

VPC450 Communication Gateway

(with NXP i.MX8M Plus ARM application processor)



- 64-bit ARM CPU (Cortex-A53@1.6Ghz)
- Support M.2 LTE/5G Module
- Power Saving Mode
- Remote Wake-up
- Over Voltage Protection
- Isolated: GPIO, CAN-FD, COM
- Android / Linux (Yocto)
- Compact Size



Typical Applications

- Vehicle Gateway
- Fleet Management
- IOT Gateway

Overview

VPC450 is a communication gateway designed for in-vehicle applications or IOT (Internet of Things) applications. VPC450 offers some unique features, including a 64-bit ARM processor, M.2 LTE/5G modem slots, voltage protection, software controlled on/off and remote wakeup.

With the latest Yocto, Android OS and tools, VPC450 allows users to quickly design and deploy custom software for various applications, such as vehicle tracking, fleet management and IOT communication gateway.

Key Features and Specifications



- **64-bit ARM quad-core Cortex-A53 Application Processor**

VPC450 incorporates the latest NXP iMX8M Plus processor, a 64-bit quad-core ARM Cortex-A53. A 64-bit processor is more capable than a traditional 32-bit one and is with long term Android/Linux support.



- **Android / Yocto for application development and deployment**

VPC450 offers Yocto, Android OS, tool chains, device drivers and sample application software. These resources enable users to quickly develop and deploy software on the VPC products.



- **Wide DC input range /Over-voltage protection /Reverse-voltage protection**

VPC450 operates over a wide input-voltage range of 9V~36V. In addition, the DC input is with over-voltage, over-current and reverse-voltage protection.



- **M.2 LTE/5G modem slot / SIM card slot**

VPC450 supports M.2 modem slots for LTE/5G module to maximize WAN speed.



- **Software controlled power on-off / power-on by a digital input signal**

VPC450 power on/off can be controlled by software. This is for software to ensure data is completely saved before system shutdown. An external digital input signal can be used to turn on VPC400 power.



- **2x LAN Interfaces (LAN2 optional)**

VPC450 is built with 1x GbE interface by default. An optional GbE LAN2 can be added. Two LANs are independent ports and provide more communication bandwidth.



- **Isolated GPIO / CAN-FD / COM ports**

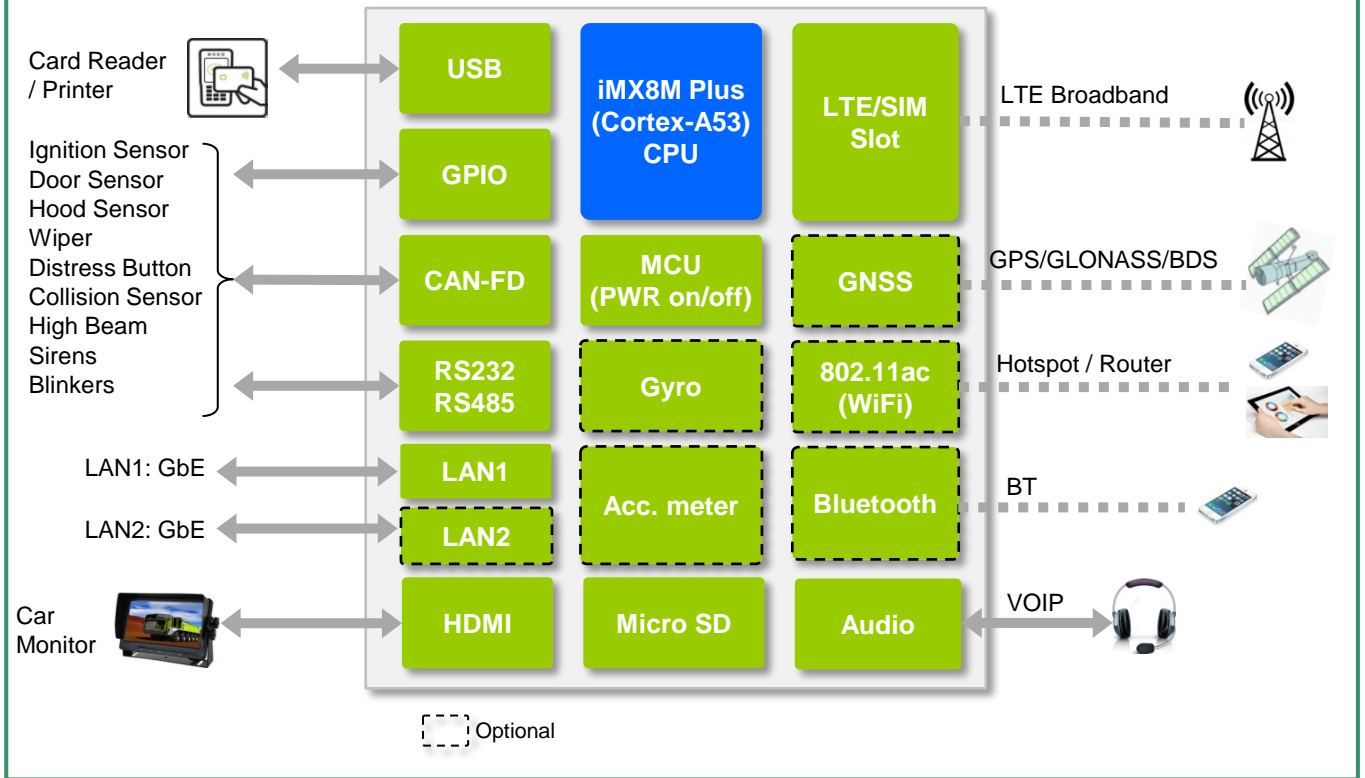
Interface isolation prevents high voltage damage from external devices. VPC450 GPIOs are photo-coupled input and output. CAN-FD and COM ports are also with isolation.

[VPC450 is not a product for end customers. It is an open platform and intended for software developers or system integrators to develop and deploy software for their end applications.](#)

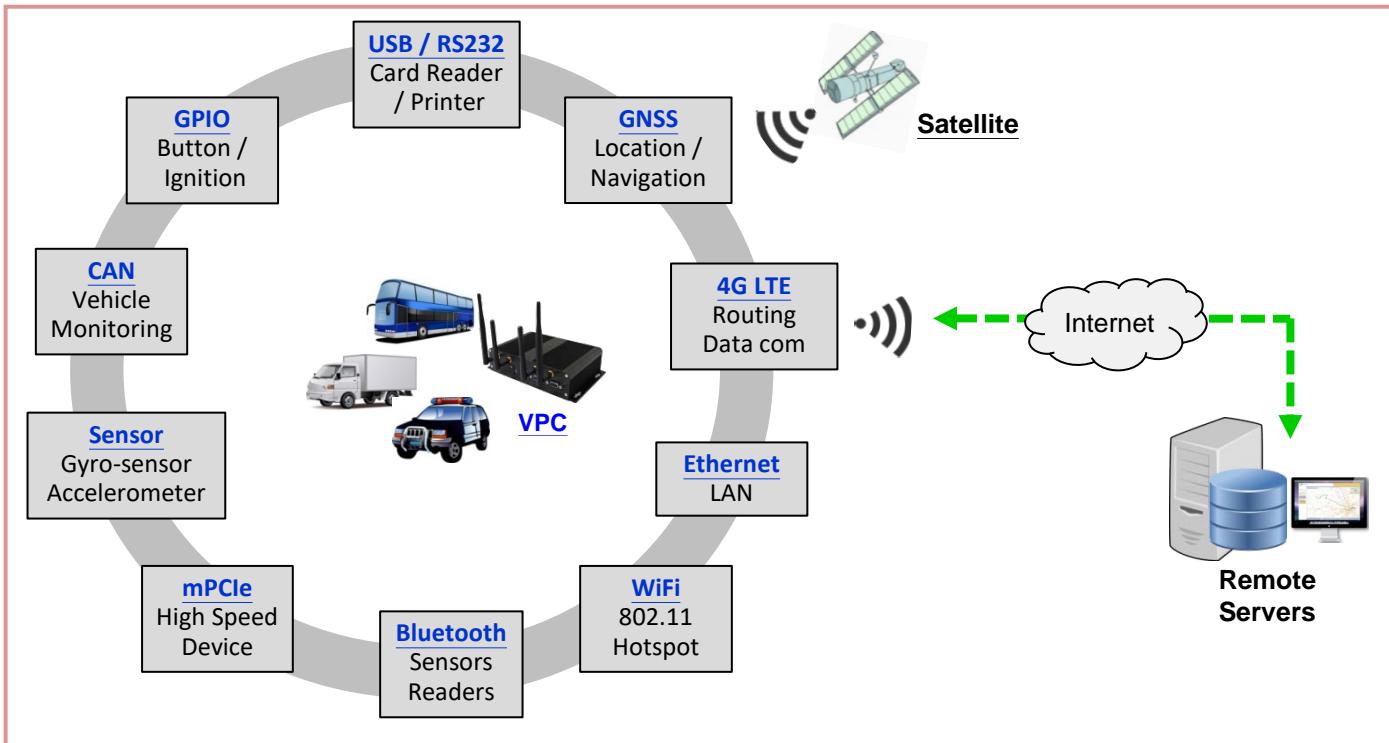
VPC450

Communications Gateway (Internet of Things, In-vehicle Computer)

VPC450 Block Diagram



Application: In-Vehicle Computer



VPC450



VPC450 Hardware Specifications

CPU	NXP iMX8M Plus / Quad-core ARM Cortex™-A53 @ 1.6GHz
Memory	2GB LPDDR4 / 8GB eMMC
OS	Yocto 4.0 / Android 12.0 (and newer)
Dual LTE Slots	SIM card slot / Antenna: external LTE slot (M.2 form factor)
GNSS	(optional) GPS / GLONASS
Sensors	(optional) 6-axis accelerometer
Inputs / Outputs	(isolated) 2x CAN-FD (isolated) 2x RS232 (or RS485) 4x Photo-coupled open-collector output 7x Photo-coupled digital input (5 – 24V)
USB port	2x USB2.0 / 2x USB3.0 / 1x OTG (HS)
WiFi / BT	(optional) 802.11 ac WiFi and Bluetooth 4.2/BLE
Ethernet	1x GbE + 1x (optional) GbE
Display	1x HDMI
Audio	Head-phone output + MIC input
Software on/off	Power on/off by software
Power Input	DC 9 - 36V with Over-Voltage Protection; Reverse Voltage Protection
Dimension Weight	100mm x 204mm x 48mm (L/W/H) <TBD>
Temperature	Operating : -20°C-70°C / Storage : <TBD>

VPC450 Software Specifications

OS

- VPC450: Yocto 4.0 and Android 12

Device Drivers

- LPDDR4, Flash, USB, MicroSD, RS232, RS485, GNSS, LTE, Gyro-sensor, Accelerometer, CAN, GPIO, LAN, WiFi, Bluetooth, Audio

Management

- Local and remote advanced configuration through http-based Device Manger program
- Report: CPU usage, frequency , temperature, DRAM size
- Support HTTP protocol
- Command Line Interface via TTY/SSH
- System power control , support suspend mode operation

Routing Features

- IPv4
- DNS Server
- NAT
- Port forwarding Ethernet & WIFI both
- Routing function

CAN Bus

- Device driver to transmit/receive data packet for various protocol (e.g. J1939,etc)

GNSS

- Support NMEA0183 protocol
- Time sync with GNSS satellite

LTE Network

- Support LTE network and routing
- LTE signal strength monitor

GPIO control

- Set/Read GPIO by local and remote http-based Device Manager

MQTT

- Demo program for MQTT function

Sensor

- Demo program for Gyro sensor
- Demo program for Accelerometer

VPC450 Ordering Information

Part No.	OS	LPDDR4	Common Specifications	
VPC450-A	Android	2GB	iMX8M Plus Quad-Core 8GB eMMC 10/100/1000 Ethernet x1 2x USB3.0 / 2x USB2.0 1x USB2.0 OTG / Micro SD slot	LTE socket / SIM holder HDMI TX (Isolated I/O) RS232 / CAN-FD / GPIO
VPC450-A-4G		4GB		
VPC450-Y	Yocto	2GB		
VPC450-Y-4G		4GB		

** Contact us for optional functions: WiFi/BT, LAN2, GNSS, 6-axis sensor, etc.

VPC450 option modules:

P/N	Band	Suggested Area
S76NAH	B2/ B4/ B12	North America/ AT&T
S76EH	B1/ B3/ B5/ B7/ B8/ B20/ B38/ B40/ B41	Africa, China, Europe, Korea, Middle East, Taiwan
S76JCH	B1/ B3/ B8/ B18/ B19/ B26	Japan
S76SAH	B1/ B3/ B4/ B5/ B7/ B8/ B28/ B40	Australia, New Zealand, South America

Part No.	Description	Photo
PWR-006-VPC	Power Adapter (+12V @ 2.5A or 3A)	
ANT-01	GNSS antenna	
ANT-02	WiFi Antenna (8cm/2dBi, SMA plug reverse)	
ANT-03	3G/LTE antenna	
CAB-10	HDMI cable type A plug (F-F) with screws , 1-meter	
0156-1818L	VPC450 GPIO/COM/CAN Mating Connector	

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