VTC 7280-7/-5

Main Features

- Powered by Intel® Core™ Ultra Meteor-Lake H, up to 26 TOPS AI computing power
- Fanless, compact and rugged design
- 2 x 2.5GbE
- Supports 100/1000Base-T1 Automotive Ethernet (optional)
- Expandable to 2x WWAN and 2x WLAN for enhanced mobile router performance

- 2 x 2.5" SSD, 1 x NVMe SSD (PCIe 4.0 x4) for data integrity
- 9~36V DC-IN 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

The VTC 7280-x is a rugged fanless in-vehicle telematics computer. Powered by Intel® Core™ Ultra Meteor-Lake H series processor with up to 26 TOPS AI computing power, it delivers 30% more CPU performance than its predecessor, making it ideal for many in-vehicle applications like fleet management, logistics/AMR, ITS, ANPR, construction, and public transportation security surveillance.

The VTC 7280-x is engineered for continuous 24/7 operation in challenging conditions. Its compact and durable build ensure reliable performance in confined spaces. It features diverse I/O, including 2 x 2.5GbE RJ45, multiple USB 3.2/2.0, 2 isolated CAN FD, 3 serial ports, and 2 display ports. With 2.5" NVMe SSD support, 4 extension slots, wide-range 9~36VDC power input and IGN control, it is a sophisticated AI-powered telemetric computer. As an edge AI computer, it also supports LTE/5G and Wi-Fi 5/6 modules for cloud SaaS to provide AIoT/AI training/inference services.

Designed for harsh environments, the VTC 7280-x operates within a -40°C~60°C temperature range, meets MIL-STD-810H military standard for vibration and shock resistance, and is certified by CE/FCC Class A, UKCA, and E mark (E13).

Specifications

CPU
- Intel® Core™ Ultra Meteor-Lake H
  - Core™ Ultra 7 processor 155H
  - 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 defualt, up to 32G per DIMM

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

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 SLB9672VU2.0FW15.23

2.5GbE
- 2 x independent 2.5GbE RJ45 port
  - -iAMT/ WoL/ PXE support (LAN1)
  - -9Kbyte Jumbo frame
  - -PTP (IEEE 1588)support
  - -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
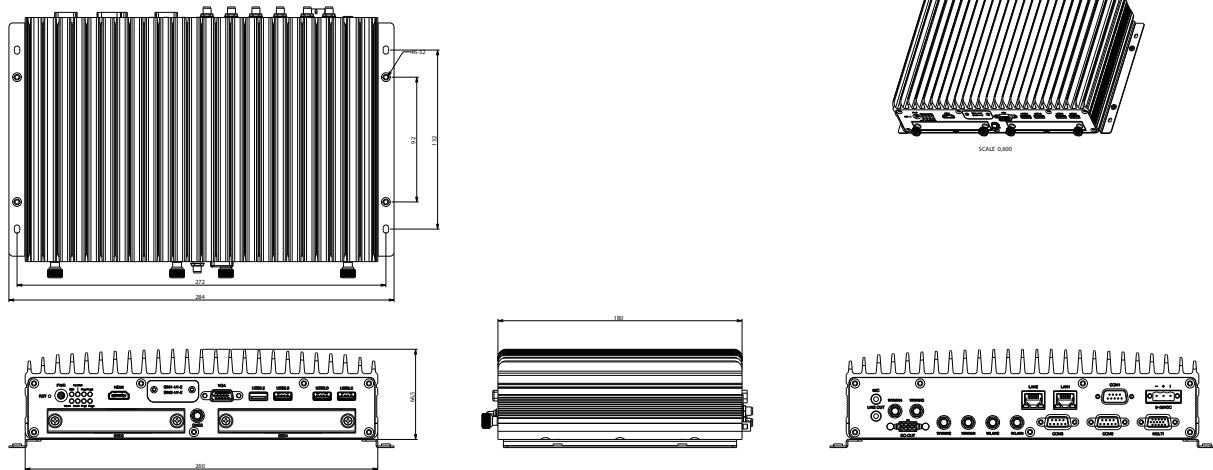- 12V DC/3A, terminal block

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

Dimension Drawing

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

DI/DO (isolation)
- 4-bit input
  - Source: 9~36V DC (12V@0.6mA/24V@1.2mA)
  - External: 0~33V DC pull-high, high/low level 3.3 – 33/ 0 - 2V DC
- 4-bit output
  - Source: 9~36V DC (nominal 35mA@24V)
  - External: 5~36V DC 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/Gloness/QZSS/Galileo/Beidou
- Optional DR (Dead Reckoning) function, NEO-M9V (VIOB-GPS-DR07)

Power Supply
- Nominal voltage: DC 9V to 36V
- Cranking voltage: DC 6V to 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 ports, Front-Plate
- ATX power & 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 PR-SMA for GNSS

I/O ports, Rear-Plate
- 1 x RS-232 (DB9, COM3)
- 2 x RS-232/422/485 (DB9, COM1, COM2)
- Audio jack for Line out, MIC in
- Multi-port DB15 (4 x DI, 4 x DO, 2 x CAN FD)
- 2 x 2.5GbE, RJ45
- 1 x terminal block (DC-OUT)
- 3-pin Phoenix for 9~36V DC-in
- 2 x PR-SMA for Wi-Fi ant. 4 x SMA for LTE/5G ant.

Internal Heater
- Activation threshold: less than -25°C
- Remote heater ON/OFF signal, wafer reserved

Dimensions & Weight
- 260.0mm x 180.0mm x 66.5mm (w/o mount bracket)
- 280.0mm x 180.0mm x 72.5mm (w/ mount bracket)
- Weight: 5.8kg

Environment
- Operating temperatures: -40°C~60°C (45W CPU, fanless)
- Storage temperatures: -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@5~500Hz
- 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

- **VTC7280-7 (P/N: 10V00728002X0)**
  Intel® Meteor Lake H (155H), 2 x 2.5GbE, 1x USB 3.2, 3x USB 2.0, 3x Serial, 2 x 2.5"SSD, 4DI/4DO, 2 x CAN FD, 9~36V DC/IGN

- **VTC7280-5 (P/N: 10V00728003X0)**
  Intel® Meteor Lake H (125H), 2 x 2.5GbE, 1 x USB3.2, 3x USB 2.0, 3x Serial, 2 x 2.5"SSD, 4 x DI/4x DO, 2 x CAN FD, 9~36VDC/IGN

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