

COMPACT AI Rugged Series

Intelligent AI inferencing unit with NVIDIA® Jetson Xavier™ NX

preliminary
first draft



RPC/COMPACT A3N

This fanless COMPACT A3N generation is based on the NVIDIA Jetson Xavier NX processor module. Xavier NX allows for supercomputer-level performance in a small form factor. This COMPACT A3N additionally offers a wide range of interface options.

The ultra rugged and uncompromising industrial design allows the implementation in the most harsh and demanding outdoor AI applications

- 24/7 continuous operation
- Shock and vibration resistant
- Power Over Ethernet (PoE)
- IP67 Protection
- Long term availability with fixed BOM

 **NVIDIA.** Linux for Tegra (L4T)

Product Highlights

Ultra rugged
Sealed housing
Shock and vibration resistant
Maintenance free
No moving parts / passive cooling
Hardware watchdog
Temperature supervision
ESD- protection on all interfaces
Long term availability (fixed BOM)

Product Features

384-core NVIDIA Volta™ GPU
with 48 Tensor Cores
Ignition Controller
Inertial measurement unit (IMU)
M.2 slot for storage
Ethernet, USB, active / passive CAN
Power over Ethernet (PoE)
Optional LTE & WiFi extensions
Aluminum housing
Protection class IP67

Markets / Applications

Construction Vehicles
Agriculture
Transportation
Automated Guided Vehicle (AGV)

Computer vision
machine learning
Inference
Perception
Autonomous machines



Processor module / Performance

NVIDIA Jetson Xavier NX | 384-core NVIDIA Volta™ GPU with 48 Tensor Cores

6-Core ARM v8.2 64-bit NVIDIA Carmel CPU

AI Performance (INT8)

21 TOPs

Memory / Storage

Data Cache Size

2MB

128-bit LPDDR4x RAM soldered on board

8GB

eMMC 5.1 Flash Storage on board

16GB

M.2 2280 slot² for SSD storage

1

microSD Card socket²

1

Features

Inertial measurement unit (IMU) STMicroelectronics ISM330DHCXTR

Real time clock PC compatible with battery backup Renata CR2477N (950mAh)

Hardware Watchdog & Temperature supervisor

Intelligent power management

Buzzer

Communication InterfacesInternal USB version 2.0 OTG ^{behind the cover}

(micro USB Type AB)

1

USB version 2.0 ^{behind the cover}

(Type A)

2

DisplayPort 1.4 interface ^{behind the cover}

1

HDMI 2.0 interface

1

Gbit Ethernet (1x native, 1x I210-IT)

(M12 female x-coded)

2

Gbit PoE+ IEEE802.3at 10/100/1000Mbit (4x I210-IT) ^{max Power at PSEs/PDs: 45W/39W}

(M12 female x-coded)

4

USB version 3.0

(Type A)

1

USB version 2.0

(Type A)

1

CAN active/passive, isolated

(M12 female a-coded)

1

Mini PCIe socket²

2

I2C bus²

1

USB version 2.0

(M12 female a-coded)

optional

Digital I/O, 24VDC

(4 inputs, 4 outputs - M12 female a-coded)

optional

Analog input, 16Bit resolution, voltage input: -10 ... +10V / 0 ... 30V ^{Accuracy: +/- 0.1%}

(4 inputs - M12 female a-coded)

optional

Analog input, current: 0-20mA

(4 inputs - M12 female a-coded)

optional

1-4 PEAK CAN (SJA1000 compatible) isolated

(M12 female a-coded)

optional

Serial Interface RS232 / RS422/485

(M12 female a-coded)

optional

MIPI CSI-2 / GMSL2 / FPDLinkIII Camera interface¹

on request

Wireless Connectivity

Cellular Module (LTE/UMTS/GSM) with GNSS positioning functionality Sierra Wireless MC7455 - M2M only!

(3x SMA)

optional

Wireless LAN IEEE 802.11a/b/g/n/ac dual-band 2x2 MIMO & Bluetooth 4.1

(2x RP-SMA)

optional

Technical Data

Dimensions [mm] (housing, excl. mounting)

w250 x h105 x d170

Net weight [gram]

~4000

Non isolated Input voltage, with Ignition controller, reverse polarity protected (M12 4P male a-coded)

9 ... 45VDC

Current consumption typ. in mA @ 24V without Add-Ins, idle

~400

Power consumption typ. in Watt @ 24V without Add-Ins, idle

~10

Environmental ConditionsOperating temperature³

-25°C ... +65°C

Storage temperature

-25°C ... +85°C

Ingress protection standard according to EN60529 (ISO 20653)

IP67 / IP69

Conformal coating⁴

on request

Road vehicles

UN/ECE R10 (E-mark)

Shock

EN60068-2-27 / EN61373

Vibration

EN60068-2-64 / EN61373

EMI-Conformity

EN55032 / EN55035

Safety according to

EN62368-1

Radio and Telecommunication

Designed to meet RED

MTBF @ 25°C ambient ^{according to Telcordia SR-332, Environment GB, excluding battery and optional interfaces}

tbd

¹ Please contact factory for minimum order quantities³ Depending on installation situation and interface connection. Please see user documentation² Internal connector⁴ On all possible components (excl. Xavier NX module, connectors and wireless devices)

Product specifications subject to change without notice. | All data is for information purposes only and not guaranteed for legal purposes. Information in this data sheet has been carefully checked and is believed to be accurate. However, no responsibility is assumed for inaccuracies. Please refer to the user documentation for additional product specification.