

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 1.5kVdc (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

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

AVA-RAGX

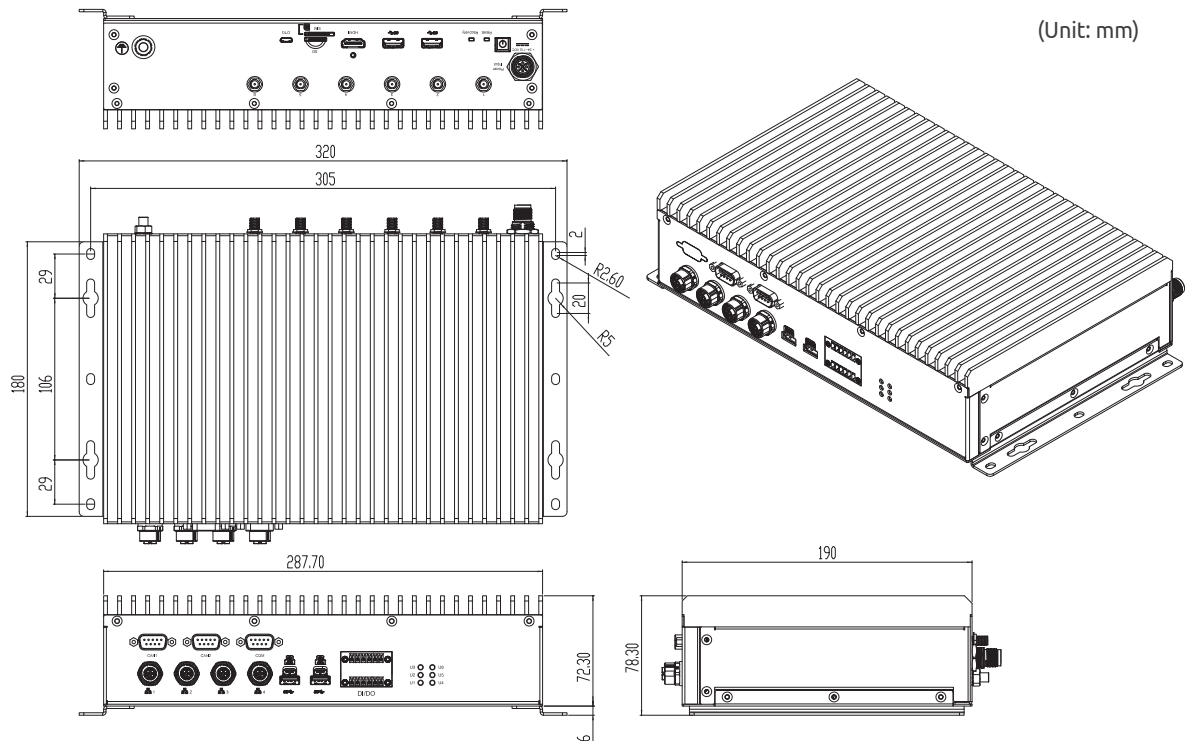
Order information

- **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



Mouser Electronics

Authorized Distributor

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