

AI Vehicle Computer

COMPACT AI Vehicle Series

Intelligent Machine Learning Unit with NVIDIA Jetson Xavier NX

**preliminary
first draft**



AI Vehicle Computer

IPC/COMPACT A3N - RM

This fanless COMPACT A3N generation is based on the NVIDIA Jetson Xavier NX processor module and offers a wide range of interface options.

The robust and uncompromising industrial design allows the implementation in the most demanding mobile AI applications and guarantees long term availability.

- Power over Ethernet (PoE+), 48VDC out
- 24/7 continuous operation
- 6 total LAN Interfaces with individual NIC's
- Passively cooled, no moving parts
- Long term availability with fixed BOM



nvidia. Linux for Tegra (L4T)

Product Highlights

Maintenance free
Power Ignition Controller
Shock and vibration resistant
Each LAN interface has its own dedicated NIC
LTE, GNSS and Wi-Fi connectivity options
No moving parts / passively cooled

Product Features

384-core NVIDIA Volta™ GPU with 48 Tensor Cores
6-Core ARM v8.2 64-bit NVIDIA Carmel CPU
8GB 128-bit LPDDR4x RAM soldered on board
M.2 slot for storage expansion
Ethernet, USB, Passive or Active CAN
Optional LTE, GNSS & WiFi extensions
Aluminum & Stainless steel housing
Protection class IP65

Markets / Applications

Automated Guided Vehicles (AGV)
Automotive
Transportation
Robotics
Agriculture
Construction Vehicles



Order Code IPC/RMA3NI19-E202S¹ IPC/RMA3NI19-F202S¹

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	21 TOPs

Memory / Storage

Data Cache Size	2MB	2MB
128-bit LPDDR4x RAM soldered on board	8GB	8GB
eMMC 5.1 Flash Storage on board	16GB	16GB
M.2 2280 slot for SSD storage up to 2TB ²	1	1
microSD card socket ²	1	1

Features

Inertial measurement unit (IMU) STMicroelectronics ISM330DHCXTR	•	•
Real time clock (RTC) with battery backup Renata CR2477N (950mAh)	•	•
Hardware Watchdog & Temperature supervisor	•	•

Communication Interfaces

Graphic interface behind the service cover		DisplayPort 1.4	DisplayPort 1.4
Internal USB version 2.0 OTG behind the service cover	(micro USB Type AB)	1	1
USB version 2.0 behind the service cover	(Type A)	2	2
Graphic interface		HDMI 2.0	HDMI 2.0
USB version 3.1	(Type A)	1	1
USB version 2.0 ¹	(Type A)	optional	optional
Ethernet 10/100/1000Mbit (1x native, 1x I210-IT)	(M12 female, x-coded)	2	2
Power over Ethernet - IEEE802.3at 10/100/1000Mbit	(M12 female, x-coded)	4	4
PSE - Power sourcing equipment, producing 48VDC out		(total max power: 39W)	(total max power: 39W)
Active/passive-CAN ESD protected, isolated	(M12 female, a-coded)	1	1
Serial RS232 / RS422/RS485	(DSUB9)	optional	optional
Digital I/O's, 24VDC	(up to 4 inputs & 4 outputs)	optional	optional
Analog input, 16bit resolution, voltage input: -10 ... +10V / 0 ... 30V Accuracy: +/- 0.1%	(4 inputs)	optional	optional
Analog input, 16bit resolution, current: 0-20mA	(4 inputs)	optional	optional
Mini PCIe socket ²		2	2
I2C bus ²		1	1
Buzzer		1	1
MIPI CSI-2 / GMSL2 / FPDLinkIII Camera interface ¹		on request	on request

Wireless Connectivity

Cellular Module (LTE/UMTS/GSM) with GNSS positioning functionality Sierra Wireless MC7455 - M2M only! (Dual nano SIM)	none	3x SMA
Wireless LAN IEEE 802.11a/b/g/n/ac dual-band 2x2 MIMO & Bluetooth 4.1 SparkLAN WPEB-263ACNI(BT)	none	2x RP-SMA
High precision GNSS module ¹ u-blox ZED-F9P module	optional	optional

Technical Data

Dimensions [mm] (housing, excl. mounting)	w182 x h75 x d127	w182 x h75 x d127
Dimensions [mm] (housing, incl. mounting)	w218 x h75 x d127	w218 x h75 x d127
Net weight [gram]	~ 1600	~ 1600
Non isolated input voltage, with ignition controller, reverse polarity protected (M12 male, a-coded)	9... 45VDC	9... 45VDC
Power consumption typ. in Watt @ 24V without Add-Ins, idle	~ 13	~ 13

Environmental Conditions

Operating temperature ³	-25°C ... +60°C	-25°C ... +60°C
Storage temperature	-25°C ... +85°C	-25°C ... +85°C
Ingress protection standard according to EN60529	IP65	IP65
Conformal coating ⁴	on request	on request
Shock (designed to meet)	EN60068-2-27	EN60068-2-27
Vibration (designed to meet)	EN60068-2-64	EN60068-2-64
EMI-Conformity (designed to meet)	EN55032 / EN55035	EN55032 / EN55035
Safety (designed to meet)	EN62368-1	EN62368-1
Radio and Telecommunication (designed to meet)	RED	RED
MTBF @ 25°C ambient excluding battery	tbd	tbd

¹ Please contact factory for minimum order quantities

² Internal connector

³ Depending on installation situation and interface connection. Please see user documentation

⁴ 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.

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industrial computing

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