9/i7/i5/i3 Processors (14th gen, codename: RPL-S Refresh/RPL-S/ADL-S), featuring a performance hybrid architecture and advanced AI capabilities for enhanced and faster applications. The IVX-1000 optionally supports MXM Graphics powered by NVIDIA Quadro® platforms, making it ideal for harsh environments that require excellent computing power, which aids in accelerating traffic vision deployment in rail applications. With a wide power input range of 16V to 160V, 500V surge protection, and EN50155 certification, the IVX-1000 provides flexibility, optimal power integration, and reliable performance for in-vehicle computing in ADAS, mobile communication, public security, and various Edge AI applications.



Specifications

System

Processor	- 24-core Intel® Core™ i9/i7/i5/i3 Processor (14th gen, Raptor Lake-S Refresh) - 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® R680E Chipset
BIOS	AMI
SIO	IT8786E
Memory	2 DDR5 4800MHz SO-DIMM, up to 64GB
OS	Windows 11, Windows 10, Linux

I/O Interface

Serial	4 Isolated COM RS-232/422/485
USB	- 4 USB 3.2 Gen2 - 1 A-coded M12 USB 2.0 with 2-port signal
Isolated DIO	16 Isolated DIO : 8 DI, 8 DO
LED	Power, HDD, PoE, Wireless
SIM Card	2 External SIM Card Sockets
RTC Battery	Front-access RTC Battery

Expansion

Mini PCIe	1 Mini PCIe sockets for PCIe/USB/SIM Card/Optional mSATA
M.2	- 1 M.2 Key B Socket (3052/2280, PCIe/USB 3, default/USB 2) - 1 M.2 Key E Socket (2230, PCIe/USB)
SUMIT	2 SUMIT Slot (Optional)

Graphics

Graphics Processor	- Intel® UHD Graphics 770/730 driven by Intel® X® Architecture - Independent MXM Graphics : By request
Interface	- 1 VGA : Up to 1920 x 1200 @60Hz - 2 HDMI : Up to 1920 x 1080 @60Hz - 2 DisplayPort : Up to 4096 x 2304 @60Hz (By requested MXM)

Storage

SATA	IVX-1000 : 2 SATA III (6Gbps) support software RAID 0, 1 IVX-1000 ICY : 6 SATA III (6Gbps) support software RAID 0, 1, 5, 10
mSATA	1 SATA III (Mini PCIe Type, 6Gbps)
M.2	1 M.2 Key M Socket (2280, PCIe x4)
Storage Device	IVX-1000 : 2 Front-access 2.5"SSD/HDD Tray IVX-1000 ICY : 6 Front-access 2.5"SSD/HDD Tray (15mm in height)

Audio

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

Ethernet

LAN 1	Intel® I219LM GigE LAN supports iAMT
LAN 2	Intel® I226 2.5GigE LAN supports TSN
LAN 3 to LAN 6	Intel® I226 2.5GigE LAN, X-Coded M12 Connector
LAN 7 to LAN 10	2.5GigE IEEE 802.3at PoE+ by Intel I226, X-Coded M12 Connector (up to 25.5W/48V each port, total power be supported depends on system config.)

Power

Power Input	DC 16V to 160V, Max. support 200W
Power Interface	3-pin Terminal Block : V+, V-, Frame Ground
Ignition Control	16-mode Software Ignition Control
Remote Switch	3-pin Terminal Block
Isolation	4kV DC
Surge Protection	0.5kV DC 8/20us Surge
UPS (IVX-1000 ICY)	- Optional supports 3 stackable 18650 Li Batteries (2.5A/h) - Optional supports Super Cap

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.

Environment

Operating Temperature	35W TDP CPU without GPU : -25°C to 75°C (-13°F to 167°F) 35W TDP CPU with <50W GPU : -25°C to 55°C (-13°F to 131°F) 65W TDP CPU without GPU : -25°C to 65°C (-13°F to 149°F) 65W TDP CPU with <50W GPU : -25°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 Test
EMC	CE, FCC, EN50155, EN50121-3-2

*Environmental ratings for base system only.

Mechanical

Dimensions	IVX-1000 : 360mm x 228mm x 88mm (14.2" x 8.9" x 3.5") IVX-1000 ICY : 360mm x 228mm x 171mm (14.2" x 8.9" x 6.7")
Weight	IVX-1000 : 7.1 kg (15.65 lb) IVX-1000 ICY : 10.6 kg (23.43 lb)
Mounting	- Wallmount by mounting bracket - Rackmount (Optional)

Ordering Information

Model No.	GigE LAN	2.5G LAN	2.5G PoE+	Isolated COM	Isolated DIO	SSD Tray	UPS
IVX-1000	1	1 RJ45 8 M12	4 M12	4	16	2	NA
IVX-1000 ICY						6	Yes

CPU List

Series	CPU	Cores	GHz	TDP (W)	CPU	Cores	GHz	TDP (W)	ECC
Intel® Core™ (14th Gen)*	i9-14900	24	5.8	65	i9-14900T	24	5.5	35	Y
	i7-14700	20	5.4		i7-14700T	20	5.2		
	i5-14500	14	5		i5-14500T	14	4.8		
	i3-14100	4	4.7		i3-14100T	4	4.4		
Intel® Core™ (13th Gen)	i9-13900E	24	5.2	65	i9-13900TE	24	5	35	Y
	i7-13700E	16	5.1		i7-13700TE	16	4.8		
	i5-13500E	14	4.6		i5-13500TE	14	4.5		
	i3-13100E	4	4.4		i3-13100TE	4	4.1		
Intel® Core™ (12th Gen)	i9-12900E	16	5	65	i9-12900TE	16	4.8	35	Y
	i7-12700E	12	4.8		i7-12700TE	12	4.7		
	i5-12500E	6	4.5		i5-12500TE	6	4.3		
	i3-12100E	4	4.2		i3-12100TE	4	4		

* 14th Gen support PC Client use condition only.

GPU List

GPU	Description	TDP (W)	System Fan Req.
MXMQT1000	CUDA 896, 4GB 128bit/GDDR6	50	N
MXMA2000-4G-35W	CUDA 2560, 4GB GDDR6	35	N
MXMA2000-8G-35W	CUDA 2560, 8GB GDDR6	35	N
MXMQRTX3000	CUDA 1920, 6GB 128bit/GDDR6	80	Y
MXMA2000-4G-60W	CUDA 2560, 4GB GDDR6	60	Y
MXMA2000-8G-60W	CUDA 2560, 8GB GDDR6	60	Y
MXMQRTX5000	CUDA 3072, 16GB 256bit/GDDR6	110	Y
MXMA4500-16GB-115W	CUDA 5120, 16GB GDDR6	115	Y
MXMA4500-16GB-80W	CUDA 5120, 16GB GDDR6	80	Y
MXMA4500-8GB-115W	CUDA 5120, 8GB GDDR6	115	Y
MXMA4500-8GB-80W	CUDA 5120, 8GB GDDR6	80	Y

Dimensions & Drawing

Unit : mm (inch)

