nROK 6221

Intel Atom® E3950 Fanless Rolling Stock Computer
with EN50155

Main Features

- Intel Atom® processor quad core E3950, up to 2.0GHz
- Six SIM cards + three WWAN modules support
- Built-in u-blox-M8N GPS
- Built-in CAN Bus 2.0B
- 1 x External storage (compatible with 15mm disk)

- EN 50155, class OT4 conformity
- 3 x mini-PCIe + 2 x M.2 socket expansion
- Wide voltage input 9~48 VDC
- 1 x DB9 for 1 x Mic-in, 2 x Line-out
- Three video outputs, two VGA and one HDMI

Product Overview

nROK 6221, based on Intel® Core™ quad core processor E3950 (up to 2.0GHz), is specifically comply with stringent EN50155 standard in rugged, fanless and compact mechanism. nROK 6221 provides complete communication capability between train and computer with build-in CAN Bus 2.0B interface. nROK 6221 features rich WLAN and WWAN wireless connectivity. With dual SIM cards per modem support, nROK 6221 allows six SIM cards backup each other for a better connectivity quality or extra bandwidth by software. In addition, six SIM cards and three WWAN modules architecture can increase the bandwidth for a faster data transmission speed. Equipped with intelligent power management, nROK 6221 can be waked on by ignition, RTC timer or SMS message remotely. By integrating the variety of I/O ports, 3 x mini-PCIe, 2 x M.2 sockets expansibility, up to three screens via VGA and HDMI connections, nROK 6221 keeps the flexibility to meet the demand for different rolling stock applications, such as infotainment, dispatching system, cellular/wireless network connectivity, and video surveillance. The design of mini-PCIe slots x 3 can solve the potential request from the market when needed.

Specifications

CPU
- Intel Atom® processor quad core E3950, up to 2.0GHz, 12W, 4 core

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

Video Output
- Chipset Intel® HD graphics 505
- 1 x HDMI 1.4b up to 4096 x 2160 @30Hz
- 2 x VGA up to 1920 x 1200 @60Hz

Storage
- 1 x 2.5" SATA 3.0 external SSD (compatible with 15mm drive)
- 1 x CFast (externally accessible), optional mSATA

Expansion
- 1 x Full size mini-PCIe socket (USB 2.0) with 2 x external SIM
- 1 x Full size mini-PCIe socket (USB 2.0 + PCIe 2.0), BOM optional full size mini-PCIe socket (USB 2.0) with 2 x external SIM
- 1 x Full size mini-PCIe socket (USB 2.0 + PCIe 2.0)
- 1 x M.2 3042 key B (USB 2.0, USB 3.0) with 2 x external SIM
- 1 x M.2 3042/3050/3052 key B (USB 2.0, USB 3.0, PCIe 2.0 (BOM optional)) with 2 x external SIM

GNSS and Onboard Sensor
- 1 x Default u-blox NEO-M8N GNSS for GPS/Glonass/QZSS/Galileo/Beidou
- Optional M8U modules with dead reckoning available
- G Sensor (3-axis, 10-bit resolution)

LAN and Power over Ethernet
- 2-Port LAN, 10/100/1000 Mbps I210-IT GbE, optional 3-port LAN

I/O Interface-Front
- 12 x LED indicators (including 2 x programmable LED)
- 6 x Externally accessible SIM card sockets with cover
- 1 x 2.5" removable SSD tray
- 1 x Externally accessible CFast card socket with cover
- 1 x Reset button
- 1 x Power button
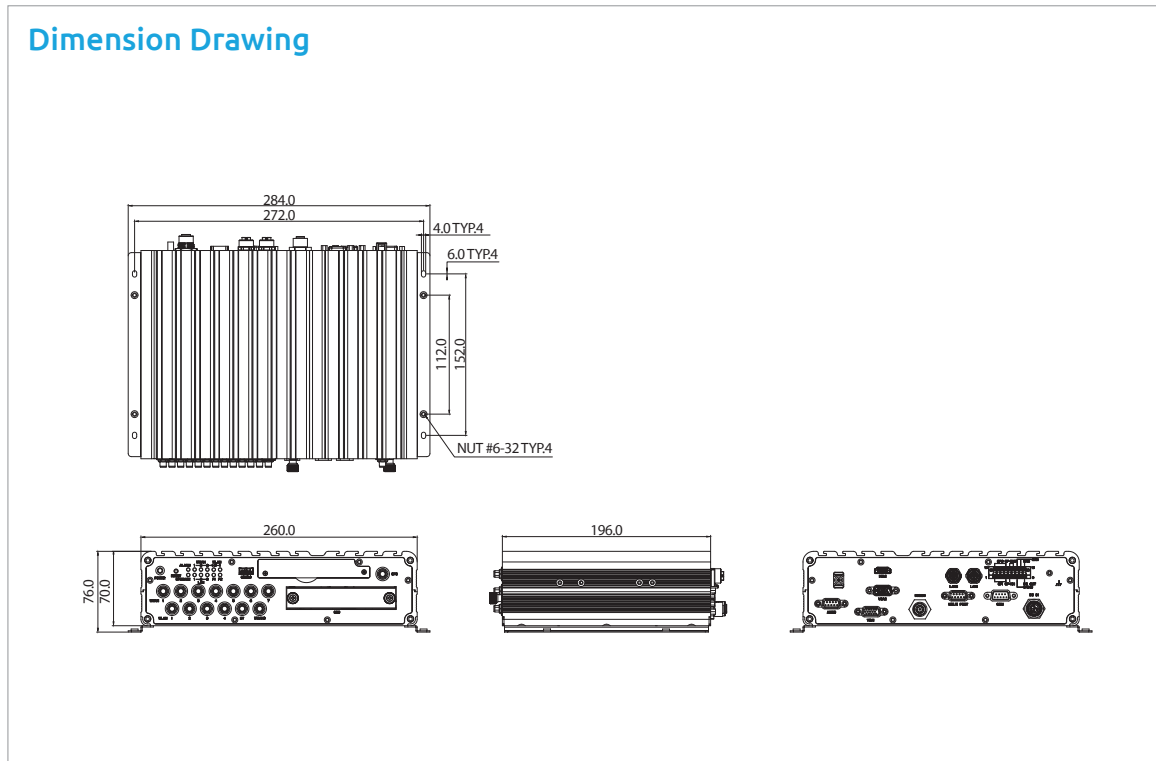- 1 x USB 3.0 type A (5V/0.9A)
- 14 x SMA antenna

I/O Interface-Rear
- 1 x Circle type DC input with ignition
  - 24/36 VDC (9~48 VDC), non-isolation
- 1 x M12 with two USB 2.0
- 2 x M12 X-coded LAN port, 10/100/1000 Mbps
- 1 x DB9 (AUDIO), female for 1 x Mic-in, 2 x Line-out

Train Computer   NEXCOM

www.nexcom.com

Dimension Drawing

- 2 x VGA
- 1 x HDMI 1.4b
- 1 x DB9 (COM) full RS232 (isolation)
- 1 x DB9 (MULTI PORT) for RS232 TX/RX, RS485 (all w/ isolation), USB 2.0
- 1 x 18-pin terminal block
  - 1 x CAN Bus 2.0B (on board)
  - 4 x DI with isolation
  - 4 x DO with isolation
  - Vin, GND for GPIO

Power Management & Software Support
- Power input 24/36 VDC w/o isolation
- Selectable boot-up & shut-down voltage for low power protection by software
- Setting 8-level power on/off delay time by software
- Support S3/S4 suspend mode
- 10~255 seconds WDT support, setup by software
- SDK (Windows/Linux) including utility and sample code

Operating System
- Windows 10/Linux

Dimensions
- 260mm (W) x 196mm (D) x 70mm (H) (10.24" x 7.79" x 2.75")

Weight
- 2.8kg

Environment
- Operating temperatures
  - 40°C to 70°C (w/ industrial SSD) with air flow
- Storage temperatures: -40°C to 80°C
- Relative humidity: 10% to 90% (non-condensing)

- Vibration (random)
  - 2g@5~500 Hz (in operation, SSD)
- Vibration (SSD)
  - Operating: MIL-STD-810G, Method 514.6, Category 4, common carrier US highway truck vibration exposure
  - Storage: MIL-STD-810G, Method 514.6, Category 24, minimum integrity test
- Shock (SSD)
  - Operating: MIL-STD-810G, Method 516.6, Procedure I, functional shock=40g
  - Non-operating: MIL-STD-810G, Method 516.6, Procedure V, crash hazard shock test=75g

Standards/Certifications
- CE
- FCC Class A
- EN50155 conformity: 2017
  - Ambient temperature EN 50155, class OT4 (-40~70°C)
  - Shock and vibration IEC 61373 class B
  - Interruptions of voltage supply class S1
  - Supply change over class C1, C2
  - EMC EN 50121-3-2: 2016

Ordering Information

- **nROK 6221-A (P/N: 10A00622100X0)**
  Intel Atom® processor E3950 up to 2.0GHz CPU, 4GB DDR3L SO-DIMM, DC input 24/36 VDC w/o isolation, 2 x VGA, 1 x HDMI, 2 x LAN, 2 x RS232, 1 x RS485, 4 x DI, 4 x DO, 4 x USB

Train Computer
We reserve the right to change specifications and product descriptions at any time without prior notice.
Last update: 03/26/2020

www.assured-systems.com | sales@assured-systems.com   Page 2/3

Assured Systems

Assured Systems is a leading technology company with over 1,500 regular clients in 80 countries, deploying over 85,000 systems to a diverse customer base in 12 years of business. We offer high-quality and innovative rugged computing, display, networking and data collection solutions to the embedded, industrial, and digital-out-of-home market sectors.

US

sales@assured-systems.com

Sales: +1 347 719 4508
Support: +1 347 719 4508

1309 Coffeen Ave
Ste 1200
Sheridan
WY 82801
USA

EMEA

sales@assured-systems.com

Sales: +44 (0)1785 879 050
Support: +44 (0)1785 879 050

Unit A5 Douglas Park
Stone Business Park
Stone
ST15 0YJ
United Kingdom

VAT Number: 120 9546 28
Business Registration Number: 07699660