

# VTC 1021-HBIOt/HCIot

Intel Atom® x5- E3940 Fanless In-Vehicle Computer

Hailo AI Edge Telematics Solution



VTC 1021-HBIOt



VTC 1021-HCIot



## Main Features

- Intel Atom® x5-E3940 processor quad core 1.6GHz
- Built-in Hailo AI module
- Built-in U-blox M8N GPS, optional dead reckoning support
- Built-in CAN 2.0B, optional OBD2 SAE J1708/SAE J1939
- 2 x PoE support, total 60W (VTC 1021-CHIOt only)
- 2 x RJ45 10/100/1000 Fast Ethernet with LED
- 3 x DI and 3 x DO support
- Smart power management with ignition on/off delay via software control and low voltage protection
- Variety of wireless communication options
- Certified by CE/FCC/E13 mark

## Product Overview

VTC 1021-HBIOt/HCIot features next Generation Intel Atom® x5-E3940 processor quad core 1.6GHz, with powerful graphic and multimedia enhancement. VTC 1021-HBIOt/HCIot is packed rugged, fanless, and 1 DIN compact enclosure for the vehicles with limited space to locate the computer system. Onboard CAN 2.0B and optional OBD interface (SAE J1939) for vehicle diagnostics and driver behavior management. An advanced GPS receiver supports GPS/Glonass/QZSS/Galileo/Beidou and optional dead reckoning is also available. VTC 1021-HBIOt/HCIot features WLAN and WWAN wireless data and voice connectivity. With dual SIM external access design, it allows user to access SIM card conveniently.

Dual PoE functions (VTC 1021-CHIOt only) 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 1021-HBIOt/HCIot keeps the flexibility to meet different demands for telematics applications, such as infotainment, fleet management, dispatching system and mobile video surveillance.

## Specifications

### CPU

- Intel Atom® x5- E3940 processor (Apollo Lake), 1.60GHz

### Memory

- 1 x 204-pin DDR3L SO-DIMM socket support 1866MHz up to 8GB. Default 4GB

### Storage

- 1 x 2.5" SATA 3.0
- 1 x mSATA for full-size mini-PCIe socket

### Hailo AI acceleration module

- Form factor: mini-PCIe (full size)
- Interface: PCIe Gen3 x 1
- Performance: 13 tops

### Expansion

- 1 x Full size mini-PCIe socket (USB 2.0 + PCIe + mSATA)
- 1 x Full size mini-PCIe socket (USB 2.0 + PCIe) with Hailo module
- 1 x Full size mini-PCIe socket (USB 2.0)

### Function

- 1 x U-blox NEO-M8N onboard (support GPS/Glonass/QZSS/Galileo/Beidou)
- Built-in G-sensor
- TPM 2.0

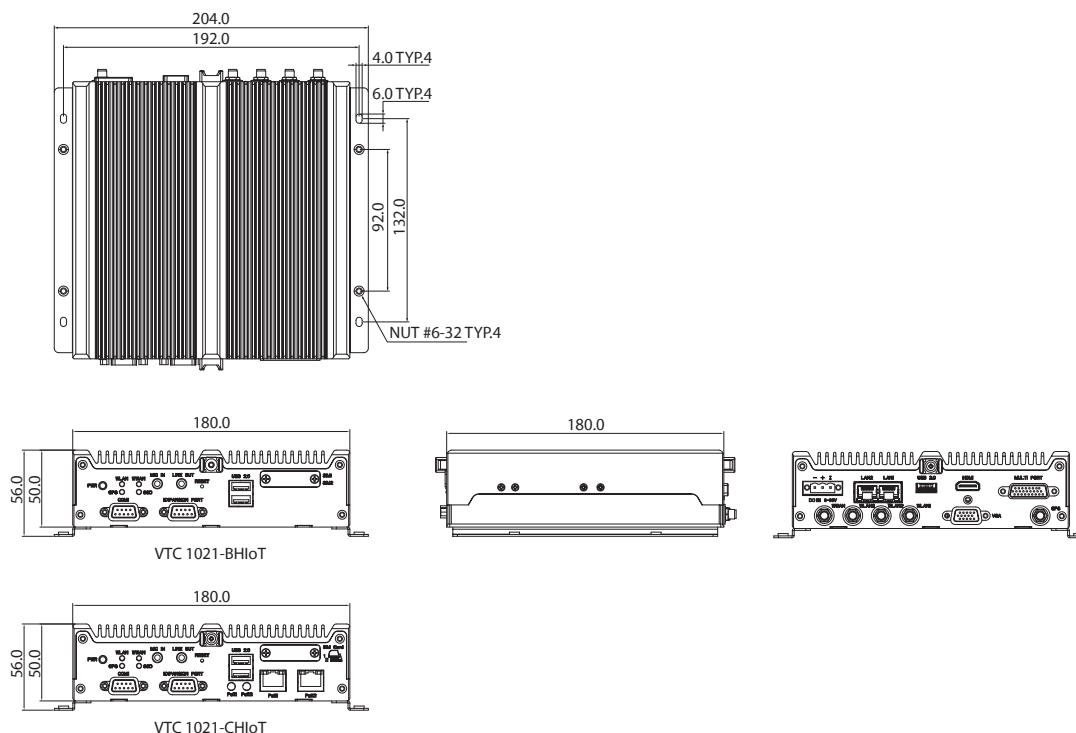
### I/O Interface-Front

- 1 x Power button with LED
- 4 x LED for WWAN, WLAN, SSD, GPS
- 1 x Line-out/MIC-in
- 1 x Reset button
- 1 x DB9 for fully RS232
- 2 x Type A USB 2.0 compliant host, supporting system boot up
- 2 x External accessible SIM card socket (selectable) with cover
- 1 x DB9 for expansion port (option)
- 2 x RJ45 PoE (including 2 x PoE LED light, VTC1021-CHIOt only)

### I/O Interface-Rear

- 1 x Phoenix connector for power (9~36VDC)/GND/ignition input
- 1 x Type A USB 3.0 compliant host, supporting system boot up
- 2 x RJ45 10/100/1000 fast Ethernet with LED
- 1 x DB15 VGA, resolution up to 1920 x 1080 @60Hz
- 1 x HDMI port, resolution up to 3840 x 2160 @30Hz
- 1 x DB26 port
  - 1 x CAN Bus 2.0B
  - 1 x RS232 Tx/Rx
  - 1 x GPS DR (option)
  - 3 x DI and 3 x DO

## Dimension Drawing



- 1 x RS422/RS485
- 12V/2A DC output
- GND
- 5 x Antenna holes for GPS/WWAN/WLAN

### Power Management

- Selectable boot-up & shut-down voltage for low power protection by software
- Setting 8-level power on/off delay time by software
- Status of ignition and low voltage can be detected by software
- Support S3/S4 suspend mode

### Operating System

- Linux, YOCTO (by request)

### Dimensions

- 180 mm (W) x 180 mm (D) x 50 mm (H) (7.09" x 7.09" x 1.97")
- Weight: 1.7 kg

### Environment

- Temperature
  - Operating temperatures:
    - -40°C to 70°C (w/ industrial SSD) with air flow
  - Storage temperatures
    - -40°C to 85°C with air flow
    - Damp heat test per EN60068-2-30
- Humidity: IEC60068-2-3, Damp heat steady state test, 40C, 95%, 48Hrs
- Vibration: IEC 60068-2-64, 2G for SSD or 0.5G for HDD
  - Operating: MIL-STD-810G, 514.6C Procedure 1, Category 4

- Storage: MIL-STD-810G, 514.6E Procedure 1, Category 24
- Shock
  - MIL-STD-810G, 516.6 Procedure I, trucks and semi-trailers=40g
  - Crash hazard: Procedure V, ground equipment=75g

### Certifications

- CE approval
- FCC Class A
- E13 Mark

## Ordering Information

### • VTC 1021-HBioT (P/N: TBD)

Intel Atom® x5- E3940 processor (Apollo Lake), 1.6GHz with 4GB DDR3L SO-DIMM, U-blox M8N GPS onboard, VGA/HDMI output, 2 x LAN, 2 x RS-232 (1 x full, 1x Tx/Rx) & 1 x RS-422/485, 1 x CAN 2.0B, 3 x DI & 3 x DO, 2 x USB 2.0 & 1 x USB 3.0, 1 x Line-out/Mic-in, Hailo AI mini-PCIe module

### • VTC 1021-HCIoT (P/N: TBD)

Intel Atom® x5- E3940 processor (Apollo Lake), 1.6GHz with 4GB DDR3L SO-DIMM, U-blox M8N GPS onboard, VGA/HDMI Output, 2 x LAN & 2 x PoE, 2 x RS-232 (1 x full, 1x Tx/Rx) & 1 x RS-422/485, 1 x CAN 2.0B, 3 x DI & 3 x DO, 2 x USB 2.0 & 1 x USB 3.0, 1 x Line-out/Mic-in, Hailo AI mini-PCIe module