AVA-RAGX

Fanless AIoT Video Analytics Platform with NVIDIA® Jetson AGX Xavier™ for Railway

Features



- NVIDIA Jetson AGX Xavier with 32 TOPs AI performance
- 4x M12 GbE with PoE, 1x lockable HDMI output, 4x USB 3.0
- 1x M.2 B-key for LTE/5G; 1x M.2 A/E key 2230 for Wi-Fi
- 2x CAN DB-9 CAN-FD from AGX module, with isolation
- Power with ignition control
- Nominal Voltage: 24VDC, 36VDC, 72VDC and 110VDC (EN50155 compliant)

Specifications

System

System on Module
NVIDIA Jetson AGX Xavier, 100x87mm
NVIDIA Jetson AGX Xavier Industrial, 100x87mm

Processor
4x dual-core NVIDIA Carmel ARM® v8.2 64-bit CPU, 2.26 GHz
8MB L2 + 4MB L3
4 x dual-core NVIDIA Carmel ARM® v8.2 64-bit CPU, 2.03 GHz
8MB L2 + 4MB L3 for Jetson AGX Xavier Industrial

GPU
512-core NVIDIA Volta GPU with 64 Tensor Cores, 1.37GHz
512-core NVIDIA Volta GPU with 64 Tensor Cores, 1.21GHz

Memory
32 GB eMMC on module for Jetson AGX Xavier
64 GB eMMC on module for Jetson AGX Xavier Industrial

Storage
32GB on module

Front Interfaces

Ethernet
4x GbE connector in M12 female X-coded connectors
Supports PoE IEEE 802.3at by BOM option, PSE total max. power 40W for 4 ports
Isolation 1.5kVac (2100Vdc) include POE power

USB
2x USB 3.0 connector with lock

Serial Ports
1x DB-9 RS-232/422/485 from AGX module, TX, RX, CTS, RTX

DIO
1x thermal block 4 input/4 output for 24VDC~110VDC, isolation 1.5kVdc
Signals must be separated with a creepage and clearance distance to all other PCB tracks, components and enclosure that can withstand ≥ 1.5K Vdc
Short protection for DO
DI voltage:
Input low(0) at value < 5V
Input high(1) at Value > 12V
Max input current is 4mA
DO max. working voltage is 110V
DO max. current 250mA

CAN
2x DB-9 CAN-FD from AGX module, with isolation

Rear Interfaces

Power Inlet
1x 4-pin male S-coded M12

USB
1x USB 2.0 OTG port for image update
2x USB 3.0 for maintenance

Display
1x HDMI 2.0 with lock at rear side

SD Card
1x MicroSD

USIM
1x USIM socket, external accessible, mini-SIM (25x15mm, 2FF)

RF interfaces
4+2x RP-SMA connectors

Internal Interfaces

Storage expansion
1x M.2 M-key (PCIe x4 Gen3)

Expansion
1x M.2 B-key 3042/3052 for LTE/5G through USB 3.0
1x M.2 A/E key 2230 for Wi-Fi (PCIe x1)/BT (USB2.0)

TPM
TPM 2.0

RTC
Real time clock (RTC) with golden cap backup

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Specifications

Power

Button
Power, Reset, and Recovery buttons on rear

Power Input
+24/36/72/110VDC with M12 4-pin S code connector
16.8V to 137.5V, EN50155 compliant

Ignition input
Ignition control

Compliance
Compliant to Interruptions of voltage supply according EN50155 SEC. 5.1.1.4 Class S2 &C1>=10ms
Power Consumption<160W at 100% GPU loading

GND
M6 threaded stainless steel stud for protective grounding on rear

Operating System

Operating System
Ubuntu 18.04

Mechanical

Mounting
Wall mount & DIN rail

Dimensions
287.7mm x 190mm x 78.3mm (WxDxH with rack)

IP
IP20 with reference to IEC 60529 Edition 2.2

Weight
4.825 kg

Environmental

Operating Temperature
-25°C to 70°C, up to +85°C for 10min (EN 50155 OT3 ST1)

Storage Temperature
-40°C to 85°C

Humidity Operating
10% to 95% relative humidity (non-condensing)

Humidity Storage
5% to 95% relative humidity (non-condensing)

Environmental
EN50155:2017
Low temperature storage test – EN50155 13.4.6 (Ref. to IEC60068-2-1)
Low temperature start-up test – EN50155 13.4.4 (Ref. to IEC60068-2-1)
Dry heat test – EN50155 13.4.5 (Ref. to IEC60068-2-2)
Cyclic damp heat test – EN50155 13.4.7 (Ref. to IEC60068-2-30)
Shock and Vibration test – EN50155 13.4.11 (Ref. to IEC61373)
Altitude test - EN50125-1:2014 (EN50125-1_4.2 (Ref. to IEC 60068-2-13)
RoHS 2.0 & REACH

Environmental EMC / Safety

EMI/EMC
EN 50155:2017 Clause 4.3.6
With reference to EN 50121-1:2017; EN 50121-3-2:2016
EN 61000-4-2:2009; EN 61000-4-3:2006 + A1:2008 + A2:2010
EN 61000-4-4:2012; EN 61000-4-5:2014 + A1: 2017
EN 61000-4-6:2014 + AC: 2015

Safety
EN 50124-1:2017 Compliance

Fire Protection
EN45545-2:2013+A1:2015 (HL 1-3)

Miscellaneous

LEDs
1x Power On
6x User defined LEDs on front interfaces
Green: U1, U2, U3, U6
Orange: U5
Yellow: U4

MTBF
218,125 hrs. @ 40°C according to Telcordia Issue 4, GB, GC

Conformal Coating
All PCBs conformal coated both sides – type HumiSeal 1B73 Coating (AR) Acrylic

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AVA-RAGX

Order information

- **AVA-RAGXI/NPOE,CC**
  AI Video Analytics with NVIDIA Jetson AGX Xavier industrial, 32GB LPDDR4, 64GB EMMC supporting 4x M12 ETH, 2x USB 3.1, 4x DI/DO, 2x CAN and 1x COM, conformal coating

- **AVA-RAGXI/POE,CC**
  AI Video Analytics with NVIDIA Jetson AGX Xavier industrial, 32GB LPDDR4, 64GB EMMC supporting 4x M12 ETH w/ POE, 2x USB 3.1, 4x DI/DO, 2x CAN and 1x COM, conformal coating

Optional accessory

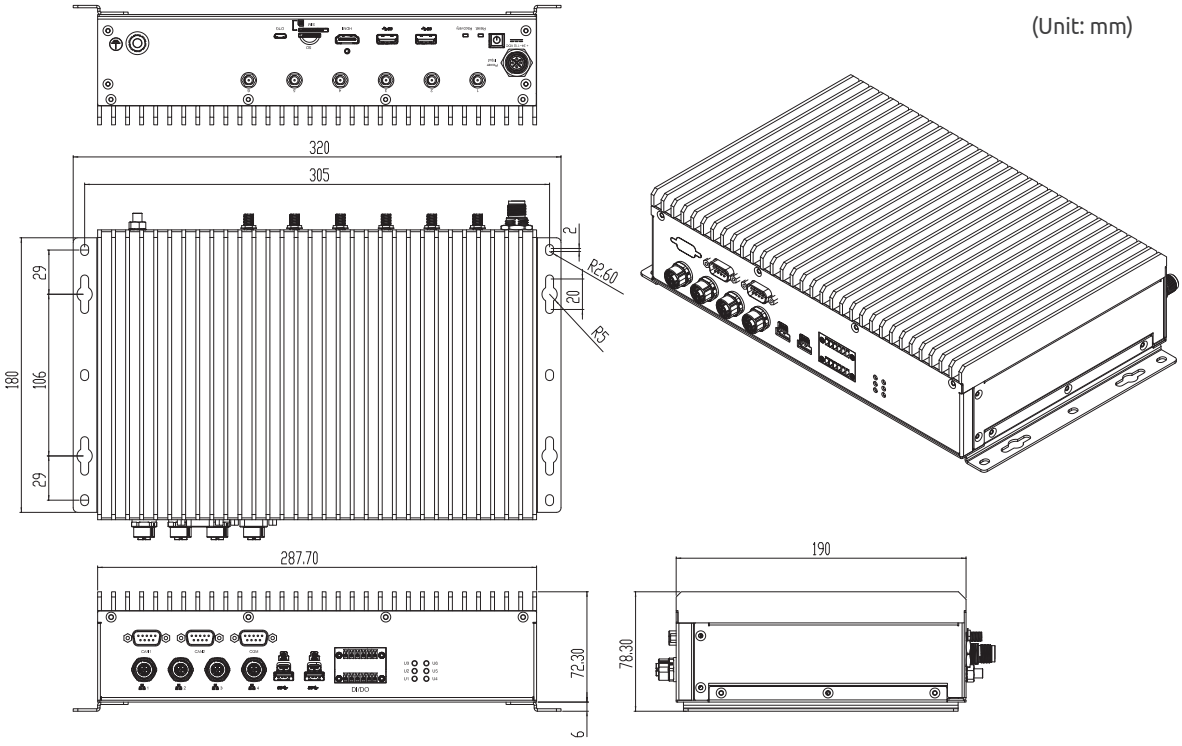
- **Power Adapter Kit**
  24V Power adapter with S-coded cable (ADLINK P/N: 91-95311-000E)

- **Wi-Fi Module**
  EnLi BNA2174_M2I (29-E2174-9000)

- **5G Module**
  SIMCOM SIM8202G

Mechanical Drawing

(Unit: mm)



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