AI Vehicle Computer

COMPACT AI Vehicle Series

Intelligent Machine Learning Unit with NVIDIA Jetson Xavier NX

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 NVMe slot for storage expansion up to 2TB
USB 3.0 and HDMI 2.0 ports with dust covers
Ethernet, RS232, passive or active CAN
Optional LTE, GNSS & WiFi extensions
Aluminum & Stainless steel housing
Protection class IP65

Markets / Applications

Autonomous Mobile Robots (AMRs)
Automotive
Transportation
Robotics
Agriculture
Construction Vehicles

CE

Order Code		IPC/RMA3NI19-E202S[1,5]	IPC/RMA3NI19-F202S[1,5]
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 Key M socket (for NVMe SSD)[5]		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 PSE - Power sourcing equipment, producing 48VDC out	(M12 female, x-coded)	4 (total max power: 39W)	4 (total max power: 39W)
Active/passive-CAN ESD protected, isolated	(M12 female, a-coded)	1	1
Serial RS232 / RS422/RS485	(M12 male, a-coded)	1	1
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
EMC-Conformity		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)
[5] It is possible to equip the products with a Cactus Technologies 270P Series NVMe SSD from the factory, use these part codes:
IPC/RMA3NI19-[E/F]202S-01 = 128GB | IPC/RMA3NI19-[E/F]202S-02 = 256GB | IPC/RMA3NI19-[E/F]202S = 512GB | IPC/RMA3NI19-[E/F]202S-10 = 1TB

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