Communication Gateway

(with NXP i.MX6 ARM Cortex application processor)

VPC100
Communication Gateway

VPC300
Communication Gateway

Typical Applications

- **Vehicle Tracking**
- **Fleet Management**
- **Asset Tracking**
- **IOT (Internet of Things) Gateway**

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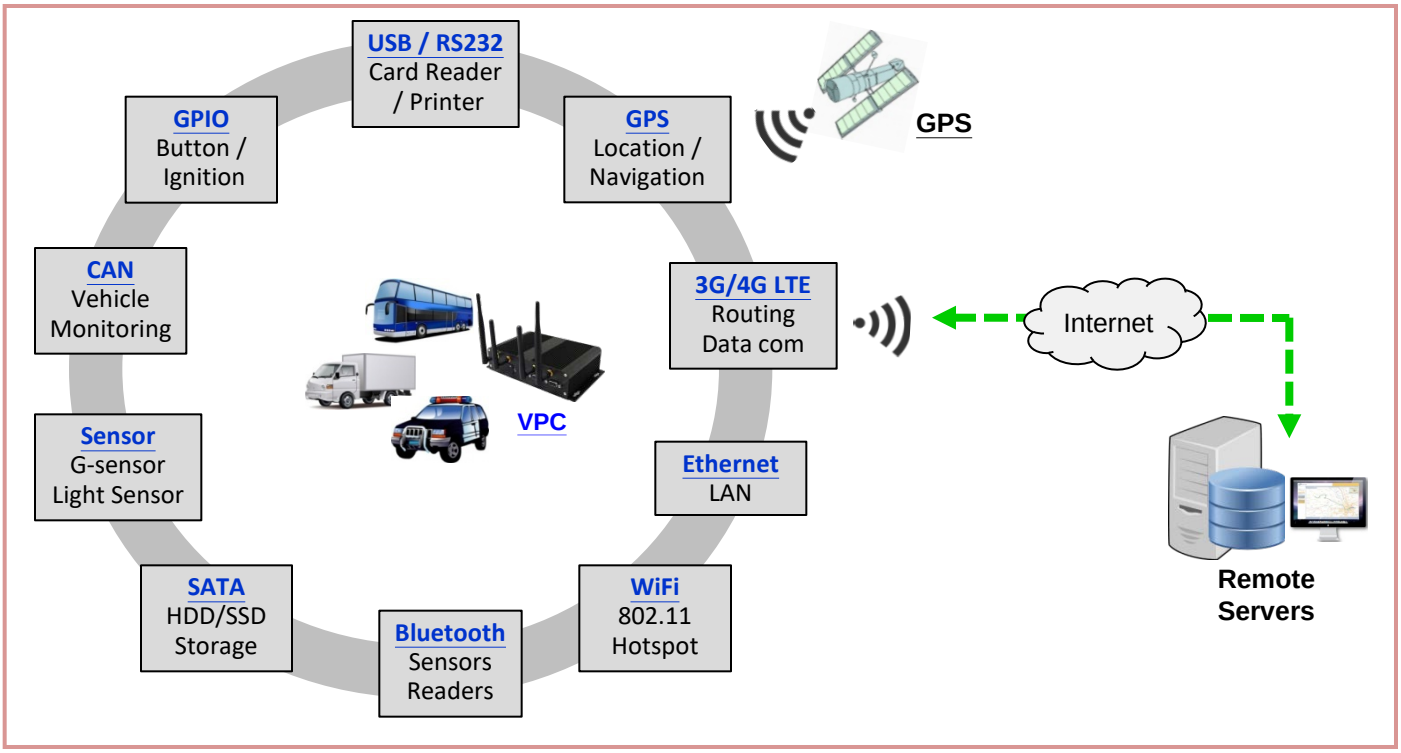
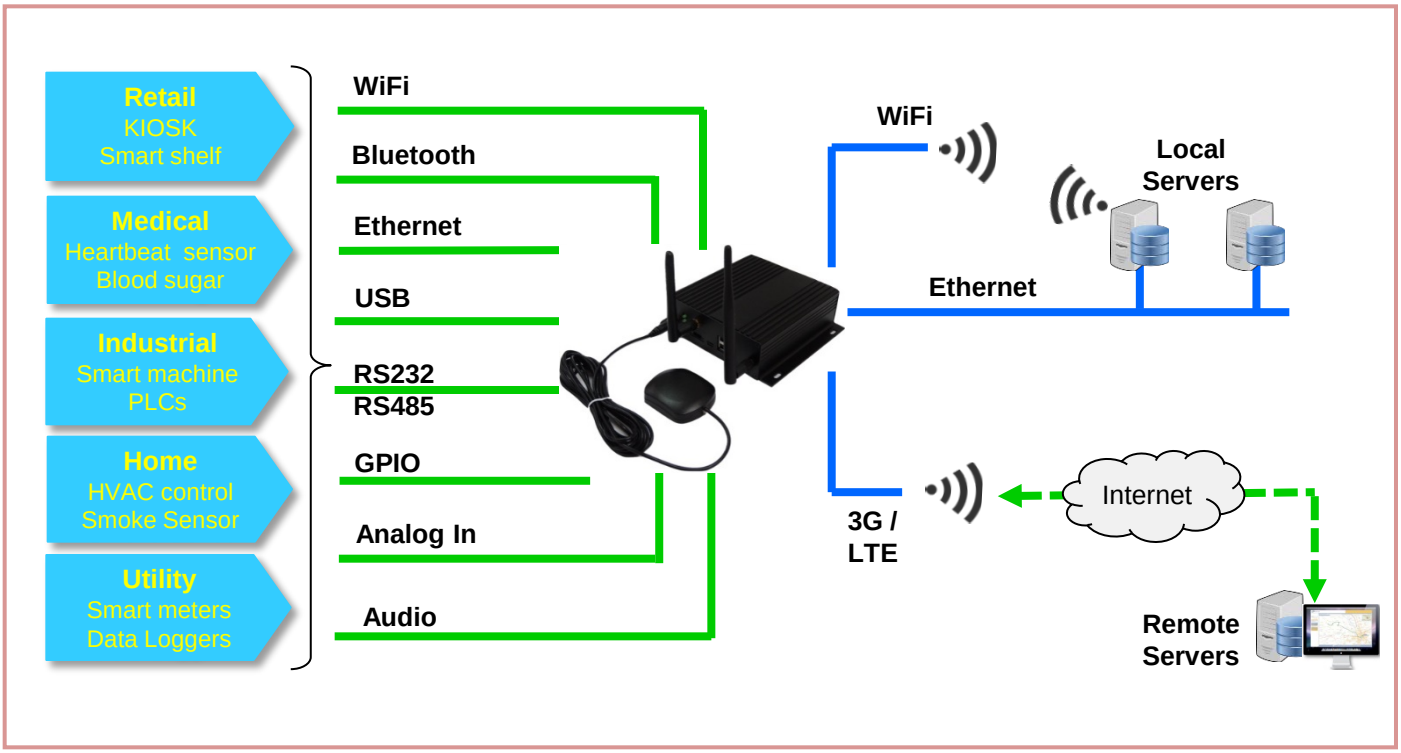
VPC

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

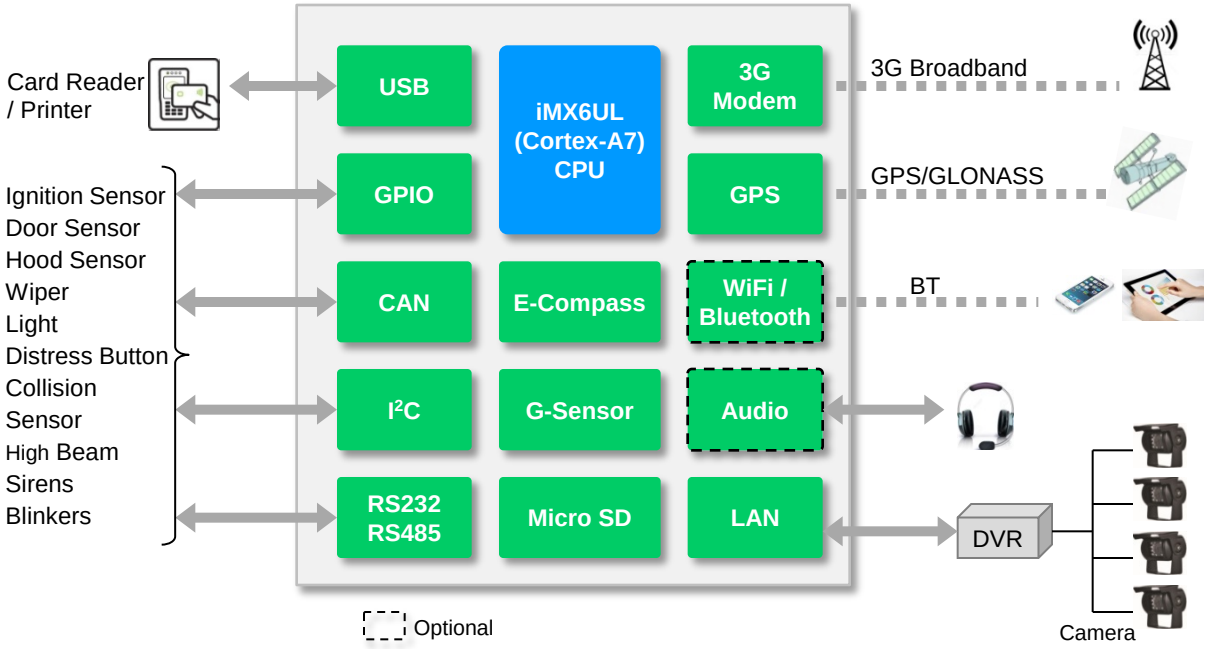
Application: In-Vehicle Computer



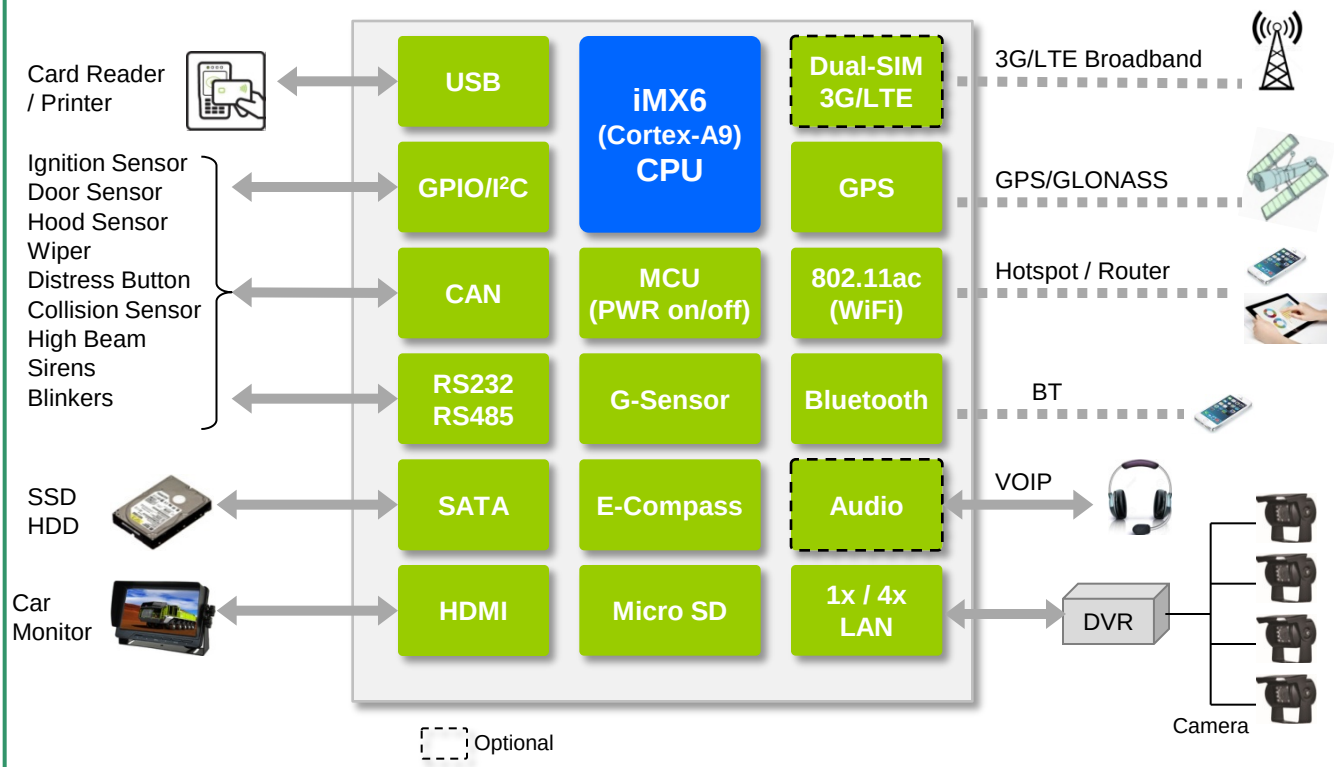
Application: IOT Gateway



VPC100 Block Diagram



VPC300 Block Diagram



VPC100

VPC300

VPC100		VPC300
NXP iMX6UL (Ultra Lite) ARM Cortex™-A7 @ 500MHz	**CPU**	NXP iMX6 Solo/Dual/Quad-core ARM Cortex™-A9 @ 1GHz
256MB RAM / 512MB Flash	**Memory**	1GB (Solo/Dual) ; 2GB (Quad) RAM / 4GB Flash
Linux 3.14 (Yocto 1.8)	**OS**	Linux 3.10 (Yocto 1.6) / Android 6.0 (and newer)
Built-in (3G modem only) Quad Band UMTS/HSPA Speed: HSPA: 5.76Mbps (UL) / 14.4Mbps (DL) SIM card slot: single / Antenna: external	**3G/4G Modem**	**Optional (3G or LTE modem)** Quad Band UMTS/HSPA: Speed: HSPA: 5.76Mbps (UL) / 14.4.6Mbps (DL) SIM card slot: **dual** / Antenna: external
ublox UBX-G7020 (or UBX-M8030) module GNSS Engine: GPS / GLONASS	**GPS**	ublox UBX-G7020 (or UBX-M8030) module GNSS Engine: GPS / GLONASS
3-axis motion tracking sensor	**G-Sensor**	3-axis motion tracking sensor
1x CAN bus / 1x I^2C 1x RS232 (or RS485) 2x Analog input 3x Photo-coupled digital output 9x Photo-coupled digital input	**Inputs / Outputs**	2x CAN bus (isolated) / 1x I^2C bus (isolated) 1x RS232 / 1x RS485 Analog input: --- 3x Photo-coupled digital output 9x Photo-coupled digital input (5 – 24V)
2x Host (HS) / 1x OTG (HS)	**USB port**	2 x Host (HS) / 1x OTG (HS)
---	**mSATA**	YES (for mSATA storage)
Optional (802.11 **b/g/n and** Bluetooth 4.0/BLE)	**WiFi / Bluetooth**	**Built-in** (802.11 **b/g/n/ac** and Bluetooth 4.2/BLE)
1x 10/100Mbps Ethernet	**Ethernet**	1x (**default**) / 4x (**optional**) Gigabit Ethernet
---	**Display Interface**	HDMI
Optional (Head-phone output; MIC input)	**Audio Interface**	**Optional** (Head-phone output; MIC input)
---	**Software on/off**	Power on/off by software
DC 9 – 36V with (**Optional** Over-Voltage Protection) <TBD>	**Power Input Consumption**	DC 9 - 36V with (**Optional** Over-Voltage Protection) <TBD>
125 mm x 147 mm x 41 mm (L/W/H) <TBD>	**Dimension Weight**	138mm x 204mm x 48mm (L/W/H) <TBD>
Operating : -20°C-70°C / Storage : <TBD>	**Temperature**	Operating : -20°C-70°C / Storage : <TBD>
<TBD>	**Shock/Vibration**	<TBD>

VPC

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

VPC100/VPC300 Overview

The VPC100/VPC300 is a communication gateway designed for in-vehicle applications or IOT (Internet of Things) applications. The VPC offers some unique features, including an application processor, a 3G/LTE modem and a ublox GPS receiver.

With the latest Linux kernel, Android and tools, the VPC allows users to design and deploy custom software for various applications, such as vehicle tracking, fleet management and IOT communication gateway.

VPC100/VPC300 Key Features

- **ARM Cortex-A Application Processor**

The VPC incorporates the latest NXP iMX6 low power application processor, an ARM Cortex core @ 500M-1GHz.

- **Application development and deployment**

The VPC offers Linux kernel (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 input-voltage range**.

The VPC operates over a wide input-voltage range of 9V~36V.

- **GPS receiver, G-sensor, E-Compass**

The VPC includes a ublox GPS receiver, a G-sensor and an E-Compass, allowing users to create applications for vehicle tracking, asset tracking and vehicle telemetry.

- **Isolated GPIO**

The GPIOs on VPC are photo-coupled input and output.

- **OpenGTS (Open GPS Tracking System) software**

A version of OpenGTS software is available for demonstration of GPS tracking system with the VPC. (* Note: OpenGTS is not part of the VPC product. It is for demonstration only).

- **Software controlled power on/off (VPC300 only)**

The VPC300 power on/off can be controlled/initiated by software.

- **mSATA interface for SSD (VPC300 only)**

The VPC300 is with mSATA connector for additional SSD storage.

- **Customization Services**

We offer VPC hardware and software customization services. Please contact us for more information.

VPC100/VPC300 Software Specifications

OS
- VPC100 : Linux 3.14 (Yocto)
- VPC300: Linux 4.0 (Yocto) and Android 6.0

Device Drivers
- DDR3, Flash, USB, MicroSD, RS232, RS485, GPS, 3G/LTE, G-sensor, E-compass, CAN, GPIO, Analog input, 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
- Li-on Battery DC power monitor

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)

GPS
- Support NMEA protocol
- Time sync with GPS

3G/LTE Network
- Support 3G/LTE network and routing
- 3G/LTE signal strength monitor

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

OpenGTS connection
- Demo program for connecting OpenGTS remote server

MQTT
- Demo program for MQTT function

Sensor
- Demo program for 3-AXIS
- Demo program for e-compass

Unique ID
- Demo program for reading board unique ID

The VPC is not a product for end customers. It is intended for software developers or system integrators to develop and deploy software for their end applications.

VPC

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

VPC100 Ordering Information

(** Not all models are available. Contact our sales representative for more details.)

Part No.	Battery Kit	Over-voltage Protection	WiFi/BT	Common Specifications
VPC100-Q69	NO	NO	NO	iMX6UL Cortex™-A7 core @ 500MHz 256MB DDR / 512MB Flash 10/100 Ethernet x1 USB 2.0 host x2 / USB 2.0 OTG x1 / Micro SD card x1 Quad-band 3G (WCDMA) x1 GPS receiver x1 / G-sensor x1 / E-compass x1 RS485 port x1 / RS232 port x1 CAN bus x 1 / I²C port x1 GP Input x 10 / GP Output x 2 / Analog input x 2
VPC100-Q69-V		YES		
VPC100-Q69-WB		NO	YES	
VPC100-Q69-WB-V		YES		
VPC120-Q69	2350mAh @ 3.7V	NO	NO	
VPC120-Q69-V		YES		
VPC120-Q69-WB		NO	YES	
VPC120-Q69-WB-V		YES		

VPC100 WCDMA Options

(* -D72 and –D76 require MOQ *)

3G modem order option			
Order Code	3G Bands (MHz)	2G Bands (MHz)	Suggested Area
-D72	900/2100	850/900/1800/1900	European , China
-D76	850/1900/2100	850/900/1800/1900	Asia, Latin America
-Q69	850/900/1900 /2100	850/900/1800/1900	North America, World-wide

VPC300 Ordering Information

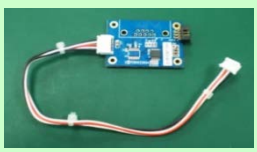
Part No.	CPU/DDR	OS	Voltage Protection	Common Specifications	
VPC300-QA	**Quad**-Core / **2GB**	Android	NO	iMX6 Cortex™-A9 @ 1GHz 4GB Flash 9-36V DC IN 10/100/1000 Ethernet x1 USB 2.0 host x2 / USB 2.0 OTG x1 Micro SD card x1 / I²C port x1 GPS receiver x1 G-sensor x1 E-compass x1	LTE/3G socket x1 / SIM holder x2 802.11b/g/n/ac x1 / BT 4.2 x1 mSATA connector x1 MCU power on/off **Isolated I/O :** RS232 x1 / RS485 x1 CAN bus x2 / Digital Input x 10, Digital Output x2
VPC300-QA-V			YES		
VPC300-QY		Yocto	NO		
VPC300-QY-V			YES		
VPC300-DA	Dual-Core / 1GB	Android	NO		
VPC300-DA-V			YES		
VPC300-DY		Yocto	NO		
VPC300-DY-V			YES		

VPC300 LTE module order option

4G/LTE modem order option			
Order Code	TDD-LTE Band	FDD-LTE Band	Suggested Area
-S71A	---	B2/ 4/ 5/ 17	(AT&T approved) USA, others
-S71CE	B38/39/40/41	B1/ 3/ 8	China, Europe, others
-S71E	B38/ 40	B1/ 3 / 7/ 8/20	Europe , others
-S71JE	---	B1 / 8	(SoftBank approved) Japan , Europe , others
-S71JC	B41	B1/ 3/ 8/18/19	(KDDI, NTT approved) Japan, China, others

Refer to next page for accessories options.

VPC100/VPC300 Accessories

Part No.	Description	Products	Photo
PWR-006-VPC	Power Adapter (+12V @ 2.5A or 3A)	VPC100/ VPC300	
ANT-01	GPS antenna	VPC100/ VPC300	
ANT-02	WiFi Antenna (8cm/2dBi, SMA plug reverse)	VPC100/ VPC300	
ANT-03	3G/LTE antenna	VPC100/ VPC300	
C220 kit	VPC console/debug board and RS232 IDC cable	VPC100/ VPC300	
CAB-10	HDMI cable type A plug (F-F) with screws , 1-meter	VPC300 only	
0225-0603	VPC100/VPC300 DC-IN Mating Connector	VPC100/ VPC300	
0156-2A18	VPC100/VPC300 GPIO Mating Connector	VPC100/ VPC300	

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Last updated: May,2017