NEXCOM

The Intelligent Systems

Mobile Computing Solutions Product Selection Guide

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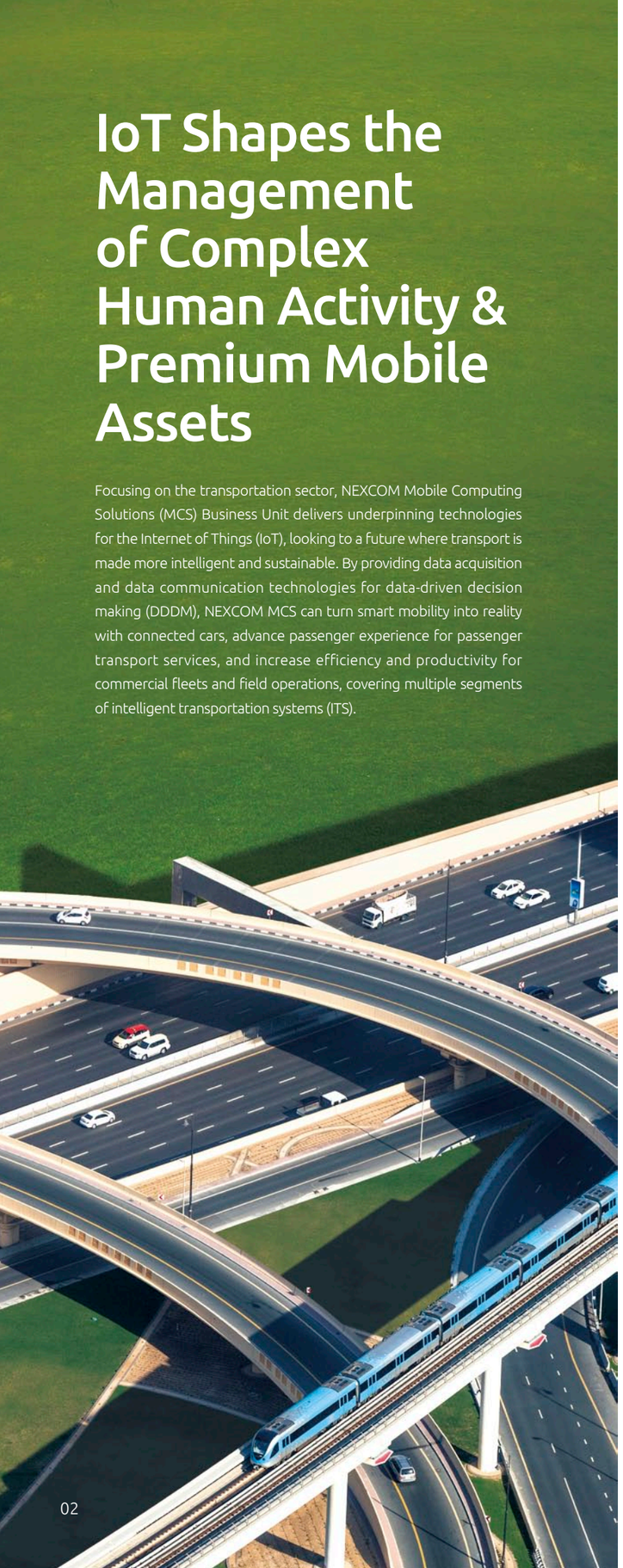
IoT Shapes the Management of Complex Human Activity & Premium Mobile Assets

Focusing on the transportation sector, NEXCOM Mobile Computing Solutions (MCS) Business Unit delivers underpinning technologies for the Internet of Things (IoT), looking to a future where transport is made more intelligent and sustainable. By providing data acquisition and data communication technologies for data-driven decision making (DDDM), NEXCOM MCS can turn smart mobility into reality with connected cars, advance passenger experience for passenger transport services, and increase efficiency and productivity for commercial fleets and field operations, covering multiple segments of intelligent transportation systems (ITS).



Passenger Transportation

Passenger transportation services—including taxi, bus, mass rapid transit, and railway services—can combine mobile video surveillance, wireless communication and global navigation satellite system (GNSS) tracking technologies to provide unsurpassed passenger services. With enabling technologies that improve information accessibility, safety, travel convenience and comfort, public transportation can provide enhanced traveling experiences to give passengers a more delightful journey.

Logistics

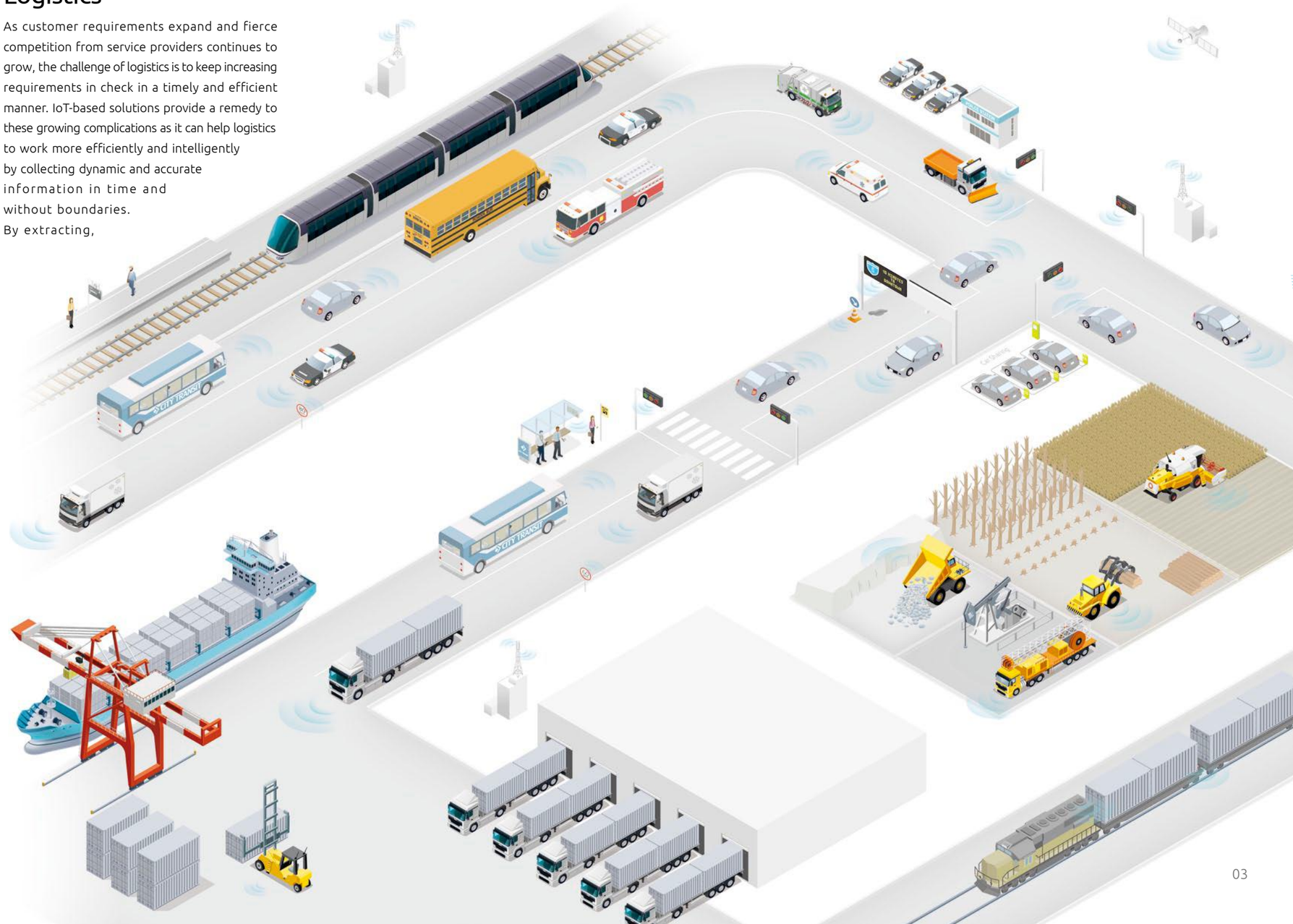
As customer requirements expand and fierce competition from service providers continues to grow, the challenge of logistics is to keep increasing requirements in check in a timely and efficient manner. IoT-based solutions provide a remedy to these growing complications as it can help logistics to work more efficiently and intelligently by collecting dynamic and accurate information in time and without boundaries. By extracting, analyzing and organizing these information with IoT intelligence, unanticipated difficulties in logistics can be solved swiftly.

Public Service

Public services—including fire engine, ambulance, police car and municipal services—can combine fleet management, task dispatching, real-time communication and information exchange technologies to help working fleets arrive at a specific location with optimized routes, receive updated traffic conditions and new tasks, voice communicate with operators for assistance. At the same time, data such as driving behavior and job records can be collected for database analysis to improve fleet efficiency and even help predict potential traffic events to improve transport safety.

Raw Material Management

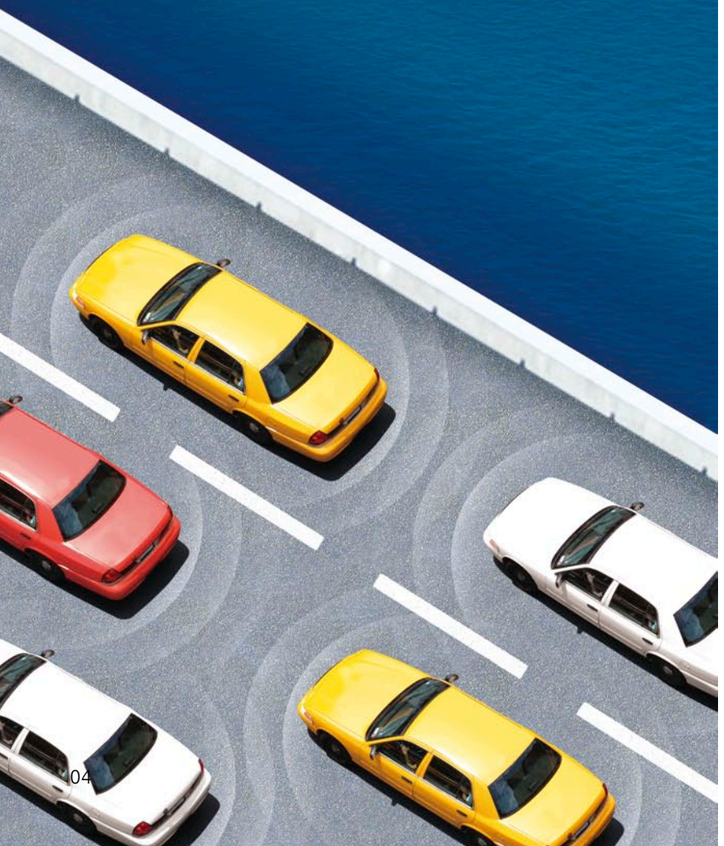
Agriculture, mining and oil exploration are the primary sectors of economy, especially in developing countries. However, volatile outdoor conditions challenge fieldworkers and food productions in many ways. To exploit natural resources and to create a productive and efficient workplace take sophisticated planning and careful execution throughout field operations. Making use of autonomous driving technology—self-steering control systems with precise GPS positioning—along with analysis of sensor-generated data can increase operational efficiency and transparency. This allows fieldworkers and site managers to share the same understanding and to better harvest raw materials with dynamic and precise positioning systems.



Achieve Safe & Eco Driving with Connected Cars

Overview & How It Works

Vehicles are becoming an expansion of our connected digital lives with drivers and passengers expecting a safer, more efficient and enjoyable driving and riding experience. In passenger vehicles, the dashboard can run on either iOS or Android platforms in a compact in-vehicle infotainment (IVI) head unit with advanced software-defined cockpit. These head units are capable of supporting connection to intelligent transportation systems (ITS), keep drivers and passengers updated with real-time travel information, making people know what to expect on the road, and allowing them to change travel plans if necessary. The digital dashboard also provides the human interface to vehicle diagnostics and preventive maintenance, giving drivers more control over their vehicles. It also serves as an entertainment purpose, offering location-based information, internet services, and on-demand multimedia services. The digital dashboard evolves continuously to provide new features and flexibilities through add-on apps created by automobile makers or services providers. Similar need for digital dashboard can also be found in taxis and tour buses for dispatching and communication, and for A/V control.



Successful Factors

- The multimedia capability and internet connectivity are directly linked to the entertainment-related features and quality of streaming services
- The vehicle diagnostics relies on effective computing processes to immediately interpret valuable messages from telematics data for drivers to improve road safety
- Establish a connection and communication to the ITS operation to further improve transport safety, efficiency and mobility

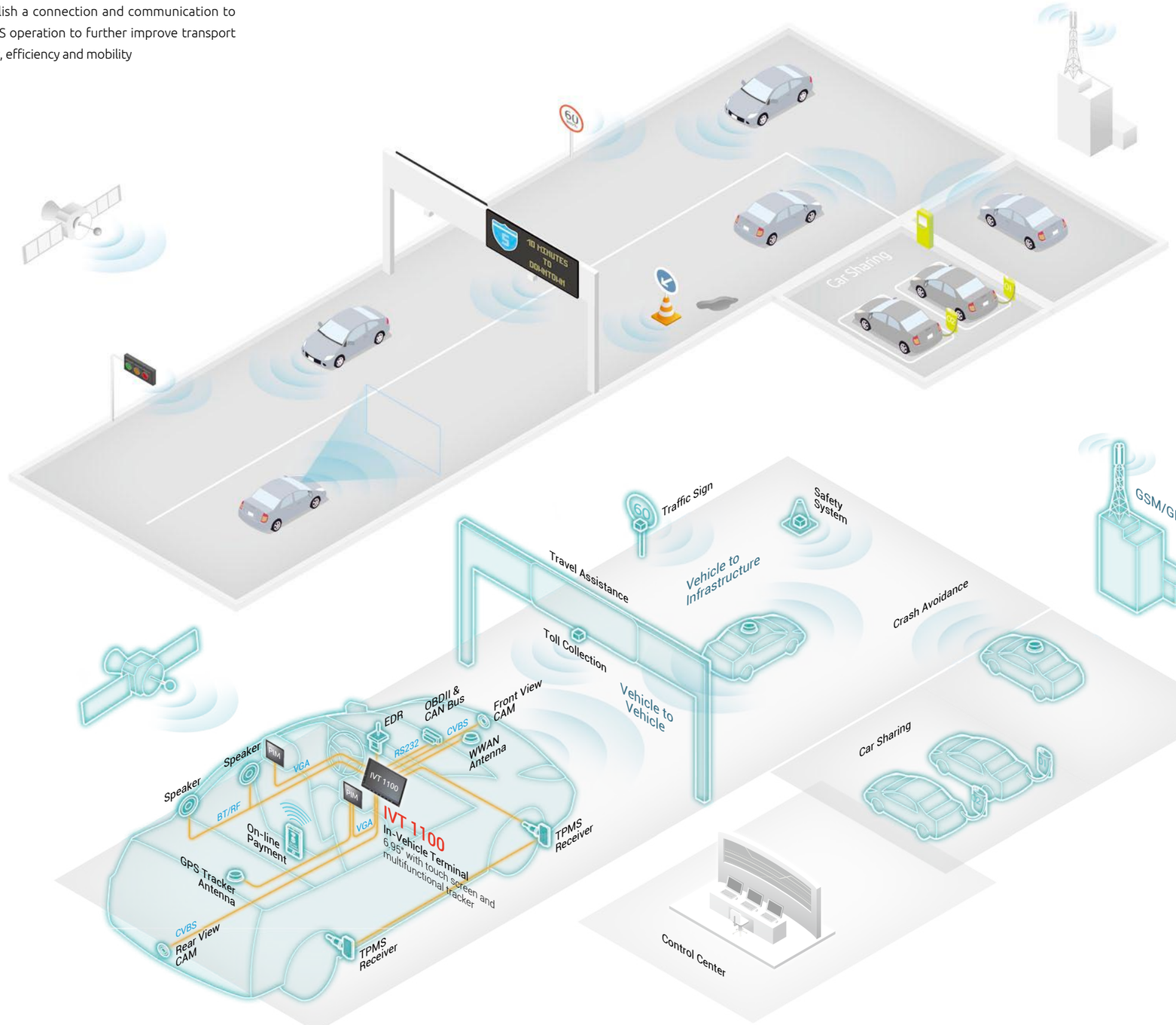
NEXCOM's Strengths

NEXCOM in-vehicle computers boast a powerful graphics engine and FM/AM Radio module to bring immersive multimedia to vehicles while offering ample system headroom for future feature expansions.

With access to automobile electronic systems, NEXCOM in-vehicle computers equipped with CAN bus and optional OBDII API porting integration can harvest a wide variety of data for big data analytics.

Extensive experience in designing in-vehicle hardware solutions that include a variety of connectivity options:

- Long range: Cellular, Wi-Fi and GPS
- Very short range: Bluetooth, NFC and RFID
- Short range: DSRC (802.11p)



Smart Buses Set to Make Journeys Safer, Greener & Fun

Overview & How It Works

Smart buses provide a solution to the increasing traffic and the demand for streamlined public transportation services. Smart buses offer passengers a convenient and efficient means of traveling, and help bus operators to consolidate fleet management, facilitate daily operations, improve safety and enhance the traveling experience.

Equipped with advanced computing, wireless communication, and global navigation satellite system (GNSS), smart buses can be monitored and co-ordinated meticulously to ensure bus services are performing within standards. In addition, real-time live surveillance and video analytics of bus fleets can be implemented to respond to emergency events and ensure security and safety of drivers and passengers. Furthermore, smart buses can monitor and collect data such as driving behavior and passenger flows, giving bus operators insights into its fleet operation and allowing them to make service improvements or timetable rearrangements when necessary.

Successful Factors

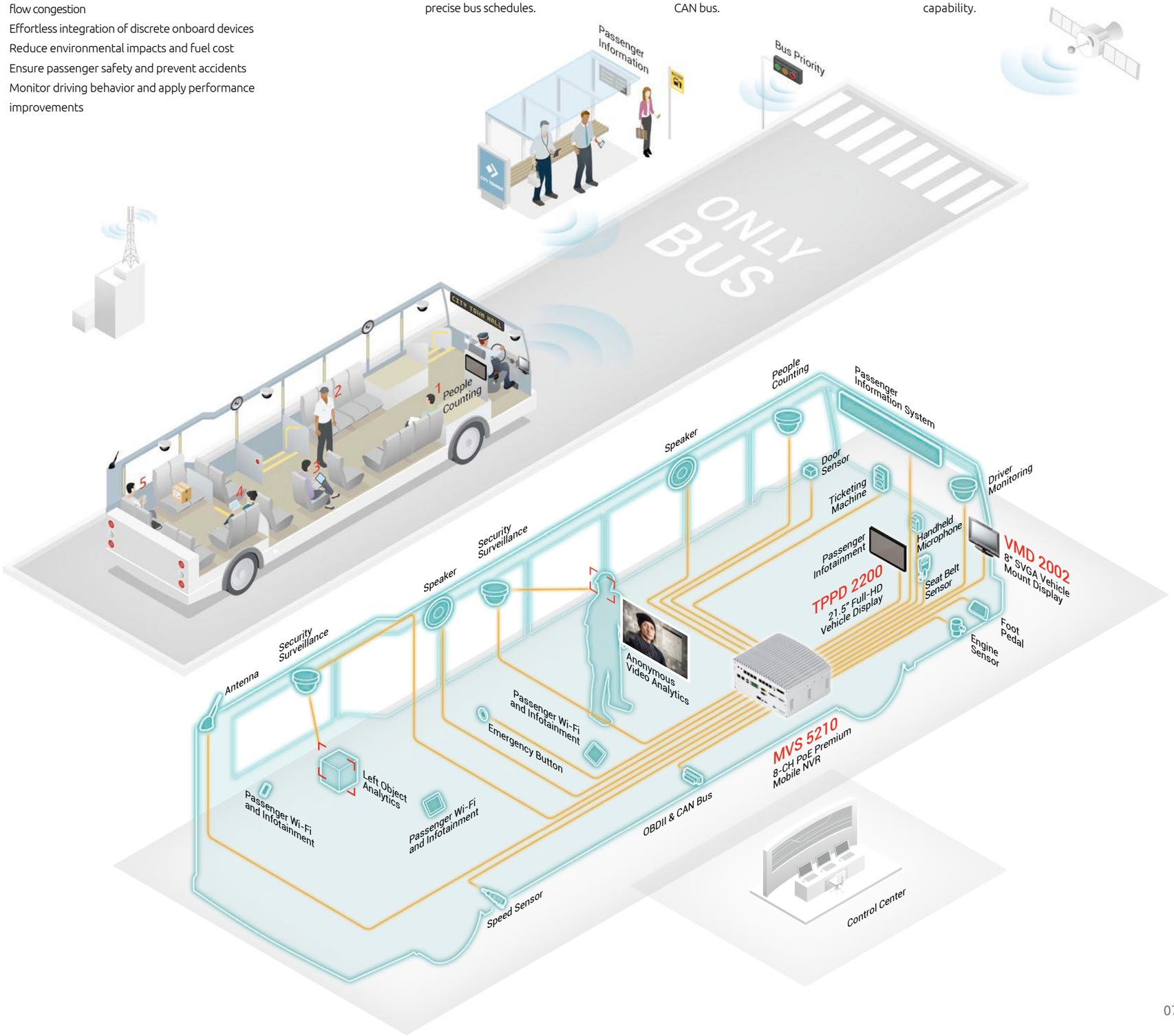
- On schedule bus arrival and departure times
- Smooth communication capability between buses/stations and bus operators
- Flexible bus dispatching for unexpected passenger flow congestion
- Effortless integration of discrete onboard devices
- Reduce environmental impacts and fuel cost
- Ensure passenger safety and prevent accidents
- Monitor driving behavior and apply performance improvements

NEXCOM's Strengths

NEXCOM's solutions enable bus operators to improve travel safety and comfort for passengers with integrated passenger information system, video surveillance and precise bus schedules.

Vehicle maintenance cost and fuel consumption can be reduced significantly through real-time monitoring of driver behavior and vehicle health via a variety of sensors and OBDII/ CAN bus.

Efficient operation management and unsurpassed passenger experience are guaranteed with enhanced wireless communication and GNSS tracking capability.



Make Every Journey Safe, Reliable & Sustainable with Innovative Railway Telematics

Overview & How It Works

Rail transportation systems fitted with modern telematics offer a smart technological approach to enabling a safe, efficient and economical railway operation.

With global navigation satellite systems (GNSS), wireless data communication and computerized processing of sensor-generated data, railway telematics can collect, process and share vital information such as positioning, vehicle health and railway line data. Operators can leverage these information as a tool to accurately track rolling stock positions, identify traffic events and measure railway performance to improve the safety and efficiency of the entire railway operations.

Successful Factors

- Reliable wireless communication to transmit data correctly and timely
- Powerful system performance to process big data, such as video from surveillance
- Precise positioning of the railway train
- Tough housing design to work on railroads and in harsh environments
- Be able to expand functionality according to customers' needs, such as alert alarm and people counting

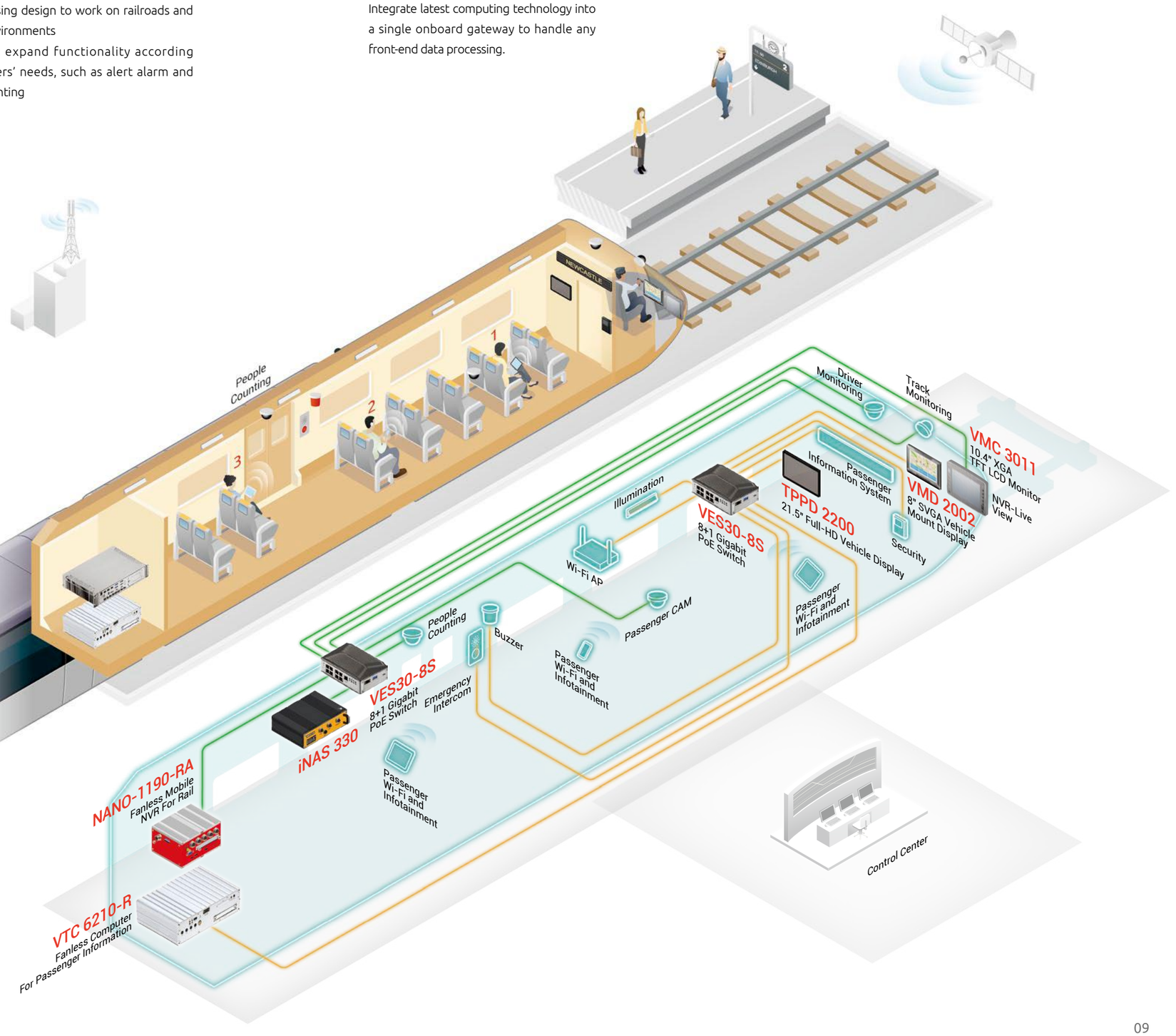
NEXCOM's Strengths

Provide diverse platforms with wireless communication and sensor technology for railway operators to capture all the required data on the rolling stock vehicle.

Integrate latest computing technology into a single onboard gateway to handle any front-end data processing.

All NEXCOM's solutions embed powerful satellite based positioning technology to make sure railway operators get precise and timely location tracking to maximize fleet operations.

Robust and reliable design helps railway operators to deploy onboard gateways in any harsh environment with tremendous maintenance cost savings.



Increasing Production & Profitability from Easy, Productive & Reliable Logistics

Overview & How It Works

Fleet, port and warehouse management are the key activities in logistics. To address these three areas, NEXCOM offers three series of vehicle computing and display solutions—the Vehicle Telematics Computer (VTC) series, the Vehicle Mount Display (VMD) series, and the Vehicle Mount Computer (VMC) series—each with a customer-driven design to ensure needs are met. For example, the VMC series implements GPS, RFID and wireless functions to allow precise tracking and control of forklifts. Operators can take advantage of this accurate location tracking to calculate which route can transport goods in less time, which can also result in less fuel consumption. Additionally, the RFID function can assist operators in the administration of inventory, improving accuracy and accelerating workflow.

Successful Factors

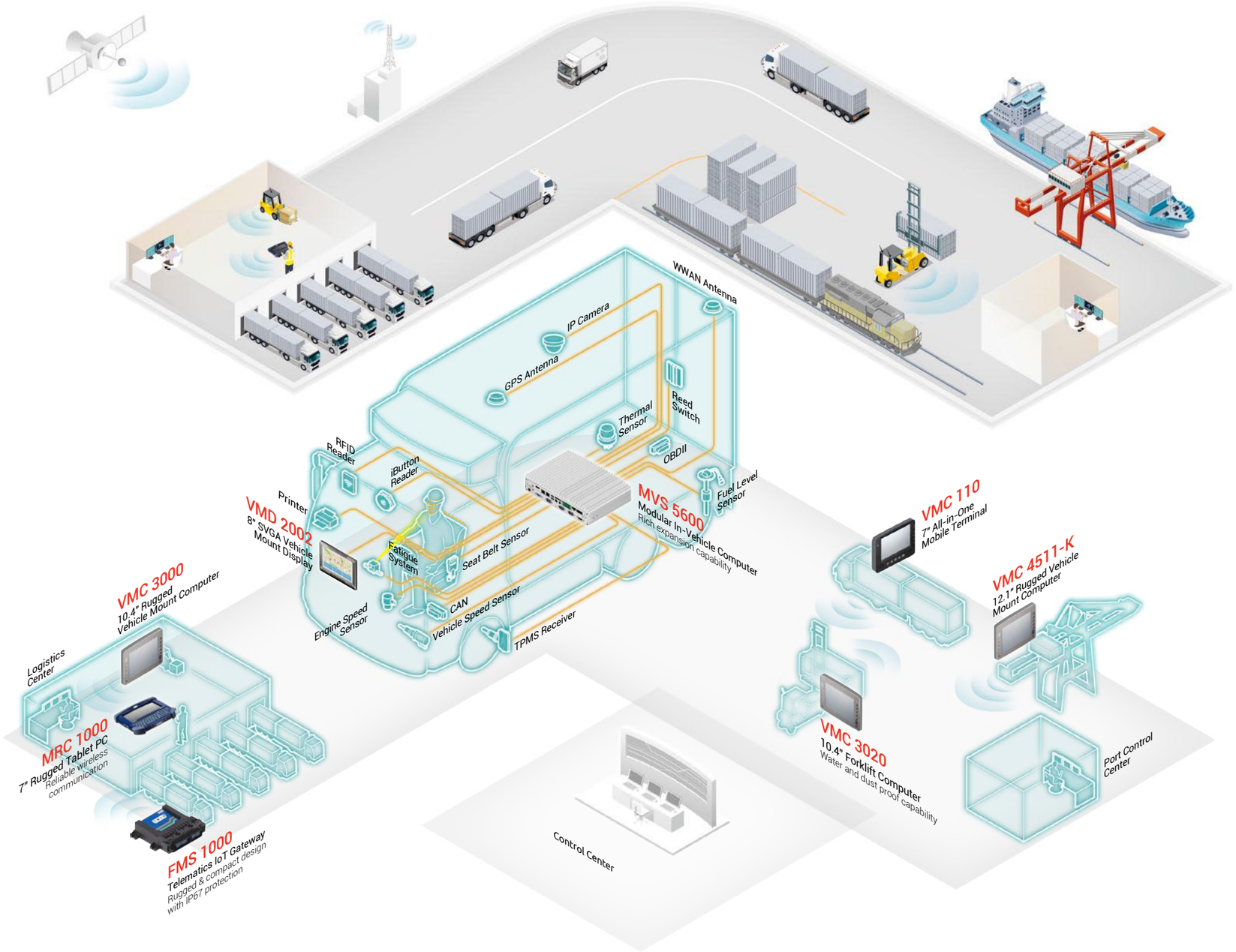
- Monitor and maintain vehicle health
- Plan routes more correctly and in time
- Provide water and dust protection
- Be able to work reliably in harsh environments, such as dust and water prone areas, or on bumpy roads
- Provide more accurate and effective inventory management to maximize warehouse space

NEXCOM's Strengths

NEXCOM's vehicle telematics technology can monitor vehicle conditions, and let drivers know if the vehicle needs to be repaired in advance. This is beneficial for the operators as well, allowing them to maintain vehicle health and dispatch the right vehicles for the job more quickly and efficiently.

NEXCOM's in-vehicle computers and displays support various compact add-on devices for vehicle tracking and management of stocks. This tracking can assist the operators to work more efficiently by mapping the most appropriate route.

Encompass robust housing to withstand extreme heat and cold, rainy and dusty conditions, and feature special durable connectors to provide rigid connections on tough and rugged roads.



Raising Efficiency of Public Services Gives Users Timely & Complete Safety

Overview & How It Works

Unbalanced utilization of vehicles often hampers peak performance of critical public services such as police, ambulance, fire protection, waste management, municipal services and airport ground handling. To offer fast, efficient and on schedule public services, vehicles on the field need to be connected and managed by the IT systems in service centers. Using telematics-based fleet management, service centers can establish a reliable real-time connection to fleets, allowing operators to monitor vehicle conditions and fleet operations, dispatch vehicles and respond to emergency issues. This well-planned solution can also enable service centers to identify any idle or overused resources so that optimizations can be made to the public services.

In-vehicle computers are one of the most important core components in this IT system. NEXCOM's in-vehicle computers integrate WWAN and WLAN communication and real-time satellite positioning to deliver an always-on, always-visible connection. Combined with the ability to further integrate with vehicle sensors such as siren, fuel and door sensors, in-vehicle computers can provide up-to-date status information and location to service centers, allowing operators to identify and respond to events remotely.

Successful Factors

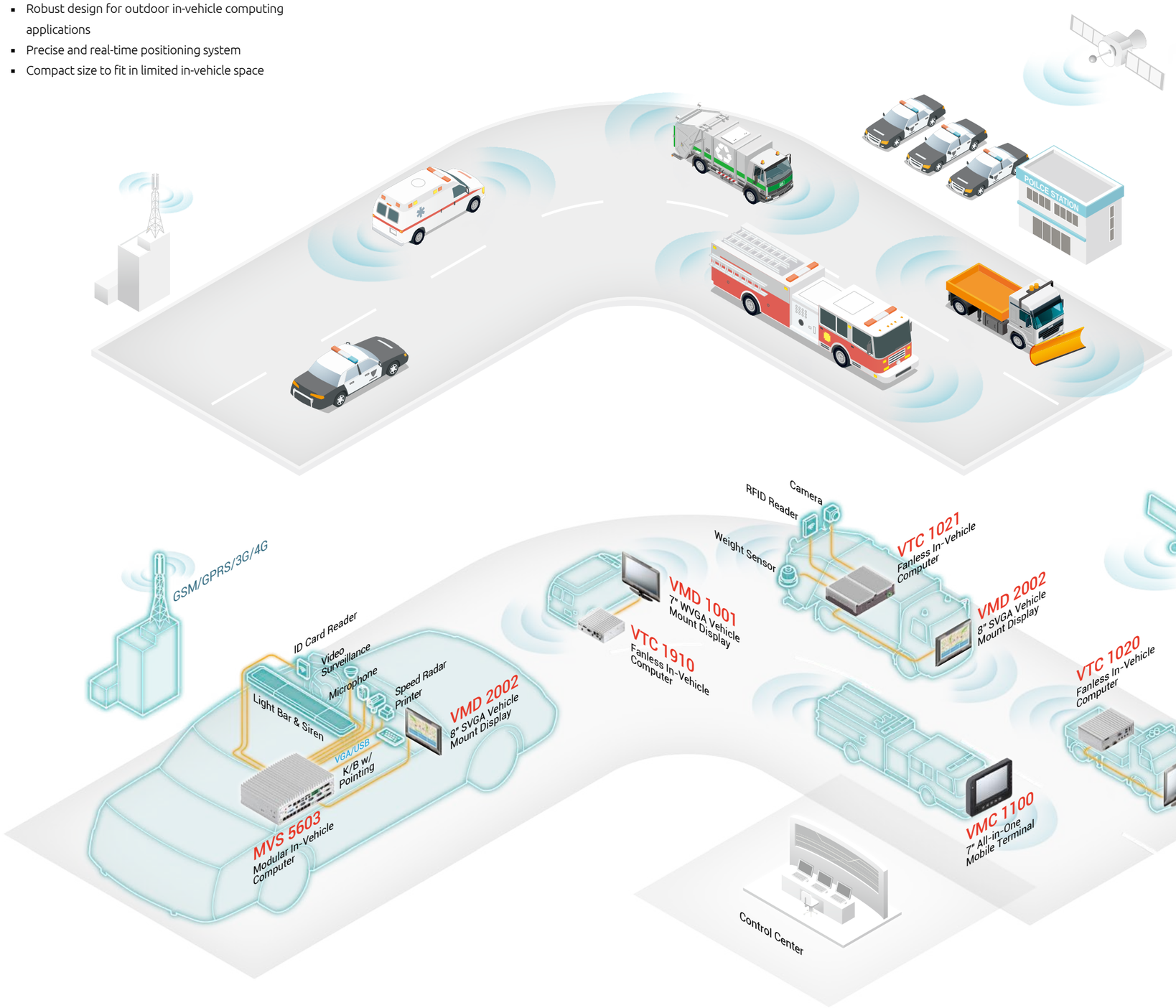
- High processing performance for sophisticated software applications
- Multi-communication methods connecting to the inside of a vehicle and to the outside service centers
- Rich I/O for interfacing with sensors
- Robust design for outdoor in-vehicle computing applications
- Precise and real-time positioning system
- Compact size to fit in limited in-vehicle space

NEXCOM's Strengths

NEXCOM's in-vehicle computer VTC series equips high performance to provide customers powerful computing capability to process big data analytics.

Strong wired and wireless communication capability on NEXCOM's VTC and VMC series brings the IoT into reality.

Ruggedized mechanical design on the VTC and VMC series allows a reliable 24/7 operation in extreme and outdoor environments.



Create New Paradigm in Profitability & Efficiency Through Effective Raw Material Management

Overview & How It Works

In the primary sector, the use of smart raw material management with modern technology and business intelligence is becoming ever more important in providing energy-efficient food production. The global warming has given rise to the food resource crisis and placed the agriculture industry under great pressure; agriculturists need more efficient methods to maximize harvest yields in decreasing arable land. Using in-vehicle computers integrated with GPS and sensor technology, farming equipment can be steered automatically with turn-by-turn navigations without missing an area in the crop field and with improved seed and fertilizer distribution.

On the other hand, in the mining sector, modern mining management systems use a central dispatch controller to monitor all truck and equipment activities within a mine operation. Events such as trucks travelling out of the predefined route or falling behind schedule can be identified in real-time, allowing central dispatch to immediately send on-screen alerts to drivers' vehicle mount computers to take corrective actions. In addition, job reassignments such as dispatching new tasks to drivers can be centrally managed and allocated in real-time to improve mining operations.

Successful Factors

- Position accuracy determines the effectiveness of location-based functions such as dispatching and asset tracking
- Stay connected to the control center and be able to receive real-time work instructions on a trusted human machine interface
- Robust design for long-lasting use in harsh outdoor operating conditions
- In-vehicle systems that enable intelligent management and measurement of workload input and output, work efficiency, harvest quality and operating costs
- Real-time KPI reporting for back-end business intelligence to lower the total cost of ownership
- Allocate resources and make strategic decisions accordingly based on real-time data

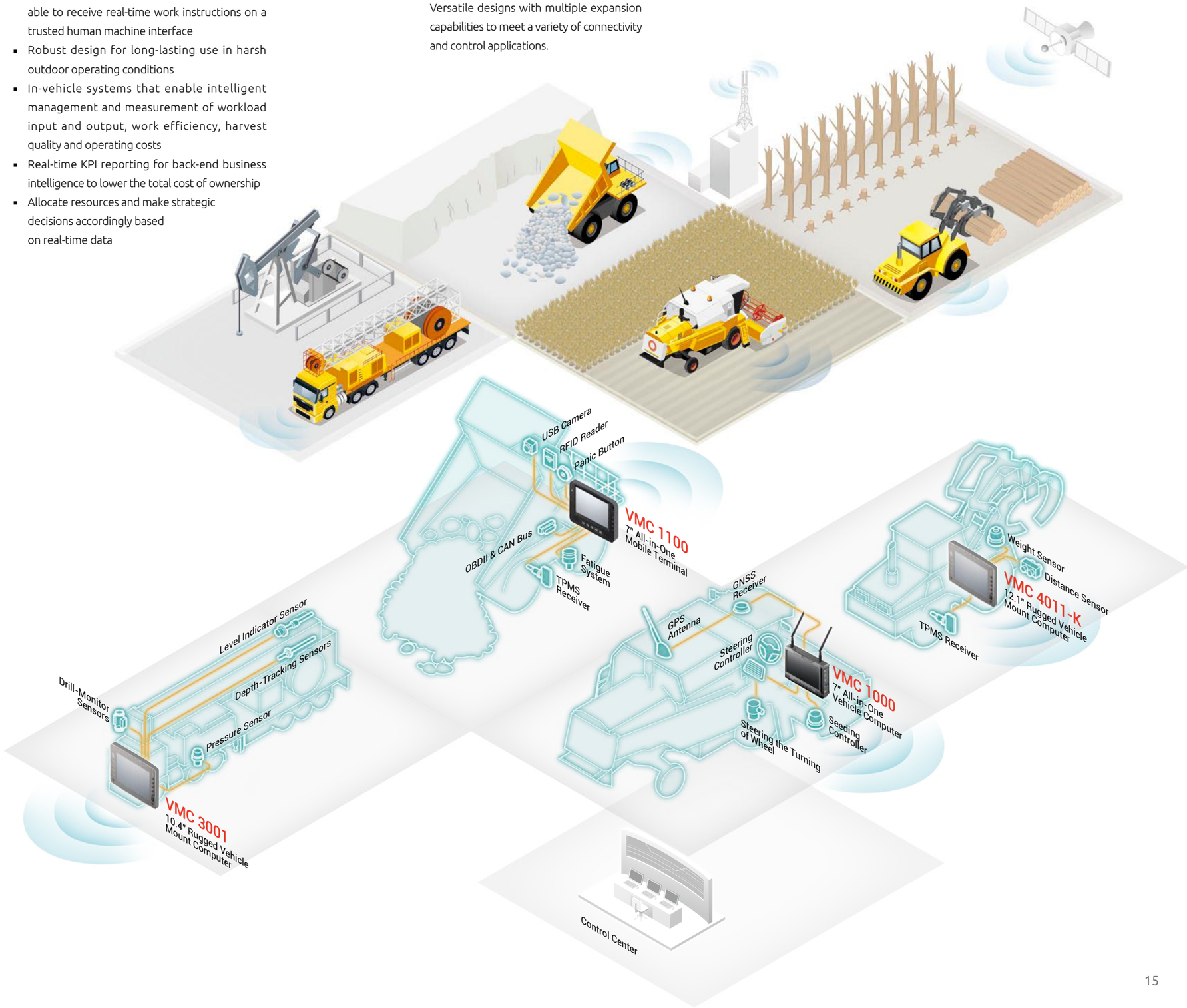
NEXCOM's Strengths

Reliable systems with rugged LCD touch screens, built-in processors, WWAN, WLAN communication and GPS tracking capabilities.

Versatile designs with multiple expansion capabilities to meet a variety of connectivity and control applications.

The VMC series equips robust mechanical system design with added dust and water intrusion protection, and IP-rated rugged panel displays.

The VMC series supports a variety of voltage inputs for different types of vehicles.



Solid Video Surveillance System Fulfills the Complete Needs of In-Vehicle Safety & Remote Video Management

Overview & How It Works

Video surveillance is a critical aspect in vehicles for protecting driver and passenger safety, as well as the public safety. A solid video surveillance system must be comprehensive in the areas of video capture, transmission, display, storage and management. By implementing GPS and mobile network technology, video surveillance systems can empower remote video monitoring in real-time. In addition, with advanced video analytics algorithms, video surveillance systems can provide Automatic License Plate Recognition (ALPR), Longstop Object Detection (LOD) and Driver Behavior Monitoring (DBM) to avoid traffic accidents, and Human Facial Recognition (HFR) to assist crime prevention.

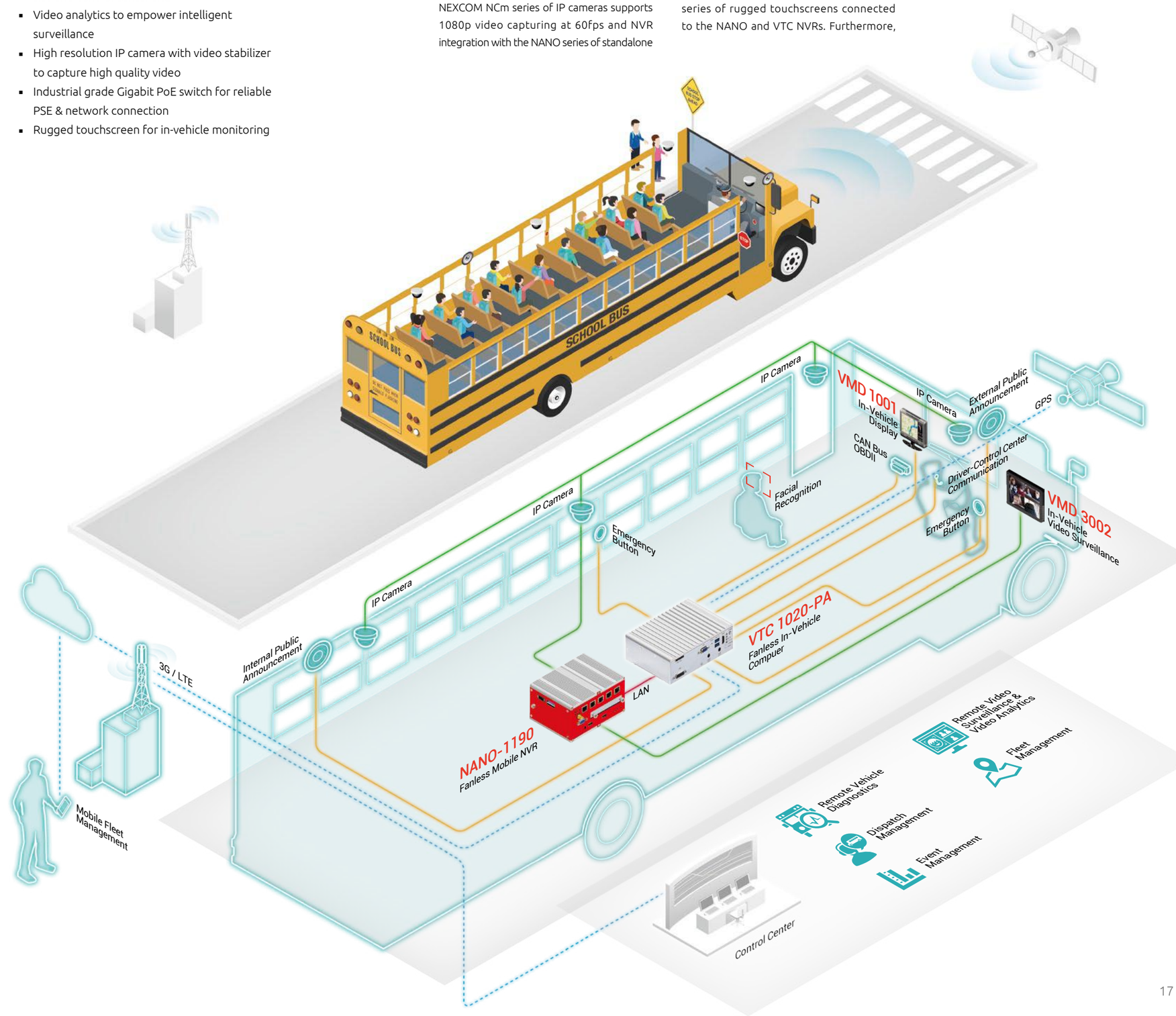
Successful Factors

- Various NVRs for multiple vehicle surveillance applications
- Video management software for both vehicle site and control center site
- Video analytics to empower intelligent surveillance
- High resolution IP camera with video stabilizer to capture high quality video
- Industrial grade Gigabit PoE switch for reliable PSE & network connection
- Rugged touchscreen for in-vehicle monitoring

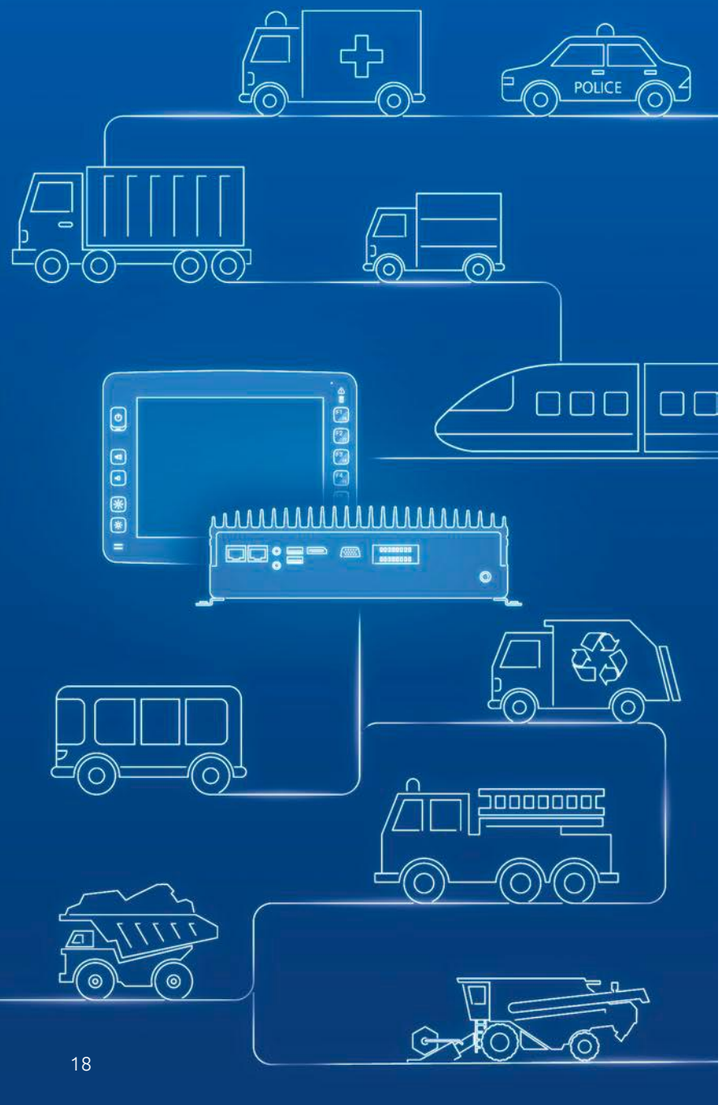
NEXCOM's Strengths

In-house designed products and solutions oriented for vehicle applications to fulfill diverse in-vehicle surveillance requirements.

NEXCOM NCm series of IP cameras supports 1080p video capturing at 60fps and NVR integration with the NANO series of standalone NVRs and the VTC series of open platform NVRs through the VES30 series of PoE switches. Direct on-screen video monitoring is made possible and easy through the VMD series of rugged touchscreens connected to the NANO and VTC NVRs. Furthermore, the NVRs support WWAN connectivity to empower cloud computing, video analytics, and remote video management.



Our Core Competency: Value-added Solutions at the Forefront of Innovation



Quick and Extensive Software Development

To meet the ever-increasing complex requirements in vehicle and railway industries, NEXCOM not only provides hardware solutions, but also software integration. Delivering value-added software at all levels of the solution chain, ranging from the lower hardware level to the top application level, NEXCOM software integration includes firmware, BIOS, SDK, drivers, Qt (GUI and Linux), apps (Android) and software applications (video surveillance). NEXCOM differentiates from other competitors by offering value-added features specifically designed for vertical applications. For example, intelligent auto. is one successful software application developed in the Android OS to assist customers in working with CAN bus, RFID, iButton, tracking, GPS and 3G/LTE communication functions. The intelligent auto. application offers a development example that helps customers to easily and quickly develop customized software in the Android OS.

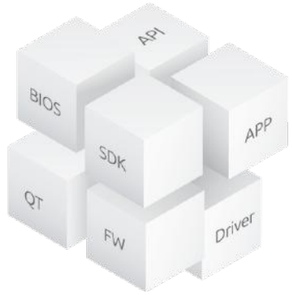


Figure 1. Software Solution

Outstanding Mechanical and Electronic Design

The design of vehicle telematics and mobile data terminal requires meticulous attention to details due to complex electronic equipment inside cars and trains, as well as the rugged and extreme environments where the vehicles travel in. To offer a trusted and reliable solution, NEXCOM's vehicle telematics systems adopt a unique mechanical structure designed to offset the impact of severe vibration and shock to survive in extreme working environments, while keeping a compact form factor to fit into limited spaces. Furthermore, to avoid interference from electronic equipment in cars and trains, NEXCOM's vehicle telematics systems integrate rugged hardware and durable mechanical designs to lower EMI or EMS, which is important for securing equipment operation and human safety when cars or trains are on the move.

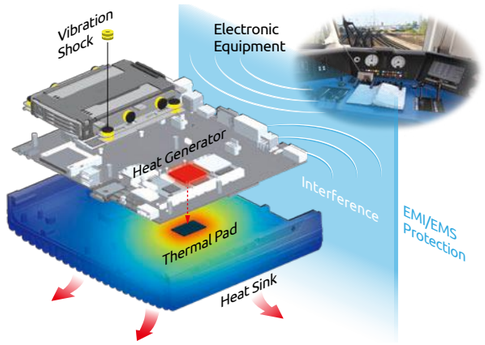


Figure 2. Superb EMC, thermal, shock and vibration resistant design

Integration Turns Computer Box into Operational Intelligence

System integration is the technical convergence of different discrete hardware modules and software, working together in synergy to deliver a complete bundled solution. NEXCOM adds value to the computer system by integrating off-the-shelf software, such as the NVR management software, to help customers save the time in searching and evaluating a suitable software solution. With integrated software and hardware, NEXCOM can bring real-time intelligence on board to any vehicles. For example, by putting an NVR board with VMS software inside the computer system and synergizing all the features of NEXCOM's rugged hardware and add-on software, the vehicle computer can transform into powerful integrated systems with added functionalities such as micro servers, mobile NVRs, and data loggers.

NEXCOM also retains the flexibility in function expansions. Different discrete modules are available to allow rapid deployment of feature expansions. NEXCOM's full array of flexible add-ons includes PoE switch, 3G module, dual CAN module, OBDII module, SAE J1939/J1708 module, internal/external back-up battery and IP protection kit to interface with different subsystems and provide protection against unexpected power outages and external physical impact.

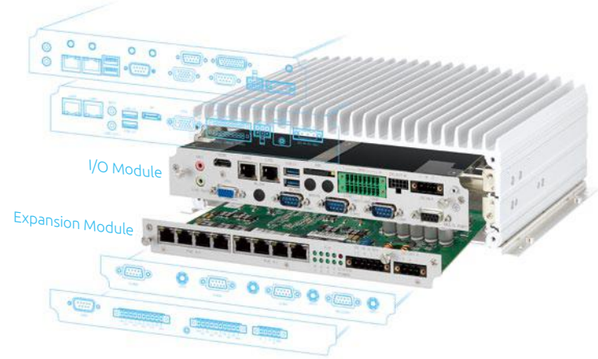


Figure 3. The removable plug-in design provides a convenient way to install I/O and expansion modules without extra effort

The Modular Benefit

Embedded applications have all kinds of different requirements. It is important to offer a wide variety of selections to support the growing diversity of different applications. NEXCOM's modular approach enables faster, easier and more efficient customization of standard products to unique user needs. This modularity benefit provides users with a convenient way to easily select and customize suitable I/O modules or expansion modules for their unique requirements or vertical market applications. These I/O modules and expansion modules are also designed to be easily installed through simple pull-out and plug-in process.

I/O modules or expansion modules can be customized or replaced without changing anything else in the computer system, saving the need to validate the rest of the system functions besides the new modules. If any new specification or further enhancement is required, the modules can be individually upgraded before being reintroduced into the same computer system.

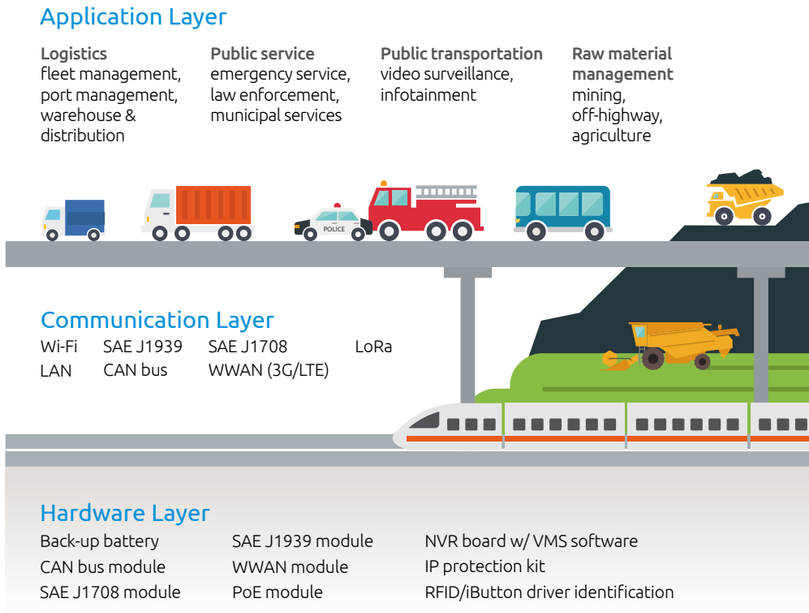


Figure 4. NEXCOM's value-added integration turns computer box into business intelligence

Product Selection Guide

Vehicle Telematics Computer

CPU	COM							CAN Bus		Video Output				Mini-PCIe	Model
	RS232	RS422	RS485	RS232/ 422/485	RS422/ 485	RS232/ 485	RS232/ 422	CAN 2.0B	OBDII	DP	VGA	LVDS	HDMI	Quantity	
ARM®											V			0	NANO 1190
Atom™	2 x TX/RX							2	*		V			2	VTC 1910
	1 x Full, S					S	S	1			V			2	VTC 1000-R2
	1 x Full, S					S	S	1				V		2	VTC 1000-R2LV
	2 x Full				1			1	*	V	V			4	VTC 1010
	5 x TX/RX		2					1	*		V		V	2	VTC 1020
	5 x TX/RX		2					1	*		V	V	V	2	VTC 1020-PA
	1 x Full, 1 x TX/RX				1			1	*		V		V	3	VTC 1021
	4 x Full		1								V	V		2	VTC 6200
	2 x Full		1								V	V		2	VTC 6200-NI
	2 x Full		1								V	V		2	VTC 6201
	2 x Full				1			1	*	V	V			4	VTC 6210-BK
	2 x Full				1			1	*	V	V			4	VTC 6210-VR4
	1 x Full				1			*	*		V	V		2	VTC 7100-BK
	1 x Full				1			*	*		V	V		2	VTC 7100-C8SK
Celeron®	1 x Full				1			*	*		V	V		2	VTC 7120-BK
	1 x Full				1			*	*		V	V		2	VTC 7120-C4SK
Core™ i	1 x Full				1			*	*		V	V		2	VTC 7110-BK
	1 x Full				1			*	*		V	V		2	VTC 7110-C4SK
	2 x Full			1				1	*	V	V	V		4	VTC 7200
	2 x Full			1				1	*	V	V	V		4	VTC 7210
	2 x Full			1				1	*	V	V	V		4	VTC 7220
	2 x Full			1				1	*	V	V	V		4	VTC 7230
	2 x Full			1				1	*	V	V	V		4	VTC 7240
				2				1	*		V	V		3	MVS 5200-BK
				2				1	*		V	V		3	MVS 5210-BK
	2 x Full			1				1	*		V		V	3	MVS 5603-3C8SK
	2 x Full			1				1	*		V		V	3	MVS 5603-7C8SK
	2 x Full			1				1	*		V		V	3	MVS 5600-3BK
	2 x Full			1				1	*		V		V	3	MVS 5600-7BK
MCU	1 x TX/RX							2						1	FMS 1000

* : Optional module available
S: Selectable

Vehicle Mount Computer

Display Size	CPU			Touch Type	COM						IP Protection			Model
	ARM®	Atom™	Core™ i	Resistive Touch	RS232	RS422	RS485	RS232/ 422/485	RS422/ 485	RS232/ 485	IP54 (Front)	IP65 (Front)	IP65 (Enclousure)	
7"	V			V	1 x Full					1	V			VMC 110
		V		V	2 x Full				1		V			VMC 1000
		V		V	1 x Full, S		S				V			VMC 1100
10.4"		V		V	2 x Full							V		VMC 3000
		V		V	1 x Full								V	VMC 3001
		V		V	1 x Full								V	VMC 3011
		V		V	2 x Full, 1 x TX/RX							V		VMC 3020
			V	V	2 x Full							V		VMC 3500
			V	V	1 x Full								V	VMC 3501
			V	V	1 x Full								V	VMC 3511
12.1"		V		V	1 x Full, 1 x TX/RX			1					V	VMC 4011-K
			V	V	1 x Full, 1 x TX/RX			1					V	VMC 4511-K

S: Selectable

Vehicle Mount Display

Display Size	Video Input			Touch Type		Brightness		Touch Interface	Model
	VGA	LVDS	CVBS	RS	PCAP	400 nits	500 nits	USB	
7"		V		V			V	V	VMD 1000
	V			V			V	V	VMD 1001
8"		V		V			V	V	VMD 2000
	V			V			V	V	VMD 2002
10.4"	V		V		V	V		V	VMD 3002

PoE

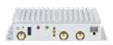
PoE No.	Power Output		LAN Port		CPU				Storage				Model
	60W	120W	1	2	ARM®	Atom™	Core™ i	Celeron®	1	2	3	4	
4	V			V			V				V		VTC 7110-C4SK
	V			V				V			V		VTC 7120-C4SK
	V		V		None	None	None		None	None	None	None	VES 30-4S
	V		V		V				V				NANO 1190
	V		V		V				V				NANO 1190-RA
8	V			V			V					V	nROK 5300
	V			V			V					V	nROK 5500
	V			V		V					V		VTC 7100-C8SK
	V			V			V					V	MVS 5210-R
		V	V		None	None	None		None	None	None	None	VES 30-8S
	V			V			V					V	MVS 5200
	V			V			V					V	MVS 5210
	V			V			V				V		MVS 5603-3C8SK
	V			V			V				V		MVS 5603-7C8SK

Train Computer

Power Input		PoE No.		LAN		CPU			M12 Conncetor					Model
		4	8	10/100	10/100/ 1000	ARM®	Atom™	Core™ i	Audio	USB	Power Input	PoE	LAN	
24VDC	DC-DC Isolated			3			V		V	V	V		V	nROK 3000
			V		2			V		V	V	V	V	nROK 5300
			V		2			V		V	V	V	V	nROK 5500
					2			V		V	V		V	VTC 7220-RA
	DC-DC Non-Isolated	V			1	V					V	V	V	NANO 1190-RA
					1		V		V		V		V	nROK 1020-A
					2		V			V	V		V	VTC 6210-RA
			V		2			V	V		V	V	V	MVS 5210-RA
36VDC	DC-DC Isolated		V		2			V		V	V	V	V	nROK 5300
			V		2			V		V	V	V	V	nROK 5500
					2			V		V	V		V	VTC 7220-RB
	DC-DC Non-Isolated				2		V			V	V		V	VTC 6210-RA
72VDC	DC-DC Isolated		V		2			V		V	V	V	V	nROK 5300
			V		2			V		V	V	V	V	nROK 5500
110VDC	DC-DC Isolated			3			V		V	V	V		V	nROK 3000
			V		2			V		V	V	V	V	nROK 5300
			V		2			V		V	V	V	V	nROK 5500
					2		V			V	V		V	VTC 6210-RF
					2			V			V		V	VTC 7220-RF
			V		2			V	V		V	V	V	MVS 5210-RF

Product Selection Tables

Vehicle Telematics Computer

Model						
	VTC 1910	VTC 1000-R2	VTC 1000-R2LV	VTC 1010	VTC 1020	VTC 1020-PA
CPU	Intel® Atom™ E3815	Intel® Atom™ E640	Intel® Atom™ E640	Intel® Atom™ E3827	Intel® Atom™ x5-E3930	Intel® Atom™ x5-E3930
Chipset	N/A	EG20T	EG20T	N/A	N/A	N/A
Memory	DDR3L 1067MHz SO-DIMM, 2GB (default) up to 8GB	1GB DDR2 memory on board Optional: 2GB	1GB DDR2 memory on board Optional: 2GB	DDR3L 1066/1333 SO-DIMM, 2GB (default) up to 8GB	DDR3L SO-DIMM, 4GB (default) up to 16GB	DDR3L SO-DIMM, 4GB (default) up to 16GB
Storage	1 x mSATA	2.5" SATA 2.0 SSD (9.5mm)	2.5" SATA 2.0 SSD (9.5mm)	2.5" SATA 2.0 SSD (9.5mm)	2.5" SATA 3.0 SSD (9.5mm)	2.5" SATA 3.0 SSD (9.5mm)
Second Storage	1 x SATA DOM	N/A	N/A	1 x SD (external)	1 x CFast slot (accessible)	1 x CFast slot (accessible)
Dimension (mm)	130 x 120 x 32	185 x 120 x 40	185 x 120 x 40	180 x 180 x 50	185 x 120 x 45	185 x 120 x 50
Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
Ignition Control	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting
Power Management	Low voltage protection & configuration via software	Low voltage protection & configuration via software	Low voltage protection & configuration via software	Low voltage protection & configuration via software	Low voltage protection & configuration via software	Low voltage protection & configuration via software
GPS	On board 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)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
Optional Communication	Wi-Fi/WWAN	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN
Voice Communication	N/A	Yes	Yes	Yes	Yes	Yes
SMS/Ring Wake Up	Yes	Yes	Yes	Yes	Yes	Yes
SIM Socket	2	1	1	2	1	1
USB	1 x USB 3.0 1 x USB 2.0	2 x USB 2.0	2 x USB 2.0	1 x USB 3.0 2 x USB 2.0	2 x USB 3.0	2 x USB 3.0
COM	2 x RS232	1 x RS232 1 x RS232 or RS422/485	1 x RS232 1 x RS232 or RS422/485	2 x RS232 1 x RS422/485	5 x RS232 (TX/RX) 2 x RS485	5 x RS232 (TX/RX) 2 x RS485
CAN/OBDII	2 x CAN bus 2.0B Optional SAE J1708/J1939 module	1 x CAN bus 2.0B	1 x CAN bus 2.0B	CAN bus 2.0B on board Optional CAN/SAE J1939/SAE J1708 module	CAN bus 2.0B on board Optional CAN/SAE J1939/SAE J1708 module	CAN bus 2.0B on board Optional CAN/SAE J1939/SAE J1708 module
Video Out	VGA	VGA	LVDS	DP, VGA	HDMI, VGA	HDMI, VGA, LVDS
PCI-104	N/A	N/A	N/A	N/A	N/A	N/A
Ethernet	1 x Intel® 10/100/1000	1 x RTL8211CL-GR 10/100/1000	1 x RTL8211CL-GR 10/100/1000	1 x Intel® 10/100/1000	1 x Intel® 10/100/1000	1 x Intel® 10/100/1000
PoE (802.3af, total 60W)	N/A	N/A	N/A	N/A	N/A	N/A
Audio	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	1 x Mic-in, 1 x Line-out	1 x Mic-in, 3 x Line-out (selectable)
Mini-PCIe Socket	1 x (mSATA + PCIe), 1 x USB	1 x (PCIe+USB), 1 x USB	1 x (PCIe+USB), 1 x USB	2 x (PCIe+USB), 1 x (PCIe or mSATA), 1 x USB	1 x (PCIe+USB+mSATA), 1 x USB	1 x (PCIe+USB+mSATA), 1 x USB
SMBus	N/A	1	1	N/A	1	1
DC Output	N/A	5V (1A), 12V (1A)	5V (1A), 12V (1A)	12V (1A)	12V (2A)	12V (2A)
GPIO	3 x In, 3 x Out	4 x In, 4 x Out	4 x In, 4 x Out	6 x Programmable GPIO	5 x Programmable GPIO	5 x Programmable GPIO
Certification	CE, FCC Class A, E13	CE, FCC Class B, e13	CE, FCC Class B, e13	CE, FCC Class B, E13	CE, FCC Class B, E13	CE, FCC Class B, E13
OS	Win 10, Win 8, Win 7, WES 7 Linux (Kernel 3.x)	Win XP, Win 7, Linux	Win XP, Win 7, Linux	Win 10, Win 8, Win 7, WES 7 Linux (Kernel 3.x)	Win 10, Linux (Kernel 3.x)	Win 10, Linux (Kernel 3.x)
Operation Temperature	-40°C to 70°C	-20°C to 70°C	-20°C to 70°C	-30°C to 70°C	-40°C to 70°C	-40°C to 70°C

Product Selection Tables

Vehicle Telematics Computer

Model			
	VTC 1021	VTC 6200	VTC 6200-NI
CPU	Intel® Atom™ x5-E3940	Intel® Atom™ D510	Intel® Atom™ D510
Chipset	N/A	ICH-8M	ICH-8M
Memory	DDR3L 1333/1600 SO-DIMM, 4GB (default) up to 8GB	DDR2 667/800 SO-DIMM, 1GB (default) up to 2GB	DDR2 667/800 SO-DIMM, 1GB (default) up to 2GB
Storage	2.5" SATA 3.0 SSD (9.5mm)	2.5" SATA 2.0 SSD/HDD (9.5mm)	2.5" SATA 2.0 SSD/HDD (9.5mm)
Second Storage	1 x mSATA	1 x SATA DOM	1 x SATA DOM
Dimension (mm)	180 x 180 x 50	260 x 176 x 70	260 x 176 x 50
Power Input	DC 9V to 36V	DC 9V to 60V	DC 9V to 60V
Ignition Control	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting
Power Management	Low voltage protection & configuration via software	Battery deep discharge protection	Battery deep discharge protection
GPS	On board u-blox NEO-M8N	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
Optional Communication	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN
Voice Communication	Yes	Yes	Yes
SMS/Ring Wake Up	Yes	N/A	N/A
SIM Socket	2	1	1
USB	1 x USB 3.0 1 x USB 2.0	4 x USB 2.0	4 x USB 2.0
COM	1 x RS232 (Full) 1 x RS232 (TX/RX) 1 x RS422/485	2 x RS232 (isolation) 1 x RS485 (isolation) 2 x RS232	2 x RS232 1 x RS485
CAN/OBDII	CAN bus 2.0B on board Optional CAN/SAE J1939/SAE J1708 module	N/A	N/A
Video Out	HDMI, VGA	LVDS, 2 x VGA (Clone mode)	LVDS, 2 x VGA (Clone mode)
PCI-104	N/A	1	1
Ethernet	2 x Intel® 10/100/1000	1 x RTL8111C-VC-GR 10/100/1000	1 x RTL8111C-VC-GR 10/100/1000
PoE (802.3af, total 60W)	Optional 2 x 802.3at, total 60W	N/A	N/A
Audio	1 x Mic-in, 1 x Line-out	2 x Mic-in, 2 x Line-out	2 x Mic-in, 2 x Line-out
Mini-PCIe Socket	1 x (PCIe+USB+mSATA), 1 x (PCIe+USB), 1 x (USB 2.0+USB 3.0)	1 x (PCIe+USB), 1 x USB	1 x (PCIe+USB), 1 x USB
SMBus	1	1	1
DC Output	12V (2A)	5V (1A), 12V (1A)	5V (1A), 12V (1A)
GPIO	3 x In, 3 x Out	4 x In, 4 x Out (w/ isolation)	4 x In, 4 x Out (w/ isolation)
Certification	CE, FCC Class B, E13	CE, FCC Class B, e13	CE, FCC Class B, e13
OS	Win 10, Linux (Kernel 3.x)	Win XP, Win 7, Linux (Kernel 2.6)	Win XP, Win 7, Linux (Kernel 2.6)
Operation Temperature	-40°C to 70°C (w/o internal backup battery)	-30°C to 50°C	-30°C to 50°C

Model			
	VTC 6201	VTC 6210-BK	VTC 6210-VR4
CPU	Intel® Atom™ D510	Intel® Atom™ E3845	Intel® Atom™ E3845
Chipset	ICH-8M	N/A	N/A
Memory	DDR2 667/800 SO-DIMM, 1GB (default) up to 2GB	DDR3L 1066/1333 SO-DIMM, 2GB (default) up to 8GB	DDR3L 1066/1333 SO-DIMM, 2GB (default) up to 8GB
Storage	2.5" SATA 2.0 SSD (9.5mm)	2.5" SATA 2.0 SSD/HDD removable (9.5mm)	2.5" SATA 2.0 SSD/HDD removable (9.5mm)
Second Storage	1 x SATA DOM	1 x CFast slot (accessible)	1 x CFast slot (accessible)
Dimension (mm)	260 x 176 x 50	260 x 176 x 50	260 x 176 x 50
Power Input	DC 9V to 60V	DC 9V to 36V	DC 9V to 36V
Ignition Control	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting
Power Management	Battery deep discharge protection	Low voltage protection & configuration via software	Low voltage protection & configuration via software
GPS	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
Optional Communication	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN
Voice Communication	Yes	Yes	Yes
SMS/Ring Wake Up	N/A	Yes	Yes
SIM Socket	1	3	3
USB	4 x USB 2.0	1 x USB 3.0 2 x USB 2.0	1 x USB 3.0 2 x USB 2.0
COM	2 x RS232 1 x RS485	2 x RS232 1 x RS422/485	2 x RS232 1 x RS422/485
CAN/OBDII	N/A	CAN bus 2.0B on board Optional CAN/SAE J1939/SAE J1708 module	CAN bus 2.0B on board Optional CAN/SAE J1939/SAE J1708 module
Video Out	LVDS, 2 x VGA (Clone mode)	DP, VGA	DP, VGA, 4 x (Video-in + Audio-in)
PCI-104	1	N/A	N/A
Ethernet	3 x RTL8111C-VC-GR 10/100/1000	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000
PoE (802.3af, total 60W)	N/A	N/A	N/A
Audio	2 x Mic-in, 2 x Line-out	2 x Mic-in, 2 x Line-out	2 x Mic-in, 2 x Line-out
Mini-PCIe Socket	1 x (PCIe+USB), 1 x USB	3 x (PCIe+USB), 1 x USB, 3.3V/3.6V selectable	3 x (PCIe+USB), 1 x USB, 3.3V/3.6V selectable
SMBus	1	1	1
DC Output	5V (1A), 12V (1A)	12V (2A)	12V (2A)
GPIO	4 x In, 4 x Out	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
Certification	CE, FCC Class B, e13	CE, FCC Class B, E13	CE, FCC Class B, E13
OS	Win XP, Win 7, Linux (Kernel 2.6)	Win 10, Win 8, Win 7, WES 7 Linux (Kernel 3.x)	Win 10, Win 8, Win 7, WES 7 Linux (Kernel 3.x)
Operation Temperature	-30°C to 50°C	-30°C to 70°C	-30°C to 70°C

Product Selection Tables

Vehicle Telematics Computer

Model						
	VTC 7100-BK	VTC 7100-C8SK	VTC 7110-BK	VTC 7110-C4SK	VTC 7120-BK	VTC 7120-C4SK
CPU	Intel® Atom™ D2550	Intel® Atom™ D2550	Intel® Core™ i7 2610UE	Intel® Core™ i7 2610UE	Intel® Celeron® 847E	Intel® Celeron® 847E
Chipset	ICH-10R	ICH-10R	QM67	QM67	QM67	QM67
Memory	DDR3 1333 SO-DIMM, 2GB (default) up to 4GB	DDR3 1333 SO-DIMM, 2GB (default) up to 4GB	DDR3 1333 SO-DIMM, 2GB (default) up to 8GB	DDR3 1333 SO-DIMM, 2GB (default) up to 8GB	DDR3 1333 SO-DIMM, 2GB (default) up to 8GB	DDR3 1333 SO-DIMM, 2GB (default) up to 8GB
Storage	2.5" SATA 2.0 SSD/HDD removable (9.5mm)	2 x 2.5" SATA 2.0 SSD/HDD removable (9.5mm)	2.5" SATA 2.0 SSD/HDD removable (9.5mm)	2 x 2.5" SATA 2.0 SSD/HDD removable (9.5mm)	2.5" SATA 2.0 SSD/HDD removable (9.5mm)	2 x 2.5" SATA 2.0 SSD/HDD removable (9.5mm)
Second Storage	1 x CFast (external)	1 x CFast (external)	1 x CFast (external)	1 x CFast (external)	1 x CFast (external)	1 x CFast (external)
Dimension (mm)	260 x 176 x 50	260 x 176 x 90.1	260 x 176 x 66.5	260 x 176 x 90.1	260 x 176 x 66.5	260 x 176 x 90.1
Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
Ignition Control	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting
Power Management	Low voltage protection & configuration via software	Low voltage protection & configuration via software	Low voltage protection & configuration via software	Low voltage protection & configuration via software	Low voltage protection & configuration via software	Low voltage protection & configuration via software
GPS	On board u-blox NEO-6Q	On board u-blox NEO-6Q	On board u-blox NEO-6Q	On board u-blox NEO-6Q	On board u-blox NEO-6Q	On board u-blox NEO-6Q
Optional Communication	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN
Voice Communication	Yes	Yes	Yes	Yes	Yes	Yes
SMS/Ring Wake Up	Yes	Yes	Yes	Yes	Yes	Yes
SIM Socket	2	2	2	2	2	2
USB	3 x USB 2.0	3 x USB 2.0	3 x USB 2.0	3 x USB 2.0	3 x USB 2.0	3 x USB 2.0
COM	1 x RS232 1 x RS422/485	1 x RS232 1 x RS422/485	1 x RS232 1 x RS422/485	1 x RS232 1 x RS422/485	1 x RS232 1 x RS422/485	1 x RS232 1 x RS422/485
CAN/OBDII	Optional CAN/OBDII module	Optional CAN/OBDII module	Optional CAN/OBDII module	Optional CAN/OBDII module	Optional CAN/OBDII module	Optional CAN/OBDII module
Video Out	LVDS, VGA	LVDS, VGA	LVDS, VGA	LVDS, VGA	LVDS, VGA	LVDS, VGA
PCI-104	1	1	1	1	1	1
Ethernet	2 x 10/100/1000	2 x 10/100/1000	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000
PoE (802.3af, total 60W)	N/A	8	N/A	4	N/A	4
Audio	2 x Mic-in, 2 x Line-out	2 x Mic-in, 2 x Line-out	2 x Mic-in, 2 x Line-out	2 x Mic-in, 2 x Line-out	2 x Mic-in, 2 x Line-out	2 x Mic-in, 2 x Line-out
Mini-PCIe Socket	1 x (PCIe+USB), 1 x USB	1 x (PCIe+USB), 1 x USB	1 x (PCIe+USB), 1 x USB	1 x (PCIe+USB), 1 x USB	1 x (PCIe+USB), 1 x USB	1 x (PCIe+USB), 1 x USB
SMBus	1	1	1	1	1	1
DC Output	12V (4A)	12V (4A)	12V (4A)	12V (4A)	12V (4A)	12V (4A)
GPIO	4 x In, 4 x Out	4 x In, 4 x Out	4 x In, 4 x Out	4 x In, 4 x Out	4 x In, 4 x Out	4 x In, 4 x Out
Certification	CE, FCC Class A, e13	CE, FCC Class A, e13	CE, FCC Class A, e13	CE, FCC Class A, e13	CE, FCC Class A, e13	CE, FCC Class A, e13
OS	WES 7, Win 7, Win XP, Linux	WES 7, Win 7, Win XP, Linux	WES 7, Win 7, Win 8, WES 8, Win XP, Linux	WES 7, Win 7, Win 8, WES 8, Win XP, Linux	WES 7, Win 7, Win 8, WES 8, Win XP, Linux	WES 7, Win 7,Win 8, WES 8, Win XP, Linux
Operation Temperature	-30°C to 55°C	-30°C to 55°C	-30°C to 50°C	-30°C to 50°C	-30°C to 50°C	-30°C to 50°C

Vehicle Telematics Computer

Model			
	VTC 7200	VTC 7210	VTC 7220
CPU	4th Generation Intel® Core™ i3-4010U	Intel® Core™ i5-4300U	Intel® Core™ i7-4650U
Chipset	N/A	N/A	N/A
Memory	2 channel DDR3L 1333/1600 SO-DIMM, 2GB (default) up to 16GB	2 channel DDR3L 1333/1600 SO-DIMM, 2GB (default) up to 16GB	2 channel DDR3L 1333/1600 SO-DIMM, 2GB (default) up to 16GB
Storage	2 x 2.5" SSD/HDD SATA 3.0 removable (9.5mm)	2 x 2.5" SSD/HDD SATA 3.0 removable (9.5mm)	2 x 2.5" SSD/HDD SATA 3.0 removable (9.5mm)
Second Storage	1 x CFast slot (accessible)	1 x CFast slot (accessible)	1 x CFast slot (accessible)
Dimension (mm)	260 x 206 x 79.5	260 x 206 x 79.5	260 x 206 x 79.5
Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
Ignition Control	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting
Power Management	Low voltage protection	Low voltage protection & configuration via software	Low voltage protection & configuration via software
GPS	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
Optional Communication	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN
Voice Communication	Yes	Yes	Yes
SMS/Ring Wake Up	Yes	Yes	Yes
SIM Socket	3	3	3
USB	2 x USB 3.0 2 x USB 2.0	2 x USB 3.0 2 x USB 2.0	2 x USB 3.0 2 x USB 2.0
COM	2 x RS232 1 x RS232/485/422	2 x RS232 1 x RS232/485/422	2 x RS232 1 x RS232/485/422
CAN/OBDII	CAN bus 2.0B on board Optional CAN/SAE J1939/SAE J1708 module	CAN bus 2.0B on board Optional CAN/SAE J1939/SAE J1708 module	CAN bus 2.0B on board Optional CAN/SAE J1939/SAE J1708 module
Video Out	DP, VGA, LVDS (internal)	DP, VGA, LVDS (internal)	DP, VGA, LVDS (internal)
PCI-104	N/A	N/A	N/A
Ethernet	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000
PoE (802.3af, total 60W)	N/A	N/A	N/A
Audio	2 x Mic-in, 2 x Line-out	2 x Mic-in, 2 x Line-out	2 x Mic-in, 2 x Line-out
Mini-PCIe Socket	3 x (PCIe+USB), 1 x USB	3 x (PCIe+USB), 1 x USB, 3.3V/3.6V selectable	3 x (PCIe+USB), 1 x USB, 3.3V/3.6V selectable
SMBus	1	1	1
DC Output	12V (2A)	12V (2A)	12V (2A)
GPIO	MCU: 2 x DI, 2 x DO 4 x In, 4 x Out	4 x In, 4 x Out	4 x In, 4 x Out
Certification	CE, FCC Class B, E13	CE, FCC Class B, E13	CE, FCC Class B, E13
OS	Win 10, Win 8, WES 8, Win 7, WES 7, Win XP, Linux (Kernel 3.x)	Win 10, Win 8, WES 8, Win 7, WES 7, Win XP, Linux (Kernel 3.x)	Win 10, Win 8, WES 8, Win 7, WES 7, Win XP, Linux (Kernel 3.x)
Operation Temperature	-30°C to 55°C	-30°C to 55°C	-30°C to 55°C

Model		
	VTC 7230	VTC 7240
CPU	Intel® Core™ i3-5010U	Intel® Core™ i7-5650U
Chipset	N/A	N/A
Memory	2 channel DDR3L 1333/1600 SO-DIMM, 2GB (default) up to 16GB	2 channel DDR3L 1333/1600 SO-DIMM, 2GB (default) up to 16GB
Storage	2 x 2.5" SSD/HDD SATA 3.0 removable (9.5mm)	2 x 2.5" SSD/HDD SATA 3.0 removable (9.5mm)
Second Storage	1 x CFast slot (accessible)	1 x CFast slot (accessible)
Dimension (mm)	260 x 206 x 79.5	260 x 206 x 79.5
Power Input	DC 9V to 36V	DC 9V to 36V
Ignition Control	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting
Power Management	Low voltage protection & configuration via software	Low voltage protection & configuration via software
GPS	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
Optional Communication	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN
Voice Communication	Yes	Yes
SMS/Ring Wake Up	Yes	Yes
SIM Socket	3	3
USB	2 x USB 3.0 2 x USB 2.0	2 x USB 3.0 2 x USB 2.0
COM	2 x RS232 1 x RS232/485/422	2 x RS232 1 x RS232/485/422
CAN/OBDII	CAN bus 2.0B on board Optional CAN/SAE J1939/SAE J1708 module	CAN bus 2.0B on board Optional CAN/SAE J1939/SAE J1708 module
Video Out	DP, VGA, LVDS (internal)	DP, VGA, LVDS (internal)
PCI-104	N/A	N/A
Ethernet	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000
PoE (802.3af, total 60W)	N/A	N/A
Audio	2 x Mic-in, 2 x Line-out	2 x Mic-in, 2 x Line-out
Mini-PCIe Socket	3 x (PCIe+USB), 1 x USB, 3.3V/3.6V selectable	3 x (PCIe+USB), 1 x USB, 3.3V/3.6V selectable
SMBus	1	1
DC Output	12V (2A)	12V (2A)
GPIO	4 x In, 4 x Out	4 x In, 4 x Out
Certification	CE, FCC Class B, E13	CE, FCC Class B, E13
OS	Win 10, Win 8, WES 8, Win 7, WES 7, Linux (Kernel 3.x)	Win 10, Win 8, WES 8, Win 7, WES 7, Linux (Kernel 3.x)
Operation Temperature	-30°C to 55°C	-30°C to 55°C

In-Vehicle Terminal

Model	
	IVT 1100
LCD Size	6.95" TFT LCD
Resolution	800 x 480
Brightness	450cd/m²
Contrast Ratio	500 : 1
View Angle	V: 60/70 H: 75/75
Brightness Adjustment	Auto via light sensor
CPU	Intel® Atom™ E3825
Chipset	N/A
Memory	DDR3L 1600MHz SO-DIMM slot (up to 4GB)
Storage	SATA DOM
Second Storage	1 x Micro SDHC
Dimension (mm)	178 x 100 x 187.15
Power Input	DC 9V to 36V
Ignition Control	Yes, w/ 8 level delay time setting
Power Management	Low voltage protection & configuration via software
GPS	uBlox NEO-M8N on board
Optional Communication	Wi-Fi/Bluetooth/WWAN FM radio GPS tracker
Voice Communication	Yes
SMS/ Ring Wake Up	Yes
SIM Socket	1
USB 2.0	2 x USB 3.0 Type A
COM	N/A
OBDII Module	1 x CAN bus 2.0B
Video Out	VGA
Video In	4 x CVBS
PoE (802.3af, total 60W)	N/A
Audio	4 x 20W Audio ouput, 1 x Mic-in, 1 x Line-in
Mini-PCIe Socket	1 x (PCIe+ USB) 1 x (USB+ UART)
SMBus	N/A
DC Output	N/A
GPIO	1 x eCall event button
Certification	CE, FCC Class B SAE J1113, SAE J1455, ISO7637-2, EN 60950-1 LVD
OS	Win 10, Win 8 Professional, WES 8, Win 7, WES 7, Linux
Operation Temperature	-20°C to 50°C

Vehicle Mount Display

Model	 VMD 1000	 VMD 1001	 VMD 2000
LCD Size	7" TFT LCD	7" TFT LCD	8" TFT LCD
Resolution	800 x 480	800 x 480	800 x 600
Brightness (Typ.)	500cd/m²	500cd/m²	400cd/m²
Contrast Ratio	600:1	600:1	500:1
View Angle	V: 60/60 H:70/70	V: 60/60 H:70/70	V:50/70 H:70/70
Brightness Adjustment	Auto via ligtht sensor	Auto via ligtht sensor	Auto via ligtht sensor
Speaker	2 x Built-in Speaker	2 x Built-in Speaker	2 x Built-in Speaker
Touch Screen	4-wire antiglare	4-wire antiglare	4-wire antiglare
Camera	N/A	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	1 x Monitor power button 2 x Brightness control 2 x Volume control
Mounting	VESA 75	VESA 75	VESA 75
Ingress Protection	Front panel IP54	Front panel IP54	Front panel IP54
Dimension (mm)	182 x 138 x 36.3	182 x 138 x 36.3	207 x 173 x 36.7
Power Input	12V (via LVDS)	6 - 36V	12V (via LVDS)
Video Input	1 x Intergrated DVI CONN (LVDS, USB, 2V, 5V)	1 x VGA	1 x Intergrated DVI CONN (LVDS, USB, 2V, 5V)
Audio Input	1 x Line-in (lateral side) 1 x Mic-out (lateral side) 1 x Line-in (Bottom side) 1 x Mic-out (Bottom side)	1 x Line-in (lateral side) 1 x Mic-out (lateral side)	1 x Line-in (lateral side) 1 x Mic-out (lateral side) 1 x Line-in (Bottom side) 1 x Mic-out (Bottom side)
USB	1 x USB 2.0	2 x USB 2.0	1 x USB 2.0
Storage	1 x SD/MMC/MS Card Reader	1 x SD/MMC/MS Card Reader	1 x SD/MMC/MS Card Reader
Power Button	Yes	N/A	Yes
Certification	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B
Operation Temperature	-20°C to 70°C	-20°C to 70°C	-20°C to 60°C

Model	 VMD 2002	 VMD 3002
LCD Size	8" TFT LCD	10.4" TFT LCD
Resolution	800 x 600	1024 x 768
Brightness (Typ.)	400cd/m²	1200cd/m²
Contrast Ratio	500:1	500:1
View Angle	V:50/70 H:70/70	V:60/60 H:70/70
Brightness Adjustment	Auto via ligtht sensor	Auto via ligtht sensor
Speaker	2 x Built-in Speaker	2 x Built-in Speaker
Touch Screen	4-wire antiglare	Projected capacitive
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 1 x Auto Config
Mounting	VESA 75	VESA 75/100
Ingress Protection	Front panel IP54	IP65
Dimension (mm)	207 x 173 x 36.7	256.5 x 202.1 x 31.5
Power Input	6 ~ 36V	6 ~ 36V
Video Input	1 x VGA	4 x CVBS connector 1 x VGA
Audio Input	1 x Line-in (lateral side) 1 x Mic-out (lateral side)	1 x Line-in
USB	2 x USB 2.0	1 x USB 2.0
Storage	1 x SD/MMC/MS Card Reader	1 x SD/MMC/MS Card Reader
Power Button	N/A	Yes
Certification	CE, FCC Class B	CE, FCC Class B
Operation Temperature	-20°C to 60°C	-20°C to 60°C

Vehical Network Switch

Model	 VES30-4S	 VES30-8S
Architecture	Unmanaged Gigabit switch	Unmanaged Gigabit switch
PoE Port	4-port, 10/100/1000 base-T	8-port, 10/100/1000 base-T
LAN Port	1-port, 10/100/1000 base-T	1-port, 10/100/1000 base-T
Standard Compliance	IEEE 802.3af PSE, total 60W	IEEE 802.3af PSE, total 120W
LED	4 x PoE indicator 1 x low voltage protection indicator	8 x PoE indicator 1 x low voltage protection indicator
Dimensions (mm)	167 x 58.8 x 139.6	167 x 58.8 x 139.6
Ignition Control	Yes	Yes
Low Voltage Protection	Yes	Yes
Power On/Off Delay Time	Yes	Yes
Power Input	9 ~ 36VDC	9 ~ 36VDC
Certification	CE, FCC Class B, e13 Mark	CE, FCC Class B, e13 Mark
Operation Temperature	-30°C to 70°C	-30°C to 70°C

Product Selection Tables

Vehicle Mount Computer

Model				
	VMC 110	VMC 1000	VMC 1100	VMC 3000/3500
LCD Size	7" TFT LCD	7" TFT LCD	7" TFT LCD	10.4" TFT LCD
Resolution	1024 x 600	800 x 480	800 x 480	1024 x 768
Brightness (Typ.)	500cd/m²	500cd/m²	400cd/m²	400cd/m²
Contrast Ratio	800 : 1	600 : 1	600 : 1	600 : 1
View Angle	V: 70/75 H: 75/75	V: 60/60 H: 70/70	V: 50/70 H: 70/70	V: 60/60 H: 70/70
Brightness Adjustment	Auto via light sensor	Auto via light sensor	Auto via light sensor	Auto via light sensor
Audio	2 x Built-in Speaker	2 x Built-in Speaker	2 x Built-in Speaker	2 x Built-in Speaker
Touch Screen	4-wire antiglare	4-wire antiglare	4-wire antiglare	5-wire antiglare
Camera	N/A	N/A	N/A	N/A
Control Button	F1~ F5 functions key 1 x Power button 2 x Brightness/volume control 3 x System reset button	1 x Display button 2 x Brightness/volume control 2 x System reset button	F1~ F5 functions key 1 x Power button 2 x Brightness/volume control 2 x System reset button	1 x Power button 2 x Brightness control 2 x Volume control 5 x Function key 1 x Shift key
Mounting	VESA 75	VESA 75	VESA 75	VESA 75/100
Ingress Protection	Front IP54	Front IP54	Front IP54	Front IP65
Dimension (mm)	213 x 145 x 40	185.4 x 141.1 x 50.42	213 x 145 x 50	290 x 230 x 68
CPU	Freescale i.MX6 Dual Lite	Intel® Atom™ E640	Intel® Atom™ E3825	Intel® Atom™ D2550 Intel® Core™ i7 2610UE
Chipset	N/A	N/A	N/A	Intel® ICH10R Intel® QM67
Memory	2GB DDR3L on board	1GB DDR2 on board	DDR3L 1600MHz SO-DIMM slot (up to 4GB)	DDR3 1333MHz SO-DIMM slot (up to 4GB)
Storage Interface	1 x EMMC 1 x Micro SD	1 x mSATA	SATA DOM	1 x CFast 1 x 2.5" SSD SATA 2.0 (9.5mm)
Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
Ignition Control	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting
Power Management	Low voltage protection & configuration via software	Low voltage protection & configuration via software	Low voltage protection & configuration via software	Low voltage protection & configuration via software
GPS	u-blox NEO-M8N on board	u-blox NEO-6Q on board	u-blox NEO-M8N on board	u-blox NEO-6Q on board
Optional Communication	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN
USB	3 x USB 2.0	3 x USB 2.0	1 x USB 3.0	2 x USB 2.0
COM	1 x RS232, 1 x RS232/RS485	2 x RS232, 1 x RS422/RS485	1 x RS232, 1 x RS232 (TX/RX) or 1 x RS485	2 x RS232
CAN	2 x CAN bus 2.0B	1 x CAN bus 2.0B	1 x CAN bus 2.0B Optional OBDII	1 x CAN bus 2.0B Optional OBDII
Ethernet	2 x 10/100/1000	1 x 10/100/1000	1 x 10/100/1000	1 x 10/100/1000
Audio	1 x Line-in, 1 x Line-out	1 x Line-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out
Mini-Card	1 x (PCIe+ USB), 1 x (USB+ UART)	1 x (PCIe+ USB+ SATA), 1 x USB	1 x (PCIe+ USB),1 x (USB+ UART)	1 x (PCIe+ USB+ SATA), 1 x USB
GPIO	3 x GPO, 3 x GPI	3 x In, 3 x Out	2 x PWM, 2 x Analog input, 3 x In, 3 x Out	3 x In, 3 x Out
Certification	CE, FCC Class B, e13 SAE J1113, SAE J1455, ISO7637-2	CE, FCC Class B, e13	CE, FCC Class B, e13 SAE J1113, SAE J1455, ISO7637-2	CE, FCC Class B
OS	Android 5.1 & YOCTO	Win XP, Win 7, Linux	Win 10, Win 8, Win 7, WES 7 Linux (Kernel 3.x)	VMC 3000: WES 7, Win 7, Win XP, Linux VMC 3500: WES 7, Win 7, Win 8, WES 8, Win XP, Linux
Operation Temperature	-20°C to 70°C	-20°C to 50°C	-20°C to 60°C	-30°C to 60°C

			
VMC 3001/3501	VMC 3011/3511	VMC 3020	VMC 4011-K/4511-K
10.4" TFT LCD	10.4" TFT LCD	10.4" TFT LCD	12.1" TFT LCD
1024 x 768	1024 x 768	1024 x 768	1024 x 768
400cd/m²	1200cd/m²	1200cd/m²	1300cd/m²
600 : 1	600 : 1	600 : 1	600 : 1
V: 60/60 H: 70/70	V: 60/60 H: 70/70	V: 60/60 H: 70/70	V: 60/60 H: 70/70
Auto via light sensor	Auto via light sensor	Auto via light sensor	Auto via light sensor
2 x Built-in Speaker	2 x Built-in Speaker	2 x Built-in speaker	2 x Built-in Speaker
5-wire antiglare	5-wire antiglare	5-wire antiglare	5-wire antiglare
N/A	N/A	N/A	N/A
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	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
VESA 75/100	VESA 75/100	VESA 75/100	VESA 75/100
IP65	IP65	Front IP65	IP65
290 x 230 x 68	290 x 230 x 68	290 x 230 x 78	340 x 262 x 75.1
Intel® Atom™ D2550 Intel® Core™ i7 2610UE	Intel® Atom™ D2550 Intel® Core™ i7 2610UE	Intel® Atom™ x5-E3930	Intel® Atom™ D2550 Intel® Core™ i7 2610UE
Intel® ICH10R Intel® QM67	Intel® ICH10R Intel® QM67	N/A	Intel® ICH10R
DDR3 1333MHz SO-DIMM slot (up to 4GB)	DDR3 1333MHz SO-DIMM slot (up to 4GB)	DDR3L 1333/1600 SO-DIMM, 4GB (default) up to 8GB	DDR3 1333MHz SO-DIMM slot (up to 4GB)
1 x CFast 1 x 2.5" SSD SATA 2.0 (9.5mm)	1 x CFast 1 x 2.5" SSD SATA 2.0 (9.5mm)	1 x CFast 1 x 2.5" SATA 3.0 SSD bay (9.5mm)	1 x CFast 1 x 2.5" SSD SATA 2.0 (9.5mm)
DC 9V to 36V	DC 9V to 36V	DC 9V to 60V	DC 9V to 36V
Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting
Low voltage protection & configuration via software	Low voltage protection & configuration via software	Low voltage protection & configuration via software	Low voltage protection & configuration via software
u-blox NEO-6Q on board	u-blox NEO-6Q on board	Optional VIOB-GPS-02 module (u-blox NEO-M8N)	u-blox NEO-M8N on board
Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN
1 x USB 2.0	1 x USB 2.0	1 x Powered USB (5V/1.5A, 12V/1.5A) USB 2.0 type A (5V/1A) USB 2.0 type A (5V/1A)	2 x USB 2.0
1 x RS232	1 x RS232	2 x RS232 (5V/1.5A, 12V/1.5A) 1 x RS232 (share with GPS)	1 x RS232 (5/12V), 1 x RS232 (TX/RX), 1 x RS232/422/485
1 x CAN bus 2.0B Optional OBDII	1 x CAN bus 2.0B Optional OBDII	1 x Isolated CAN bus 2.0B	1 x CAN bus 2.0B Optional OBDII
1 x 10/100/1000	1 x 10/100/1000	1 x 10/100/1000	2 x 10/100/1000
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
1 x (PCIe+ USB+ SATA), 1 x USB	1 x (PCIe+ USB+ SATA),1 x USB	1 x (PCIe + USB), 1 x USB 1 x M.2 Key E (PCIe+SDIO+UART+USB)	1 x (PCIe+ USB+ SATA), 1 x USB
3 x In, 3 x Out	3 x In, 3 x Out	2 x In, 2 x Out	2 x In, 2 x Out
CE, FCC Class B	CE, FCC Class B	CE, FCC Class B, E13	CE, FCC Class B
VMC 3001: WES 7, Win 7, Win XP, Linux VMC 3501: WES 7, Win 7, Win 8, WES 8, Win XP, Linux	VMC 3011: WES 7, Win 7, Win XP, Linux VMC 3511: WES 7, Win 7, Win 8, WES 8, Win XP, Linux	Win 10, Linux (Kernel 3.x)	VMC 4011-K: WES 7, Win 7, Win XP, Linux VMC 4511-K: WES 7, Win 7, Win 8, WES 8, Win XP, Linux
-30°C to 60°C	-30°C to 60°C	-30°C to 60°C	-30°C to 60°C

Product Selection Tables

Modular Vehicle Computer System

Model							
	MVS 5200 (w/ VMS SW)	MVS 5210 (w/ VMS SW)	MVS 5600-3BK	MVS 5603-3C8SK	MVS 5600-7BK	MVS 5603-7C8SK	NANO 1190 (w/ VMS SW)
CPU	Intel® Core™ i3-5010U	Intel® Core™ i7-5650U	Intel® Core™ i3-6100U	Intel® Core™ i3-6100U	Intel® Core™ i7-6600U	Intel® Core™ i7-6600U	ARM® Cortex® A9
Chipset	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Memory	2 channel DDR3L 1600 SO-DIMM, 2GB (default) up to 16GB	2 channel DDR3L 1600 SO-DIMM, 2GB (default) up to 16GB	2 channel DDR3L 1600 SO-DIMM, 2GB (default) up to 16GB	2 channel DDR3L 1600 SO-DIMM, 2GB (default) up to 16GB	2 channel DDR3L 1600 SO-DIMM, 2GB (default) up to 16GB	2 channel DDR3L 1600 SO-DIMM, 2GB (default) up to 16GB	DDR3L, 1GB
Storage	2 x 2.5" SSD/HDD SATA 3.0 removable (15mm), 1 x mSATA	2 x 2.5" SSD/HDD SATA 3.0 removable (15mm), 1 x mSATA	2.5" SSD/HDD SATA 3.0 removable (9.5mm)	2 x 2.5" SSD/HDD SATA 3.0 removable (9.5mm)	2.5" SSD/HDD SATA 3.0 removable (9.5mm)	2 x 2.5" SSD/HDD SATA 3.0 removable (9.5mm)	1 x 2.5" SSD SATA 2.0 removable (9.5mm)
Second Storage	1 x CFast slot (accessible)	1 x CFast slot (accessible)	1 x CFast slot (accessible)	1 x CFast slot (accessible)	1 x CFast slot (accessible)	1 x CFast slot (accessible)	N/A
Dimension (mm)	260 x 206 x 137	260 x 206 x137	260 x 196 x 66.5	260 x 196 x 90.1	260 x 196 x 66.5	260 x 196 x 90.1	165 x 137.6 x 82.5
Power Input	DC 9V to 36V (w/ opitonal internal back up battery)	DC 9V to 36V (w/ opitonal internal back up battery)	DC 9V to 36V (w/ opitonal internal back up battery)	DC 9V to 36V (w/ opitonal internal back up battery)	DC 9V to 36V (w/ opitonal internal back up battery)	DC 9V to 36V (w/ opitonal internal back up battery)	DC 9V to 36V
Ignition Control	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting
Power Management	Low voltage protection & configuration via software	Low voltage protection & configuration via software	Low voltage protection & configuration via software	Low voltage protection & configuration via software	Low voltage protection & configuration via software	Low voltage protection & configuration via software	Low voltage protection & configuration via software
GPS	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)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	Optional VIOB-GPS-02 module (u-blox NEO-M8N)
Optional Communication	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN	N/A
Voice Communication	Yes	Yes	Yes	Yes	Yes	Yes	N/A
SMS/Ring Wake Up	Yes	Yes	Yes	Yes	Yes	Yes	N/A
SIM Socket	3	3	3	3	3	3	N/A
USB 2.0	2 x USB 3.0 2 x USB 2.0	2 x USB 3.0 2 x USB 2.0	4 x USB 3.0	4 x USB 3.0	4 x USB 3.0	4 x USB 3.0	2 x USB 2.0
COM	2 x RS232/422/485	2 x RS232/422/485	2 x RS232, 1 x RS232/422/485	2 x RS232, 1 x RS232/422/485	2 x RS232, 1 x RS232/422/485	2 x RS232, 1 x RS232/422/485	N/A
CAN/OBDII	CAN bus 2.0B on board. Optional CAN/SAE J1939/SAE J1708 module	CAN bus 2.0B on board. Optional CAN/SAE J1939/SAE J1708 module	CAN bus 2.0B on board. Optional CAN/SAE J1939/SAE J1708 module	CAN bus 2.0B on board. Optional CAN/SAE J1939/SAE J1708 module	CAN bus 2.0B on board. Optional CAN/SAE J1939/SAE J1708 module	CAN bus 2.0B on board. Optional CAN/SAE J1939/SAE J1708 module	N/A
Video Out	1 x PC VGA, 1 x NVR VGA, 1 x LVDS	1 x PC VGA, 1 x NVR VGA, 1 x LVDS	VGA, HDMI	VGA, HDMI	VGA, HDMI	VGA, HDMI	VGA
PCI-104	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ethernet	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000	1 x Intel® 10/100/1000
PoE (802.3af,total 60W)	8	8	0	8	0	8	4 (802.3at, 60W)
Audio	1 x Mic-in, 2 x Line-out	1 x Mic-in, 2 x Line-out	2 x Mic-in, 2 x Line-out	2 x Mic-in, 2 x Line-out	2 x Mic-in, 2 x Line-out	2 x Mic-in, 2 x Line-out	1 x Line-out
Mini-PCIe Socket	1 x (PCIe+USB), 1 x USB, 1 x mSATA	1 x (PCIe+USB), 1 x USB, 1 x mSATA	2 x (PCIe+USB) , 1 x USB	2 x (PCIe+USB), 1 x USB	2 x (PCIe+USB), 1 x USB	2 x (PCIe+USB), 1 x USB	N/A
SMBus	1	1	1	1	1	1	N/A
DC Output	12V (2A)	12V (2A)	12V (2A)	12V (2A)	12V (2A)	12V (2A)	N/A
GPIO	PC: 4 x DI , 4 x DO MCU: 3 x DI, 2 x DO 2 x Analog-In, 1 x Speed Frequency	PC: 4 x DI, 4 x DO MCU: 3 x DI, 2 x DO 2 x Analog-In, 1 x Speed Frequency	8 x Programmable DIO MCU: 2 x DI, 2 x DO, 1 x Speed Frequency	8 x Programmable DIO MCU: 2 x DI, 2 x DO, 1 x Speed Frequency	8 x Programmable DIO MCU: 2 x DI, 2 x DO, 1 x Speed Frequency	8 x Programmable DIO MCU: 2 x DI, 2 x DO, 1 x Speed Frequency	N/A
Certification	CE, FCC Class B, E13	CE, FCC Class B, E13	CE, FCC Class B, E13	CE, FCC Class B, E13	CE, FCC Class B, E13	CE, FCC Class B, E13	CE, FCC Class A, E13
OS	Win 10, Win 8, WES 8, Win 7, WES 7, Linux (Kernel 3.x)	Win 10, Win 8, WES 8, Win 7, WES 7, Linux (Kernel 3.x)	Win 10, Win 8, WES 8, Win 7, WES 7, Linux (Kernel 3.x)	Win 10, Win 8, WES 8, Win 7, WES 7, Linux (Kernel 3.x)	Win 10, Win 8, WES 8, Win 7, WES 7, Linux (Kernel 3.x)	Win 10, Win 8, WES 8, Win 7, WES 7, Linux (Kernel 3.x)	Linux (Cannot install extra SW)
Operation Temperature	-30°C to 50°C (w/o internal back up battery)	-30°C to 50°C (w/o internal back up battery)	-30°C to 60°C (w/o internal back up battery)	-30°C to 60°C (w/o internal back up battery)	-30°C to 60°C (w/o internal back up battery)	-30°C to 60°C (w/o internal back up battery)	-40°C to 70°C

Product Selection Tables

Train Computer

Model				
	nROK 1020-A	nROK 3000	nROK 5300	nROK 5500
CPU	Intel® Atom™ x5-E3930	Intel® Atom™ D525	Intel® Core™ i5 3610ME	Intel® Core™ i7 3517UE
Chipset	N/A	ICH-8M	Intel® QM77	Intel® QM77
Memory	DDR3L SO-DIMM 4GB (default) up to 16GB	DDR3 1333 SO-DIMM 1GB (default) up to 4GB	DDR3 1333 SO-DIMM 2GB (up to 16G)	DDR3 1333 SO-DIMM 2GB (up to 16G)
Storage	1 x 2.5" SSD SATA3.0 (9.5mm)	1 x 2.5" SATA 2.0 SSD removable tray (9.5mm)	4 x 2.5" SATA 2.0 SSD removable tray (3 x removable (9.5mm)) + 1 x fixed HDD tray (15mm for optional)	4 x 2.5" SATA 2.0 SSD removable tray (3 x removable (9.5mm)) + 1 x fixed HDD tray (15mm for optional)
Second Storage	1 x CFast slot (accessible)	1 x CFast socket (external)	1 x Mini-PCIe SSD	1 x Mini-PCIe SSD
Dimension (mm)	185 x 120 x 45	260 x 178 x 70	482 x 400 x 88	482 x 400 x 88
Power Input	24VDC (w/o isolation)	24VDC/110VDC (w/ isolation)	24/36/72/110 VDC (w/ isolation)	24/36/72/110 VDC (w/ isolation)
Ignition Control	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting
Power Management	Low voltage protection & configuration via software	Low voltage protection & configuration via software	Low voltage protection & configuration via software	Low voltage protection & configuration via software
GPS	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)
Optional Communication	Wi-Fi/Bluetooth/WWAN	WiFi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN
SMS/ Ring Wake Up	Yes	Yes	Yes	Yes
SIM Socket	1	1 (external)	2	2
USB	2 x USB 3.0	1 x USB 2.0 1 x USB 2.0 (M12)	1 x M12 with 2 x USB 2.0 signal 2 x USB 3.0	1 x M12 with 2 x USB 2.0 signal 2 x USB 3.0
COM	5 x RS232 (TX/RX) 2 x RS485	1 x RS232 (w/ isolation) 1 x RS422 (w/ isolation) 2 x RS485 (w/ isolation)	2 x RS232 1 x RS422/485	2 x RS232 1 x RS422/485
CAN/OBDII	CAN bus 2.0B on board. Optional SAE J1708/SAE J1939 module	N/A	N/A	N/A
Video Out	HDMI, VGA	VGA, DVI-D	VGA, HDMI	VGA, HDMI
PCI-104	N/A	1	1	1
Ethernet	1 x Intel® 10/100/1000 (M12)	3 x 10/100/1000 (M12)	2 x 10/100/1000 (M12)	2 x 10/100/1000 (M12)
PoE (802.3af, total 60W)	N/A	N/A	8 (M12)	8 (M12)
Audio	1 x Mic-in, 1 x Line-out (M12)	1 x Mic-in, 1 x Line-out (M12)	1 x Mic-in, 1 x Line-out, 1 x Line-in	1 x Mic-in, 1 x Line-out, 1 x Line-in
Mini-PCIe Socket	1 x (PCIe+USB+mSATA), 1 x USB	1 x (PCIe+USB), 1 x USB	2 x (PCIe+USB), 1 x USB	2 x (PCIe+USB), 1 x USB
SMBus	1	N/A	N/A	N/A
DC Output	12V (2A)	N/A	N/A	N/A
GPIO	5 x Programmable GPIO	4 x in, 4 x out	4 x DI, 4 x DO	4 x DI, 4 x DO
Certification	CE, FCC Class B, EN50155	CE, FCC Class A, EN50155	CE, FCC Class A, EN50155, EN45545-2	CE, FCC Class A, EN50155, EN45545-2
OS	Win 10, Linux (Kernel 3.x)	Win XP, Win 7	WES 7, Win 7, Win 8, WES 8, Win10, Win XP, Linux	WES 7, Win 7, Win 8, WES 8, Win10, Win XP, Linux
Operation Temperature	-40°C to 70°C (TX)	-40°C to 70°C (TX)	-40°C to 70°C (TX)	-40°C to 70°C (TX)

				
	MVS 5210-R	VTC 6210-R	VTC 7220-R	NANO 1190-RA (w/ VMS SW)
CPU	Intel® Core™ i7-5650U	Intel® Atom™ E3845	Intel® Core™ i74650U	ARM® Cortex® A9
Chipset	N/A	N/A	N/A	N/A
Memory	DDR3 1333 SO-DIMM 2GB (up to 16G)	DDR3 1333 SO-DIMM 2GB (up to 8G)	DDR3 1333 SO-DIMM 2GB (up to 16G)	DDR3L, 1GB
Storage	2 x 2.5" SSD/HDD SATA 3.0 removable (15mm), 1 x mSATA	1 x 2.5" SATA 2.0 SSD removable tray (9.5mm)	2 x 2.5" SATA 2.0 SSD removable tray (9.5mm)	1 x 2.5" SATA 2.0 SSD removable tray (9.5mm)
Second Storage	1 x CFast slot (accessible)	1 x CFast slot (accessible)	1 x CFast slot (accessible)	N/A
Dimension (mm)	260 x 206 x 130	260 x 176 x 70	260 x 206 x 137.5	165 x 137.6 x 82.5
Power Input	24VDC (w/o isolation)/ 110VDC (w/isolation) (w/ opitonal internal back up battery)	24VDC/36VDC (w/o isolaiton) 110 VDC (w/ isolation)	24/36/110 VDC (w/ isolation)	24VDC (w/o isolation)
Ignition Control	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting	Yes, w/ 8 level delay time setting
Power Management	Low voltage protection & configuration via software	Low voltage protection & configuration via software	Low voltage protection & configuration via software	Low voltage protection & configuration via software
GPS	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	Optional VIOB-GPS-02 module (u-blox NEO-M8N)
Optional Communication	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN	Wi-Fi/Bluetooth/WWAN	N/A
SMS/ Ring Wake Up	Yes	Yes	Yes	N/A
SIM Socket	3	3	3	N/A
USB	2 x USB 3.0 2 x USB 2.0	M12 (2 x USB 2.0), 1 x USB 3.0	2 x USB 3.0 type A 2 x USB 2.0 type A	2 x USB 2.0
COM	2 x RS232/422/485	2 x RS232 (isolation) 1 x RS422/485 (isolation)	2 x RS232 1 x RS232/485/422	N/A
CAN/OBDII	CAN bus 2.0B on board. Optional CAN/SAE J1939/SAE J1708 module	CAN bus 2.0B on board Optional CAN/OBDII module	CAN bus 2.0B on board Optional CAN/OBDII module	N/A
Video Out	1 x PC VGA, 1 x NVR VGA, 1 x LVDS	VGA, DP	VGA, DP	VGA
PCI-104	N/A	N/A	N/A	N/A
Ethernet	2 x 10/100/1000 (M12)	2 x 10/100/1000 (M12)	2 x 10/100/1000 (M12)	1 x 10/100/1000 (M12)
PoE (802.3af, total 60W)	8 (M12)	N/A	N/A	4 (M12, 802.3at, 60W)
Audio	M12 (1 x Mic-in, 1 x Line-out), 1 x Line-out	2 x Mic-in, 2 x Line-out	2 x Mic-in, 2 x Line-out	1 x Line-Out
Mini-PCIe Socket	1 x (PCIe+USB), 1 x USB, 1 x mSATA	2 x (PCIe+USB), 1 x USB	3 x (PCIe+USB), 1 x USB	N/A
SMBus	N/A	N/A	N/A	N/A
DC Output	N/A	N/A	N/A	N/A
GPIO	PC: 4 x DI, 4 x DO MCU: 3 x DI, 2 x DO, 2 x Analog-In, 1 x Speed Frequency	4 x DI (isolation) 4 x DO (isolation)	8 x Programmable DI/DO	N/A
Certification	CE, FCC Class B, E13, EN50155	CE, FCC Class A, EN50155	CE, FCC Class A, EN50155	CE, FCC Class A, E13, EN50155
OS	Win 10, Win 8, WES 8, Win 7, WES 7, Linux (Kernel 3.x)	Win 10, Win 8, Win 7, WES 7 Linux (Kernel 3.x)	Win 10, Win 8, WES 8,Win 7, WES 7, Win XP, Linux (Kernel 3.x)	Linux (Cannot install extra SW)
Operation Temperature	-40°C to 70°C (TX) (w/o internal backup battery)	-40°C to 70°C (TX)	-40°C to 70°C (TX)	-40°C to 70°C (TX)

Fleet Management System

Model	FMS 1000
CPU	ST MCU
Chipset	N/A
Memory	PSRAM 1MB
Storage	Optional USB flash
Second Storage	N/A
Dimension (mm)	153 x 146 x 56
Power Input	DC 9V to 36V (w/ internal back up battery)
Ignition Control	Yes, w/ 8 level delay time setting
Power Management	Battery deep discharge protection
GPS	uBlox NEO-M8N on board
Wireless Communication	Wi-Fi (optional)/WWAN
Voice Communication	Yes
SMS/ Ring Wake Up	Yes
SIM Socket	1
USB 2.0	1
COM	1 x RS232 (w/ 12VDC) for RFID reader
CAN/OBDII	2 x CAN 2.0B
Video Out	N/A
PCI-104	N/A
Ethernet	1 x 10/100
PoE	N/A
Mini-PCIe Socket	1 x SPI
SMBus	N/A
DC Output	12VDC (1A)
GPIO	3 x DI, 3 x DO 2 x Analog-in 1 x Speed frequency
Certification	IP67
Operation Temperature	-40°C to 70°C (w/o battery) -20°C to 40°C (w/ battery)

Rugged Tablet Computer

Model	MRC 1000
LCD	7" WVGA TFT (LED type)
Touch	4-wire resistive
CPU	Intel® Atom™ Z530
Memery	2GB DDR2
Storage	32G SSD
Wireless	802.11a/b/g/n, BT v2.1+EDR Option: GSM/GPRS/3.5G
GPS	Optional
Camera	Rear: 2.0M Pixel CMOS
Optional Modules	Barcode scanner/MSR module
Power	DC in 19V/3.42A
IO Interface	1 x Audio jack 2 x USB 2.0 1 x Finger print reader
IP Rating	IP65
Weight (kg)	0.99
Dimension (mm)	206 x 200 x 34
Operation Temperature	-20°C to 50°C
Certification	CE, FCC Class B

About NEXCOM

Reliable Partner for the Intelligent Solutions

Founded in 1992 and headquartered in Taipei, Taiwan, NEXCOM is committed to being your trustworthy partner in building the intelligent solutions. To surpass customers' expectations, NEXCOM makes the difference by utilizing its decades of industrial computing experience, a highly talented R&D team, and by providing exceptional levels of 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, which are IoT Automation Solutions (IAS), Intelligent Digital Security (IDS), Internet of Things (IoT), Intelligent Platform & Services (IPS), Mobile Computing Solutions (MCS), and Network and Communication Solutions (NCS). This strategic deployment enables NEXCOM to offer time-to-market, time-to-solution products and service without compromising cost.

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

Partners should also be assured that NEXCOM's Taiwan based Headquarters and subsidiary offices in China, UK and USA have obtained ISO 9001:2008 Certification.

IAS	IoT Automation Solutions: Industry 4.0 Solution, industrial robot & motion, industrial network, DMS 4.0
IDS	Intelligent Digital Security: IP Cam, NVR, mobile server platform
IoT	Internet of Things: total solutions for vertical IoT applications Healthcare and Medical Informatics: total solutions with a variety of medical IT systems
IPS	Intelligent Platform & Services: smart retails, digital signage, interactive kiosk, customization services
MCS	Mobile Computing Solutions: rugged computer devices, rugged mobile computer Vehicle Telematics Computer: Car PC, heavy duty vehicle, train PC
NCS	Network and Communication Solutions: network security, HPC, telecommunication, storage, SDN/NFV, industrial security

Corporate Vision

To become the industrial leader in providing intelligent 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 innovative supplier in vertical application markets
- A quality partner in engineering, manufacturing and services

Business Strategy

Aim 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 enhances each business unit concentrating on strategic channel accounts and on repeat order business. Moreover, NEXCOM's business units have been set up to serve the requirements of key project accounts, where product ODM and project support are frequently required.

NEXCOM is working with embedded computing solution providers to envision new opportunities for growth. We'll help you deliver reliable vertical solutions, optimized for the next wave of IoT and Industry 4.0 solutions.

Headquarters

NEXCOM International Co., Ltd.
9F, No.920, Chung-Cheng Rd., ZhongHe District, New Taipei City, 23586, Taiwan, R.O.C.
Tel: +886-2-8226-7786
Fax: +886-2-8226-7782
www.nexcom.com

America

USA
NEXCOM USA
2883 Ba yview Drive,
Fremont CA 94538, USA
Tel: +1-510-656-2248
Fax: +1-510-656-2158
Email: sales@nexcom.com
www.nexcom.com

Asia

Taiwan
NEXCOM Intelligent Systems Taipei Office
13F, No.920, Chung-Cheng Rd.,
ZhongHe District,
New Taipei City, 23586, Taiwan, R.O.C.
Tel: +886-2-8226-7796
Fax: +886-2-8226-7792
Email: sales@nexcom.com.tw
www.nexcom.com.tw

NEXCOM Intelligent Systems Taichung Office
16F, No.250, Sec. 2, Chongde Rd.,
Beitun Dist.,
Taichung City 406, R.O.C.
Tel: +886-4-2249-1179
Fax: +886-4-2249-1172
Email: sales@nexcom.com.tw
www.nexcom.com.tw

Japan
NEXCOM Japan
9F, Tamachi Hara Bldg.,
4-11-5, Shiba Minato-ku,
Tokyo, 108-0014, Japan
Tel: +81-3-5419-7830
Fax: +81-3-5419-7832
Email: sales@nexcom-jp.com
www.nexcom-jp.com

China

NEXCOM China
1F & 2F, Block A, No.16 Yonyou Software Park,
No.68 Beiqing Road, Haidian District,
Beijing, 100094, China
Tel: +86-10-5704-2680
Fax: +86-10-5704-2681
Email: sales@nexcom.cn
www.nexcom.cn

NEXCOM Shanghai
Room 603/604, Huiyinmingzun Plaza Bldg. 1,
No.609 Yunlin East Rd.,
Shanghai, 200333, China
Tel: +86-21-5278-5868
Fax: +86-21-3251-6358
Email: sales@nexcom.cn
www.nexcom.cn

NEXCOM Surveillance Technology
Room 209, Floor 2 East, No.2,
Science & Technology industrial park of
privately owned enterprises,
Xili, Nanshan Dist.,
Shenzhen, 518055, China
Tel: +86-755-8364-7768
Fax: +86-755-8364-7738
Email: steveyang@nexcom.com.tw
www.nexcom.cn

NEXCOM United System Service
Hui Yin Ming Zun Building Room 1108, Bldg.
No.11, 599 Yunling Rd., Putuo District,
Shanghai, 200062, China
Tel: +86-21-6125-8282
Fax: +86-21-6125-8281
Email: frankyang@nexcom.cn
www.nexcom.cn

Europe

United Kingdom
NEXCOM EUROPE
10 Vincent Avenue,
Crownhill Business Centre,
Milton Keynes, Buckinghamshire
MK8 0AB, United Kingdom
Tel: +44-1908-267121
Fax: +44-1908-262042
Email: sales.uk@nexcom.eu
www.nexcom.eu

Italy
NEXCOM ITALIA S.r.l
Via Lanino 42,
21047 Saronno (VA), Italia
Tel: +39 02 9628 0333
Fax: +39 02 9625 570
Email: nexcomitalia@nexcom.eu
www.nexcomitalia.it

NEXCOM
The Intelligent Systems