nROK 1030

Main Features

- Intel Atom® x6211E dual-core processor, 6W
- Compact and fanless design
- 5G NR and Wi-Fi 6/6E wireless communication options
- Built-in GNSS receiver
- Built-in 1 x CAN bus 2.0B (optional SAE J1939)

- Smart power management with Ignition on/off delay via software control and low voltage protection
- Dual display outputs and 2.5GbE LAN ports
- 1 x mini-PCIe + 2 x M.2 socket expansion
- Certified by CE, FCC, EN 50155 class OT4

Product Overview

nROK 1030, a compact, rugged and entry-level vehicle computer with Intel Atom® x6211E dual-core processor 1.3GHz/3GHz (burst), is designed for the harsh in-train environment. Because of the compact design, it is especially for the vehicles with limited space to locate the computer system, but without compromising with its space to scarify its features.

nROK 1030 has onboard CAN 2.0B for vehicle diagnostics and driver behavior management. An advanced GNSS receiver supports GPS/Glonass/QZSS/Galileo/Beidou. nROK 1030 features optional WLAN Wi-Fi 6/6E/Wi-Fi 5 and WWAN 5G NR/LTE wireless data connectivity. With external micro-SIM socket, it allows user to access micro-SIM card conveniently. 12VDC output can be provided for external display with easy power wire arrangement. nROK 1030 keeps the flexibility to meet different demands for rolling stock applications, such as wireless gateway, infotainment, digital radio data/voice transmission system.

Specifications

CPU
- Intel Atom® x6211E dual-core processor, 1.3GHz/3GHz (burst), TDP 6W

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 mSATA slot (occupied mini-PCIe slot)

Expansion
- 1 x Full size mini-PCIe socket (USB 2.0, PCIe 3.0/SATA 3.0)
- 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 2 x external micro-SIM

GNSS and Onboard Sensor
- 1 x Default U-blox NEO-M9N GNSS module for GPS+QZSS/Glonass/Galileo/Beidou
- 1 x 3D accelerometer and 3D gyroscope

LAN
- 2-port LAN M12 X-coded, 10/100/1000/2500 Mbps, Intel® I225-IT

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)
- 2 x Externally accessible micro-SIM card sockets with cover
- 1 x Reset button
- 1 x Power button
- 1 x DB9 (COM1) for full RS232/422/485
- 1 DB9 (AUDIO) for 1 x Mic-in, 1 x Line-out
- 2 x LAN M12 X-coded, 10/100/1000/2500 Mbps

Dimension Drawing
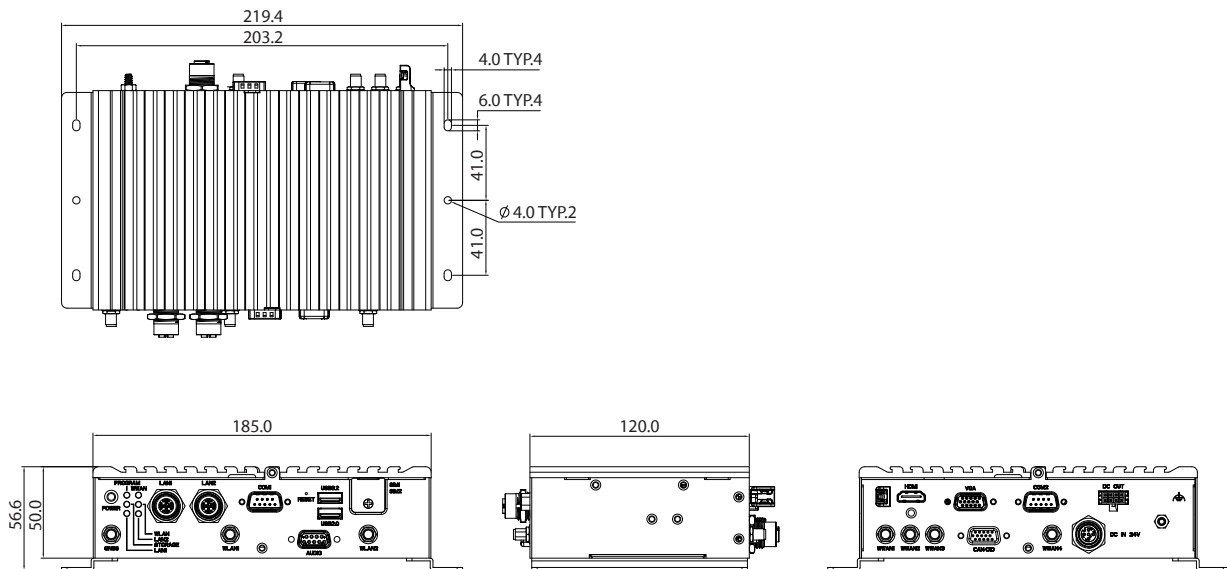
- ◆ 2 x RP-SMA connector holes for WLAN
- ◆ 1 x SMA connector for GNSS

I/O Interface-Rear
- ◆ 1 x HDMI
- ◆ 1 x VGA
- ◆ 1 x DB9 (COM2) for full RS232/422/485
- ◆ 1 x DB15 (CAN/DIO)
  - 1 x Isolated CANBus 2.0B
  - 5 x DI and 4 x DO
  - Power in for DIO isolation, 9~36VDC
- ◆ 1 x M12 5-pin A-coded DC input with ignition 24 VDC, non-isolation
- ◆ 1 x Connector (4 x 2) for 12VDC/2A output, reset, power button, RS232 (Tx/Rx)
- ◆ 4 x SMA connector holes for WWAN
- ◆ 1 x Ground connector

Power Management & Software Support
- ◆ Power input 24VDC w/o isolation
- ◆ 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
- ◆ 185mm (W) x 120mm (D) x 50mm (H)

Weight
- ◆ 1.25kg

Environment
- ◆ Operating temperatures
  - EN 50155, class OT4 (-40°C~70°C), 85°C for 10 minutes (w/ 6W TDP CPU, 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
- ◆ EN 50155: 2017
  - Ambient temperature EN 50155, Class OT4 (-40°C~70°C), 85°C for 10 minutes
  - Interruptions of voltage supply class S1
  - Supply change over class C1, C2
  - EMC EN 50121-1: 2017, EN 50121-3-2: 2016+A1: 2019
  - Environment EN 60068-2-1, EN 60068-2-2, EN 60068-2-30
  - Shock and vibration IEC 61373 Class B
  - Protective coating class PC1 (PC2, by request)
- ◆ EN 45545-2:2020 (PCB)

Ordering Information

- ◆ **nROK 1030-A (P/N: 10A00103000X0)**
  Intel Atom® x6211E dual-core processor 1.3GHz 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 M12 X-coded, 1 x mini-PCIe slot, 2 x M.2 slots, 2 x external micro-SIM, 1 x USB 3.2 Gen 2, 1 x USB 2.0, 2 x full RS232/422/485, 5 x DI & 4 x DO

Last update: 09/12/2022