VTC 7280-7C5/-5C5

Fanless AI Powered Vehicle Computer
Powered by Intel® Core™ Ultra Processor (Series 1)

Main Features

- Powered by Intel® Core™ Ultra processor, up to 26 TOPS AI computing power
- Fanless, compact and rugged design
- 5 x 2.5GbE PoE, one port supporting PoE++ (IEEE 802.3bt)
- Expandable to 2 x WWAN and 2 x WLAN for enhanced mobile router performance
- Support 100/1000Base-T1 Automotive Ethernet (optional)
- 2 x 2.5" SSD, 1 x NVMe SSD (PCIe 4.0 x4) for data integrity
- DC 9V~36V input with ignition control & OCP/OVP
- Wide range operating temperature of -40°C~60°C
- MIL-STD military standard for anti-vibration/shock
- CE/FCC, UKCA, E-mark certified

Product Overview

Powered by the Intel® Core™ Ultra processor with 26 TOPS of AI computing power, the VTC 7280-7C5/-5C5 offers a 30% performance boost over its predecessor. Its compact, rugged, and fanless design enables installation in space-constrained environments and operation in harsh conditions. It is suitable for various in-vehicle applications, including fleet management, logistics/AMR, ITS, construction, ANPR, and public transportation security surveillance.

Equipped with a range of peripherals, including five 2.5GbE PoE ports, one port supporting PoE++, multiple USB 3.2/2.0 ports, two isolated CAN FD, three serial ports, NVMe/2.5" SSD, four nano-SIM slots, two HDMI®, and a wide-range 9V to 36V DC/IGN control, the VTC 7280-7C5/-5C5 is a sophisticated AI-aided telematics computer. As an edge AI computer, it supports multi-LTE/5G and Wi-Fi 5/6 for cloud SaaS to provide AIoT/AI training/inference services.

Designed to withstand harsh environments, the VTC 7280-7C5/-5C5 operates at temperatures ranging from -40°C to 60°C and complies with the MIL-STD-810H military standard for vibration and shock resistance. The VTC 7280-xC5 is certified to meet global standards, including CE/FCC Class A, UKCA, and E-mark (E13).

Specifications

CPU

- Intel® Core™ Ultra processors (Series 1)
  - Intel® Core™ Ultra 7 processor 155H
  - Intel® Core™ Ultra 5 processor 125H
- NPU
  - 2 x 2048 MACs computing performance
- Graphics
  - Intel® Arc™ graphics
  - Max resolution: 4096x2160@60Hz (HDMI®)
  - DirectX: 12.2, OpenGL: 4.6

Memory

- 2 x DDR5 5600 SO-DIMM, 8GB default, up to 32GB per DIMM

Storage

- 2 x 2.5" SATA 3.0 SSD (15mm height, removable)
- 1 x M.2 Key M 2280 SSD (PCIe 4.0 x4), Hailo card in option

Expansion Slots

- 1 x Mini PCIe slot (PCIe 4.0, USB 2.0)
- 1 x Mini PCIe slot (PCIe 4.0, USB 2.0), BOM option for M.2 Key B (USB 3.2/2.0), supports nano-SIMs
- 1 x M.2 Key B 3042/3052 (USB 3.2/2.0), supports nano-SIMs for LTE/5G module
- 1 x M.2 Key E 2230 (PCIe 4.0 x2, USB 2.0)

Display

- 1 x HDMI® 2.0a, up to 3840x2160@60Hz
- 1 x VGA, up to 1920x1200@60Hz

Security

- TPM 2.0
  - Infineon SLB 9672VU2.0 FW15.23

2.5GbE PoE++

- 5 x 2.5GbE RJ45 PoE port
  - Support iAMT/WoL/PXE (LAN1)
  - 9Kbyte Jumbo frame
  - IEEE 802.3af/at/bt, total 80W, PSE 60W for LAN1
  - Support PTP (IEEE 1588)
  - Controller: Intel® I226-IT

Audio

- 1 x Line out, unbalanced stereo, left/right channel, audio Jack
- 1 x Mic in, stereo, audio Jack
- 1 x Line in, wafer reserved
- Codec: Realtek ALC888S-VD2-GR

DC Out

- DC 12V/3A, terminal block

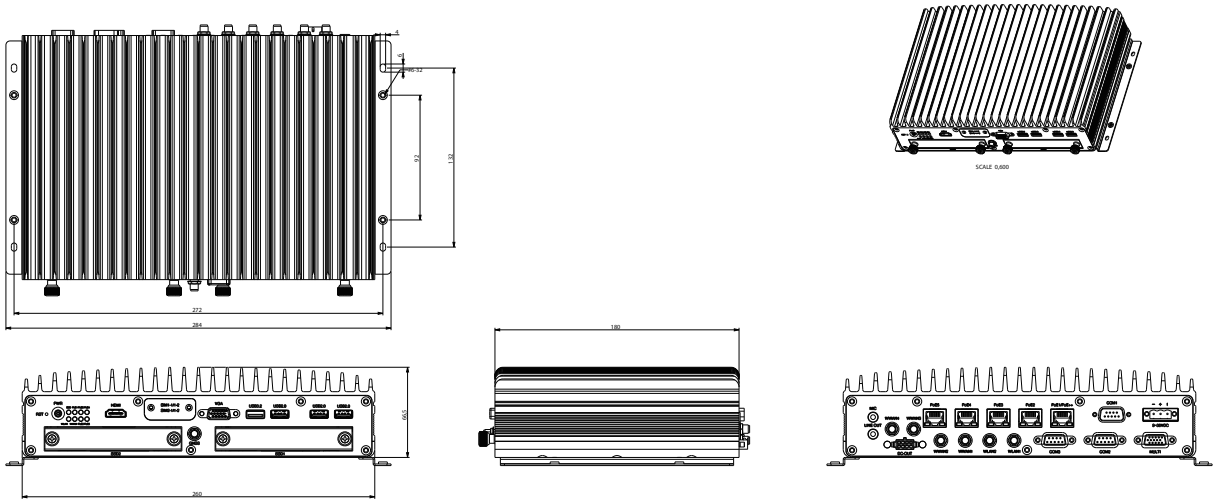
USB

- 1 x USB 3.2 Gen 2
  - Host Type-A
  - 5V@900mA
  - Up to 10Gbit/s link speed & compliance with USB 2.0 (LS/FS/HS link speed)
- 3 x USB 2.0
  - Host Type-A
  - 5V@500mA each

Serial Port

- 2 x COM port (DB9, COM1, COM2), supports full RS-232/422/485
- 1 x COM port (DB9, COM3), supports full RS-232
- 1 x Full RS-232 (wafer reserved, COM4)
- RS-232 working voltage, ± 9V, baud rate up to 115.2kb/s
- 2-wire/4-wire RS-485 (baud rate: 300Kbps~115.2Kbps)

Dimension Drawing



MEMS Sensor
- 3D accelerometer and 3D gyroscope, ST LSM6DSLTR

DI/DO (isolation)
- 4-bit input
  - Source: DC 9V~36V (12V@0.6mA/24V@1.2mA)
  - External: DC 0V~33V pull-high, high level, DC 3.3V~33V; low level, DC 0V~2V
- 4-bit output
  - Source: DC 9V~36V (nominal 35mA@24V)
  - External: DC 5V~36V pull-high, sink current w/ 220mA for each bit, 500mA max (@25C)
- Source or external can be selected by DIP S/W (default: source type)

CAN bus
- 2 x CAN FD, compatible with CAN 2.0A/2.0B
- Up to 5Mb/s in data transmit, 2.5KV isolated
- IEC 61000-4-2 Electrostatic Discharge (ESD): ± 6KV/8KV (contact/air)

GNSS
- u-blox NEO-M9N GNSS module (VIOB-GPS-07) for GPS/GLONASS/QZSS/Galileo/Beidou
- Optional DR (Dead Reckoning) function, NEO-M9V (VIOB-GPS-DR07)

Power Supply
- Nominal voltage: DC 9V~36V
- Cranking voltage: DC 6V~9V (less than 20 sec)
- Reverse protection, OCP & UVP (shut down once exceeding 36.5V)
- Ignition on/off control & programmable on/off delay timer
- Optional for remote power on/off control

I/O Interface Front
- 1 x ATX power button, 1 x reset button
- 8 x LED Indicator
- 4 x nano-SIM slot (SIM1-1, SIM1-2, SIM2-1, SIM2-2)
- 1 x USB 3.2, Type-A
- 3 x USB 2.0, Type-A
- 1 x HDMI®, 1 x VGA
- 2 x Removable 2.5" SSD bay
- 1 x SMA connector for GNSS

I/O Interface Rear
- 1 x COM port3 (DB9), supports RS-232
- 2 x COM port1/2 (DB9), supports RS-232/422/485
- 1 x Line out, 1 x Mic in
- 1 x Multi-port DB15 (4 x DI, 4 x DO, 2 x CAN FD)
- 5 x 2.5GbE RJ45 PoE port
- 1 x Terminal block (DC out)
- 1 x 3-pin Phoenix connector for DC 9V~36V input
- 2 x PR-SMA hole for Wi-Fi ant., 4 x SMA hole for LTE/5G ant.

Internal Heater
- Activation threshold: less than -25°C

Dimension & Weight
- Dimensions:
  - 260.0mm (W) x 180.0mm (D) x 66.5mm (H) (w/o mount bracket)
  - 284.0mm (W) x 180.0mm (D) x 72.5mm (H) (w/ mount bracket)
- Weight: 5.8kg

Environment
- Operating temperature: -40°C~60°C (w/ PoE, fanless)
- Storage temperature: -40°C~85°C
- Relative humidity: 10%~95% (non-condensing)

Vibration & Shock
- Vibration in operating:
  - MIL-STD-810H, 514.8C Procedure 6, Category 4
  - IEC 60068-2-64: 2.0g@5Hz~500Hz
- Vibration in storage:
  - MIL-STD-810H, 514.8E Procedure 1, Category 24, 7.7g
- Shock:
  - MIL-STD-810H, 516.8 Procedure I, trucks and semi-trailers=40g
  - Crash hazard: Procedure V, ground equipment=75g

Certifications
- CE approval, FCC Class A, UKCA, E-mark certified

Operating System
- Windows 11
- Windows 10, 64-bit
- Windows 10 IoT Enterprise, 64-bit
- Linux (Ubuntu 22.04, Linux 5.19)

Ordering Information

- **VTC7280-7C5 (P/N: 10V00728000X0)**
  Intel® Core™ Ultra 7 processor 155H, 1 x 2.5GbE PoE++, 4 x 2.5GbE PoE+, 1 x USB 3.2, 3 x USB 2.0, 3 x Serial, 2 x 2.5"SSD, 4DI/4DO, 2 x CAN FD, DC 9V~36V, IGN control
- **VTC7280-5C5 (P/N: 10V00728001X0)**
  Intel® Core™ Ultra 5 processor 125H, 1 x 2.5GbE PoE++, 4 x 2.5GbE PoE+, 1 x USB 3.2, 3 x USB 2.0, 3 x Serial, 2 x 2.5"SSD, 4DI/4DO, 2 x CAN FD, DC 9V~36V, IGN control

We reserve the right to change specifications and product descriptions at any time without prior notice.