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
Ethernet, USB, RS232 Passive or Active CAN
Optional LTE, GNSS & WiFi extensions
Aluminum & Stainless steel housing

Markets / Applications

Autonomous Mobile Robots (AMRs)
Automotive
Transportation
Robotics
CCTV

CE

Order Code		IPC/RMA3NI19-G202S[1,5]	IPC/RMA3NI19-H202S[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 NVMe SSD Cactus Technologies 270P Series (R/W: 1.6GB/s | 1.0GB/s)		256GB	256GB
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 (10 Gbit/s)	(Type A)	1	1
USB version 2.0[1]	(Type A)	optional	optional
Ethernet 10/100/1000 BASE-T (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)
CAN 2.0A / CAN 2.0B (active/passive), CAN FD supported, isolated	(M12 female, a-coded)	1	1
Serial RS232 up to two ports available internally	(M12 male, a-coded)	1	1
Serial RS422/RS485		optional	optional
Digital I/O's, 24VDC	(up to 4 inputs & 4 outputs)	optional	optional
Analog input1, 0-20mA or -10...+10V / 0... 30V (16bit resolution Accuracy: +/- 0.1%)	(4 inputs)	optional	optional
Mini PCIe socket[2], used for extensions depending on configuration		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]		~1700	~1700
Non isolated input voltage, with ignition controller, reverse polarity protected	(M12 male, a-coded)	9... 45VDC	9... 45VDC
Idle power consumption typ. in Watt @ 24V without Add-Ins		~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		IP40	IP40
Conformal coating[4]		on request	on request
Road vehicles: UNECE-R10 (E-mark)		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 according to Telcordia SR-332, Environment GB, excluding battery and SSD		~590 000h	~465 000h

[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-[G/H]202S-01 = 128GB | IPC/RMA3NI19-[G/H]202S-02 = 256GB | IPC/RMA3NI19-[G/H]202S = 512GB | IPC/RMA3NI19-[G/H]202S-10 = 1TB

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