



## 2025 Mobile Computing Solutions Product Selection Guide



# About NEXCOM

## Mobile Computing Solutions

Founded in 1992, NEXCOM is committed to being your trustworthy partner in building the intelligent business. NEXCOM makes the difference by utilizing its industrial computing experience, a highly talented R&D team, strong world-class ODM services, and rapid support to customers. NEXCOM has worldwide customers from more than 50 countries and we never stop growth with our business partners. As we accelerate towards the future, NEXCOM has been playing an important role in bringing intelligence to transportation.

NEXCOM's Mobile Computing Solutions (MCS) has extended and developed many products for use in AI, 5G, and safety related applications. We're creating a safer working environment and saving operational costs through improvements in logistics for more efficient fleet management. Through the application and development of 5G, a better internet experience can be realized. We support our business partners to further promote edge AI computing for ADAS, AMR, and autonomous driving.

We focus on developing practical technologies, and constant growth brings us many advantages in the automotive sphere:

- Superior power designed for uninterrupted operations
- Smart and effective patented designs, resistant to very extreme environments
- Various communication module options (LoRa, V2X, NB-IoT, LTE, 5G NR, Wi-Fi 6/6E)

- Modular designs for the ease of maintenance
- Customized firmware and specialized ODM hardware solutions

NEXCOM has the passion, hope and dedication to keep moving forward making daily lives better through innovation. NEXCOM is forging ahead into the future and making it a success with our business partners!

# Always Moving Forward





**TAIWAN  
EXCELLENCE  
2022**



**Vehicle Mount Computer**  
VMC 2020



**Railway Computer**  
aROK 5510



**Railway Computer**  
aROK 8110



**TAIWAN  
EXCELLENCE  
2025**



**AI Telematics Computer**  
ATC 3750-IP7-8M

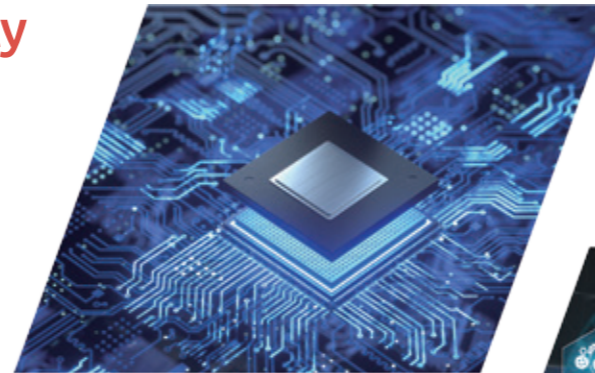


**Backup Battery Unit**  
VTK-SCAP

## Premium Computing Design Capability

Computing power drives vehicle applications, which is why NEXCOM offers a wide range of computing platforms to meet different vehicle needs

- RISC platform (NXP i.MX6, i.MX8, Rockchip, TI)
- Intel Atom® platform (Bay Trail, Apollo Lake, Elkhart Lake, Alder Lake-N)
- Intel® Core™ i platform (Core i 8th, 9th, 11th, 12th, 13 th Gen)
- Intel® high-end Xeon® platform
- NVIDIA® Jetson TX2, Xavier™ NX, Orin™ NX, AGX Orin™ integrated
- Over 20 years of experience in designing rugged devices and vehicle/railway computers



## RF Communication Expansion

For the array of wireless usage cases, NEXCOM specializes in RF communication expansion, providing a comprehensive series of proprietary mini-PCIe/M.2 modules, allow users maximum flexibility in optimizing vehicle configurations

- GNSS (RTK, Dead reckoning)
- NB-IoT, 4G LTE, 5G NR
- DSRC/C-V2X, LoRa
- Wi-Fi 6/6E



## Software Solutions

- SDK (API, programming guide, demo AP) supports for Linux, Android and Windows OS
- BSP (bootloader, kernel driver, OS (Android, Yocto, Ubuntu))
- MCU (customized MCU firmware for small quantities)
- BIOS (customized BIOS for small quantities)
- Secure System Development (TPM, Secure Boot, Boot Guard)



## Reliability Quality

- Fanless design and IP67 protection for extreme environmental conditions
- IK08 impact resistance rating on external mechanics
- Meets CISPR25 standard
- Vehicle (E mark) and railway (EN50155, EN45545-2) certifications
- CE EMC (Electromagnetic Compatibility) and FCC conducted and radiated emissions certifications
- Supporting more certifications (Safety, RED, LVD, MIL-STD-810, etc.)

## OEM/ODM Services

- Over 20 years of experience in industrial-grade computer design and manufacturing
- Seasoned design capabilities in customized system and software integration
- Certificated, 100%-owned manufacturing facilities in Taiwan
- Expertise in mobile transport technologies, with vertical domain know-how
- Acceptance of small to medium quantities, with fast time-to-market delivery



## Specialization in AI Technology

- Specialize in NVIDIA® (GeForce/Quadro, PCIe x16/MXM, Jetson), Google Coral (M.2, mini-PCIe), and Hailo AI accelerators (M.2, mini-PCIe, onboard)
- Support partners to drive deeper customer engagement in AI + mobile edge computing applications
- Provide edge processing and AI capabilities to software partners/developers to innovate and create new business models



# Our Product Portfolio



## Product Series

- Edge AI Telematics Solution
- Vehicle Telematics Computer
- Railway Computer
- Vehicle Mount Computer
- Modular Vehicle Computer System
- Vehicle Mount Display
- In-Vehicle Networking
- In-Vehicle HDMI Extender over IP



### ATC Series

#### Advanced Telematics Computer w/ GPU

- Designed for AI applications: ANPR, video analytics
- Selected NVIDIA GPU, MXM, Google TPU, and Hailo module add-ons
- 5G/LTE, Wi-Fi 6/6E, BT, CAN/OBD, GNSS + DR, PoE, and multi-SIM integration



### VTC Series

#### In-Vehicle Telematics Computer

- General purpose, high-performance telematics computer
- 5G/LTE, Wi-Fi 6/6E, BT, CAN/OBD, GNSS + DR, PoE, and multi-SIM integration
- IP65/67 ingress protection
- Power management
- Backup battery kit



### nROK/aROK/vROK Series

#### Railway Computer

- Box/Panel PC with fanless and rugged design
- 5G/LTE, Wi-Fi 6/6E, BT, CAN/OBD, GNSS + DR, PoE, and multi-SIM integration
- Optional isolated 24~110VDC power input
- EN50155 & EN45545-2 certifications



### MVS Series

#### Modular Vehicle Computer Systems

- Modular CPU board + I/O board + expandable I/O board
- Flexible integration of LTE, Wi-Fi, BT, PoE, and other I/Os
- Easy customization of different I/O interfaces, with quick re-spins for faster time-to-market



### VMC Series

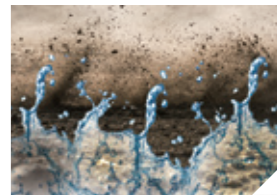
#### Rugged Vehicle Terminal

- Driver's operational display
- Designed for outdoor applications
- Full IP65 certification
- IK08-rated screens
- Vibration-, shock-, dust-, and water-resistant
- 5G/LTE, Wi-Fi 6/6E, CAN/OBD, GNSS + DR



### PoE/10G LAN and RTSP Solutions

- Extends Full HD HDMI over IP for Passenger Infotainment Systems
- Design for video surveillance and AI video analytics applications
- Comply with 802.3af/at with RJ45 or M12 connector (D, X-coded)
- Mobile PoE switch and 10G PoE cards



### Premium Solutions

- IP65/IP67 protection against water and dust
- IK ratings protection provided by panel PC against external mechanical impacts to display
- Performing conformal coating protection against moisture, dust and chemicals



# 2025 New Products



## ATC 3750-IP7-6C

**NVIDIA® Jetson AGX Orin™, IP67 Edge AI Telematics Computer**


- 275 TOPS with 6-port GbE PoE+, total 80W
- Fanless design, operating temperature -25°C~70°C
- 1 x optional 10 GbE LAN port with M12 X-coded connector
- NEXCOM Acceleration Linux (NAL) integrated w/ JetPack 6.1
- Certification: CE/FCC, UKCA, E13 Mark, EN50155, EN45545-2 and MIL-STD-810H



## ATC 3750-IP7-8M

**NVIDIA® Jetson AGX Orin™, IP67 Edge AI Telematics Computer w/ 275 TOPS, 8-CH GMSL2**


- Fanless design, operating temperature -25°C~70°C
- 9~36V DC-IN/IGN control for in-vehicle, 24V DC-IN/IGN control for rail
- Expansive for GNSS, LTE/5G NR & Wi-Fi 5/6E
- NEXCOM Acceleration Linux (NAL) integrated w/ JetPack 6.1
- Certification: CE/FCC, UKCA, E13 Mark, EN50155, EN45545-2 and MIL-STD-810H



## VTC 1920

**Intel Atom® x7211RE Telematics Computer**


- Super slim and ruggedized design
- Built-in 1 x CAN FD, 1 x CAN 2.0B
- Built-in U-blox M9N GNSS
- Three expansion slots for 5G NR/LTE, Wi-Fi 6E
- Certification: CE/FCC, UKCA, E13 Mark and MIL-STD-810H



## VTC1921-IP/C2IP

**Intel Atom® x7211RE Telematics IP67 Computer**


- Built-in CAN FD, 1 x CAN 2.0B
- U-blox NEO-M9N onboard
- Four SIM cards for WWAN modules
- 2 x PoE 802.3 af/at, max. total 30W (VTC1921-C2IP)
- Certification: CE/FCC, UKCA, E13 Mark, EN50155, EN45545-2 and MIL-STD-810H



## VTC 6231/IP & nROK 6231-A

**Intel Atom® x7433RE Fanless In-Vehicle/Railway Computer**


- Eight SIM cards + four WWAN modules support
- Built-in u-blox-M9N GPS
- Triple display outputs and built-in 1 x isolated CAN FD
- Full IP66 protection (VTC6213-IP)
- Certified by CE/FCC/E13 mark/EN50155/EN45545-2



## VTC 6232-C4S/C4SIP & nROK 6232-AC4S/WIC4S

**Intel Atom® x7433RE Fanless 4-CH PoE In-Vehicle/Railway Computer**


- - 2-port 2.5 GbE PoE+ & 2-port PoE++ (IEEE 802.3bt), total 90W
- - 1 x 64GB on board eMMC default for OS installation
- - Dual 2.5" external storage (compatible with 15mm disk)
- - Three expansion slots for 5G NR, LTE, Wi-Fi 6E
- - Full IP66 Protection (VTC6232-C4SIP)



## VTC 7280/C5 & nROK 7280-AC5IP/WIC5IP

**Intel® Core™ Ultra, Meteor-lake H, In-Vehicle/Railway AIoT Telematics Computer**

- Fanless design, operating temperature -40°C~60°C
- 4-port 2.5 GbE PoE+ & 1-port PoE++ (IEEE 802.3bt) support
- nROK 7280 series with IP67 rating protection
- 9~36V DC-IN/IGN control for vehicle, 24VDC or 24~110VDC w/ power isolation for rail
- Certification: CE/FCC, UKCA, E13 MARK, EN50155, EN45545-2 and MIL-STD-810H



## VTK-SCAP-M/-S/-AR-M

**Smart BBU with Supercap for Vehicle & Railway**


- 24V@8A max 200W power output
- Smart software utility for monitoring VTK-SCAP status
- Over 500,000 cycle life (charging/discharging)
- Operating Temperature: -35~80°C
- Max. expansion capacity: 1 x master + 3 x slave



## VMC 1110-PRO

**7" 1024 x 600, All-In-One Vehicle Computer with Resistive Touch Screen**

- LCD Brightness 1000 cd/m²
- Built-in Intel Atom® dual core x7211RE 1.0GHz
- Programmable F1 ~ F5 physical function keys
- HDMI output for 2nd display
- Wide range DC input 9V~36V



## VMD 3111-5PH

**10.4" 1024 x 768 IP65 Vehicle Mounted Display with PCAP T/S, HDMI Interface**

- 1200 cd/m² High brightness display for outdoor applications
- One cable design for easy installation
- Operating Temperature: -30~60° C
- Wide range power input from 9~36V DC
- Compliant with IP65



# Industrial Edge AI Telematics Computer



## ATC/aROK Series Brief Product Introduction

### Product Description

AI has become an essential component of automated vehicle technologies. With built-in state of the art AI accelerator, ATC and aROK series are expertise for edge AI in-vehicle/railway applications. Besides, ATC/

aROK features with extreme wide-range operating temperature, military standard anti-vibration/shock and dust/water proof IP67 rating making it constantly perform 100% workload in harsh environments.

-  NVIDIA® Jetson SOM, Quadro MXM/PCIe x16 AI accelerator support
-  5G/LTE, Wi-Fi 6/6E, BT, PoE, CAN function support

-  EN50155 & E-Mark certification
-  Optional railway isolated power input

### Application

**ATC:** ADAS, ANPR, AMR, autonomous driving

**aROK:** Pantograph inspection, track obstacle inspection, traffic sign recognition

### Product Highlight



Edge AI, inference accelerator





Sturdy system with securing cards/SOM for OHV and train







Strong ingress protection, IP65/IP67



MIPI SerDes solution support





Model	 <b>aROK 5510</b>	 <b>aROK 8110</b>
<b>System</b>		
CPU	Intel® Coffee Lake S/Refresh Core™/Xeon®	Intel® Coffee Lake S/Refresh Core™/Xeon®
Chipset	Intel® C246	Intel® C246
Fan/Fanless	Fan (fan-kit pre-installed)	Fan (fan-kit pre-installed)
Memory	4 x DDR4 2666 SO-DIMM, up to 32GB + 32GB + 32GB + 32GB	2 x DDR4 2666 SO-DIMM, up to 32GB + 32GB
Storage	6 x 2.5" SATA SSD (removable, 9.5mm)	4 x 2.5" SATA 3.0 SSD/HDD (removable, 15mm), or 3 x 2.5" SATA 3.0 SSD/HDD + 2 x M.2 2280/2242/2260 Key M NVMe SSD (PCIe 3.0 x2), or 3 x 2.5" SATA 3.0 SSD/HDD + 1 x U.2 NVMe SSD (PCIe 3.0 x2)
Second Storage	1 x mSATA, 1 x M.2 2280/2242/2260 Key M NVMe SSD (PCIe 3.0 x4), 1 x Removable SD 3.0	1 x CFast (removable)
GPU/VPU/TPU Coprocessor	One PCIe 3.0 x16 lane for optional NVIDIA Graphics card (100W)	One PCIe 3.0 x16 lane for optional NVIDIA Graphics card (350W)
Video Out	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI
Audio	1 x Mic-in, 2 x Line-out	1 x Mic-in, 2 x Line-out
Ethernet	2 x Intel® 10/100/1000 (M12 X-coded), 2 x 10GbE SFP+ card (optional)	2 x Intel® 10/100/1000 (M12, X-coded)
PoE	4 x M12 GbE independent (802.3af/at), Total 60W (optional)	Up to 3 x GEM640 card (optional), each card with 4 x M12 Intel® GbE (w/ 802.3af/at), Total 60W+60W+60W
<b>I/O Interface</b>		
USB	2 x USB 2.0, 3 x USB 3.2 (Gen2), 1 x USB 3.2 (Gen1)	2 x USB 2.0, 3 x USB 3.2 (Gen2), 1 x USB 2.0
COM	2 x RS232 (Full), RS232 (Full)/422/485. (w/ isolation)	4 x RS232 (full)/422/485. (w/ isolation)
DIO	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)
CAN	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)
SIM Socket	8 (BOM option up to 10, eSIM BOM optional)	4 (eSIM BOM optional)
DC Output	N/A	N/A
MIPI Interface	N/A	N/A
<b>Expansion</b>		
WWAN	4 (BOM option up to 5)	2
mini-PCIe Socket	- 1 x (USB 2.0, PCIe 3.0) - 1 x (USB 2.0, PCIe 3.0), BOM option to 1 x mini-PCIe (USB 2.0) for LTE - 1 x (USB 2.0) for LTE, BOM option to 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	- 1 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0) for LTE, BOM option to 1 x M.2 3042 Key B (USB 2.0) for LTE
M.2 Socket	- 3 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G
Expansion PCIe Slot	- 1 x PCIe 3.0 x16	- 1 x PCIe 3.0 x16 - 3 x PCIe 3.0 x4
GNSS	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
<b>Power</b>		
Power Input	DC 24/110V (w/ isolation)	DC 24/36V (w/o isolation)
<b>Environment</b>		
Ingress Protection	N/A	N/A
Certification	CE, FCC Class A, UKCA, EN50155	CE, FCC Class A, UKCA, EN50155
Operating Temperature	-40°C to 70°C (OT4)	-40°C to 70°C (OT4)
<b>Others</b>		
TPM	TPM2.0	TPM2.0
OS	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)
Dimensions (mm)	483.0 x 400.0 x 95.0	215.0 x 205.0 x 385.0

# Industrial Edge AI Telematics Computer

Model				
	<b>ATC 8010</b>	<b>ATC 8010-F</b>	<b>ATC 8110</b>	<b>ATC 8110-F</b>
<b>System</b>				
CPU	Intel® Coffee Lake S/ Refresh Core™/Xeon®	Intel® Coffee Lake S/Refresh Core™/Xeon®	Intel® Coffee Lake S/ Refresh Core™/Xeon®	Intel® Coffee Lake S/ Refresh Core™/Xeon®
Chipset	Intel® Q370	Intel® Q370	Intel® C246	Intel® C246
Fan/Fanless	Fanless	Fan (fan-kit pre-installed)	Fanless	Fan (fan-kit pre-installed)
Memory	2 x DDR4 2400/2666 SO-DIMM, up to 32GB + 32GB	2 x DDR4 2400/2666 SO-DIMM, up to 32GB + 32GB	2 x DDR4 2400/2666 SO-DIMM, up to 32GB + 32GB	2 x DDR4 2400/2666 SO-DIMM, up to 32GB + 32GB
Storage	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	3 x 2.5" SATA 3.0 SSD/HDD (removable, 15mm) or 2 x 2.5" SATA 3.0 SSD/HDD + 1 x 2.5" U.2/NVMe M.2 2280	3 x 2.5" SATA 3.0 SSD/HDD (removable, 15mm) or 2 x 2.5" SATA 3.0 SSD/HDD + 1 x 2.5" U.2/NVMe M.2 2280
Second Storage	2 x mSATA (occupied mini-PCIe socket)	2 x mSATA (occupied mini-PCIe socket)	1 x CFast (removable)	1 x CFast (removable)
GPU/VPU/TPU Coprocessor	NVIDIA Quadro® MXM module (RTX A1000/RTX A2000)	NVIDIA Quadro® MXM module, Quadro (RTX A4500)	One PCIe 3.0 x16 lane for optional NVIDIA Graphics card (350W)	One PCIe 3.0 x16 lane for optional NVIDIA Graphics card (350W)
<b>I/O Interface</b>				
Video Out	1 x VGA, ** 5 x HDMI, 1 x ultraONE+	1 x VGA, ** 5 x HDMI, 1 x ultraONE+	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI
Audio	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	2 x Mic-in, 2 x Line-out
Ethernet	1 x Intel® 10/100/1000	1 x Intel® 10/100/1000	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000
PoE	8 x Independent Intel® 10/100/1000 (w/ 802.3af/at). Total 60W	8 x Independent Intel® 10/100/1000 (w/ 802.3af/at). Total 60W	N/A	N/A
USB	6 x USB 3.2 (Gen2)	6 x USB 3.2 (Gen2)	5 x USB 3.2 (Gen2), 1 x USB 2.0	5 x USB 3.2 (Gen2), 1 x USB 2.0
COM	2 x RS232 (Full), 1 x RS232 (Full)/422/485	2 x RS232 (Full), 1 x RS232 (Full)/422/485	4 x RS232 (Full)/422/485	4 x RS232 (Full)/422/485
DIO	4 x DI, 4 x DO	4 x DI, 4 x DO	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)
CAN	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)
SIM Socket	3 (eSIM BOM optional)	3 (eSIM BOM optional)	4 (eSIM BOM optional)	4 (eSIM BOM optional)
DC Output	12V (2A)	12V (2A)	12V (2A)	12V (2A)
MIPI Interface	N/A	N/A	N/A	N/A
WWAN	2	2	2	2
<b>Expansion</b>				
mini-PCIe Socket	- 1 x (USB 2.0) for LTE - 1 x (USB 2.0, PCIe 3.0/SATA 3.0) - 1 x (USB 2.0, PCIe 3.0/SATA 3.0)	- 1 x (USB 2.0) for LTE - 1 x (USB 2.0, PCIe 3.0/SATA 3.0) - 1 x (USB 2.0, PCIe 3.0/SATA 3.0)	- 1 x (USB 2.0) for LTE - 1 x (USB 2.0, PCIe 2.0)	- 1 x (USB 2.0) for LTE - 1 x (USB 2.0, PCIe 2.0)
M.2 Socket	1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G
Expansion PCIe Slot	N/A	N/A	- 1 x PCIe 3.0 x16, - 1 x PCIe 3.0 x4 + proprietary, - 1 x PCIe 3.0 x4	- 1 x PCIe 3.0 x16, - 1 x PCIe 3.0 x4 + proprietary, - 1 x PCIe 3.0 x4
GNSS	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
<b>Power</b>				
Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
<b>Environment</b>				
Ingress Protection	N/A	N/A	N/A	N/A
Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13
Operating Temperature	-30°C to 60°C	-30°C to 60°C	-30°C to 60°C	-30°C to 60°C
TPM	TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0
<b>Others</b>				
OS	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)
Dimensions (mm)	260.0 x 259.7 x 90.1	260.0 x 259.7 x 99.0 (w/ fan kit)	207.4 x 176.0 x 350.0	207.4 x 176.0 x 350.0 (w/ fan kit)

Based on different MXM for ATC 8010 and ATC 8010-F, the quantity will be different.

Product appearance and specifications are subject to change without notice.





Model				
	<b>ATC 3520-IP7-4C</b>	<b>ATC3520-IP7-AI4CR (Rail)</b>	<b>ATC 3530-IP7-4M</b>	<b>ATC 3530-IP7-4C</b>
<b>System</b>				
CPU	NVIDIA® Jetson Orin™ Nano 20 TOPS	NVIDIA® Jetson Orin™ Nano 20 TOPS	NVIDIA® Jetson Xavier™ NX 21 TOPS	NVIDIA® Jetson Xavier™ NX 21 TOPS
Chipset	N/A	N/A	N/A	N/A
Fan/Fanless	Fanless	Fanless	Fanless	Fanless
Memory	Onboard LPDDR5, 4GB	Onboard LPDDR5, 4GB	Onboard LPDDR4, 8GB/16GB	Onboard LPDDR4, 8GB/16GB
Storage	N/A	N/A	16GB eMMC 5.1	16GB eMMC 5.1
Second Storage	1 x 128GB M.2 2280 Key M NVMe SSD (PCIe 4.0 x4)	1 x 128GB M.2 2280 Key M NVMe SSD (PCIe 4.0 x4)	1 x Removable microSD, 1 x M.2 2280 Key M NVMe SSD (PCIe 3.0 x4)	1 x Removable microSD, 1 x M.2 2280 Key M NVMe SSD (PCIe 3.0 x4)
GPU/VPU/TPU Coprocessor	NVIDIA Ampere 512/1024-core, 16/32 Tensor-core integrated GPU @625MHz	NVIDIA Ampere 512/1024-core, 16/32 Tensor-core integrated GPU @625MHz	NVIDIA Volta 384-core, 48 Tensor-core integrated GPU @1.1GHz	NVIDIA Volta 384-core, 48 Tensor-core integrated GPU @1.1GHz
<b>I/O Interface</b>				
Video Out	1 x HDMI	1 x HDMI	1 x HDMI	1 x HDMI
Audio	N/A	N/A	N/A	N/A
Ethernet	1 x Intel® 10/100/1000 (M12 X-coded)	1 x Intel® 10/100/1000 (M12 X-coded)	2 x Intel® 10/100/1000 (M12 X-coded)	1 x Intel® 10/100/1000 (M12 X-coded)
PoE	4 x GbE M12 X-coded (802.3af/at). Total 30W	4 x GbE M12 X-coded (802.3af/at). Total 30W	Option for PoE (w/ 802.3af/at). Total 30W	4 x GbE M12 X-coded (802.3af/at). Total 30W
USB	2 x USB 3.2 (Gen1), 2 x USB 2.0 (reserved), 1 x OTG	2 x USB 3.2 (Gen1), 2 x USB 2.0 (reserved), 1 x OTG	2 x USB 3.2 (Gen1), 2 x USB 2.0 (reserved), 1 x OTG	2 x USB 3.2 (Gen1), 2 x USB 2.0 (reserved), 1 x OTG
COM	2 x RS232, 1 x Console	2 x RS232, 1 x Console	2 x RS232, 1 x Console	2 x RS232, 1 x Console
DIO	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)
CAN	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)
SIM Socket	2	2	2	2
DC Output	N/A	N/A	N/A	N/A
MIPI Interface	N/A	N/A	4 (Thine, V-by-One HS)	N/A
WWAN	1	1	1	1
<b>Expansion</b>				
mini-PCIe Socket	1 x (USB 2.0, PCIe 4.0)	1 x (USB 2.0, PCIe 4.0)	1 x (USB 2.0, PCIe 3.0)	1 x (USB 2.0, PCIe 3.0)
M.2 Socket	1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G
Expansion PCIe Slot	N/A	N/A	N/A	N/A
GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
<b>Power</b>				
Power Input	DC 9V to 36V	DC 24V w/ Power isolation box (PWA10-01) installed	DC 9V to 36V	DC 9V to 36V
<b>Environment</b>				
Ingress Protection	IP67	IP67	IP67	IP67
Certification	CE, FCC Class A, UKCA	CE, FCC Class A, UKCA, EN50121-3-2	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13
Operating Temperature	-30°C to 70°C	-30°C to 70°C (OT3)	-30°C to 70°C	-30°C to 70°C
TPM	N/A	N/A	N/A	N/A
<b>Others</b>				
OS	Nexcom Accelerator Linux (NAL) w/ NVIDIA JetPack™ 6.x Ubuntu 22.04 @Kernel 5.15	Nexcom Accelerator Linux (NAL) w/ NVIDIA JetPack™ 6.x Ubuntu 22.04 @Kernel 5.15	Nexcom Accelerator Linux (NAL) w/ NVIDIA JetPack™ 5.1.3, Ubuntu 20.04 @kernel 5.10	Nexcom Accelerator Linux (NAL) w/ NVIDIA JetPack™ 5.1.3, Ubuntu 20.04 @kernel 5.10
Dimensions (mm)	213.0 x 167.0 x 82.8	213.0 x 167.0 x 122.8	213.0 x 167.0 x 82.8	213.0 x 167.0 x 82.8

Product appearance and specifications are subject to change without notice.





Industrial Edge AI Telematics Computer

Industrial Edge AI Telematics Computer

# Industrial Edge AI Telematics Computer

Model				
	<b>ATC 3540-IP7-4C</b>	<b>ATC 3540-IP7-AI4CR (Rail)</b>	<b>ATC 3750-6C</b>	<b>ATC 3750-A6CR (Rail)</b>
<b>System</b>				
CPU	NVIDIA® Jetson Orin™ NX 70 / 100 TOPS	NVIDIA® Jetson Orin™ NX 70 / 100 TOPS	NVIDIA® Jetson AGX Orin™ 200 / 275 TOPS	NVIDIA® Jetson AGX Orin™ 200 / 275 TOPS
Chipset	N/A	N/A	N/A	N/A
Fan/Fanless	Fanless	Fanless	Fanless	Fanless
Memory	Onboard LPDDR5, 8GB/16GB	Onboard LPDDR5, 8GB/16GB	Onboard LPDDR5, 32GB/64GB	Onboard LPDDR5, 32GB/64GB
Storage	N/A	N/A	64GB eMMC 5.1	64GB eMMC 5.1
Second Storage	1 x 128GB M.2 2280 Key M NVMe SSD (PCIe 4.0 x4)	1 x 128GB M.2 2280 Key M NVMe SSD (PCIe 4.0 x4)	1 x Removable microSD 1 x M.2 2280 Key M NVMe SSD (PCIe 4.0 x4)	1 x Removable microSD 1 x M.2 2280 Key M NVMe SSD (PCIe 4.0 x4)
GPU/VPU/TPU Coprocessor	NVIDIA Ampere 1024-core, 32 Tensor-core integrated GPU @918MHz	NVIDIA Ampere 1024-core, 32 Tensor-core integrated GPU @918MHz	NVIDIA Ampere 1792/2048-core, 56/64 Tensor-core integrated GPU @939MHz/1.3GHz	NVIDIA Ampere 1792/2048-core, 56/64 Tensor-core integrated GPU @939MHz/1.3GHz
Video Out	1 x HDMI	1 x HDMI	1 x HDMI	1 x HDMI
Audio	N/A	N/A	N/A	N/A
Ethernet	1 x Intel® 10/100/1000 (M12 X-coded)	1 x Intel® 10/100/1000 (M12 X-coded)	1 x 10GbE RJ45 (option)	1 x 10GbE M12 X-coded (option)
PoE	4 x GbE M12 X-coded (802.3af/at). Total 30W	4 x GbE M12 X-coded (802.3af/at). Total 30W	6 x GbE RJ45 (802.3af/at). Total 80W	6 x GbE M12 X-coded (802.3af/at). Total 80W
USB	2 x USB 3.2 (Gen1), 2 x USB 2.0 (reserved), 1 x OTG	2 x USB 3.2 (Gen1), 2 x USB 2.0 (reserved), 1 x OTG	2 x USB 3.2 (Gen2), 1 x OTG	2 x USB 3.2 (Gen2), 1 x OTG
COM	2 x RS232, 1 x Console	2 x RS232, 1 x Console	2 x RS232, 1 x Console	2 x RS232, 1 x Console
DIO	4 x DI (w/ isolation), 4 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)
CAN	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	2 x CAN FD (w/ isolation)	2 x CAN FD (w/ isolation)
SIM Socket	2	2	2	2
DC Output	N/A	N/A	N/A	N/A
MIPI Interface	N/A	N/A	N/A	N/A
<b>I/O Interface</b>				
WWAN	1	1	1	1
mini-PCIe Socket	1 x (USB 2.0, PCIe 4.0)	1 x (USB 2.0, PCIe 4.0)	1 x (USB 2.0, PCIe 4.0)	1 x (USB 2.0, PCIe 4.0)
M.2 Socket	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 3030 Key E (PCIe 4.0, USB 2.0)	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 3030 Key E (PCIe 4.0, USB 2.0)
Expansion PCIe Slot	N/A	N/A	N/A	N/A
GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)
<b>Power</b>				
Power Input	DC 9V to 36V	DC 24V w/ Power isolation box (PWA10-01) installed	DC 9V to 36V	DC 24V Power isolation box (PWA10-01) in option
<b>Environment</b>				
Ingress Protection	IP67	IP67	IP50	IP50
Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, EN50155	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, EN50155, EN45545-2
Operating Temperature	-30°C to 70°C	-30°C to 70°C (OT3)	-25°C to 70°C	-25°C to 70°C (OT3)
TPM	N/A	N/A	N/A	N/A
<b>Others</b>				
OS	Nexcom Accelerator Linux (NAL) w/ NVIDIA JetPack™ 6.x Ubuntu 22.04 @Kernel 5.15	Nexcom Accelerator Linux (NAL) w/ NVIDIA JetPack™ 6.x Ubuntu 22.04 @Kernel 5.15	Nexcom Accelerator Linux (NAL) w/ NVIDIA JetPack™ 6.x Ubuntu 22.04 @Kernel 5.15	Nexcom Accelerator Linux (NAL) w/ NVIDIA JetPack™ 6.x Ubuntu 22.04 @Kernel 5.15
Dimensions (mm)	213.0 x 167.0 x 82.8	213.0 x 167.0 x 122.8	234.0 x 172.8 x 80.5	234.0 x 172.8 x 80.5 234.0 x 172.8 x 114.5 (w/ option power isolation box)



Model				
	<b>ATC 3750-IP7-6C (In-vehicle/Rail)</b>	<b>ATC 3750-IP7-WI6CR (Rail)</b>	<b>ATC 3750-IP7-8M (In-vehicle/Rail)</b>	<b>ATC 3750-IP7-WI8MR (Rail)</b>
<b>System</b>				
CPU	NVIDIA® Jetson AGX Orin™ 200 / 275 TOPS	NVIDIA® Jetson AGX Orin™ 200 / 275 TOPS	NVIDIA® Jetson AGX Orin™ 200 / 275 TOPS	NVIDIA® Jetson AGX Orin™ 200 / 275 TOPS
Chipset	N/A	N/A	N/A	N/A
Fan/Fanless	Fanless	Fanless	Fanless	Fanless
Memory	Onboard LPDDR5, 32GB/64GB	Onboard LPDDR5, 32GB/64GB	Onboard LPDDR5, 32GB/64GB	Onboard LPDDR5, 32GB/64GB
Storage	64GB eMMC 5.1	64GB eMMC 5.1	64GB eMMC 5.1	64GB eMMC 5.1
Second Storage	1 x Removable microSD 1 x M.2 2280 Key M NVMe SSD (PCIe 4.0 x4)	1 x Removable microSD 1 x M.2 2280 Key M NVMe SSD (PCIe 4.0 x4)	1 x Removable microSD 1 x M.2 2280 Key M NVMe SSD (PCIe 4.0 x4)	1 x Removable microSD 1 x M.2 2280 Key M NVMe SSD (PCIe 4.0 x4)
GPU/VPU/TPU Coprocessor	NVIDIA Ampere 1792/2048-core, 56/64 Tensor-core integrated GPU @939MHz/1.3GHz	NVIDIA Ampere 1792/2048-core, 56/64 Tensor-core integrated GPU @939MHz/1.3GHz	NVIDIA Ampere 1792/2048-core, 56/64 Tensor-core integrated GPU @939MHz/1.3GHz	NVIDIA Ampere 1792/2048-core, 56/64 Tensor-core integrated GPU @939MHz/1.3GHz
Video Out	1 x HDMI	1 x HDMI	1 x HDMI	1 x HDMI
Audio	N/A	N/A	N/A	N/A
Ethernet	1 x 10GbE M12 X-coded (option)	1 x 10GbE M12 X-coded (option)	1 x 10/100/1000 (M12 X-coded) 1 x Intel® 10/100/1000/2500 (M12 X-coded)	1 x 10/100/1000 (M12 X-coded) 1 x Intel® 10/100/1000/2500 (M12 X-coded)
PoE	6 x GbE M12 X-coded (802.3af/at). Total 80W	6 x GbE M12 X-coded (802.3af/at). Total 80W	N/A	N/A
USB	2 x USB 3.2 (Gen2, M12 X-coded) 1 x OTG	2 x USB 3.2 (Gen2, M12 X-coded) 1 x OTG	2 x USB 3.2 (Gen2), 2 x USB 2.0 (M12), 1 x OTG	2 x USB 3.2 (Gen2), 2 x USB 2.0 (M12), 1 x OTG
COM	2 x RS232, 1 x Console	2 x RS232, 1 x Console	1 x RS232, 1 x RS232 /422/485, 1 x Console	1 x RS232, 1 x RS232 /422/485, 1 x Console
DIO	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO	4 x DI, 4 x DO
CAN	2 x CAN FD (w/ isolation)	2 x CAN FD (w/ isolation)	2 x CAN FD (w/ isolation)	2 x CAN FD (w/ isolation)
SIM Socket	2	2	2	2
DC Output	5V (2A)	5V (2A)	N/A	N/A
MIPI Interface	N/A	N/A	8 (GMSL2)	8 (GMSL2)
<b>I/O Interface</b>				
WWAN	1	1	1	1
mini-PCIe Socket	1 x (USB 2.0, PCIe 4.0)	1 x (USB 2.0, PCIe 4.0)	1 x (USB 2.0)	1 x (USB 2.0)
M.2 Socket	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 3030 Key E (PCIe 4.0, USB 2.0)	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 3030 Key E (PCIe 4.0, USB 2.0)	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 3030 Key E (PCIe 4.0, USB 2.0)	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 3030 Key E (PCIe 4.0, USB 2.0)
Expansion PCIe Slot	N/A	N/A	N/A	N/A
GNSS	VIOB-GPS-07 module (u-blox NEO-M9N)	VIOB-GPS-07 module (u-blox NEO-M9N)	VIOB-GPS-07 module (u-blox NEO-M9N)	VIOB-GPS-07 module (u-blox NEO-M9N)
<b>Power</b>				
Power Input	DC 9V to 36V/ 24V Rail	DC 24V to 110V	DC 9V to 36V/ 24V Rail	DC 24V to 110V
<b>Environment</b>				
Ingress Protection	IP67	IP67	IP67	IP67
Certification	CE, FCC Class A, UKCA, E13, EN50155	CE, FCC Class A, UKCA, EN50155, EN45545-2	CE, FCC Class A, UKCA, E13, EN50155	CE, FCC Class A, UKCA, EN50155, EN45545-2
Operating Temperature	-25°C to 70°C(OT3)	-25°C to 70°C (OT3)	-25°C to 70°C (OT3)	-25°C to 70°C (OT3)
TPM	N/A	N/A	N/A	N/A
<b>Others</b>				
OS	Nexcom Accelerator Linux (NAL) w/ NVIDIA JetPack™ 6.x Ubuntu 22.04 @Kernel 5.15	Nexcom Accelerator Linux (NAL) w/ NVIDIA JetPack™ 6.x Ubuntu 22.04 @Kernel 5.15	Nexcom Accelerator Linux (NAL) w/ NVIDIA JetPack™ 6.x Ubuntu 22.04 @Kernel 5.15	Nexcom Accelerator Linux (NAL) w/ NVIDIA JetPack™ 6.x Ubuntu 22.04 @Kernel 5.15
Dimensions (mm)	260.0 x 153.0 x 66.5	260.0 x 155.0 x 88.0	260.0 x 155.0 x 66.5	260.0 x 155.0 x 88.0



Based on different MXM for ATC 8010 and ATC 8010-F, the quantity will be different.





# Vehicle Telematics Computer



## VTC Series Brief Product Introduction

### Product Description

VTC and MVS series are fanless embedded telematics system which can sustain in harsh environment, with rich I/O connectivity for external peripherals, and easy RF communication expansion. The modular design makes the

MVS series very flexible to adopt other expansion boards and thus extend I/O functions. Besides, we provide MUT (MCU Utility Tools) SDK for power management & control, which greatly reduces Time-To-Market.

-  5G/LTE, Wi-Fi 6/6E, BT, CAN/OBD module support
-  IP65/67 ingress protection

-  Ignition power management
-  AI accelerator module support

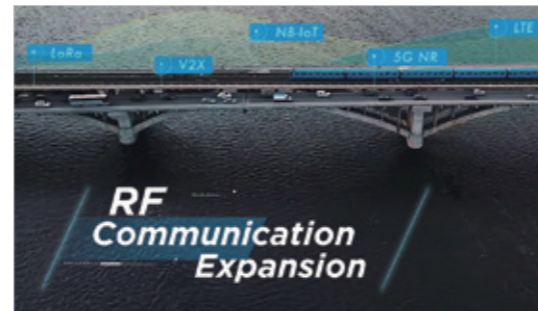
### Application

- Fleet management
- Vehicle gateway
- Video surveillance
- Passenger information system
- Infotainment applications.

### Product Highlight



Rugged design for harsh environment







Flexible RF communication expansion



Dead reckoning & RTK precise positioning







802.3 af/at PoE+ support




Model				
	VTC 210	VTC 1910-S	VTC 1920	VTC 1921-IP
<b>System</b>				
CPU	Rockchip RK3328	Intel Atom® E3815, 1-core, 1.46GHz	Intel Atom® x7211RE, 2-core, 1.0GHz	Intel Atom® x7211RE, 2-core, 1.0GHz
Chipset	N/A	N/A	N/A	N/A
Memory	DDR4 2GB onboard up to 4GB	1 x DDR3L 1333 SO-DIMM, 4GB (default) up to 8GB	1 x DDR4 3200 SO-DIMM, 4GB (default) up to 32GB, in-band ECC support	1 x DDR4 3200 SO-DIMM, 4GB (default) up to 32GB, in-band ECC support
Storage	eMMC 5.1, 16GB	1 x SATA 2.0 mSATA	- 1 x M.2 2242 Key M SSD (SATA 3.0)	1 x 2.5" SATA 3.0 SSD (9.5mm)
Second Storage	1 x Micro SD	1 x SATA DOM	- 1 x M.2 2280 Key M SSD (SATA 3.0), optional on daughter board	1 x mSATA (occupied mini-PCIe socket)
Video Out	1 x HDMI	1 x VGA	1 x HDMI	1 x HDMI
Audio	N/A	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out
Ethernet	2 x Intel® 10/100/1000 LAN Switch	1 x Intel® 10/100/1000	1 x Intel® 10/100/1000/2500	2 x Intel® 10/100/1000/2500
PoE	N/A	N/A	N/A	N/A
<b>I/O Interface</b>				
USB	1 x external USB 2.0 1 x internal USB 2.0 for WI-FI	1 x USB 3.0, 1 x USB 2.0	2 x USB 3.2 (Gen 2)	1 x USB 3.2 (Gen 2), 1 x USB 2.0
COM	1 x RS232 (full)	2 x RS232, 1 x RS485	2 x RS232, 1 x RS485	2 x RS232, 1 x RS485
DIO	N/A	3 x DI, 3 x DO	3 x DI, 3 x DO	4 x DI, 4 x DO
CAN Bus	N/A	1 x CAN Bus 2.0B	1 x CAN FD, 1 x CAN Bus 2.0B (w/isolation)	1 x CAN FD, 1 x CAN Bus 2.0B (w/isolation)
DC Output	N/A	N/A	N/A	N/A
SIM Socket	1	2	2 (BOM optional up to 3, eSIM BOM optional)	2 (eSIM BOM optional)
<b>Expansion</b>				
WWAN	1	1	1 (BOM optional up to 2)	2
mini-PCIe Socket	N/A	- 1 x (PCIe 2.0/SATA 2.0) - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0), BOM optional to 1 x M.2 3042/3052 Key B (USB 2.0) for LTE, optional on daughter board	- 1 x (USB 2.0, PCIe 3.0/SATA 2.0)
M.2 Socket	- 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE	N/A	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x1), optional on daughter board	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x1)
GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)	Onboard u-blox NEO-M8N	Onboard u-blox NEO-M9N	Onboard u-blox NEO-M9N
<b>Power</b>				
Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
Back Up Battery	N/A	N/A	N/A	N/A
<b>Environment</b>				
Ingress Protection	N/A	N/A	N/A	IP67
Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, E13	CE, FCC Class A, E13	CE, FCC Class A, E13, EN50155, EN45545-2
Operating Temperature	-20°C to 70°C	-40°C to 70°C	-40°C to 70°C	-40°C to 70°C
<b>Others</b>				
TPM	N/A	TPM 2.0	TPM 2.0	TPM 2.0
OS	Linux (Kernel 4.x)	WES 7, Win 7/8/10 Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)
Dimensions (mm)	130.0 x 100.0 x 31.0	130.0 x 120.0 x 32.0	130.0 x 120.0 x 32.0	185.0 x 167.0 x 56.5



# Vehicle Telematics Computer




Model	 <b>VTC 1921-C2IP</b>	 <b>VTC 1911-IPK</b>	 <b>VTC 1011-C2K</b>	 <b>VTC 1011-C2VK</b>
<b>System</b>				
CPU	Intel Atom® x7211RE, 2-core, 1.0GHz	Intel Atom® E3815, 1-core, 1.46GHz	Intel Atom® E3825, 2-core, 1.33GHz	Intel Atom® E3825, 2-core, 1.33GHz
Chipset	N/A	N/A	N/A	N/A
Memory	1 x DDR4 3200 SO-DIMM, 4GB (default) up to 32GB, in-band ECC support	1 x DDR3L 1333 SO-DIMM, 4GB (default) up to 8GB	1 x DDR3L 1333 SO-DIMM, 4GB (default) up to 8GB	1 x DDR3L 1333 SO-DIMM, 4GB (default) up to 8GB
Storage	1 x mSATA (occupied mini-PCIe socket)	1 x SATA 2.0 mSATA	1 x 2.5" SATA 3.0 SSD (9.5mm)	1 x 2.5" SATA 3.0 SSD (9.5mm)
Second Storage	1 x M.2 2280 Key M SSD (SATA 3.0)	1 x 2.5" SATA 3.0 SSD (9.5mm) or 1 x SATA 3.0 SATA DOM	1 x mSATA (occupied mini-PCIe socket)	1 x mSATA (occupied mini-PCIe socket)
<b>I/O Interface</b>				
Video Out	1 x HDMI	1 x VGA, 1 x HDMI (optional)	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI, 1 x ultraONE+
Audio	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out
Ethernet	1 x Intel® 10/100/1000/2500	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000 (exclusion with PoE)	2 x Intel® 10/100/1000 (exclusion with PoE)
PoE	2 x Intel® 2.5GbE (w/ 802.3af/at). Total 30W	N/A	2 x Intel® 10/100/1000 (w/ 802.3af/at). Total 30W	2 x Intel® 10/100/1000 (w/ 802.3af/at). Total 30W
USB	1 x USB 3.2 (Gen 2), 1 x USB 2.0	1 x USB 2.0	2 x USB 2.0	2 x USB 2.0
COM	2 x RS232, 1 x RS485	2 x RS232, 1 x RS485	1 x RS232 (full), 1 x RS232/RS422/485	1 x RS232 (full), 1 x RS232/RS422/485
DIO	4 x DI, 4 x DO	3 x DI, 3 x DO	4 x DI, 4 x DO	4 x DI, 4 x DO
CAN Bus	1 x CAN FD, 1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B	1 x CAN Bus 2.0B	1 x CAN Bus 2.0B
DC Output	N/A	N/A	12V (2A)	12V (2A)
SIM Socket	2 (eSIM BOM optional)	2	2	2
<b>Expansion</b>				
WWAN	2	1	1	1
mini-PCIe Socket	- 1 x (USB 2.0, PCIe 3.0/SATA 2.0)	- 1 x (USB 2.0, PCIe 2.0/SATA 2.0) - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0, PCIe 2.0/SATA 2.0) - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0, PCIe 2.0/SATA 2.0) - 1 x (USB 2.0) for LTE
M.2 Socket	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x1)	N/A	N/A	N/A
GNSS	Onboard u-blox NEO-M9N	Onboard u-blox NEO-M8N	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
<b>Power</b>				
Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
Back Up Battery	N/A	N/A	N/A	N/A
<b>Environment</b>				
Ingress Protection	IP67	IP67	N/A	N/A
Certification	CE, FCC Class A, E13, EN50155, EN45545-2	CE, FCC Class A, E13, EN50155	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13
Operating Temperature	-40°C to 70°C	-40°C to 70°C	-40°C to 70°C (LAN mode) -40°C to 60°C (PoE mode)	-40°C to 70°C (LAN mode) -40°C to 60°C (PoE mode)
TPM	TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0
<b>Others</b>				
OS	Win 10/11, Linux (Kernel 4.x)	WES 7, Win 7/8/10 Linux (Kernel 4.x)	WES 7, Win 7/8/10 Linux (Kernel 4.x)	WES 7, Win 7/8/10 Linux (Kernel 4.x)
Dimensions (mm)	185.0 x 167.0 x 56.5	185.0 x 167.0 x 56.5	185.0 x 150.9 x 45.0	185.0 x 150.9 x 45.0







Model	 <b>VTC 1020</b>	 <b>VTC 1020-PA</b>	 <b>VTC 1010</b>
<b>System</b>			
CPU	Intel Atom® x5-E3930, 2-core, 1.3GHz	Intel Atom® x5-E3930, 2-core, 1.3GHz	Intel Atom® E3827, 2-core, 1.75GHz
Chipset	N/A	N/A	N/A
Memory	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB	1 x DDR3L 1333 SO-DIMM, 4GB (default) up to 8GB
Storage	1 x 2.5" SATA 3.0 SSD (9.5mm)	1 x 2.5" SATA 3.0 SSD (15mm)	1 x 2.5" SATA 2.0 SSD (9.5mm)
Second Storage	1 x mSATA (occupied mini-PCIe socket)	1 x mSATA (occupied mini-PCIe socket)	1 x SD (external accessible)
<b>I/O Interface</b>			
Video Out	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI, 1 x LVDS	1 x VGA, 1 x DP
Audio	1 x Mic-in, 1 x Line-out	1 x Mic-in, 3 x Line-out (selectable)	2 x Mic-in, 2 x Line-out
Ethernet	1 x Intel® 10/100/1000	1 x Intel® 10/100/1000	1 x Intel® 10/100/1000
PoE	N/A	N/A	N/A
USB	2 x USB 3.2 (Gen1)	2 x USB 3.2 (Gen1)	1 x USB 3.2 (Gen1), 2 x USB 2.0
COM	5 x RS232, 2 x RS485	5 x RS232, 2 x RS485	2 x RS232 (full), 1 x RS422/485
DIO	5 x Programmable DIO	5 x Programmable DIO	6 x Programmable DIO
CAN Bus	1 x CAN Bus 2.0B	1 x CAN Bus 2.0B	1 x CAN Bus 2.0B
DC Output	12V (2A)	12V (2A)	12V (1A)
SIM Socket	1	1	2
<b>Expansion</b>			
WWAN	1	1	2
mini-PCIe Socket	- 1 x (USB 2.0, PCIe 2.0/SATA 2.0) - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0, PCIe 2.0/SATA 3.0) - 1 x (USB 2.0) for LTE	- 2 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0, PCIe 2.0/SATA 2.0) - 1 x (USB 2.0) for LTE
M.2 Socket	N/A	N/A	N/A
GNSS	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
<b>Power</b>			
Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
Back Up Battery	N/A	N/A	N/A
<b>Environment</b>			
Ingress Protection	N/A	N/A	N/A
Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class B, UKCA, E13
Operating Temperature	-40°C to 70°C	-40°C to 70°C	-30°C to 70°C
TPM	TPM 2.0	TPM 2.0	N/A
<b>Others</b>			
OS	Win 10, Linux (Kernel 4.x)	Win 10, Linux (Kernel 4.x)	WES 7, Win 7/8/10, Linux (Kernel 4.x)
Dimensions (mm)	185.0 x 120.0 x 45.0	185.0 x 120.0 x 50.0	180.0 x 180.0 x 50.0







# Vehicle Telematics Computer




Model			
	VTC 1021-BK	VTC 1021-C2K	VTC 1030
<b>System</b>			
CPU	Intel Atom® x5-E3940, 4-core, 1.6GHz	Intel Atom® x5-E3940, 4-core, 1.6GHz	Intel Atom® x6211E, 2-core, 1.3GHz
Chipset	N/A	N/A	N/A
Memory	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB	1 x DDR4 2666 SO-DIMM, 4GB (default) up to 3200MHz 32GB, in-band ECC support
Storage	1 x 2.5" SATA 3.0 SSD (9.5mm)	1 x 2.5" SATA 3.0 SSD (9.5mm)	1 x 2.5" SATA 3.0 SSD (9.5mm)
Second Storage	1 x mSATA (occupied mini-PCIe socket)	1 x mSATA (occupied mini-PCIe socket)	1 x mSATA (occupied mini-PCIe socket)
Video Out	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI
Audio	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out
Ethernet	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000/2500
PoE	N/A	2 x Intel® 10/100/1000 (w/ 802.3af/at). Total 60W	N/A
USB	1 x USB 3.2 (Gen1), 2 x USB 2.0	1 x USB 3.2 (Gen1), 2 x USB 2.0	2 x USB 3.2 (Gen 2)
COM	1 x RS232 (Full), 1 x RS232, 1 x RS422/485	1 x RS232 (Full), 1 x RS232, 1 x RS422/485	2 x RS232 (Full)/422/485
DIO	3 x DI, 3 x DO	3 x DI, 3 x DO	5 x DI, 4 x DO
CAN Bus	1 x CAN Bus 2.0B	1 x CAN Bus 2.0B	1 x CAN Bus 2.0B (w/ isolation)
DC Output	12V (2A)	12V (2A)	12V (2A)
SIM Socket	2	2	2 (eSIM BOM optional)
WWAN	1	1	1
mini-PCIe Socket	- 1 x (USB 2.0, PCIe 2.0/SATA 3.0) - 1 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0, PCIe 2.0/SATA 3.0) - 1 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0)
M.2 Socket	N/A	N/A	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM optional to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0)
GNSS	Onboard u-blox NEO-M8N	Onboard u-blox NEO-M8N	VIOB-GPS-06 module (u-blox NEO-M9N)
<b>Power</b>			
Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
Back Up Battery	Optional	N/A	N/A
<b>Environment</b>			
Ingress Protection	N/A	N/A	N/A
Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13
Operating Temperature	-40°C to 70°C	-40°C to 70°C	-40°C to 70°C
TPM	TPM 2.0	TPM 2.0	TPM 2.0
<b>Others</b>			
OS	Win 10, Linux (Kernel 4.x)	Win 10, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)
Dimensions (mm)	180.0 x 180.0 x 50.0	180.0 x 180.0 x 50.0	185.0 x 120.0 x 45.0

Model				
	VTC 1031	VTC 1031-C2	VTC 6210-BK	VTC 6210-VR4
<b>System</b>				
CPU	Intel Atom® x6413E, 4-core, 1.5GHz	Intel Atom® x6413E, 4-core, 1.5GHz	Intel Atom® E3845, 4-core, 1.91GHz	Intel Atom® E3845, 4-core, 1.91GHz
Chipset	N/A	N/A	N/A	N/A
Memory	1 x DDR4 2666 SO-DIMM, 4GB (default) up to 3200MHz 32GB, in-band ECC support	1 x DDR4 2666 SO-DIMM, 4GB (default) up to 3200MHz 32GB, in-band ECC support	1 x DDR3L 1333 SO-DIMM, 4GB (default) up to 8GB	1 x DDR3L 1333 SO-DIMM, 4GB (default) up to 8GB
Storage	1 x 2.5" SATA 3.0 SSD (9.5mm)	1 x 2.5" SATA 3.0 SSD (9.5mm)	1 x 2.5" SATA 2.0 SSD (removable, 9.5mm)	1 x 2.5" SATA 2.0 SSD (removable, 9.5mm)
Second Storage	1 x M.2 2280 Key M SSD (SATA 3.0)	1 x M.2 2280 Key M SSD (SATA 3.0)	1 x CFast (external accessible)	1 x CFast (external accessible)
Video Out	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI	1 x VGA, 1 x DP	VGA, DP, 4 x (Video-in + Audio-in)
Audio	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	2 x Mic-in, 2 x Line-out	2 x Mic-in, 2 x Line-out
Ethernet	1 x Intel® 10/100/1000/2500 1 x 10/100/1000	1 x Intel® 10/100/1000/2500 1 x 10/100/1000	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000
PoE	N/A	2 x independent Intel® 10/100/1000 (w/ 802.3af/at). Total 60W	N/A	N/A
USB	1 x USB 3.2 (Gen 2), 3 x USB 2.0	1 x USB 3.2 (Gen 2), 3 x USB 2.0	1 x USB 3.2 (Gen1), 2 x USB 2.0	1 x USB 3.2 (Gen1), 2 x USB 2.0
COM	1 x RS232 (Full)/422/485, 1 x RS232, 2 x RS485	1 x RS232 (Full)/422/485, 1 x RS232, 2 x RS485	2 x RS232 (full), 1 x RS422/485	1 x RS232 (Full), 1 x RS422/485
DIO	5 x DI, 4 x DO	5 x DI, 4 x DO	8 x Programmable PC GPIO, 2 x MCU-DI, 2 x MCU-DO	8 x Programmable PC GPIO, 2 x MCU-DI, 2 x MCU-DO
CAN Bus	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B	1 x CAN Bus 2.0B
DC Output	12V (2A)	12V (2A)	12V (2A)	12V (2A)
SIM Socket	2 (eSIM BOM optional)	2 (eSIM BOM optional)	3	3
WWAN	1	1	2	2
mini-PCIe Socket	- 1 x (USB 2.0, PCIe 3.0). BOM optional to 1 x M.2 3042 Key B socket (USB 2.0, USB 3.2 Gen 2) for LTE/5G	- 1 x (USB 2.0, PCIe 3.0). BOM optional to 1 x M.2 3042 Key B socket (USB 2.0, USB 3.2 Gen 2) for LTE/5G NR	- 2 x (USB 2.0, PCIe 2.0) - 2 x (USB 2.0) for LTE	- 2 x (USB 2.0, PCIe 2.0) - 2 x (USB 2.0) for LTE
M.2 Socket	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM optional to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0)	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM optional to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0)	N/A	N/A
GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
<b>Power</b>				
Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
Back Up Battery	N/A	N/A	N/A	N/A
<b>Environment</b>				
Ingress Protection	N/A	N/A	N/A	N/A
Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class B, E13	CE, FCC Class B, UKCA, E13
Operating Temperature	-40°C to 70°C	-40°C to 70°C	-30°C to 70°C	-30°C to 70°C
TPM	TPM 2.0	TPM 2.0	N/A	N/A
<b>Others</b>				
OS	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	WES 7, Win 7/8/10 Linux (Kernel 4.x)	WES 7, Win 7/8/10 Linux (Kernel 4.x)
Dimensions (mm)	180.0 x 180.0 x 50.0	180.0 x 180.0 x 50.0	260.0 x 176.0 x 50.0	260.0 x 176.0 x 50.0

# Vehicle Telematics Computer





Model				
	VTC 6220-BK	VTC 6221	VTC 6231	VTC 6231-IP
<b>System</b>				
CPU	Intel Atom® x7-E3950, 4-core, 1.6GHz	Intel Atom® x7-E3950, 4-core, 1.6GHz	Intel Atom® x7433RE, 4-core, 1.5GHz	Intel Atom® x7433RE, 4-core, 1.5GHz
Chipset	N/A	N/A	N/A	N/A
Memory	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB	1 x DDR5 4800 SO-DIMM, 8GB (default) up to 16GB, in-band ECC support	1 x DDR5 4800 SO-DIMM, 8GB (default) up to 16GB, in-band ECC support
Storage	2 x 2.5" SATA 3.0 SSD (removable, 9.5mm)	1 x 2.5" SATA 3.0 SSD (removable, 9.5mm)	1 x 2.5" SATA 3.0 SSD (removable, 9.5mm)	1 x 2.5" SATA 3.0 SSD (removable, 9.5mm)
Second Storage	N/A	1 x CFast (external accessible), 1 x mSATA (occupied CFast, BOM optional)	1 x mSATA (occupied mini-PCIe socket)	1 x mSATA (occupied mini-PCIe socket)
<b>I/O Interface</b>				
Video Out	1 x VGA, 1 x HDMI, 1 x LVDS (optional), 1 x ultraONE+ (optional)	2 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI, 1 x DP	1 x VGA, 1 x HDMI
Audio	2 x Mic-in, 2 x Line-out	1 x Mic-in, 2 x Line-out	1 x Mic-in, 1 x Line-in, 1 x Line-out	1 x Mic-in, 1 x Line-in, 1 x Line-out
Ethernet	3 x Intel® 10/100/1000 (2 x LAN exclusion with PoE)	2 x Intel® 10/100/1000, (3 BOM optional)	2 x Intel® 10/100/1000/2500	2 x Intel® 10/100/1000/2500
PoE	2 x independent Intel® 10/100/1000 (w/ 802.3af/at). Total 30W (BOM optional)	N/A	N/A	N/A
USB	2 x USB 3.2 (Gen1), 1 x USB 2.0	3 x USB 2.0, 1 x USB 3.2 (Gen1)	2 x USB 2.0, 2 x USB 3.2 (Gen2)	2 x USB 2.0, 2 x USB 3.2 (Gen2)
COM	2 x RS232 (Full), 1 x RS422/485	1 x RS232 (Full), 1 x RS232, 1 x RS485	2 x RS232(Full)/422/485, 1 x RS232 (Full)	2 x RS232(Full)/422/485, 1 x RS232 (Full)
DIO	4 x DI, 4 x DO	4 x DI, 4 x DO	4 x DI, 4 x DO	4 x DI, 4 x DO
CAN Bus	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN FD (w/ isolation)	1 x CAN FD (w/ isolation)
DC Output	12V (2A)	12V (2A)	12V (2A)	12V (2A)
SIM Socket	4	6 (BOM option up to 8, eSIM BOM optional)	8 (eSIM BOM optional)	8 (eSIM BOM optional)
<b>Expansion</b>				
WWAN	2	3 (BOM optional up to 4)	3 (BOM optional up to 4)	3 (BOM optional up to 4)
mini-PCIe Socket	- 2 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0) for LTE. BOM Option to 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	- 1 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0, PCIe 2.0). BOM optional to 1 x mini-PCIe (USB 2.0) for LTE - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0, SATA 3.0/ PCIe 3.0) default for mSATA, BIOS select (USB 2.0) for LTE, BOM optional (USB 2.0, PCIe 3.0) - 1 x (USB 2.0, PCIe 3.0), BOM optional to 1 x M.2 3052 Key B (USB 2.0, USB 3.2 Gen 2) for LTE/5G	- 1 x (USB 2.0, SATA 3.0/ PCIe 3.0) default for mSATA, BIOS select (USB 2.0) for LTE, BOM optional (USB 2.0, PCIe 3.0) - 1 x (USB 2.0, PCIe 3.0), BOM optional to 1 x M.2 3052 Key B (USB 2.0, USB 3.2 Gen 2) for LTE/5G
M.2 Socket	- 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G - 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	- 2 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x 1, USB 2.0), BOM optional mPCIe (PCIe 3.0 x 1, USB 2.0) for Hailo module	- 2 x M.2 3042/3052 Key B (USB 2.0, USB 3.2(Gen2)) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x 1, USB 2.0), BOM optional mPCIe (PCIe 3.0 x 1, USB 2.0) for Hailo module
GNSS	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)
<b>Power</b>				
Power Input	DC 9V to 36V	DC 9V to 48V	DC 9V to 36V	DC 9V to 36V
Back Up Battery	Optional	N/A	N/A	N/A
<b>Environment</b>				
Ingress Protection	N/A	N/A	N/A	IP66
Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, EN50155, E13
Operating Temperature	-40°C to 70°C	-40°C to 70°C	-40°C to 70°C	-40°C to 70°C
<b>Others</b>				
TPM	TPM 2.0	TPM 2.0, optional	TPM 2.0	TPM 2.0
OS	Win 10, Linux (Kernel 4.x)	Win 10, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)
Dimensions (mm)	260.0 x 196.0 x 50.0	260.0 x 196.0 x 50.0	260.0 x 196.0 x 50.0	260.0 x 196.0 x 70.0







Model			
	VTC 6232-C4S	VTC 6232-C4SIP	VTC 6222-C4S
<b>System</b>			
CPU	Intel Atom® x7433RE, 4-core, 1.5GHz	Intel Atom® x7433RE, 4-core, 1.5GHz	Intel Atom® x7-E3950, 4-core, 1.6GHz
Chipset	N/A	N/A	N/A
Memory	1 x DDR5 4800 SO-DIMM, 8GB (default) up to 16GB, in-band ECC support	1 x DDR5 4800 SO-DIMM, 8GB (default) up to 16GB, in-band ECC support	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB
Storage	eMMC 5.1, 64GB	eMMC 5.1, 64GB	2 x 2.5" SATA 3.0 SSD (removable, 15mm)
Second Storage	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	1 x SD (external accessible), 1 x Internal USB DOM
<b>I/O Interface</b>			
Video Out	1 x VGA, 1 x HDMI	1 x VGA	1 x VGA, 2 x HDMI
Audio	1 x Mic-in, 1 x Line-in, 1 x Line-out	1 x Mic-in, 1 x Line-in, 1 x Line-out	1 x Mic-in, 2 x Line-out
Ethernet	1 x Intel® 10/100/1000/2500	1 x Intel® 10/100/1000/2500	1 x Intel® 10/100/1000
PoE	4 x Intel® 2.5GbE (w/ 802.3af/at/bt). Total 90W	4 x Intel® 2.5GbE (w/ 802.3af/at/bt). Total 90W	4 x Intel® 10/100/1000 (w/ 802.3af/at). Total 60W
USB	2 x USB 2.0, 2 x USB 3.2 (Gen2)	2 x USB 2.0, 1 x USB 3.2 (Gen2)	1 x USB 3.2 (Gen1), 2 x USB 2.0
COM	2 x RS232 (Full)/422/485, 1 x RS232, 1 x RS422/485	2 x RS232(Full)/422/485, 1 x RS232, 1 x RS422/485	1 x RS232 (Full), 1 x RS232, 1 x RS422/485
DIO	4 x DI, 4 x DO	4 x DI, 4 x DO	4 x DI, 4 x DO (w/ isolation)
CAN Bus	1 x CAN FD (w/ isolation)	1 x CAN FD (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)
DC Output	12V (2A)	12V (2A)	12V (2A)
SIM Socket	4 (eSIM BOM optional)	4 (eSIM BOM optional)	2 (eSIM BOM optional)
<b>Expansion</b>			
WWAN	2	2	1
mini-PCIe Socket	- 1 x (USB 2.0, PCIe 3.0), BOM optional to 1 x M.2 3052 Key B (USB 2.0, USB 3.2 Gen 2) for LTE/5G	- 1 x (USB 2.0, PCIe 3.0), BOM optional to 1 x M.2 3052 Key B (USB 2.0, USB 3.2 Gen 2) for LTE/5G	- 2 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0) for LTE, BOM optional to 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G
M.2 Socket	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2(Gen2)) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x 1, USB 2.0), BOM optional mPCIe (PCIe 3.0 x 1, USB 2.0) for Hailo module	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2(Gen2)) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x 1, USB 2.0), BOM optional mPCIe (PCIe 3.0 x 1, USB 2.0) for Hailo module	N/A
GNSS	VIOB-GPS-07 module (u-blox NEO-M9N)	VIOB-GPS-07 module (u-blox NEO-M9N)	u-blox NEO-M8N on board
<b>Power</b>			
Power Input	DC 9V to 48V	DC 9V to 48V	DC 9V to 48V
Back Up Battery	Optional	Optional	N/A
<b>Environment</b>			
Ingress Protection	N/A	IP66	N/A
Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13
Operating Temperature	-40°C to 70°C	-40°C to 70°C	-40°C to 70°C
<b>Others</b>			
TPM	TPM 2.0	TPM 2.0	TPM 2.0, optional
OS	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10, Linux (Kernel 4.x)
Dimensions (mm)	260.0 x 196.0 x 66.5	260.0 x 196.0 x 86.5	260.0 x 196.0 x 66.5



# Vehicle Telematics Computer




Model				
	<b>VTC 7250-7C8</b>	<b>VTC 7251</b>	<b>VTC 7251-7C4</b>	<b>VTC 7252-7C4IP</b>
<b>System</b>				
CPU	Intel® Core™ i7-8700T, 6-core, 2.4GHz	Intel® Core™ i7-8700T, 6-core, 2.4GHz	Intel® Core™ i7-8700T, 6-core, 2.4GHz	Intel® Core™ i7-9700TE, 8-core, 1.8GHz
Chipset	Intel® Q370	Intel® Q370	Intel® Q370	Intel® C246
Memory	2 x DDR4 2666 SO-DIMM, 4GB+4GB (default) up to 32GB+32GB	2 x DDR4 2666 SO-DIMM, 4GB+4GB (default) up to 32GB+32GB	2 x DDR4 2666 SO-DIMM, 4GB+4GB (default) up to 32GB+32GB	2 x DDR4 2666 SO-DIMM, 4GB+4GB (default) up to 32GB+32GB
Storage	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	"2 x 2.5" SATA 3.0 SSD (15mm)
Second Storage	2 x mSATA 3.0 (BIOS selection)	2 x mSATA 3.0 (BIOS selection)	2 x mSATA 3.0 (BIOS selection)	2 x mSATA 3.0 (BIOS selection), 1 x CFast (external accessible)
Video Out	1 x VGA, 1 x HDMI, 1 x ultraONE+	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI (optional)
Audio	1 x Mic-in, 1 x Line-out	1 x Mic-in, 2 x Line-out	1 x Mic-in, 2 x Line-out	1 x Mic-in, 1 x Line-out
Ethernet	1 x Intel® 10/100/1000	2 x Intel® 10/100/1000	1 x Intel® 10/100/1000	2 x Intel® 10/100/1000
<b>I/O Interface</b>				
PoE	8 x independent Intel® 10/100/1000 (w/ 802.3af/at). Total 60W	N/A	4 x independent Intel® 10/100/1000 (w/ 802.3af/at). Total 60W	4 x independent Intel® 10/100/1000 (w/ 802.3af/at). Total 60W
USB	6 x USB 3.2 (Gen2)	6 x USB 3.2 (Gen2)	6 x USB 3.2 (Gen2)	2 x USB 3.2 (Gen2), 2 x USB 2.0
COM	2 x RS232 (full), 1 x RS232 (full)/422/485	2 x RS232 (full), 1 x RS232 (full)/422/485	2 x RS232 (full), 1 x RS232 (full)/422/485	2 x RS232 (full), 1 x RS232 (full)/422/485
DIO	4 x DI, 4 x DO	4 x DI, 4 x DO	4 x DI, 4 x DO	3 x DI, 3 x DO
CAN Bus	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	2 x CAN Bus 2.0B (w/ isolation)
DC Output	12V (2A)	12V (2A)	12V (2A)	12V (2A)
SIM Socket	3 (eSIM BOM optional)	6 (BOM option up to 8, eSIM BOM optional)	6 (BOM option up to 8, eSIM BOM optional)	2 (eSIM BOM optional)
<b>Expansion</b>				
WWAN	2	3 (BOM optional up to 4)	3	1
mini-PCIe Socket	- 2 x (USB 2.0, PCIe 3.0/ SATA 3.0) - 1 x (USB 2.0) for LTE, BOM optional to 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	- 2 x (USB 2.0, PCIe 3.0/ SATA 3.0) - 2 x (USB 2.0) for LTE, BOM optional to 2 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	- 2 x (USB 2.0, PCIe 3.0/ SATA 3.0) - 2 x (USB 2.0) for LTE, BOM optional to M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	- 2 x (USB 2.0, PCIe 3.0/ SATA 3.0)
M.2 Socket	- 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, 2 x PCIe 3.0). BOM optional to 1 x mini-PCIe (USB 2.0, PCIe 3.0).
GNSS	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
<b>Power</b>				
Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
Back Up Battery	N/A	N/A	N/A	N/A
<b>Environment</b>				
Ingress Protection	N/A	N/A	N/A	IP65
Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13
Operating Temperature	-30°C to 60°C	-30°C to 70°C	-30°C to 60°C	-30°C to 60°C
<b>Others</b>				
TPM	TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0
OS	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)
Dimensions (mm)	260.0 x 256.0 x 90.1	260.0 x 256.0 x 83.5	260.0 x 256.0 x 83.5	260.0 x 256.0 x 66.5






Model				
	<b>VTC 7260-5</b>	<b>VTC 7260-5C4</b>	<b>VTC 7260-7</b>	<b>VTC 7260-7C4</b>
<b>System</b>				
CPU	Intel® Core™ i5-1145GRE, 4-core, 1.5GHz	Intel® Core™ i5-1145GRE, 4-core, 1.5GHz	Intel® Core™ i7-1185GRE, 4-core, 1.8GHz	Intel® Core™ i7-1185GRE, 4-core, 1.8GHz
Chipset	N/A	N/A	N/A	N/A
Memory	2 x DDR4 3200 SO-DIMM, 4GB+4GB (default) up to 32GB+32GB, in-band ECC support	2 x DDR4 3200 SO-DIMM, 4GB+4GB (default) up to 32GB+32GB, in-band ECC support	2 x DDR4 3200 SO-DIMM, 4GB+4GB (default) up to 32GB+32GB, in-band ECC support	2 x DDR4 3200 SO-DIMM, 4GB+4GB (default) up to 32GB+32GB, in-band ECC support
Storage	1 x 2.5" SATA 3.0 SSD (15mm)	1 x 2.5" SATA 3.0 SSD (15mm)	1 x 2.5" SATA 3.0 SSD (15mm)	1 x 2.5" SATA 3.0 SSD (15mm)
Second Storage	1 x mSATA 3.0, 1 x M.2 2280 Key M NVMe (PCIe 4.0 x4)	1 x mSATA 3.0, 1 x M.2 2280 Key M NVMe (PCIe 4.0 x4)	1 x mSATA 3.0, 1 x M.2 2280 Key M NVMe (PCIe 4.0 x4)	1 x mSATA 3.0, 1 x M.2 2280 Key M NVMe (PCIe 4.0 x4)
Video Out	1 x VGA, 1 x HDMI, 1 x DP	1 x VGA, 1 x HDMI, 1 x DP	1 x VGA, 1 x HDMI, 1 x DP	1 x VGA, 1 x HDMI, 1 x DP
Audio	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out
Ethernet	1 x Intel® 10/100/1000 (WoL, PXE, iAMT support), 2 x independent Intel® 2.5GbE	1 x Intel® 10/100/1000 (WoL, PXE, iAMT support)	1 x Intel® 10/100/1000 (WoL, PXE, iAMT support), 2 x independent Intel® 2.5GbE	1 x Intel® 10/100/1000 (WoL, PXE, iAMT support)
<b>I/O Interface</b>				
PoE	N/A	4 x independent Intel® 2.5GbE (w/ 802.3af/at). Total 60W	N/A	4 x independent Intel® 2.5GbE (w/ 802.3af/at). Total 60W
USB	3 x USB 3.2 (Gen1), 1 x USB 2.0	3 x USB 3.2 (Gen1), 1 x USB 2.0	3 x USB 3.2 (Gen1), 1 x USB 2.0	3 x USB 3.2 (Gen1), 1 x USB 2.0
COM	1 x RS232 (full), 2 x RS232 (full)/422/485	2 x RS232 (full)/422/485	1 x RS232 (full), 2 x RS232 (full)/422/485	2 x RS232 (full)/422/485
DIO	4 x DI, 4 x DO	4 x DI, 4 x DO	4 x DI, 4 x DO	4 x DI, 4 x DO
CAN Bus	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)
DC Output	N/A	N/A	N/A	N/A
SIM Socket	4	4	4	4
<b>Expansion</b>				
WWAN	2	2	2	2
mini-PCIe Socket	- 1 x (PCIe 3.0/USB 3.2, USB 2.0) for LTE/5G	- 1 x (PCIe 3.0/USB 3.2, USB 2.0) for LTE/5G	- 1 x (PCIe 3.0/USB 3.2, USB 2.0) for LTE/5G	- 1 x (PCIe 3.0/USB 3.2, USB 2.0) for LTE/5G
M.2 Socket	- 1 x M.2 3042/3052 Key B (USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x2, USB 2.0) for Wi-Fi/Hailo AI card	- 1 x M.2 3042/3052 Key B (USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x2, USB 2.0) for Wi-Fi/Hailo AI card	- 1 x M.2 3042/3052 Key B (USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x2, USB 2.0) for Wi-Fi/Hailo AI card	- 1 x M.2 3042/3052 Key B (USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x2, USB 2.0) for Wi-Fi/Hailo AI card
GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)
<b>Power</b>				
Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
Back Up Battery	N/A	N/A	N/A	N/A
<b>Environment</b>				
Ingress Protection	N/A	N/A	N/A	N/A
Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13
Operating Temperature	-30°C to 65/70°C (15W/12W TDP)	-30°C to 60°C (15W TDP & PoE)	-30°C to 65/70°C (15W/12W TDP)	-30°C to 60°C (15W TDP & PoE)
<b>Others</b>				
TPM	TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0
OS	Win 10/11, Linux (Kernel 5.x)	Win 10/11, Linux (Kernel 5.x)	Win 10/11, Linux (Kernel 5.x)	Win 10/11, Linux (Kernel 5.x)
Dimensions (mm)	210.0 x 173.0 x 75.0	210.0 x 173.0 x 75.0	210.0 x 173.0 x 75.0	210.0 x 173.0 x 75.0



# Vehicle Telematics Computer

Model			
	VTC 7270	VTC 7270-C4/C8	VTC 7280-9
<b>System</b>			
CPU	12/13/14th Gen Intel® Core™ i	12/13/14th Gen Intel® Core™ i	Intel® Core™ Ultra9, Meteor-lake H, 185H (16-core, 2.5GHz)
Chipset	R680E	R680E	N/A
Memory	2 x DDR5 4800 SO-DIMM, up to 32GB+32GB, ECC support	2 x DDR5 4800 SO-DIMM, up to 32GB+32GB, ECC support	2 x DDR5 5600 SO-DIMM, 8GB (default) up to 32GB+32GB
Storage	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)
Second Storage	1 x M.2 2280 Key M NVMe (PCIe4.0 x4)	1 x M.2 2280 Key M NVMe (PCIe4.0 x4)	1 x M.2 2280 Key M NVMe (PCIe4.0 x4)
Video Out	1 x VGA, 1 x HDMI, 1 x DP	1 x VGA, 1 x HDMI, 1 x DP	1 x VGA, 1 x HDMI
Audio	1 x Mic-in, 1 x Line-in, 1 x Line-out	1 x Mic-in, 1 x Line-in, 1 x Line-out	1 x Mic-in, 1 x Line-out, 1 x Line-in (reserved)
Ethernet	1 x Intel® 10/100/1000 (WoL, PXE, iAMT support), 2 x independent Intel® 2.5GbE	1 x Intel® 10/100/1000 (WoL, PXE, iAMT support)	2x independent Intel® 2.5GbE (WoL, PXE, iAMT support)
<b>I/O Interface</b>			
PoE	N/A	4/8 x independent Intel® 2.5GbE (w/ 802.3af/at, total 60W/120W)	N/A
USB	6 x USB 3.2 (Gen2)	6 x USB 3.2 (Gen2)	1 x USB 3.2 (Gen2), 3 x USB 2.0 1 x USB 2.0 wafer reserved
COM	2 x RS232 (Full), 2 x RS232 (Full)/422/485	2 x RS232 (Full), 2 x RS232 (Full)/422/485	2 x RS232 (Full)/422/485, 1 x full RS232, 1x full RS232, pin-header reserved
DIO	4 x DI, 4 x DO	4 x DI, 4 x DO	4 x DI, 4 x DO (isolation)
CAN Bus	2 x CAN FD (w/ isolation)	2 x CAN FD (w/ isolation)	2 x CAN FD (w/ isolation)
DC Output	12V (2A)	12V (2A)	12V/3A
SIM Socket	4	4	4
<b>Expansion</b>			
WWAN	2	2	1 (BOM optional up to 2)
mini-PCIe Socket	- 1 x (PCIe 3.0, SATA 3.0, USB 3.2), default PCIe 3.0 - 1 x (USB 3.2, PCIe 3.0, SATA 3.0), default USB 3.2 for LTE	- 1 x (PCIe 3.0, SATA 3.0, USB 3.2), default PCIe 3.0 - 1 x (USB 3.2, PCIe 3.0, SATA 3.0), default USB 3.2 for LTE	- 2 x (PCIe 4.0, USB 2.0) - 1 x (PCIe 4.0/USB 3.2, USB 2.0) BOM option to Key B
M.2 Socket	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x2, USB 2.0) for Wi-Fi/Hailo AI card	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x2, USB 2.0) for Wi-Fi/Hailo AI card	- 1 x M.2 3042/3052 Key B (USB 3.2 (Gen2), USB 2.0) - 1 x M.2 3030 Key E (PCIe 4.0 x2, USB 2.0)
GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-07 module (u-blox NEO-M9N)
<b>Power</b>			
Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
Back Up Battery	N/A	N/A	N/A
<b>Environment</b>			
Ingress Protection	N/A	N/A	N/A
Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13
Operating Temperature	-35°C to 70°C (35W TDP, fanless; 65W CPU, w/ fan)	-35°C to 60°C/65°C (35W CPU, fanless, 120W/60W PoE; 65W CPU, w/ fan, 120W/60W PoE)	-40°C to 60°C (45W CPU)
<b>Others</b>			
TPM	TPM 2.0	TPM 2.0	TPM 2.0
OS	Win 10/11, Linux (Kernel 5.x)	Win 10/11, Linux (Kernel 5.x)	Win 10/11, Linux (Kernel 5.x)
Dimensions (mm)	260.0 x 210.0 x 81.0	260.0 x 210.0 x 81.0	260.0 x 180.0 x 66.5

Model			
	VTC 7280-5	VTC 7280-9C5	VTC 7280-5C5
<b>System</b>			
CPU	Intel® Core™ Ultra5, Meteor-lake H, 125H (14-core, 1.2GHz)	Intel® Core™ Ultra9, Meteor-lake H, 185H (16-core, 2.5GHz)	Intel® Core™ Ultra5, Meteor-lake H, 125H (14-core, 1.2GHz)
Chipset	N/A	N/A	N/A
Memory	2 x DDR5 5600 SO-DIMM, 8GB (default) up to 32GB+32GB	2 x DDR5 5600 SO-DIMM, 8GB (default) up to 32GB+32GB	2 x DDR5 5600 SO-DIMM, 8GB (default) up to 32GB+32GB
Storage	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)
Second Storage	1 x M.2 2280 Key M NVMe (PCIe4.0 x4)	1 x M.2 2280 Key M NVMe (PCIe4.0 x4)	1 x M.2 2280 Key M NVMe (PCIe4.0 x4)
Video Out	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI
Audio	1 x Mic-in, 1 x Line-out, 1 x Line-in (reserved)	1 x Mic-in, 1 x Line-out, 1 x Line-in (reserved)	1 x Mic-in, 1 x Line-out, 1 x Line-in (reserved)
Ethernet	2x independent Intel® 2.5GbE (WoL, PXE, iAMT support)	N/A	N/A
<b>I/O Interface</b>			
PoE	N/A	4 x independent Intel® 2.5GbE (IEEE 802.3at/af), 1 x Intel® 2.5GbE (IEEE 802.3at/af/bt), total 80W, M12 X-coded	4 x independent Intel® 2.5GbE (IEEE 802.3at/af), 1 x Intel® 2.5GbE (IEEE 802.3at/af/bt), total 80W, M12 X-coded
USB	1 x USB 3.2 (Gen2), 3 x USB 2.0 1 x USB 2.0 wafer reserved	1 x USB 3.2 (Gen2), 3 x USB 2.0 1 x USB 2.0 wafer reserved	1 x USB 3.2 (Gen2), 3 x USB 2.0 1 x USB 2.0 wafer reserved
COM	2 x RS232 (Full)/422/485, 1 x full RS232, 1x full RS232, pin-header reserved	2 x RS232 (Full)/422/485, 1 x full RS232, 1x full RS232, pin-header reserved	2 x RS232 (Full)/422/485, 1 x full RS232, 1x full RS232, pin-header reserved
DIO	4 x DI, 4 x DO (isolation)	4 x DI, 4 x DO (isolation)	4 x DI, 4 x DO (isolation)
CAN Bus	2 x CAN FD (w/ isolation)	2 x CAN FD (w/ isolation)	2 x CAN FD (w/ isolation)
DC Output	12V/3A	12V/3A	12V/3A
SIM Socket	4	4	4
<b>Expansion</b>			
WWAN	1 (BOM optional up to 2)	1 (BOM optional up to 2)	1 (BOM optional up to 2)
mini-PCIe Socket	- 2 x (PCIe 4.0, USB 2.0)	- 2 x (PCIe 4.0, USB 2.0)	- 2 x (PCIe 4.0, USB 2.0)
M.2 Socket	- 1 x M.2 3042/3052 Key B (USB 3.2 (Gen2), USB 2.0) - 1 x M.2 3030 Key E (PCIe 4.0 x2, USB 2.0)	- 1 x M.2 3042/3052 Key B (USB 3.2 (Gen2), USB 2.0) - 1 x M.2 3030 Key E (PCIe 4.0 x2, USB 2.0)	- 1 x M.2 3042/3052 Key B (USB 3.2 (Gen2), USB 2.0) - 1 x M.2 3030 Key E (PCIe 4.0 x2, USB 2.0)
GNSS	VIOB-GPS-07 module (u-blox NEO-M9N)	VIOB-GPS-07 module (u-blox NEO-M9N)	VIOB-GPS-07 module (u-blox NEO-M9N)
<b>Power</b>			
Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
Back Up Battery	N/A	N/A	N/A
<b>Environment</b>			
Ingress Protection	N/A	N/A	N/A
Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13
Operating Temperature	-40°C to 60°C (45W CPU)	-45°C to 60°C (45W CPU & 80W PoE)	-40°C to 60°C (45W CPU & 80W PoE)
<b>Others</b>			
TPM	TPM 2.0	TPM 2.0	TPM 2.0
OS	Win 10/11, Linux (Kernel 5.x)	Win 10/11, Linux (Kernel 5.x)	Win 10/11, Linux (Kernel 5.x)
Dimensions (mm)	260.0 x 180.0 x 66.5	260.0 x 180.0 x 66.5	260.0 x 180.0 x 66.5


# Railway Computer - Box PC/Panel PC


## nROK/vROK Series Brief Product Introduction


### Product Description


nROK series, railway computer, in an extended operating temperature range of -40 to 70°C certified EN50155 and IP65 protection depended on models. The SKU with PoE integrated all-in-one computer can also work as a PoE switch and power supply for PoE cameras. Wide-range power input SKU from 24 to 110VDC includes isolation and protection against power dips. Multiple Wi-Fi 6/6E

and 5G/LTE cellular networks handle the connectivity that provides uninterrupted internet access and more transmission bandwidth, vROK series, all in one railway open frame panel computer, is designed for human machine interface (HMI) and passenger information system aimed at railway onboard infotainment applications.

 5G/LTE, Wi-Fi 6/6E, BT, CAN/OBD, GNSS + DR, POE, and multi-SIM integration

 Front accessible SSD storage

 Optional isolated 24~110VDC power input

 Global navigation satellite system for precise and real-time location

### Application

**nROK:** Communications hub, passenger information system, onboard video surveillance, digital radio data/voice transmission system, freight management system, rail analytics system, rail maintenance applications.

**vROK:** Human machine interface (HMI), passenger information system, infotainment.

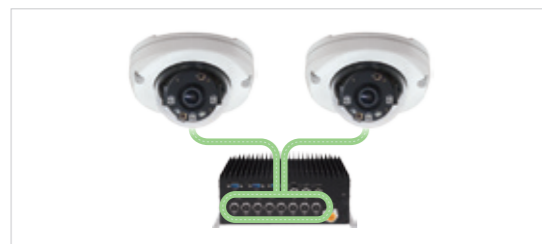
### Product Highlight



EN50155 certificated system



Protection for voltage dips






M12 X-coded/D-coded PoE port for IP cameras






Open frame design railway panel computer




# Railway Computer - Box PC

Model			
	<b>VTC 1911-IPK</b>	<b>nROK 1020-A</b>	<b>nROK 1030-A</b>
<b>System</b>			
CPU	Intel Atom® E3815, 1-core, 1.46GHz	Intel Atom® x5-E3930, 2-core, 1.3GHz	Intel Atom® x6211E, 2-core, 1.3GHz
Chipset	N/A	N/A	N/A
Memory	1 x DDR3L 1333 SO-DIMM, 2GB (default) up to 8GB	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB	1 x DDR4 2666 SO-DIMM, 4GB (default) up to 3200MHz 32GB, in-band ECC support
Storage	1 x mSATA	1 x 2.5" SATA 3.0 SSD (9.5mm)	1 x 2.5" SATA 3.0 SSD (9.5mm)
Second Storage	1 x 2.5" SATA 3.0 SSD (9.5mm) or 1 x SATA 3.0 SATA DOM	1 x mSATA (occupied mini-PCIe socket)	1 x mSATA (occupied mini-PCIe socket)
Video Out	1 x VGA, 1 x HDMI (optional)	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI
Audio	1 x Mic-in, 1 x Line-out (DB15)	1 x Mic-in, 1 x Line-out (M12)	1 x Mic-in, 1 x Line-out (DB9)
Ethernet	2 x Intel® 10/100/1000 (M12)	1 x Intel® 10/100/1000 (M12)	2 x Intel® 10/100/1000/2500 (M12)
PoE	N/A	N/A	N/A
<b>I/O Interface</b>			
USB	1 x USB 2.0	2 x USB 3.2 (Gen1)	1 x USB 3.2 (Gen2), 1 x USB 2.0
COM	2 x RS232, 1 x RS485	5 x RS232, 2 x RS485	2 x RS232 (full)/422/485
DIO	3 x DI, 3 x DO	5 x Programmable DIO	5 x DI, 4 x DO
CAN	1 x CAN Bus 2.0B (w/o isolation)	1 x CAN Bus 2.0B (w/o isolation)	1 x CAN Bus 2.0B (w/ isolation)
DC Output	N/A	12V (2A)	12V (2A)
SMBus	N/A	1	N/A
SIM Socket	2	1	2 (eSIM BOM optional)
<b>Expansion</b>			
WWAN	1	1	1
mini-PCIe Socket	- 1 x (USB 2.0, PCIe 2.0/SATA 2.0) - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0, PCIe 2.0/SATA 3.0) - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0)
M.2 Socket	N/A	N/A	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM option to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0)
GNSS	On board u-blox NEO-M8N	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-06 module (u-blox NEO-M9N)
<b>Power</b>			
Power Input	DC 9V to 36V	DC 24V (w/o isolation)	DC 24V (w/o isolation)
Backup Battery	N/A	N/A	N/A
<b>Environment</b>			
Ingress Protection	IP67	N/A	N/A
Certification	CE, FCC Class A, UKCA, E13, EN50155	CE, FCC Class A, UKCA, EN50155	CE, FCC Class A, UKCA, EN50155, EN45545-2
Operating Temperature	-40°C to 70°C (OT4)	-40°C to 70°C (OT4)	-40°C to 70°C (OT4)
TPM	TPM 2.0	TPM 2.0	TPM 2.0
<b>Others</b>			
OS	Win 7/8/10, WES 7, Linux (Kernel 4.x)	Win 10, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 5.x)
Dimensions (mm)	185.0 x 167.0 x 56.5	185.0 x 120.0 x 45.0	185.0 x 120.0 x 50.0

# Railway Computer - Box PC

Model			
	<b>nROK 1031-A</b>	<b>nROK 1031-AC2</b>	<b>VTC 6210-R</b>
<b>System</b>			
CPU	Intel Atom® x6413E, 4-core, 1.5GHz	Intel Atom® x6413E, 4-core, 1.5GHz	Intel Atom® E3845, 4-core, 1.91GHz
Chipset	N/A	N/A	N/A
Memory	1 x DDR4 2666 SO-DIMM, 4GB (default) up to 3200MHz 32GB, in-band ECC support	1 x DDR4 2666 SO-DIMM, 4GB (default) up to 3200MHz 32GB, in-band ECC support	1 x DDR3 1333 SO-DIMM, 4GB (default) up to 8GB
Storage	1 x 2.5" SATA 3.0 SSD (9.5mm)	1 x 2.5" SATA 3.0 SSD (9.5mm)	1 x 2.5" SATA 2.0 SSD (removable, 9.5mm)
Second Storage	1 x M.2 2280 Key M SSD (SATA 3.0)	1 x M.2 2280 Key M SSD (SATA 3.0)	1 x CFAST (external accessible)
<b>I/O Interface</b>			
Video Out	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI	1 x VGA, 1 x DP
Audio	1 x Mic-in, 1 x Line-out (DB9)	1 x Mic-in, 1 x Line-out (DB9)	2 x Mic-in, 2 x Line-out (Phone Jack)
Ethernet	1 x Intel® 10/100/1000/2500 1 x 10/100/1000 (M12)	1 x Intel® 10/100/1000/2500 1 x 10/100/1000 (M12)	2 x Intel® 10/100/1000 (M12)
PoE	N/A	2 x M12 independent Intel® 10/100/1000/2500 (802.3af/at). Total 60W	N/A
USB	1 x M12 with 2 x USB 2.0 signal, 1 x USB 2.0, 1 x USB 3.2 (Gen 2)	1 x M12 with 2 x USB 2.0 signal, 1 x USB 2.0, 1 x USB 3.2 (Gen 2)	1 x M12 with 2 x USB 2.0 signal, 1 x USB 3.2 (Gen1)
COM	1 x RS232 (Full)/422/485, 1 x RS232, 2 x RS485	1 x RS232 (Full)/422/485, 1 x RS232, 2 x RS485	2 x RS232 (Full), 1 x RS422/485. (w/ isolation)
DIO	5 x DI, 4 x DO	5 x DI, 4 x DO	4 x DI, 4 x DO. (w/ isolation)
CAN	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)
DC Output	12V (2A)	12V (2A)	N/A
SMBus	N/A	N/A	N/A
SIM Socket	2 (eSIM BOM optional)	2 (eSIM BOM optional)	3
<b>Expansion</b>			
WWAN	1	1	2
mini-PCIe Socket	- 1 x (USB 2.0, PCIe 3.0). BOM option to 1 x M.2 3042 Key B socket (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G NR	- 1 x (USB 2.0, PCIe 3.0). BOM option to 1 x M.2 3042 Key B socket (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G NR	- 1 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0, PCIe 2.0) for LTE - 1 x (USB 2.0) for LTE
M.2 Socket	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM option to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0)	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM option to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0)	N/A
GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-02 module (u-blox NEO-M8N)
<b>Power</b>			
Power Input	DC 24V (w/o isolation)	DC 24V (w/o isolation)	DC 24/36V (w/o isolation), DC 24/110V (w/ isolation, optional)
Backup Battery	N/A	N/A	N/A
<b>Environment</b>			
Ingress Protection	N/A	N/A	N/A
Certification	CE, FCC Class A, UKCA, EN50155	CE, FCC Class A, UKCA, EN50155	CE, FCC Class A, UKCA, EN50155
Operating Temperature	-40°C to 70°C (OT4)	-40°C to 70°C (OT4)	-40°C to 70°C (OT4)
<b>Others</b>			
TPM	TPM 2.0	TPM 2.0	N/A
OS	Win 10/11, Linux (Kernel 5.x)	Win 10/11, Linux (Kernel 5.x)	Win 7/8/10, WES7, Linux (Kernel 4.x)
Dimensions (mm)	180.0 x 180.0 x 60.0	180.0 x 180.0 x 60.0	260.0 x 176.0 x 70.0









Model			
	<b>nROK 6221</b>	<b>nROK 6221-IP</b>	<b>nROK 6231-A</b>
<b>System</b>			
CPU	Intel Atom® x7-E3950, 4-core, 1.6GHz	Intel Atom® x7-E3950, 4-core, 1.6GHz	Intel Atom® x7433RE, 4-core, 1.5GHz
Chipset	N/A	N/A	N/A
Memory	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB	1 x DDR5 4800 SO-DIMM, 8GB (default) up to 16GB, in-band ECC support
Storage	1 x 2.5" SATA 3.0 SSD (removable, 15mm)	1 x 2.5" SATA 3.0 SSD (removable, 15mm)	1 x 2.5" SATA 3.0 SSD (removable, 9.5mm)
Second Storage	1 x CFAST (external accessible, default) or 1 x mSATA (occupied CFAST, BOM optional)	1 x CFAST (external accessible, default) or 1 x mSATA (occupied CFAST, BOM optional)	1 x mSATA (occupied mini-PCIe socket)
<b>I/O Interface</b>			
Video Out	2 x VGA, 1 x HDMI	2 x VGA	1 x VGA, 1 x HDMI, 1 x DP
Audio	1 x Mic-in, 2 x Line-out (DB9)	1 x Mic-in, 1 x Line-out (M8)	1 x Mic-in, 1 x Line-in, 1 x Line-out
Ethernet	2 x Intel® 10/100/1000 (M12). (additional 1 x Intel® 10/100/1000 (M12), BOM optional)	2 x Intel® 10/100/1000 (M12). (additional 1 x Intel® 10/100/1000 (M12), BOM optional)	2 x Intel® 10/100/1000/2500
PoE	N/A	N/A	N/A
USB	1 x M12 with 2 x USB 2.0 signal, 1 x USB 2.0, 1 x USB 3.2 (Gen1)	1 x M12 with 2 x USB 2.0 signal, 1 x USB 3.2 (Gen1)	2 x USB 2.0, 2 x USB 3.2 (Gen2)
COM	1 x RS232 (full), 1 x RS232, 1 x RS485. (w/ isolation)	1 x RS232 (full), 1 x RS232, 1 x RS485. (w/ isolation)	2 x RS232 (full)/422/485, 1 x RS232 (full) . (w/ isolation)
DIO	4 x DI, 4 x DO. (w/ isolation)	4 x DI, 3 x DO. (w/ isolation)	4 x DI, 4 x DO. (w/ isolation)
CAN	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN FD (w/ isolation)
DC Output	N/A	N/A	12V (2A)
SMBus	N/A	N/A	N/A
SIM Socket	6 (BOM option up to 8, eSIM BOM optional)	6 (BOM option up to 8, eSIM BOM optional)	8 (eSIM BOM optional)
<b>Expansion</b>			
WWAN	3 (BOM option up to 4)	3 (BOM option up to 4)	3 (BOM option up to 4)
mini-PCIe Socket	- 1 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0, PCIe 2.0). BOM option to 1 x mini-PCIe (USB 2.0) for LTE - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0, PCIe 2.0). BOM option to 1 x mini-PCIe (USB 2.0) for LTE - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0, SATA 3.0/PCIe 3.0) default for mSATA, BIOS select (USB 2.0) for LTE, BOM option (USB 2.0, PCIe 3.0) for Wi-Fi - 1 x (USB 2.0, PCIe 3.0) for Wi-Fi, BOM option to 1 x M.2 3052 Key B (USB 2.0, USB 3.2 Gen 2x1) for LTE/5G
M.2 Socket	- 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen 1)) for LTE/5G - 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 1)) for LTE/5G	- 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen 1)) for LTE/5G - 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 1)) for LTE/5G	- 2 x M.2 3042/3052 Key B (USB 2.0, USB 3.2) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x 1, USB 2.0) for Wi-Fi, BOM option mPCIe (PCIe 3.0 x 1, USB 2.0) for Hailo module
GNSS	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-06 module (u-blox NEO-M9N)
<b>Power</b>			
Power Input	DC 24/36V (w/o isolation), DC 24/110V (w/ isolation, optional)	DC 24V (w/ isolation), DC 24/36V (w/o isolation, optional), DC 110V (w/ isolation, optional)	DC 24V (w/o isolation), DC 24/110V (w/ isolation, optional)
Backup Battery	N/A	N/A	N/A
<b>Environment</b>			
Ingress Protection	N/A	IP65	N/A
Certification	CE, FCC Class A, UKCA, EN50155	CE, FCC Class A, UKCA, EN50155	CE, FCC Class A, UKCA, EN50155, EN45545-2
Operating Temperature	-40°C to 70°C (OT4)	-40°C to 70°C (OT4)	-40°C to 70°C (OT4)
<b>Others</b>			
TPM	TPM 2.0, optional	TPM 2.0, optional	TPM 2.0
OS	Win 10, Linux (Kernel 4.x)	Win 10, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)
Dimensions (mm)	260.0 x 196.0 x 70.0	260.0 x 198.0 x 70.0	260.0 x 196.0 x 66.5











# Railway Computer - Box PC

Model	 <b>nROK 6232-AC4S</b>	 <b>nROK 6232-WIC4S</b>	 <b>nROK 6222-AC4S</b>
CPU	Intel Atom® x7433RE, 4-core, 1.5GHz	Intel Atom® x7433RE, 4-core, 1.5GHz	Intel Atom® x7-E3950, 4-core, 1.6GHz
Chipset	N/A	N/A	N/A
Memory	1 x DDR5 4800 SO-DIMM, 8GB (default) up to 16GB, in-band ECC support	1 x DDR5 4800 SO-DIMM, 8GB (default) up to 16GB, in-band ECC support	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB
Storage	eMMC 5.1, 64GB	eMMC 5.1, 64GB	2 x 2.5" SATA 3.0 SSD (removable, 15mm)
Second Storage	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	1 x 2.5" SATA 3.0 SSD (removable, 15mm), 1 x M.2 2242 Key B (SATA)	1 x SD (external accessible), 1 x internal USB DOM
Video Out	1 x VGA, 1 x HDMI, 1 x DP	1 x VGA, 1 x HDMI, 1 x DP	1 x VGA, 2 x HDMI
Audio	1 x Mic-in, 1 x Line-in, 1 x Line-out	1 x Mic-in, 1 x Line-in, 1 x Line-out	1 x Mic-in, 1 x Line-out (M8)
Ethernet	1 x Intel® 10/100/1000/2500	1 x Intel® 10/100/1000/2500	1 x Intel® 10/100/1000 (M12)
PoE	4 x Intel® 2.5GbE (w/ 802.3af/at/bt). Total 90W	4 x Intel® 2.5GbE (w/ 802.3af/at/bt). Total 90W	4 x M12 Intel® 10/100/1000 (802.3af/at). Total 60W
USB	2 x USB 2.0, 2 x USB 3.2 (Gen2)	2 x USB 2.0, 2 x USB 3.2 (Gen2)	1 x M12 with 2 x USB 2.0 signal, 1 x USB 3.2 (Gen1)
COM	2 x RS232(full)/422/485, 1 x RS232, 1 x RS422/485. (w/ isolation)	2 x RS232(full)/422/485, 1 x RS232, 1 x RS422/485. (w/ isolation)	1 x RS232 (full), 1 x RS232, 1 x RS422/485. (w/ isolation)
DIO	4 x DI, 4 x DO. (w/ isolation)	4 x DI, 4 x DO. (w/ isolation)	4 x DI, 4 x DO. (w/ isolation)
CAN	1 x CAN FD (w/ isolation)	1 x CAN FD (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)
DC Output	12V (2A)	12V (2A)	N/A
SMBus	N/A	N/A	N/A
SIM Socket	4 (eSIM BOM optional)	4 (eSIM BOM optional)	2 (eSIM BOM optional)
WWAN	2	2	1
mini-PCIe Socket	- 1 x (USB 2.0, PCIe 3.0), BOM optional to 1 x M.2 3052 Key B (USB 2.0, USB 3.2 Gen 2) for LTE/5G	- 1 x (USB 2.0, PCIe 3.0), BOM optional to 1 x M.2 3052 Key B (USB 2.0, USB 3.2 Gen 2) for LTE/5G	- 2 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0) for LTE, BOM option to 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G
M.2 Socket	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2(Gen2)) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x 1, USB 2.0), BOM optional mPCIe (PCIe 3.0 x 1, USB 2.0) for Hailo module	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2(Gen2)) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x 1, USB 2.0), BOM optional mPCIe (PCIe 3.0 x 1, USB 2.0) for Hailo module	- 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen 1)) for LTE/5G (BOM optional)
GNSS	VIOB-GPS-07 module (u-blox NEO-M9N)	VIOB-GPS-07 module (u-blox NEO-M9N)	u-blox NEO-M8N on board
Power Input	DC 24V (w/o isolation)	DC 24 to 110V (w/ isolation)	DC 24/36V (w/o isolation) DC 24/110V (w/ isolation, external power kit, optional)
Backup Battery	Optional	N/A	N/A
Ingress Protection	N/A	N/A	N/A
Certification	CE, FCC Class A, UKCA, EN50155, EN45545-2	CE, FCC Class A, UKCA, EN50155, EN45545-2	CE, FCC Class A, UKCA, EN50155
Operating Temperature	-40°C to 70°C	-40°C to 70°C	-40°C to 70°C (OT4)
TPM	TPM 2.0	TPM 2.0	TPM 2.0, optional
OS	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10, Linux (Kernel 4.x)
Dimensions (mm)	260.0 x 196.0 x 66.5	260.0 x 196.0 x 66.5	260.0 x 196.0 x 66.5




Model	 <b>nROK7251-7A</b>	 <b>nROK7251-7C4</b>	 <b>nROK7251-WI-7C4IP</b>
CPU	Intel® Core™ i7-9700TE, 8-core, 1.8GHz	Intel® Core™ i7-9700TE, 8-core, 1.8GHz	Intel® Core™ i7-9700TE, 8-core, 1.8GHz
Chipset	Intel® Q370	Intel® Q370	Intel® Q370
Memory	2 x DDR4 2666 SO-DIMM, 8GB (default) up to 64GB	2 x DDR4 2666 SO-DIMM, 8GB (default) up to 64GB	2 x DDR4 2666 SO-DIMM, 8GB (default) up to 64GB
Storage	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)
Second Storage	2 x mSATA (occupied mini-PCIe socket)	2 x mSATA (occupied mini-PCIe socket)	2 x mSATA (occupied mini-PCIe socket)
Video Out	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI	1 x VGA
Audio	1 x Mic-in, 1 x Line-out (M8)	1 x Mic-in, 1 x Line-out (M8)	1 x Mic-in, 1 x Line-out (M8)
Ethernet	2 x Intel® 10/100/1000 (M12)	1 x Intel® 10/100/1000 (M12)	1 x Intel® 10/100/1000 (M12)
PoE	N/A	4 x M12 independent Intel® 10/100/1000 (802.3af/at). Total 60W	4 x M12 independent Intel® 10/100/1000 (802.3af/at). Total 60W
USB	1 x M12 with 2 x USB 2.0 signal, 4 x USB 3.2 (Gen2)	1 x M12 with 2 x USB 2.0 signal, 4 x USB 3.2 (Gen2)	1 x M12 with 2 x USB 2.0 signal, 4 x USB 3.2 (Gen2)
COM	2 x RS232 (Full), 1 x RS232 (full)/422/485. (w/ isolation)	2 x RS232 (Full), 1 x RS232 (full)/422/485. (w/ isolation)	2 x RS232 (Full), 1 x RS232 (full)/422/485. (w/ isolation)
DIO	4 x DI, 4 x DO. (w/ isolation)	4 x DI, 4 x DO. (w/ isolation)	4 x DI, 4 x DO. (w/ isolation)
CAN	N/A	N/A	N/A
DC Output	N/A	N/A	N/A
SMBus	N/A	N/A	N/A
SIM Socket	6 (BOM option up to 8, eSIM BOM optional)	6 (BOM option up to 8, eSIM BOM optional)	6 (BOM option up to 8, eSIM BOM optional)
WWAN	3 (BOM option up to 4)	3 (BOM option up to 4)	3 (BOM option up to 4)
mini-PCIe Socket	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0) - 1 x (USB 2.0, PCIe 3.0/SATA 3.0). BOM option to 1 x mini-PCIe (USB 2.0) for LTE - 1 x (USB 2.0) for LTE. BOM option to 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0) - 1 x (USB 2.0, PCIe 3.0/SATA 3.0). BOM option to 1 x mini-PCIe (USB 2.0) for LTE - 1 x (USB 2.0) for LTE. BOM option to 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0) - 1 x (USB 2.0, PCIe 3.0/SATA 3.0). BOM option to 1 x mini-PCIe (USB 2.0) for LTE - 1 x (USB 2.0) for LTE. BOM option to 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G
M.2 Socket	- 2 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G	- 2 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G	- 2 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G
GNSS	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
Power Input	DC 24V (w/o isolation)	DC 24V (w/o isolation)	DC 24V to 110V (w/ isolation)
Backup Battery	N/A	N/A	N/A
Ingress Protection	N/A	N/A	IP65
Certification	CE, FCC Class A, UKCA, EN50155	CE, FCC Class A, UKCA, EN50155	CE, FCC Class A, UKCA, EN50155
Operating Temperature	-40°C to 70°C (OT4)	-40°C to 70°C (OT4)	-40°C to 70°C (OT4)
TPM	TPM 2.0	TPM 2.0	TPM 2.0
OS	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)
Dimensions (mm)	260.0 x 256.0 x 84.0	260.0 x 256.0 x 84.0	260.0 x 256.0 x 110.0

# Railway Computer - Box PC


Model			
	<b>nROK 7252-AC8S</b>	<b>nROK 7252-WI2-C8S</b>	<b>nROK 7270-A</b>
<b>System</b>			
CPU	8/9th Gen Intel® Core™/Xeon® (AI Hailo-8™ onboard optional)	8/9th Gen Intel® Core™/Xeon® (AI Hailo-8™ onboard optional)	Intel® Core™ 12th/13th/14th Gen
Chipset	Intel® C246	Intel® C246	Intel® R680E
Memory	2 x DDR4 2666 SO-DIMM, up to 64GB	2 x DDR4 2666 SO-DIMM, up to 64GB	2 x DDR5 4800 SO-DIMM, up to 64GB, ECC support
Storage	4 x 2.5" SATA 3.0 SSD (removable, 15mm)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)
Second Storage	2 x mSATA (occupied mini-PCIe socket) 1 x Removable SD 3.0	2 x mSATA (occupied mini-PCIe socket) 1 x Removable SD 3.0	1 x mSATA (occupied mini-PCIe socket) 2 x M.2 Key B (occupied M.2 socket) 1 x microSD card slot, SDXC v3.01
<b>I/O Interface</b>			
Video Out	1 x VGA, 2 x HDMI	1 x VGA, 2 x HDMI	1 x VGA, 1 x HDMI
Audio	1 x Mic-in, 2 x Line-out (DB9)	1 x Mic-in, 2 x Line-out (DB9)	1 x Mic-in, 1 x Line-out (M8)
Ethernet	2 x Intel® 10/100/1000 (M12)	2 x Intel® 10/100/1000 (M12)	2 x Intel® 10/100/1000/2500 (M12, WoL support)
PoE	8 x M12 Intel® 10/100/1000 (802.3af/at). Total 60W	8 x M12 Intel® 10/100/1000 (802.3af/at). Total 60W	N/A
USB	1 x M12 with 2 x USB 2.0 signal, 4 x USB 3.2 (Gen2)	1 x M12 with 2 x USB 2.0 signal, 4 x USB 3.2 (Gen2)	1 x M12 with 2 x USB 2.0 signal, 2 x USB 3.2 (Gen2)
COM	2 x RS232 (Full), 1 x RS232 (Full)/422/485. (w/ isolation)	2 x RS232 (Full), 1 x RS232 (Full)/422/485. (w/ isolation)	2 x RS232 (Full)/422/485. (w/ isolation)
DIO	4 x DI, 4 x DO. (w/ isolation)	4 x DI, 4 x DO. (w/ isolation)	4 x DI, 4 x DO. (w/ isolation)
CAN	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	2 x CAN FD (w/ isolation)
DC Output	N/A	N/A	N/A
SMBus	N/A	N/A	N/A
SIM Socket	6 (BOM option up to 8, eSIM BOM optional)	6 (BOM option up to 8, eSIM BOM optional)	4 (eSIM BOM optional)
<b>Expansion</b>			
WWAN	3 (BOM option up to 4)	3 (BOM option up to 4)	2
mini-PCIe Socket	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0) - 1 x (USB 2.0, PCIe 3.0/SATA 3.0). BOM option to 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G - 1 x (USB 2.0) for LTE. BOM option to 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0) - 1 x (USB 2.0, PCIe 3.0/SATA 3.0). BOM option to 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G - 1 x (USB 2.0) for LTE. BOM option to 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0)
M.2 Socket	- 2 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G	- 2 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G	- 2 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2), SATA 3.0) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM option to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0)
GNSS	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-06 module (u-blox NEO-M9N)
<b>Power</b>			
Power Input	DC 24/36V (w/o isolation)	DC 24V to 110V (w/ isolation, 3-second protection against temporary voltage dips)	DC 24/36V (w/o isolation)
Backup Battery	N/A	N/A	N/A
<b>Environment</b>			
Ingress Protection	N/A	N/A	N/A
Certification	CE, FCC Class A, UKCA, EN50155	CE, FCC Class A, UKCA, EN50155	CE, FCC Class A, UKCA, EN50155, EN45545-2
Operating Temperature	-40°C to 70°C (OT4)	-40°C to 70°C (OT4)	-35°C to 70°C (OT3)
<b>Others</b>			
TPM	TPM 2.0	TPM 2.0	TPM 2.0
OS	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)
Dimensions (mm)	260.0 x 266.0 x 110.0	260.0 x 266.0 x 110.0	260.0 x 210.0 x 80.0

Model			
	<b>nROK 7270-AC4</b>	<b>nROK 7271-WI</b>	<b>nROK 7271-WIC4</b>
<b>System</b>			
CPU	Intel® Core™ 12th/13th/14th Gen	Intel® Core™ 12th/13th/14th Gen	Intel® Core™ 12th/13th/14th Gen
Chipset	Intel® R680E	Intel® R680E	Intel® R680E
Memory	2 x DDR5 4800 SO-DIMM, up to 64GB, ECC support	2 x DDR5 4800 SO-DIMM, up to 64GB, ECC support	2 x DDR5 4800 SO-DIMM, up to 64GB, ECC support
Storage	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)
Second Storage	1 x mSATA (occupied mini-PCIe socket) 2 x M.2 Key B (occupied M.2 socket) 1 x microSD card slot, SDXC v3.01	1 x mSATA (occupied mini-PCIe socket) 2 x M.2 Key B (occupied M.2 socket) 1 x microSD card slot, SDXC v3.01	1 x mSATA (occupied mini-PCIe socket) 2 x M.2 Key B (occupied M.2 socket) 1 x microSD card slot, SDXC v3.01
<b>I/O Interface</b>			
Video Out	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI
Audio	1 x Mic-in, 1 x Line-out (M8)	1 x Mic-in, 1 x Line-out (M8)	1 x Mic-in, 1 x Line-out (M8)
Ethernet	1 x Intel® 10/100/1000/2500 (M12, WoL support)	2 x Intel® 10/100/1000/2500 (M12, WoL support)	1 x Intel® 10/100/1000/2500 (M12, WoL support)
PoE	4 x independent Intel® 2.5GbE (802.3af/af). Total 60W	N/A	4 x independent Intel® 2.5GbE (802.3af/af). Total 30/60W
USB	1 x M12 with 2 x USB 2.0 signal, 2 x USB 3.2 (Gen2)	1 x M12 with 2 x USB 2.0 signal, 2 x USB 3.2 (Gen2)	1 x M12 with 2 x USB 2.0 signal, 2 x USB 3.2 (Gen2)
COM	2 x RS232 (Full)/422/485. (w/ isolation)	2 x RS232 (Full)/422/485. (w/ isolation)	2 x RS232 (Full)/422/485. (w/ isolation)
DIO	4 x DI, 4 x DO. (w/ isolation)	4 x DI, 4 x DO. (w/ isolation)	4 x DI, 4 x DO. (w/ isolation)
CAN	2 x CAN FD (w/ isolation)	2 x CAN FD (w/ isolation)	2 x CAN FD (w/ isolation)
DC Output	N/A	N/A	N/A
SMBus	N/A	N/A	N/A
SIM Socket	4 (eSIM BOM optional)	4 (eSIM BOM optional)	4 (eSIM BOM optional)
<b>Expansion</b>			
WWAN	2	2	- 2
mini-PCIe Socket	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0)	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0)	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0)
M.2 Socket	- 2 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2), SATA 3.0) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM option to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0)	- 2 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2), SATA 3.0) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM option to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0)	- 2 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2), SATA 3.0) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM option to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0)
GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)
<b>Power</b>			
Power Input	DC 24/36V (w/o isolation)	DC 24V to 110V (w/ isolation, optional 3-second protection against temporary voltage dips)	DC 24V to 110V (w/ isolation, optional 3-second protection against temporary voltage dips)
Backup Battery	N/A	N/A	N/A
<b>Environment</b>			
Ingress Protection	N/A	N/A	N/A
Certification	CE, FCC Class A, UKCA, EN50155, EN45545-2	CE, FCC Class A, UKCA, EN50155, EN45545-2	CE, FCC Class A, UKCA, EN50155, EN45545-2
Operating Temperature	-35°C to 70°C (OT3)	-35°C to 70°C (OT3)	-35°C to 70°C (OT3)
<b>Others</b>			
TPM	TPM 2.0	TPM 2.0	TPM 2.0
OS	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)
Dimensions (mm)	260.0 x 210.0 x 80.0	260.0 x 210.0 x 110.0	260.0 x 210.0 x 110.0


## Railway Computer - Box PC

Model	NEW		NEW		NEW	
						
	<b>nROK 7280-9AC5IP</b>		<b>nROK 7280-5AC5IP</b>		<b>nROK 7280-9WIC5IP</b>	
CPU	Intel® Core™ Ultra9, Meteor-lake H, 185H (16-core, 2.5GHz)		Intel® Core™ Ultra5, Meteor-lake H, 125H (14-core, 1.2GHz)		Intel® Core™ Ultra9, Meteor-lake H, 185H (16-core, 2.5GHz)	
Chipset	N/A		N/A		N/A	
Memory	2 x DDR5 5600 SO-DIMM, 8GB (default) up to 32GB+32GB		2 x DDR5 5600 SO-DIMM, 8GB (default) up to 32GB+32GB		2 x DDR5 5600 SO-DIMM, 8GB (default) up to 32GB+32GB	
Storage	2 x 2.5" SATA 3.0 SSD (removable, 15mm)		2 x 2.5" SATA 3.0 SSD (removable, 15mm)		1 x 2.5" SATA 3.0 SSD (removable, 15mm)	
Second Storage	1 x M.2 2280 Key M NVMe (PCIe4.0 x4)		1 x M.2 2280 Key M NVMe (PCIe4.0 x4)		1 x M.2 2280 Key M NVMe (PCIe4.0 x4)	
Video Out	1 x VGA (wafer reserved), 1 x HDMI		1 x VGA (wafer reserved), 1 x HDMI		1 x VGA (wafer reserved), 1 x HDMI	
Audio	1 x Mic-in, 1 x Line-out, 1 x Line-in (reserved)		1 x Mic-in, 1 x Line-out, 1 x Line-in (reserved)		1 x Mic-in, 1 x Line-out, 1 x Line-in (reserved)	
Ethernet	N/A		N/A		N/A	
PoE	4 x independent Intel® 2.5GbE (IEEE 802.3at/af), 1 x Intel® 2.5GbE (IEEE 802.3at/af/bt), total 80W, M12 X-coded		4 x independent Intel® 2.5GbE (IEEE 802.3at/af), 1 x Intel® 2.5GbE (IEEE 802.3at/af/bt), total 80W, M12 X-coded		4 x independent Intel® 2.5GbE (IEEE 802.3at/af), 1 x Intel® 2.5GbE (IEEE 802.3at/af/bt), total 80W, M12 X-coded	
USB	1 x USB 3.2 (Gen1), M12 X-coded 4 x USB 2.0, 2 x M12 A-coded		1 x USB 3.2 (Gen1), M12 X-coded 4 x USB 2.0, 2 x M12 A-coded		1 x USB 3.2 (Gen1), M12 X-coded 4 x USB 2.0, 2 x M12 A-coded	
COM	2 x RS232/422/485, 2 x RS232 (Tx/Rx)		2 x RS232/422/485, 2 x RS232 (Tx/Rx)		2 x RS232/422/485, 2 x RS232 (Tx/Rx)	
DIO	4 x DI, 4 x DO (isolation)		4 x DI, 4 x DO (isolation)		4 x DI, 4 x DO (isolation)	
CAN	2 x CAN FD (w/ isolation)		2 x CAN FD (w/ isolation)		2 x CAN FD (w/ isolation)	
DC Output	12V/3A		12V/3A		12V/3A	
SMBus	N/A		N/A		N/A	
SIM Socket	4		4		4	
WWAN	1 (BOM optional up to 2)		1 (BOM optional up to 2)		1 (BOM optional up to 2)	
mini-PCIe Socket	2 x (PCIe 4.0/USB 2.0)		2 x (PCIe 4.0/USB 2.0)		2 x (PCIe 4.0/USB 2.0)	
M.2 Socket	- 1 x M.2 3042/3052 Key B (USB 3.2 (Gen2)) - 1 x M.2 3030 Key E (PCIe 4.0 x2, USB 2.0)		- 1 x M.2 3042/3052 Key B (USB 3.2 (Gen2)) - 1 x M.2 3030 Key E (PCIe 4.0 x2, USB 2.0)		- 1 x M.2 3042/3052 Key B (USB 3.2 (Gen2)) - 1 x M.2 3030 Key E (PCIe 4.0 x2, USB 2.0)	
GNSS	VIOB-GPS-07 module (u-blox NEO-M9N)		VIOB-GPS-07 module (u-blox NEO-M9N)		VIOB-GPS-07 module (u-blox NEO-M9N)	
Power Input	DC 9V to 36V/ 24V Rail, K-coded		DC 9V to 36V/ 24V Rail, K-coded		DC24V to 110V Rail, K-coded	
Backup Battery	N/A		N/A		N/A	
Ingress Protection	IP67		IP67		IP67	
Certification	CE, FCC Class A, UKCA, E13, EN50155, EN45545-2		CE, FCC Class A, UKCA, E13, EN50155, EN45545-2		CE, FCC Class A, UKCA, EN50155, EN45545-2, LVD	
Operating Temperature	-40°C to 60°C (28W CPU & 80W PoE)		-40°C to 60°C (28W CPU & 80W PoE)		-40°C to 60°C (28W CPU & 80W PoE)	
TPM	TPM2.0		TPM2.0		TPM2.0	
OS	Win 10/11, Linux (Kernel 5.x)		Win 10/11, Linux (Kernel 5.x)		Win 10/11, Linux (Kernel 5.x)	
Dimensions (mm)	260.0 x 182.0 x 87.8		260.0 x 182.0 x 87.8		260.0 x 182.0 x 87.8	

## Railway Computer - Panel PC

Model	NEW	
		
	<b>nROK 7280-5WIC5IP</b>	
CPU	Intel® Core™ Ultra5, Meteor-lake H, 125H (14-core, 1.2GHz)	
Chipset	N/A	
Memory	2 x DDR5 5600 SO-DIMM, 8GB (default) up to 32GB+32GB	
Storage	1 x 2.5" SATA 3.0 SSD (removable, 15mm)	
Second Storage	1 x M.2 2280 Key M NVMe (PCIe4.0 x4)	
Video Out	1 x VGA (wafer reserved), 1 x HDMI	
Audio	1 x Mic-in, 1 x Line-out, 1 x Line-in (reserved)	
Ethernet	N/A	
PoE	4 x independent Intel® 2.5GbE (IEEE 802.3at/af), 1 x Intel® 2.5GbE (IEEE 802.3at/af/bt), total 80W, M12 X-coded	
USB	1 x USB 3.2 (Gen1), M12 X-coded 4 x USB 2.0, 2 x M12 A-coded	
COM	2 x RS232/422/485, 2 x full RS232 (Tx/Rx)	
DIO	4 x DI, 4 x DO (isolation)	
CAN	2 x CAN FD (w/ isolation)	
DC Output	12V/3A	
SMBus	N/A	
SIM Socket	4	
WWAN	1 (BOM optional up to 2)	
mini-PCIe Socket	2 x (PCIe 4.0/ USB 2.0)	
M.2 Socket	- 1 x M.2 3042/3052 Key B (USB 3.2 (Gen2)) - 1 x M.2 3030 Key E (PCIe 4.0 x2, USB 2.0)	
GNSS	VIOB-GPS-07 module (u-blox NEO-M9N)	
Power Input	DC24V to 110V Rail, K-coded	
Backup Battery	N/A	
Ingress Protection	IP67	
Certification	CE, FCC Class A, UKCA, EN50155, EN45545-2, LVD	
Operating Temperature	-40°C to 60°C (28W CPU & 80W PoE)	
TPM	TPM2.0	
OS	Win 10/11, Linux (Kernel 5.x)	
Dimensions (mm)	260.0 x 182.0 x 87.8	

Model	vROK 3030	
		
	<b>vROK 3030</b>	
LCD Size	10.4" TFT LCD	
Resolution	1024 x 768	
Brightness (Typ.)	1200cd/m²	
Contrast Ratio	900:1	
View Angle	V: 85/85 H: 85/85	
Brightness Adjustment	Auto via light sensor (BOM optional)	
Touch Screen	Projected capacitive, anti-glare (BOM optional)	
CPU	Intel Atom® x6414RE, 4-core, 1.50GHz	
Chipset	N/A	
Memory	1 x DDR4 2666 SO-DIMM, 4GB (default) up to 32GB	
Storage	1 x mSATA (occupied mini-PCIe socket) 1 x M.2 2280 Key M NVMe SSD (PCIe 3.0 x1, SATA 3.0)	
Speaker	N/A	
Control Button	BOM optional	
Video Out	1 x HDMI, 1 x DP	
Video Input	4 x CVBS	
Audio	1 x Line-in, 2 x Line-out (DB9)	
Ethernet	2 x Intel® 10/100/1000/2500 (M12)	
PoE	Optional	
USB	1 x M12 with 2 x USB 2.0 signal, 1 x USB 3.2 (Gen 2)	
COM	2 x RS232 (full)/422/485	
DIO	4 x DI, 2 x DO (w/ isolation)	
CAN	1 x CAN Bus 2.0B (w/ isolation)	
SIM Socket	2	
WWAN	1	
mini-PCIe Socket	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0)	
M.2 Socket	- 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0) - 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G	
GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)	
Power Input	DC 24/36V (w/o isolation) DC 24/110V (w/ isolation, optional)	
Internal Back Up Battery	N/A	
Ingress Protection	N/A	
Certification	CE, FCC Class A, UKCA, EN50155	
Operating Temperature	-30°C to 70°C (OT3), w/o PoE -30°C to 60°C (OT1), w/ PoE	
TPM	TPM 2.0	
OS	Win 10/11, Linux (Kernel 4.x)	
Mounting	VESA 75	
Dimensions (mm)	309.0 x 230.6 x 67.7	


# Vehicle Network Switch

## VES Series Brief Product Introduction


### Product Description


VES Series is the unmanaged mobile vehicle and railway PoE switch that ensures stable network service for telematics applications. Enclosed in a fanless rugged chassis, they support a wide voltage input range, fully

operable under shock, vibration, and a harsh temperature range. The reliable mobile vehicle and railway PoE switch is certified with E-Mark and EN50155.

 EN50155 and E-Mark certification

 M12 X-coded LAN connector

 -40~70°C operating temperature

 Compact and ruggedized enclosure design

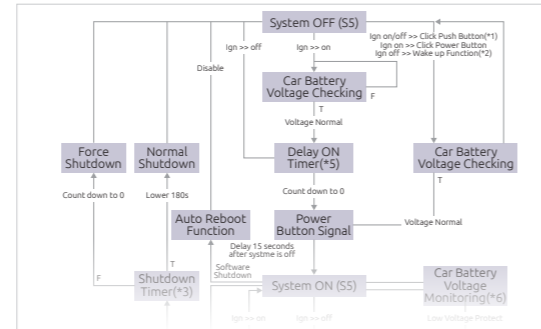
### Application

- Video surveillance
- Wireless gateway
- Passenger infotainment system

### Product Highlight



Dedicated for onboard vehicle/train systems







Ignition power management: power on/off delay, wide voltage input 9~36VDC, low voltage protection



Ultra-rugged enclosure, comply with MIL-STD-810H against vibration and shock impact



Rich 4/8-port IEEE 802.3af/at compliant PoE, up to 30W/port

Model				
	VES31-4S	VES31-8S	VES31-4SR	VES31-8SR
Architecture	Unmanaged GbE switch	Unmanaged GbE switch	Unmanaged GbE switch	Unmanaged GbE switch
PoE	4 x 10/100/1000 (w/ 802.3af/at). Total 120W.	8 x 10/100/1000 (w/ 802.3af/at). Total 120W.	4 x M12 10/100/1000 (w/ 802.3af/at). Total 120W.	8 x M12 10/100/1000 (w/ 802.3af/at). Total 120W.
Ethernet	2 x 10/100/1000	2 x 10/100/1000	2 x 10/100/1000 (M12)	2 x 10/100/1000 (M12)
LED	1 x power indicator 4 x PoE indicator 1 x Low voltage protection indicator 8 x Active / Link indicator	1 x power indicator 8 x PoE indicator 1 x Low voltage protection indicator 12 x Active / Link indicator	1 x power indicator 4 x PoE indicator 1 x Low voltage protection indicator 6 x Active / Link indicator	1 x power indicator 8 x PoE indicator 1 x Low voltage protection indicator 10 x Active / Link indicator
Ignition Control	Yes	Yes	Yes	Yes
Power Management	Low voltage protection & power on/off delay time	Low voltage protection & power on/off delay time	Low voltage protection & power on/off delay time	Low voltage protection & power on/off delay time
Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, EN50155	CE, FCC Class A, UKCA, EN50155
Operating Temperature	-40°C to 75°C	-40°C to 75°C	-40°C to 70°C (OT4)	-40°C to 70°C (OT4)
Dimensions (mm)	167.0 x 140.0 x 52.0	167.0 x 140.0 x 52.0	167.0 x 140.0 x 85.0	167.0 x 140.0 x 85.0

# Vehicle Mount Computer and Display

## VMC and VMD Series Brief Product Introduction


### Product Description

The VMC series is a durable vehicle mount computer suitable for warehouse, ports, logistics, and material handling markets. Its IP65 rating protects against water/dust damage and its sunlight readability ensures display visibility. Optional back-up battery preserves data when car power battery fails, while wide-range power input (9~60VDC) allows for use in various facilities, forklifts, and

vehicles. The VMD series is a tough TFT LCD monitor with a resistant or projected capacitive touchscreen, ideal for in-vehicle use. Its high-brightness display and automatic brightness control make it suitable for use in various lighting conditions. With an IP65 rating it is protected against water/dust damage, and its over 1000 nits display ensures excellent visibility.

 Full IP65 compliance

 Vibration and shock resistant

 5G/LTE, Wi-Fi 6/6E, BT, CAN/OBD, GNSS + DR, and multi-SIM integration

 E-Mark certification

### Application

- Fleet management
- Warehouse management
- Port management applications

### Product Highlight



Wide range power input 9~60VDC



Back-up battery provides uninterrupted power



Sunlight readability & high brightness










Impact protection IK08

# Vehicle Mount Computer




Model	VMC 110/111	VMC 1100-PRO	VMC 1110-PRO	VMC 220-PC1
<b>Display</b>	LCD Size: 7" TFT LCD Resolution: 1024 x 600 Brightness (Typ.): 500cd/m <sup>2</sup> Contrast Ratio: 800:1 View Angle: V: 70/75 H: 75/75 Brightness Adjustment: Auto via light sensor Touch Screen: 4-wire resistive, anti-glare	LCD Size: 7" TFT LCD Resolution: 800 x 480 Brightness (Typ.): 400cd/m <sup>2</sup> Contrast Ratio: 600:1 View Angle: V: 50/70 H: 70/70 Brightness Adjustment: Auto via light sensor Touch Screen: 4-wire resistive, anti-glare	LCD Size: 7" TFT LCD Resolution: 1024 x 600 Brightness (Typ.): 1000cd/m <sup>2</sup> Contrast Ratio: 1000:1 View Angle: V: 85/85 H: 85/85 Brightness Adjustment: Auto via light sensor Touch Screen: 4-wire resistive, anti-glare	LCD Size: 8" TFT LCD Resolution: 1280 x 720 Brightness (Typ.): 1000cd/m <sup>2</sup> Contrast Ratio: 1000:1 View Angle: V: 85/85 H: 85/85 Brightness Adjustment: Auto via light sensor Touch Screen: Projected capacitive, anti-glare
<b>System</b>	CPU: NXP i.MX6 Dual Lite, 2-core, 800 MHz Chipset: N/A Memory: 1 x 2GB DDR3L onboard Storage: 1 x 8GB eMMC 5.1, 1 x Micro SD	CPU: Intel Atom® E3825, 2-core, 1.33GHz Chipset: N/A Memory: 1 x DDR3L 1600 SO-DIMM, 4GB (default) up to 8GB Storage: 1 x SATA 3.0 SATA DOM	CPU: Intel Atom® x7211RE, 2-core, 1.0GHz Chipset: N/A Memory: 1 x DDR5 4800 SO-DIMM, 8GB (default) up to 16GB Storage: 1 x 128GB eMMC 5.1, 1 x Micro SDXC, 2 x M.2 Key B (SATA 3.0, occupied M.2 socket)	CPU: NXP i.MX 8M Quad, 4-core, 1.3GHz Chipset: N/A Memory: 1 x LPDDR4 2400 SDRAM 4GB onboard Storage: 1 x 32GB eMMC 5.1, 1 x Micro SD
<b>I/O Interface</b>	Speaker: 2 x Built-in speaker Control Button: F1~F5 function key, 1 x Power button, 2 x Brightness/volume control, 1 x System reset button Video Out: N/A Video Input: N/A Audio: 1 x Mic-in, 1 x Line-out Ethernet: 1 x Intel® 10/100/1000 PoE: N/A USB: 3 x USB 2.0 COM: 1 x RS232 (full), 1 x RS232/485 DIO: 3 x DI, 3 x DO CAN: 2 x CAN Bus 2.0B (w/o isolation) SIM Socket: 1 WWAN: 1 mini-PCIe Socket: 1 x (USB 2.0, PCIe 2.0), 1 x (USB 2.0) for LTE	Speaker: 2 x Built-in speaker Control Button: F1~F5 function key, 1 x Power button, 2 x Brightness/volume control, 1 x System reset button Video Out: N/A Video Input: N/A Audio: 1 x Mic-in, 1 x Line-out Ethernet: 1 x Intel® 10/100/1000 PoE: N/A USB: 1 x USB 3.2 (Gen1) COM: 1 x RS232 (full), 1 x RS232 (Tx, Rx) or 1 x RS485 DIO: 2 x PWM, 2 x AI, 2 x DI, 2 x DO CAN: 2 x CAN Bus 2.0B (w/o isolation) SIM Socket: 1 WWAN: 1 mini-PCIe Socket: 1 x (USB 2.0, PCIe 2.0), 1 x (USB 2.0) for LTE	Speaker: 2 x Built-in speaker Control Button: F1~F5 function key, 1 x Power button, 2 x Brightness/volume control, 1 x System reset button Video Out: 1 x HDMI Video Input: N/A Audio: 1 x Mic-in, 1 x Line-out Ethernet: 1 x Intel® 10/100/1000/2500 PoE: N/A USB: 1 x USB 3.2 (Gen2) COM: 1 x RS232 (full)/RS422/RS485, 1 x RS232, 1 x RS485 DIO: 3 x DI, 2 x DO CAN: 1 x CAN FD (w/ isolation) SIM Socket: 2 WWAN: 1 mini-PCIe Socket: N/A	Speaker: 2 x Built-in speaker Control Button: F1~F4 function key (2 x brightness/2 x volume control), 1 x Shift key, 1 x Power button, 1 x System reset button Video Out: N/A Video Input: 4 x CVBS Audio: 1 x Mic-in, 1 x Line-out Ethernet: 1 x Intel® 10/100/1000 (M12) PoE: N/A USB: 3 x USB 2.0 COM: 1 x RS232 (full), 1 x RS232, 1 x RS232/RS422/RS485 DIO: 1 x PWM, 1 x Direction, 2 x DI, 2 x DO CAN: 1 x CAN Bus 2.0B (w/ isolation) SIM Socket: 2 WWAN: 1 mini-PCIe Socket: N/A
<b>Expansion</b>	M.2 Socket: N/A	M.2 Socket: N/A	M.2 Socket: 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2), SATA 3.0) for LTE/5G, 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2), BOM option to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0), 1 x M.2 2242 Key B (USB 2.0, PCIe 3.0/SATA 3.0 (auto detect))	M.2 Socket: 1 x M.2 2230 Key E (PCIe 2.0, SDIO 3.0, UART), 1 x M.2 3042/3050/3052 Key B (USB 3.2 (Gen1)) for LTE/5G
<b>Environment</b>	GNSS: Onboard u-blox NEO-M8N Power Input: DC 9V to 36V Internal Back Up Battery: N/A Ingress Protection: Front panel IP54 Certification: CE, FCC Class B, UKCA, E13 Operating Temperature: -20°C to 70°C TPM: N/A	GNSS: Onboard u-blox NEO-M8N Power Input: DC 9V to 36V Internal Back Up Battery: N/A Ingress Protection: Front panel IP54 Certification: CE, FCC Class B, UKCA, E13, SAE J1113, SAE J1455, ISO7637-2, EN 60950-1 LVD Operating Temperature: -20°C to 60°C TPM: N/A	GNSS: VIOB-GPS-07 module (u-blox NEO-M9N) Power Input: DC 9V to 36V Internal Back Up Battery: N/A Ingress Protection: Front panel IP54 Certification: CE, FCC Class B, UKCA, E13 Operating Temperature: -30°C to 60°C TPM: TPM 2.0	GNSS: VIOB-GPS-02 module (u-blox NEO-M8N) Power Input: DC 9V to 60V Internal Back Up Battery: N/A Ingress Protection: IP65 Certification: CE, FCC Class B, UKCA, E13, IK08 Operating Temperature: -40°C to 70°C TPM: TPM 2.0, optional
<b>Others</b>	OS: Android 5.1 Mounting: VESA 75 Dimensions (mm): 213.0 x 145.0 x 40.0	OS: Win 7/8/10, WES 7/8, Linux (Kernel 4.x) Mounting: VESA 75 Dimensions (mm): 213.0 x 145.0 x 50.0	OS: Win 10/11, Linux (Kernel 4.x) Mounting: VESA 75 Dimensions (mm): 213.0 x 145.0 x 50.0	OS: Linux (Kernel 5.4.47) Mounting: VESA 75 Dimensions (mm): 250.0 x 179.0 x 68.0

# Vehicle Mount Computer





Model			
	<b>VMC 320-AC0</b>	<b>VMC 2020-PC1</b>	<b>VMC 3020</b>
<b>Display</b>			
LCD Size	10.1" TFT LCD	8" TFT LCD	10.4" TFT LCD
Resolution	1280 x 800	1280 x 720	1024 x 768
Brightness (Typ.)	1000cd/m <sup>2</sup>	1000cd/m <sup>2</sup>	1200cd/m <sup>2</sup>
Contrast Ratio	800:1	1000:1	900:1
View Angle	V: 85/85 H: 85/85	V: 85/85 H: 85/85	V: 85/85 H: 85/85
Brightness Adjustment	Auto via light sensor	Auto via light sensor	Auto via light sensor
Touch Screen	Projected capacitive, anti-glare	Projected capacitive, anti-glare	5-wire resistive, anti-glare
<b>System</b>			
CPU	NXP i.MX 8M Plus, 4-core, 1.6GHz	Intel Atom® x7-E3950, 4-core, 1.6GHz	Intel Atom® x5-E3930, 2-core, 1.3GHz
Chipset	N/A	N/A	N/A
Memory	1 x LPDDR4 2133 SDRAM 4GB onboard	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB	1 x DDR3L 1866 SO-DIMM slot 4GB (default) up to 8GB
Storage	1 x 32GB eMMC 5.1 1 x Micro SDXC	1 x 64GB eMMC 5.1 1 x mSATA (occupied mini-PCIe socket)	1 x CFast 1 x 2.5" SATA 3.0 SSD bay (9.5mm)
Speaker	2 x Built-in speaker	2 x Built-in speaker	2 x Built-in speaker
Control Button	F1~ F5 function key (2 x brightness/ 2 x volume control, 1 x mute) 1 x Power button 1 x System reset button	F1~ F4 function key (2 x brightness/ 2 x volume control) 1 x Shift key 1 x Power button 1 x System reset button	1 x Power button 2 x Brightness control 2 x Volume control 5 x Function key 1 x Shift key
Video Out	1 x HDMI	N/A	N/A
Video Input	N/A	4 x CVBS (optional)	N/A
Audio	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out
Ethernet	1 x Intel® 10/100/1000 (M12)	1 x Intel® 10/100/1000 (M12)	1 x Intel® 10/100/1000
PoE	N/A	N/A	N/A
USB	2 x USB 2.0 1 x USB 3.2 (Gen1)	1 x USB 3.2 (Gen1) 2 x USB 2.0	2 x USB 2.0 (5V/0.5A) 1 x Power USB (5V/1.5A, 12V/1.5A)
COM	2 x RS232 (full)/422/485	1 x RS232 (full), 1 x RS232, 1 x RS232/RS422/RS485	2 x Powered RS232 (5V/1.5A, 12V/1.5A)
DIO	2 x DI, 2 x DO	1 x PWM, 1 x Direction, 2 x DI, 2 x DO	2 x DI, 2 x DO
CAN	1 x CAN FD (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)
SIM Socket	2	2	1
WWAN	1	1	1
mini-PCIe Socket	N/A	- 1 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0, PCIe 2.0/SATA 3.0)	- 1 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0) for LTE
<b>Expansion</b>			
M.2 Socket	- 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0) - 1 x M.2 3042/3050/3052 Key B (USB 3.2 (Gen1)) for LTE/5G	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	- 1 x M.2 2230 Key E (USB 2.0, PCIe 2.0, SDIO 3.0, UART)
GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-02 module (u-blox NEO-M8N)	Optional
Power			
Power Input	DC 9V to 60V	DC 9V to 60V	DC 9V to 60V
Internal Back Up Battery	Optional	N/A	Optional
<b>Environment</b>			
Ingress Protection	Front Panel IP65	IP65	Front Panel IP65
Certification	CE, FCC Class B, UKCA, E13	CE, FCC Class B, UKCA, E13, IK08	CE, FCC Class B, UKCA, E13
Operating Temperature	-30°C to 70°C	-30°C to 60°C	-30°C to 60°C
TPM	TPM 2.0	TPM 2.0, optional	N/A
<b>Others</b>			
OS	Linux (Kernel 5.15.71), Android 13	Win 10, Linux (Kernel 4.x)	Win 10, Linux (Kernel 4.x)
Mounting	VESA 75/100	VESA 75	VESA 75/100
Dimensions (mm)	294.0 x 227.5 x 37.2	250.0 x 179.0 x 68.0	290.0 x 230.0 x 68.0

Model				
	<b>VMC 3021</b>	<b>VMC 3030-AC0</b>	<b>VMC 4020-4A0</b>	<b>VMC 4020-4A1</b>
<b>Display</b>				
LCD Size	10.4" TFT LCD	10.1" TFT LCD	12.1" TFT LCD	12.1" TFT LCD
Resolution	1024 x 768	1280 x 800	1024 x 768	1024 x 768
Brightness (Typ.)	1200cd/m <sup>2</sup>	1000cd/m <sup>2</sup>	1200cd/m <sup>2</sup>	1200cd/m <sup>2</sup>
Contrast Ratio	900:1	800:1	750:1	750:1
View Angle	V: 85/85 H: 85/85	V: 85/85 H: 85/85	V: 85/85 H: 85/85	V: 85/85 H: 85/85
Brightness Adjustment	Auto via light sensor	Auto via light sensor	Auto via light sensor	Auto via light sensor
Touch Screen	5-wire resistive, anti-glare	Projected capacitive, anti-glare	5-wire resistive, anti-glare	5-wire resistive, anti-glare
<b>System</b>				
CPU	Intel Atom® x7-E3950, 4-core, 1.6GHz	Intel Atom® x7433RE, 4-core, 1.5GHz	Intel Atom® x7-E3950, 4-core, 1.6GHz	Intel Atom® x7-E3950, 4-core, 1.6GHz
Chipset	N/A	N/A	N/A	N/A
Memory	1 x DDR3L 1866 SO-DIMM slot 4GB (default) up to 8GB	1 x DDR5 4800 SO-DIMM slot 8GB (default) up to 16GB	1 x DDR3L 1866 SO-DIMM slot 4GB (default) up to 8GB	1 x DDR3L 1866 SO-DIMM slot 4GB (default) up to 8GB
Storage	1 x CFast 1 x 2.5" SATA 3.0 SSD bay (9.5mm)	1 x M.2 2280 Key M (SATA 3.0) 1 x Micro SDXC (BOM optional)	1 x CFast 1 x 2.5" SATA 3.0 SSD bay (9.5mm)	1 x CFast 1 x 2.5" SATA 3.0 SSD bay (9.5mm)
Speaker	2 x Built-in speaker	2 x Built-in speaker	2 x Built-in speaker	2 x Built-in speaker
Control Button	1 x Power button 2 x Brightness control 2 x Volume control 5 x Function key 1 x Shift key	F1~ F5 function key (2 x brightness/ 2 x volume control, 1 x mute) 1 x Power button 1 x System reset button	1 x Power button 2 x Brightness control 2 x Volume control 5 x Function key 1 x Shift key	1 x Power button 2 x Brightness control 2 x Volume control 5 x Function key 1 x Shift key
Video Out	N/A	1 x HDMI	N/A	N/A
Video Input	3 x CVBS	N/A	3 x CVBS	3 x CVBS
Audio	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out
Ethernet	1 x Intel® 10/100/1000 (M12)	1 x Intel® 10/100/1000/2500 (M12)	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000 (M12)
PoE	1 x (802.3af/at). Total 30W (optional)	N/A	1 x (802.3af/at). Total 30W (optional)	1 x (802.3af/at). Total 30W (optional)
USB	2 x USB 2.0	1 x USB 2.0 2 x USB 3.2 (Gen2)	2 x USB 2.0	3 x USB 2.0
COM	1 x RS232 (full)/422/485, 1 x RS232/422/485	2 x RS232 (full)/422/485	2 x RS232 (full)/422/485	1 x RS232 (full)/422/485 1 x RS232/422/485
DIO	2 x DI, 2 x DO	2 x DI, 2 x DO	1 x DI, 2 x DO	2 x DI, 2 x DO
CAN	2 x CAN Bus 2.0B (w/ isolation)	1 x CAN FD (w/ isolation)	2 x CAN Bus 2.0B (w/ isolation)	2 x CAN Bus 2.0B (w/ isolation)
SIM Socket	1	2	2	2
WWAN	1	1	1	1
mini-PCIe Socket	- 3 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0, PCIe 3.0/ SATA 3.0)	- 3 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0) for LTE	- 3 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0) for LTE
<b>Expansion</b>				
M.2 Socket	N/A	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM option to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0)	N/A	N/A
GNSS	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
Power				
Power Input	DC 9V to 60V	DC 9V to 60V	DC 9V to 60V	DC 9V to 60V
Internal Back Up Battery	Optional	Optional	Optional	Optional
<b>Environment</b>				
Ingress Protection	IP65	Front Panel IP65	Front IP65	IP65
Certification	CE, FCC Class B, UKCA, E13	CE, FCC Class B, UKCA, E13	CE, FCC Class B, UKCA, E13	CE, FCC Class B, UKCA, E13
Operating Temperature	-30°C to 60°C	-30°C to 60°C	-30°C to 60°C	-30°C to 60°C
TPM	N/A	TPM 2.0	N/A	N/A
<b>Others</b>				
OS	Win 10, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10, Linux (Kernel 4.x)	Win 10, Linux (Kernel 4.x)
Mounting	VESA 75/100	VESA 75/100	VESA 75/100	VESA 75/100
Dimensions (mm)	290.0 x 230.0 x 68.0	294.0 x 227.5 x 54.0	340.0 x 262.0 x 75.0	340.0 x 262.0 x 75.0

# Vehicle Mount Display







		
	VMD 2000	VMD 2002
Model		
LCD Size	8" TFT LCD	8" TFT LCD
Resolution	800 x 600	800 x 600
Brightness (Typ.)	500cd/m <sup>2</sup>	500cd/m <sup>2</sup>
Contrast Ratio	500:1	500:1
View Angle	V: 50/70 H: 70/70	V: 50/70 H: 70/70
Brightness Adjustment	Auto via light sensor	Auto via light sensor
Touch Screen	4-wire resistive, anti-glare	4-wire resistive, anti-glare
Speaker	2 x Built-in speaker	2 x Built-in speaker
Camera	N/A	N/A
Control Button	1 x Monitor power button 2 x Brightness control 2 x Volume control	1 x Monitor power button 2 x Brightness control 2 x Volume control
Video Input	Integrated LVDS CONN (LVDS, USB, 12V)	Integrated DVI CONN (VGA, USB, 12V)
Audio	1 x Line-out (lateral side) 1 x Mic-in (lateral side) 1 x Line-in (bottom side) 1 x Mic-out (bottom side)	1 x Line-out (lateral side) 1 x Mic-in (lateral side) 1 x Line-in (bottom side) 1 x Mic-out (bottom side)
USB	1 x USB 2.0	1 x USB 2.0
Remote Power Button	Remotely power on/off VTC, MVS & ATC	N/A
Power Input	DC 12V (via LVDS)	DC 9V to 36V
Ingress Protection	Front panel IP54	Front panel IP54
Certification	CE, FCC Class B, UKCA	CE, FCC Class B, UKCA
Operating Temperature	-20°C to 60°C	-20°C to 60°C
Mounting	VESA 75	VESA 75
Dimensions (mm)	207.0 x 173.0 x 36.7	207.0 x 173.0 x 36.7







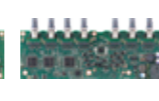

			
	VMD 3002-BS2	VMD 3110-4PH	VMD 3111-5PH <span style="color: red; font-weight: bold;">NEW</span>
Model			
LCD Size	10.4" TFT LCD	10.4" TFT LCD	10.4" TFT LCD
Resolution	1024 x 768	1024 x 768	1024 x 768
Brightness (Typ.)	1200cd/m <sup>2</sup>	1200cd/m <sup>2</sup>	1200cd/m <sup>2</sup>
Contrast Ratio	900:1	900:1	1000:1
View Angle	V: 85/85 H: 85/85	V: 85/85 H: 85/85	V: 85/85 H: 85/85
Brightness Adjustment	Auto via light sensor	Auto via light sensor	Auto via light sensor
Touch Screen	Projected capacitive	Projected capacitive	Projected capacitive
Speaker	2 x Built-in speaker	2 x Built-in speaker	2 x Built-in speaker
Camera	N/A	N/A	N/A
Control Button	1 x Monitor power button 1 x OSD menu 2 x Brightness control 2 x Volume control 1 x Auto Config	1 x Monitor power button 1 x OSD menu 2 x Brightness control 2 x Volume control 1 x Auto Config	1 x Monitor power button 1 x OSD menu 2 x Brightness control 2 x Volume control Auto Config (reserved)
Video Input	VGA, 4 x CVBS	ultraONE+, 4 x CVBS	HDMI
Audio	1 x Line-in	1 x Line-in	via HDMI
USB	1 x USB 2.0	1 x USB 2.0	1 x USB 2.0
Remote Power Button	N/A	Remotely power off VTC, MVS & ATC	N/A
Power Input	DC 9V to 36V	DC 24V (via ultraONE+)	DC 9V to 36V
Ingress Protection	IP65	IP65	IP65
Certification	CE, FCC Class B, UKCA	CE, FCC Class B, UKCA	CE, FCC Class B, UKCA
Operating Temperature	-20°C to 60°C	-20°C to 60°C	-30°C to 60°C
Mounting	VESA 75/100	VESA 75/100	VESA 75/100
Dimensions (mm)	256.5 x 202.1 x 31.5	256.5 x 202.1 x 31.5	256.5 x 202.1 x 31.5










## Add-on Modules and Devices

Model						
Description	CAN Bus 2.0B or OBD SAE J1939 module	Dual CAN Bus 2.0B module	SAE J1708 module	OBD SAE J1939 module	u-blox M8N module	u-blox M9N module
Input I/F	UART	USB 2.0	USB 2.0	USB 2.0	UART	UART
Input Connector	2 x 5-pin wafer	mini-PCIe Socket	mini-PCIe Socket or USB wafer	mini-PCIe Socket or USB wafer	6-pin wafer	6-pin wafer
Output I/F	CAN Bus 2.0B or OBD SAE J1939	2 x CAN Bus 2.0B	SAE J1708/J1587/J1922	OBD SAE J1939	UART	UART
Output Connector	2 x 5-pin wafer	6-pin wafer to DB9	3-pin wafer to DB9	3-pin wafer to DB9	6-pin wafer	6-pin wafer
Operating Temperature	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C
Form Factor	Proprietary	Full-Size mini-PCIe	Full-Size mini-PCIe	Full-Size mini-PCIe	Proprietary	Proprietary
Dimensions (mm)	50.0 x 28.0	51.0 x 30.0	51.0 x 30.0	51.0 x 30.0	25.4 x 25.4	25.4 x 25.4
Remark	* CAN Bus 2.0B & SAE J1939 selection by switch	-	-	-	*Baud Rate: 9600. u-blox NEO-M8N GNSS supports with GPS + QZSS, GLONASS, Galileo and BeiDou. 3 of concurrent GNSS	*Baud Rate: 38400. u-blox NEO-M9N GNSS supports with GPS + QZSS/SBAS, GLONASS, Galileo and BeiDou. 4 of concurrent GNSS

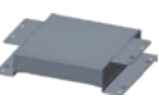







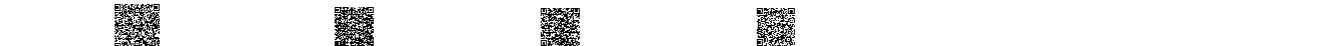
Model						
Description	mini-PCIe to M.2 converter module	2 x Mic-in & 2 x Line-out module	External attachable power isolation kit	5G/Wi-Fi expansion board	PoE expansion board	10GbE expansion board
Input I/F	USB 2.0, PCIe 3.0	USB 2.0	VTK 6222-APK: DC 24V VTK 6222-FPK: DC 110V	1 x PCIe 3.0 x4, 2 x PCIe 3.0 x2, 2 x USB 3.2 Gen 1, 2 x USB 2.0	1 x PCIe 3.0 x4, 2 x PCIe 3.0 x2, 2 x USB 3.2 Gen 1, 2 x USB 2.0	1 x PCIe 3.0 x4, 2 x PCIe 3.0 x2, 2 x USB 3.2 Gen 1, 2 x USB 2.0
Input Connector	mini-PCIe	mini-PCIe or USB wafer	M12 (5-pin)	Board to board connector	Board to board connector	Board to board connector
Output I/F	M.2 Key E	2x Line-out & 2x Mic-in	24VDC	N/A	N/A	N/A
Output Connector	M.2 (socket)	1 x 10-pin wafer to DB15	M12 (5-pin)	- 1 x Full size mini-PCIe socket (USB 2.0, PCIe 3.0), BOM optional M.2 2230 Key E socket (USB 2.0, PCIe 3.0) - 2 x M.2 3042/3050/3052 Key B socket (USB 2.0, USB 3.2 Gen 1) for LTE/5G NR module with 1 x external dual nano-SIMs	- 8-port M12 X-coded, 10/100/1000 Mbps, PoE 802.3 af/at	- 2-port 10GbE M12 X-coded - 1 x M.2 3042/3050/3052 Key B socket (USB 2.0, USB 3.2 Gen 1) for LTE/5G NR module with 2 x external dual nano-SIMs - 1 x Full size mini-PCIe socket (USB 2.0, PCIe 3.0), BOM optional 1 x M.2 3042/3050/3052 Key B socket (USB 2.0, USB 3.2 Gen 1) for LTE/5G NR module with 2 x external dual nano-SIMs
Operating Temperature	-40°C to 85°C	-40°C to 85°C	-40°C to 70°C	-40°C to 70°C	-40°C to 70°C	-40°C to 70°C
Form Factor	Full-Size mini-PCIe	Full-Size mini-PCIe	Proprietary	Proprietary	Proprietary	Proprietary
Dimensions (mm)	51.0 x 30.0	51.0 x 30.0	120.0 x 198.0 x 50.0	234.0 x 72.0	234.0 x 72.0	234.0 x 72.0
Remark	-	-	Only for nROK6222	Only for nROK7270/nROK7271	Only for nROK7270/nROK7271	Only for nROK7270/nROK7271



Model								
Description	u-blox M9N module	u-blox M9N module	u-blox M8L module	u-blox M9V module	u-blox M9V module	M.2 to mini-PCIe converter module	mini-PCIe to M.2 converter module	
Input I/F	UART/USB 2.0	UART/USB 2.0	UART	UART	UART/USB 2.0	USB 2.0, USB 3.2 (Gen1)	USB 2.0, USB 3.2 (Gen1)	
Input Connector	6-pin wafer	8-pin wafer	6-pin wafer	6-pin wafer	8-pin wafer	M.2 Key B + M	mini-PCIe	
Output I/F	UART/USB 2.0	UART/USB 2.0	UART	UART	UART/USB 2.0	mini-PCIe	M.2 Key B	
Output Connector	6-pin + 6-pin wafer	8-pin wafer	6-pin wafer	6-pin wafer	8-pin wafer	mini-PCIe (socket)	M.2 (socket)	
Operating Temperature	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C	
Form Factor	Proprietary	Proprietary	Proprietary	Proprietary	Proprietary	M.2 3042/3052 Key B + M	Full-Size mini-PCIe	
Dimensions (mm)	25.4 x 25.4	25.4 x 25.4	25.4 x 25.4	25.4 x 25.4	25.4 x 25.4	62.0 x 31.0	65.0 x 30.0	
Remark	*Baud Rate: 38400. u-blox NEO-M9N GNSS supports with GPS + QZSS/SBAS, GLONASS, Galileo and BeiDou. 4 of concurrent GNSS	*Baud Rate: 38400. u-blox NEO-M9N GNSS supports with GPS + QZSS/SBAS, GLONASS, Galileo and BeiDou. 4 of concurrent GNSS	*Baud Rate: 9600. u-blox NEO-M8L-06B GNSS supports with GPS, GLONASS, Galileo, BeiDou and QZSS * Automotive Dead Reckoning (ADR) * With battery	*Baud Rate: 38400. u-blox NEO-M9V-20B GNSS supports with GPS, GLONASS, Galileo, BeiDou and QZSS * Support ADR and UDR * With battery	*Baud Rate: 38400. u-blox NEO-M9V-20B GNSS supports with GPS, GLONASS, Galileo, BeiDou and QZSS * Support ADR and UDR * With battery	-	Only for LTE module	USB 3.2 (Gen1) depended by mainboard



Model						
Description	External attachable power isolation kit	Vehicle relay module	Smart backup battery kit	Smart BBU with SuperCap	4-Port PoE+ GbE/GigE Frame Grabber	4-Port PoE+ GbE/GigE Frame Grabber
Input I/F	DC 24V	USB 2.0 or RS-232 (Tx/Rx)	DC 9V to 36V	DC 9V to 60V	PCIe 2.0 x4	PCIe 2.0 x4
Input Connector	VTK PWA20-01: K-coded; VTK PWA10-01: A-coded (M12, 5-pin)	USB type A or DB9	3-pin terminal block	5-pin terminal block	PCIe G.F.	PCIe G.F.
Output I/F	24VDC	4 x Relay 4 x DI 4 x DO 1 x Analog input 1 x Frequency input	10~12VDC (from backup battery) 9~36VDC (from vehicle battery) Communication: RS232/SMBus	24VDC (from backup SuperCap) 9~60VDC (from vehicle battery) Communication: RS232	10/100/1000 Mbps, PoE 802.3 af/at	10/100/1000 Mbps, PoE 802.3 af/at
Output Connector	A-coded (M12, 5-pin)	- Terminal block	Power: 3 Pin terminal block Communication: 2 x 5-pin	Power: 6 Pin terminal block Communication: DB9	4-port RJ45	4-port M12 X-coded
Operating Temperature	-40°C to 70°C	-40°C to 85°C	Charging: 0°C to 45°C Discharging: 0°C to 55°C	Charging: -35°C to 80°C Discharging: -35~80°C (max. 60W), -35~70°C (max. 200W)	-20°C to 60°C	-20°C to 60°C
Form Factor	Proprietary	Proprietary	Proprietary	Proprietary	PCIe card	PCIe card
Dimensions (mm)	VTK PWA20-01: 234.1 (W) x 172.8 (D) x 40.0 (H) VTK PWA10-01: 213 (W) x 167.0 (D) x 40.0 (H)	126.0 (W) x 124.0 (D) x 24.0 (H)	(1) 280.0 (W) x 150.0 (D) x 42.2 (H) (w/VTK-62B1-BK) (2) 297.3 (W) x 175.0 (D) x 39.0 (H) (w/VTK-62B2-BK)	235.0 (W) x 134.5 (D) x 50.0 (H)	168.0 x 111.0, 1-slot width	168.0 x 111.0, 1-slot width
Remark	VTK PWA20-01 for ATC 3750-C6 VTK PWA10-01 for ATC 3530-IP7-C4	It is remotely controlled through USB or RS-232 communication.	Capacity: 9000 mAh (Li-Ion) Max. support 80W system	Maximum output power of 200W For in-vehicle VTK-SCAP-M (master), VTK-SCAP-S (slave) For Railway VTK-SCAP-AR-M (master), VTK-SCAP-S (slave)	PoE power budget: 60W in maximum	PoE power budget: 60W in maximum





# HDMI over IP Extender


## VIP Series Brief Product Introduction


### Product Description


VIP Series is a new E-Mark certified in-vehicle HDMI extender over IP solution designed with 9~36VDC wide voltage input range, specifically for railway and bus public transport Passenger infotainment System.

VIP Series works over standard networking devices with wide operating temperature support, and outputs to multiple Full HD HDMI displays up to 100m.

 Wide-range 9-36Vdc input voltage

 Unicast and daisy chain support

 E-Mark for in-vehicle application

 Dual Full HD HDMI output

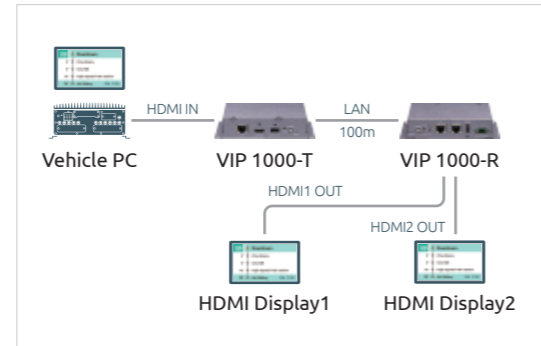
### Application

- Video on demand
- Passenger infotainment system

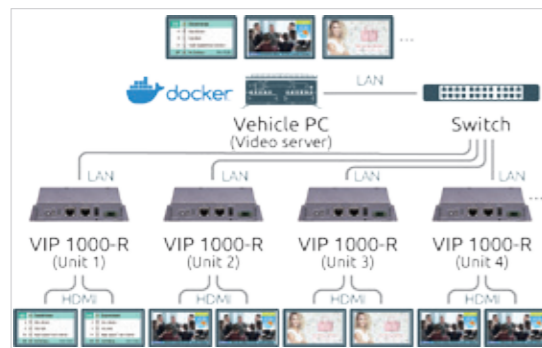
### Product Highlight



Dedicated for in-vehicle & railway PIS application





Support dual Full HD HDMI output + Up to 100 meter distance



RTSP video on demand with Docker platform



Easy to use. Plug and play!

		
	<b>VIP 1000-T</b>	<b>VIP 1000-R</b>
Model	Transmitter	Receiver
Function	Transmitter	Receiver
Video In	1 x HDMI	1 x 10/100/1000
Video Out	1 x 10/100/1000	2 x HDMI
Protocol	TCP/IP	TCP/IP
Model	Unicast, Daisy Chain and Multicast mode	Unicast, Daisy Chain and Multicast mode
USB	1 x USB 2.0 OTG	1 x USB 2.0
Ethernet	1 x 10/100/1000	2 x 10/100/1000
Power Input	DC 9V to 36V	DC 9V to 36V
Ignition Control	Yes	Yes
Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13
Operating Temperature	-20°C to 70°C	-20°C to 70°C
Dimensions (mm)	130.0 x 100.0 x 31.0	130.0 x 100.0 x 31.0



# About NEXCOM

## Reliable Partner for the AIoT Digital Transformation Solutions

### Committed to Customer Success

Founded in 1992 and headquartered in Taipei, Taiwan, NEXCOM is committed to being a trustworthy partner in building the AIoT digital transformation solutions. To surpass customers' expectations, NEXCOM sets itself apart by leveraging its decades of experience in industrial computing, a highly talented R&D team, and exceptional customer service. With these core strengths, NEXCOM has enabled its customers to win key projects in a diverse range of industries.

With its focus on delivering these core values to better serve customers, NEXCOM integrates its capabilities and operates six global businesses: IoT Automation Solutions (IAS), Intelligent Video Surveillance (IDS), Intelligent Platform @ Smart City (IPS), Mobile Computing Solutions

(MCS), Medical & Healthcare Informatics (MHI), Network and Communication Solutions (NCS). This strategic deployment enables NEXCOM to offer time-to-market, time-to-solution products and services without compromising on cost.

In addition, the service-to-market business model gives NEXCOM core competence in building a strong world-class service network by providing customized service, global logistics, local access, and real-time support. Operating six subsidiaries in China, Japan, Taiwan, and the United States, NEXCOM is able to better accommodate customers' requirements as well as closely work with global partners in different regions.

Partners can also be assured that NEXCOM's Taiwan-based Headquarters and subsidiary offices in China and the USA have obtained ISO 9001:2015 Certification.



<b>IAS</b>	<b>IoT Automation Solutions:</b> Industrial Automation & I4.0 Execution, Intelligent Edge, Gateway & EWR, Industrial Robot Control, EtherCAT Motion Solutions, Wireless & Embedded Solutions for Industrial IoT
<b>IDS</b>	<b>Intelligent Video Surveillance:</b> IP Video Surveillance Cameras, Mobile Cameras, ANPR/LPR Network Cameras, Panoramic Cameras, NVR Server Platform
<b>IPS</b>	<b>Intelligent Platform @ Smart City:</b> Smart City, Smart Retail, Digital Signage, Interactive Kiosks, Hospitality, Gateway, Edge AI, and ODM Customization Services
<b>MCS</b>	<b>Mobile Computing Solutions:</b> Edge AI Telematics Computer, Vehicle Telematics Computer, Railway Computer, Vehicle Mount Computer, Vehicle Mount Display, In-Vehicle Networking, In-Vehicle HDMI Extender over IP, Fitness Console
<b>MHI</b>	<b>Medical and Healthcare Informatics:</b> Total Solutions with a Variety of Medical IT Systems
<b>NCS</b>	<b>Network and Communication Solutions:</b> Cyber Security, HPC, Telecommunications, Storage, SDN/NFV, 5G, uCPE, ICS Security

### Corporate Vision

To become the industrial leader in providing AIoT digital transformation solutions, NEXCOM utilizes its industry leading technology, localized customer support and worldwide logistics services. This will be achieved by:

- Great team work
- Cooperation with trusted partners
- Growth through innovation

### Corporate Mission

- An AIoT digital transformation supplier in vertical application markets
- A quality partner in engineering, manufacturing and services

### Business Strategy

Aiming to better support the activities of all its partners, NEXCOM divides its sales force into six dedicated business units to target rapidly expanding vertical markets. This enables each business unit to focus on strategic channel accounts and repeat order business. Moreover, NEXCOM will provide customers with co-marketing strategies, technical support, ODM services, and project support, which are frequently required everywhere.

NEXCOM has already become a business group focused on innovating comprehensive solutions for Industry 4.0. We help our customers deliver vertical solutions optimized for 5G, AI, AIoT, and Industry 4.0 solutions.

## Global Fulfillment Service

Product delivery and customer support are always more effective when delivered locally. NEXCOM localizes support and provides a global customer service network to handle all aspects of global business, from presales, order taking, and system assembly to logistics. For expeditious product delivery, NEXCOM has established four regional service centers: Taiwan (for Asia), USA (for North America and South America), and China. Therefore, NEXCOM customers benefit from quality assured product assembly and four service centers.

NEXCOM has invested heavily to establish operational infrastructures, including advanced equipment and facilities, not only at its global headquarters but also at subsidiary offices. Today, each of our service centers, with ISO 9001:2008 certification, has a purpose built assembly line, RMA/ DOA center and warehouse storage capability.

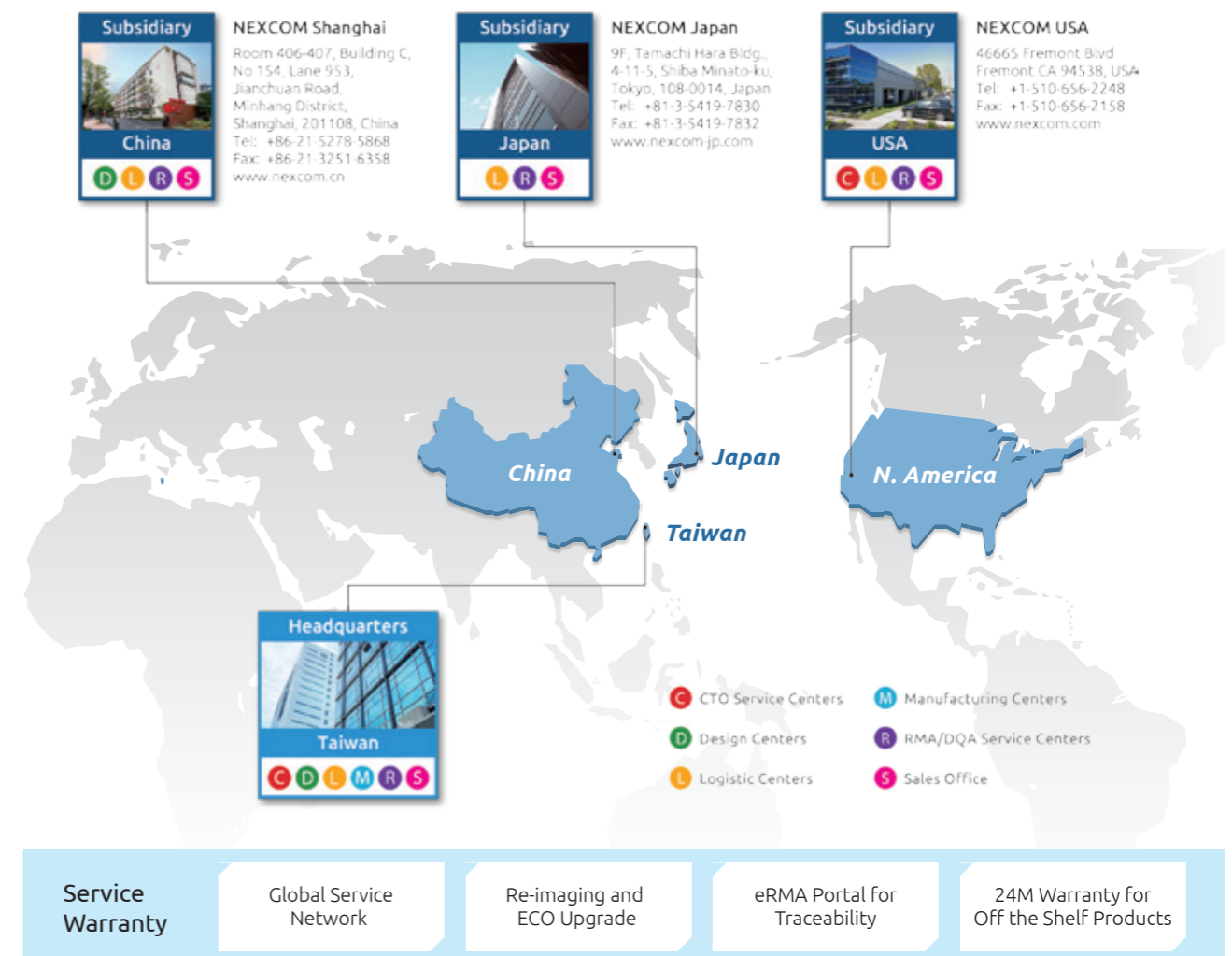
## Quality Assurance

Under a strict Quality Assurance System, product design and reliability are controlled to support all critical solutions, and ensure Total Quality Assurance (TQA) implementation for all NEXCOM

products and services. Additionally, NEXCOM's technical support team is aligned with ISO 27001 requirements, as they aim to provide timely feedback within 24 hours to resolve technical issues efficiently. This ensures that any potential information security incidents are addressed promptly, minimizing the impact and downtime for customers.

## Green Policy

As a global citizen, NEXCOM places great importance on environmental issues. We are committed to ensuring that our products and services comply with environmental standards and regulations. NEXCOM actively responds to energy-saving and carbon reduction initiatives, prioritizes environmental protection in our operational activities, and holds certificate such as ISO 14064-1 greenhouse gas inventory and ISO 14001 environmental management system. We implement voluntary greenhouse gas inventory, reduce resource and energy consumption, and mitigate environmental risks. We also measure NEXCOM's sustainability and corporate responsibility as an Earth-friendly enterprise through ESG evaluation. NEXCOM will continue to collaborate with peers and suppliers to strive for purification standards, compatibility of technologies, and operational processes to help reduce the potential hazardous substances in our products and manufacturing processes.



Service details may vary by country. Please contact us for more details.

## Headquarters

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