

IVX

1000



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

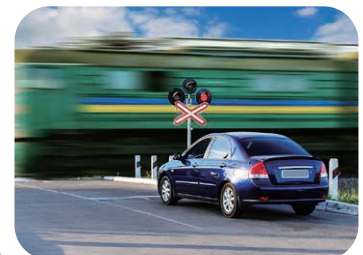


^ Advanced Driver Assistance System (ADAS)



- 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

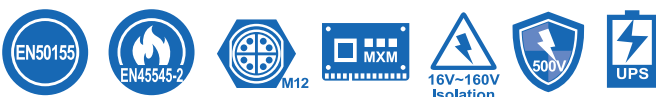
v Public Security



^ Mobile Communication



OpenVINO™



Vecow



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 |

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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.

Optional Software

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|-------------------|----------------------|
| 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-180WB | 180W, 24V, 90V AC to 264V AC Power Adapter with 3-pin Terminal Block (7.62mm pitch) |
| PWA-330WB | 330W, 24V, 90V AC to 264V AC Power Adapter with 3-pin Terminal Block (7.62mm pitch) |
| TMK2-20P-100 | Terminal Block 20-pin to Terminal Block 20-pin Cable, 100cm |
| TMK2-20P-500 | Terminal Block 20-pin to Terminal Block 20-pin Cable, 500cm |
| TMB-TMBK-20P | Terminal Board with One 20-pin Terminal Block Connector and DIN-Rail Mounting |
| Rackmount | 2U/4U Rockmount Kit |
| M.2 Storage Module | M.2 Key M Storage Module |
| 5G Module | 5G Module with Antenna |
| 4G Module | 4G/GPS Module with Antenna |
| WiFi & Bluetooth | WiFi & Bluetooth Module with Antenna |

Dimensions & Drawing

Unit : mm (inch)

