nROK 6222

Fanless 4-CH PoE Rolling Stock Computer
with Intel Atom® x7-E3950 Processor





Main Features

- Intel Atom® x7-E3950 processor, 1.60 GHz
- 4 x PoE (802.3af/at, up to 60W)
- Built-in u-blox-M8N GPS
- Three video outputs, one VGA and two HDMI®
- EN 50155, class OT4 conformity
- 2 x Mini PCIe slot expansion
- Dual external storage (compatible with 15mm disk)
- 1 x USB DOM to run OS
- 1 x SD card for exporting and backing up data
- Optional power isolation kit supported

Product Overview

The nROK 6222, based on Intel Atom® quad core processor x7-E3950 (1.60 GHz), is specifically comply with stringent EN 50155 standard in rugged, fanless and compact mechanism. The nROK 6222 provides complete communication capability between train and computer with build-in CAN bus 2.0B interface. Equipped with intelligent power management, the nROK 6222 can be waked on by ignition, RTC timer or SMS message remotely. The nROK 6222 supports four 802.3af/at PoE ports (up to 60W) to connect with IP cameras. The design of 2.5" removable SSD and SD memory card helps to access storage easily. The nROK 6222 keeps the flexibility to meet the demand for video surveillance in train application. Moreover, The nROK 6222 is protected against sudden power surges through an attachable VTK-6222-PK power isolation kit.

Specifications

Processor
- Intel Atom® x7-E3950 processor, TDP 12W

Memory
- 1 x DDR3L 1866 SO-DIMM, up to 8GB, default 4GB

Integrated Graphics
- Intel® HD Graphics 505

Display Interface
- 2 x HDMI® 1.4b, up to 4096x2160@30Hz
- 1 x VGA, up to 1920x1200@60Hz

Storage
- 2 x 2.5" SATA 3.0 external SSD (compatible with 15mm disk)
- 1 x SD memory card 3.0 (externally accessible)
- 1 x USB EDC for USB DOM

Expansion Slot
- 1 x M.2 Key B 3042 (USB 2.0, USB 3.2) for an LTE module, BOM optional full-size Mini PCIe slot (USB 2.0) for an LTE/5G NR module with 2 x external SIM
- 1 x Full-size Mini PCIe slot (USB 2.0, PCIe 2.0)
- 1 x Half-size Mini PCIe slot (USB 2.0, PCIe 2.0)

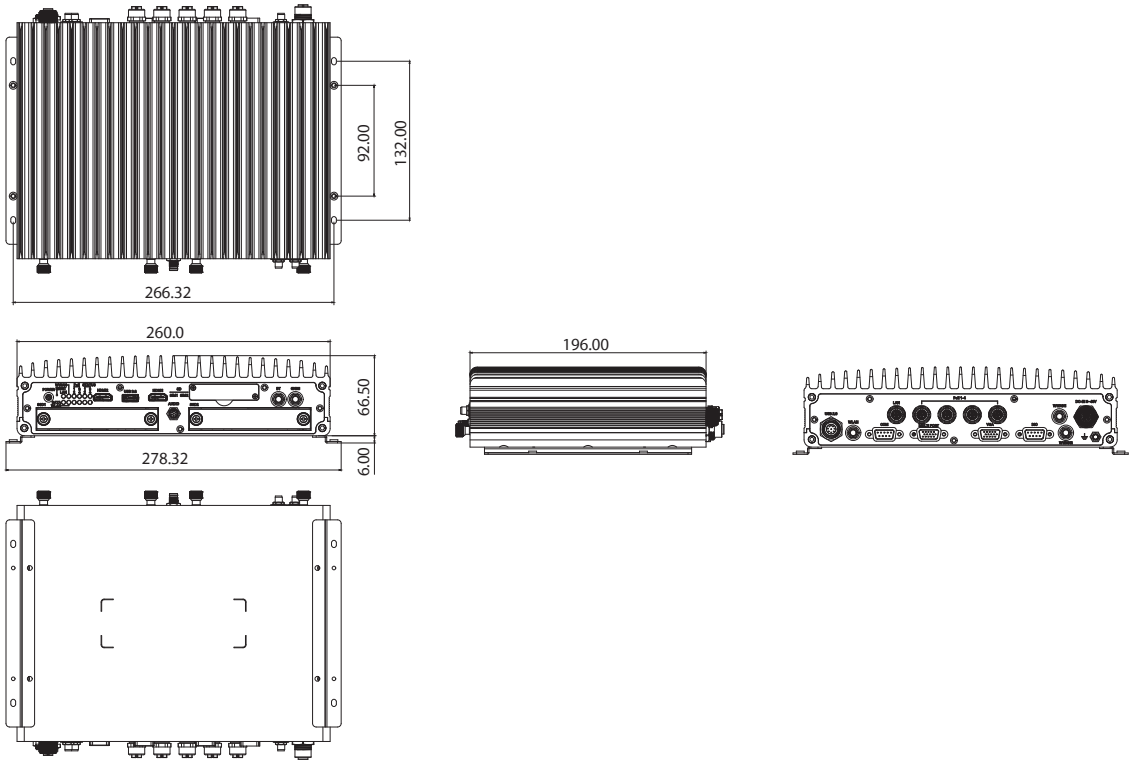
Sensor
- 1 x Default u-blox NEO-M8N GNSS for GPS/GLONASS/QZSS/ Galileo/Beidou
- G Sensor (3-axis, 10-bit resolution)

System Capabilities
- TPM 2.0: Infineon SLB 9665TT2.0 FW5.62 (BOM optional)

I/O Interface Front
- 12 x LED indicator (including 3 x programmable LED)
- 2 x Externally accessible SIM card slot with cover
- 2 x 2.5" removable SSD tray
- 1 x Externally accessible SD card slot with cover
- 1 x Reset button
- 1 x Power button
- 1 x USB 3.2, Type-A (5V/0.9A)
- 2 x HDMI® 1.4b
- 1 x 6-pin M8 connector for 1 x Mic in (mono), 1 x Line out (stereo)
- 2 x SMA antenna

I/O Interface Rear
- 1 x 5-pin M12 connector for power input with ignition
  - DC 24V/36V (9V~48V), non-isolation
- 1 x 1GbE M12 X-coded connector, Intel® I210-IT
- 4 x 1GbE M12 X-coded PoE connector, Intel® I210-IT, 802.3af/at, up to 60W
- 1 x VGA
- 1 x M12 connector for 2 x USB 2.0
- 1 x COM port (DB9), supports RS-232 (full, isolation)
- 3 x SMA antenna
- 1 x DIO port (DB15)
  - 4 x DI with isolation
  - 4 x DO with isolation
  - Vin, GND for GPIO

Dimension Drawing



- 1 x MULTI port (DB15)
  - 1 x RS-422/485
  - 1 x RS-232 (Tx/Rx)
  - 1 x CAN 2.0B

Power Management

- DC 24/36V power input 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, 64bit
- Linux

Mechanical

- Dimensions: 260mm (W) x 196mm (D) x 66.5mm (H)
- Weight: 3.4kg

Environment

- Operating temperature
  - EN 50155, class OT4 (-40°C~70°C), 85°C for 10 minutes (w/ industrial SSD) with air flow
- Relative humidity: 10%~90% (non-condensing)
- Vibration (random)
  - 2g@5Hz~500Hz (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

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 50121-3-2: 2016
  - 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 45545-2:2013+A1:2015 (PCB)

Ordering Information

- **nROK 6222-AC4S (P/N: 10A00622200X0)**
  Intel Atom® x7-E3950 processor 1.60GHz, 4GB DDR3L SO-DIMM, DC 24V/36V input w/o isolation, 1 x VGA, 2 x HDMI®, 1 x LAN, 4 x PoE, 2 x RS-232, 1 x RS-422/485, 8 x GPIO, 1 x USB 3.2, 2 x USB 2.0
- **VTK-6222-APK (P/N: 10VK0622200X0)**
  Attachable power kit for power isolation, DC 24V input
- **VTK-6222-FPK (P/N: 10VK0622201X0)**
  Attachable power kit for power isolation, DC 110V input

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