VTC 1031/ -C2

Intel Atom® 6413E Processor
Fanless In-Vehicle Computer

Preliminary

VTC 1031 VTC 1031-C2

Main Features

- Intel Atom® x6413E quad-core processor, 9W
- Compact and fanless design
- 5G NR and Wi-Fi 6/6E wireless communication options
- Built-in U-blox M9N GNSS, optional dead reckoning support
- Built-in 1 x CAN bus 2.0B (optional SAE J1939)
- Wide range DC input from 9~36V
- 2 x POE support, total 60W (VTC 1031-C2)
- Dual display outputs
- Optional AI accelerator M.2/mPCIe module
- Certified by CE/FCC/E13 mark

Product Overview

VTC 1031 features next generation Intel Atom® x6413E processor quad-core 1.5GHz, with powerful graphic and multimedia enhancement. VTC 1031 is packed rugged, fanless, and compact enclosure for the vehicles with limited space to locate the computer system. On board CAN 2.0B and optional OBD interface (SAE J1939) for vehicle diagnostics and driver behavior management. An advanced GNSS receiver supports GPS+QZSS /Glonass/Galileo/Beidou and optional dead reckoning is also available. VTC 1031 features WLAN (Wi-Fi 5/6/6E) and WWAN (LTE/5G NR) wireless data. With dual micro-SIMs and one micro-SIM with external access design, it allows user to access micro-SIM card conveniently. VTC 1031 is equipped optional AI accelerator M.2/mPCIe module for reliable Artificial Intelligent (AI) platform. It is also designed for the in-vehicle innovative AI solutions

Dual IEEE 802.3af/at PoE functions (VTC 1031-C2) are suited for most PoE devices, including wireless access points, as well as IP cameras. Additional 12VDC output can be provided for external display with easy power wire arrangement. VTC 1031 keeps the flexibility to meet different demands for telematics applications, such as wireless gateway, infotainment, fleet management, dispatching system and mobile video surveillance.

Specifications

CPU

- Intel Atom® x6413E quad-core processor, 1.5GHz, TDP 9W

Memory

- 1 x 260-pin DDR4 SO-DIMM socket support 3200MHz up to 32GB. Default 2666MHz, 4GB
- With In-Band ECC (IBECC)

Video Output

- 1 x HDMI 1.4b up to 3840 x 2160 @ 30Hz
- 1 x VGA port 1920 x 1200 @ 60Hz

Storage

- 1 x 2.5” SATA 3.0 internal drive bay (9.5mm)
- 1 x M.2 key M 2280 for SATA 3.0

Expansion

- 1 x Full size mini-PCIe socket (USB 2.0, PCIe 3.0), BOM optional M.2 3042 Key B socket (USB 2.0, USB 3.2 Gen 2) for LTE/5G NR module with 1 x internal micro-SIM and 1 x external micro-SIM
- 1 x M.2 2230 Key E socket (USB 2.0, PCIe 3.0 x2)
- 1 x M.2 3042/3050/3052 Key B socket (USB 2.0, USB 3.2 Gen 2) for LTE/5G NR module with 1 x internal micro-SIM and 1 x external micro-SIM

GNSS and Onboard Sensor

- 1 x Default U-blox NEO-M9N GNSS module for GPS+QZSS /Glonass/Galileo/Beidou
- Optional M8U/M8L modules with dead reckoning available
- 1 x 3D accelerometer and 3D gyroscope

LAN and Power over Ethernet

- 1-Port LAN RJ45, 10/100/1000/2500 Mbps Ethernet, Intel® I225-IT (support WOL)
- 1-Port LAN RJ45, 10/100/1000 Mbps Ethernet, Marvell 88E1512
- 2-Port LAN RJ45, 10/100/1000 Mbps Ethernet, PoE 802.3af/at, max. 60W (VTC 1031-C2)

Security

- TPM 2.0: Infineon SLB9670VQ2.0 FW7.62

I/O Interface-Front

- 6 x LED indicators (including 1 x programmable LED)
- 1 x USB 3.2 Gen 2 type A (5V/0.9A)
- 1 x USB 2.0 type A (5V/0.5A)
- 1 x Externally accessible micro-SIM card sockets with cover
- 1 x Reset button
- 1 x Power button
- 1 x DB9 (COM) for full RS232/422/485
- 1 x Mic-in, 1 x Line-out
- 1 x DB9 for Expansion Port (Optional)
- 2 x RJ45 PoE (including 2 x PoE LED light, VTC 1031-C2)
- 4 x SMA connector holes for WWAN (VTC 1031)

I/O Interface-Rear

- 1 x HDMI
- 1 x VGA
- 1 x LAN RJ45, 10/100/1000/2500 Mbps
- 1 x LAN RJ45, 10/100/1000 Mbps
- 2 x USB 2.0 type A (5V/0.5A)
- 1 x DB26 (MULTI PORT) port
  - 1 x CANBus 2.0B
  - 1 x RS232 Tx/ Rx
  - 1 x GNSS Speed/Direction
  - 5 x DI and 4 x DO
  - 2 x RS485
  - 12V/ 2A DC output
  - GND
- 1 x 3-pin terminal block for 9V~36VDC
- 1 x SMA connector for GNSS
- 2 x SMA connector holes for WWAN
- 3 x RP-SMA connector holes for WLAN

Power Management & Software Support

- Power input 9~36VDC
- Cranking voltage: 6V~9V (< 30 seconds)
- Reverse protection, OCP & UVP
- Selectable boot-up & shut-down voltage for low power protection by software
- Setting 8-level power on/off delay time by software
- 10~255 seconds WDT support, setup by software
- SDK (Windows/Linux) including utility and sample code

Operating System

- Windows 11/Windows 10/Linux

Dimensions

- 180mm (W) x 180mm (D) x 50mm (H)

Weight

- VTC 1031: 1.7kg (TBD)
- VTC 1031-C2: 1.75kg (TBD)

Environment

- Operating temperatures
  - -40°C to 70°C (w/ industrial SSD) with air flow
- Storage temperatures: -40°C to 85°C
- Relative humidity: 90% (non-condensing)
- Vibration (random)
  - 2g@5~500 Hz (in operation, SSD)
- Vibration (SSD)
  - Operating: MIL-STD-810H, Method 514.8C, Procedure 1, Category 4, common carrier US highway truck vibration exposure
  - Storage: MIL-STD-810H, Method 514.8E, Procedure 1, Category 24, minimum integrity test
- Shock (SSD)
  - Operating: MIL-STD-810H, Method 516.8, Procedure I, functional shock=40g
  - Non-operating: MIL-STD-810H, Method 516.8, Procedure V, crash hazard shock test=75g

Certifications

- CE
- FCC Class A
- E13 mark

Ordering Information

- VTC 1031 (P/N: TBD)
  Intel Atom® x6413E processor 1.5GHz with 4GB DDR4, U-blox NEO-M9N GNSS module, 1 x CAN 2.0B, 1 x VGA output, 1 x HDMI output, 1 x internal SSD tray, 2 x LAN RJ45, 1 x mini-PCIe slot, 2 x M.2 slots, 2 x micro-SIM, 1 x USB 3.2 Gen 2, 3 x USB 2.0, 1 x full RS232/422/485, 1 x RS232 Tx/ Rx, 2 x RS485, 5 x DI & 4 x DO

- VTC 1031-C2 (P/N: TBD)
  Intel Atom® x6413E processor 1.5GHz with 4GB DDR4, U-blox NEO-M9N GNSS module, 1 x CAN 2.0B, 1 x VGA output, 1 x HDMI output, 1 x internal SSD tray, 2 x LAN RJ45, 1 x mini-PCIe slot, 2 x M.2 slots, 2 x micro-SIM, 1 x USB 3.2 Gen 2, 3 x USB 2.0, 1 x full RS232/422/485, 1 x RS232 Tx/ Rx, 2 x RS485, 5 x DI & 4 x DO , 2 x PoE RJ45