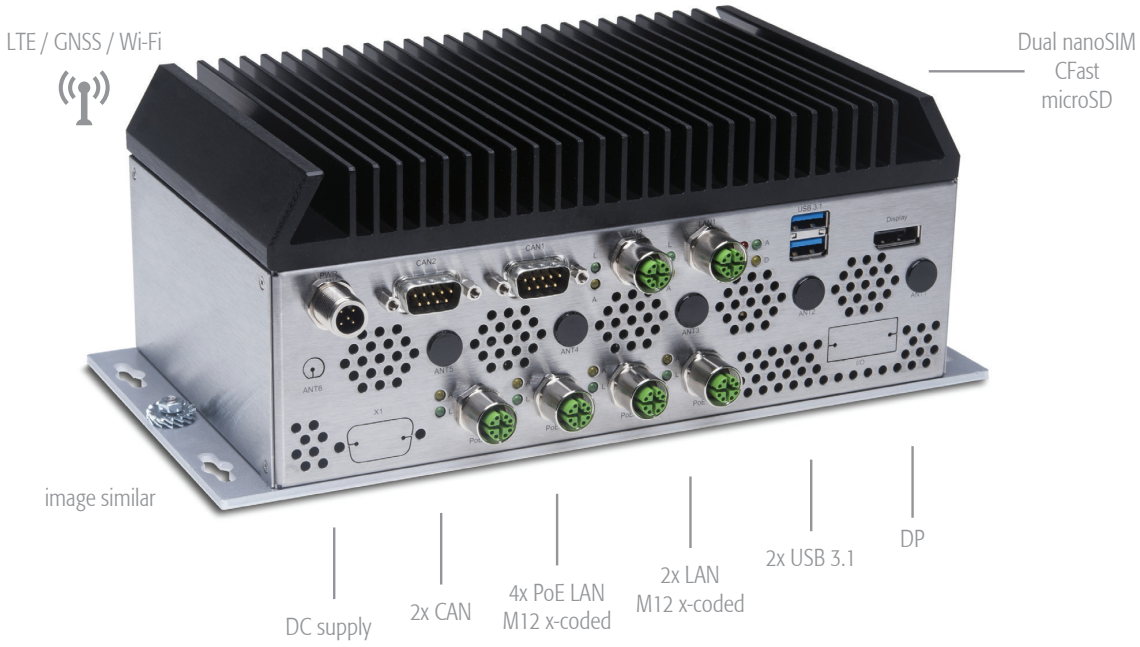
AI Vehicle Computer

COMPACT AI Vehicle Series

Intelligent Machine Learning Unit with NVIDIA Jetson AGX Xavier

preliminary



IPC/COMPACT A3 - RML

This fanless RML COMPACT-A3 generation is based on the Jetson AGX Xavier 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**
- **Extended AI Computing**
- **Passively cooled, no moving parts**
- **Long term availability with fixed BOM**

NVIDIA
Linux for Tegra (L4T)

CE E1

Product Highlights

UNECE-R10 (E-mark) certified
Positioning capabilities with dead reckoning
Power ignition controller
Each LAN interface has its own dedicated NIC
Shock and vibration resistant
LTE and Wi-Fi connectivity options
No moving parts / passively cooled

Product Features

512-Core NVIDIA Volta™ GPU
with 64 Tensor Cores
8-Core ARM v8.2 64-bit NVIDIA Carmel CPU
32GB 256-Bit LPDDR4x RAM soldered on board
Storage options: M.2 2280 & CFast
Ethernet, USB, CAN (J1939)
LTE, GNSS and WiFi
Aluminum & stainless steel housing

Industries

Automotive
Automated Guided Vehicles (AGV)
Transportation
Robotics
Off-highway vehicles

Your partner for reliable embedded computer and display solutions.

Order Code		IPC/RMLA3K22-A203S[1]	IPC/RMLA3K22-D203S[1]
Processor module / Performance			
NVIDIA Jetson AGX Xavier (32GB) | 512-Core NVIDIA Volta™ GPU with 64 Tensor Cores 8-Core ARM v8.2 64-bit NVIDIA Carmel CPU		•	•
AI Performance		32 TOPs	32 TOPs
Memory / Storage			
Data L3 Cache Size		4MB	4MB
256-Bit LPDDR4x RAM soldered on board		32GB	32GB
eMMC 5.1 Flash Storage on board		32GB	32GB
microSD Card socket		1	1
M.2 socket [2]		1	1
CFast socket with retention frame [2]		1	1
Features			
Inertial measurement unit (IMU) STMicroelectronics ISM330DHCXTR		•	•
Real time clock (RTC) with battery backup Renata CR2477 (950 mAh)		•	•
Real time clock (RTC) with goldcap backup (charge holds 48h)		optional	optional
Hardware Watchdog & Temperature supervisor		•	•
Buzzer		•	•
Communication Interfaces			
Graphic interface		DisplayPort 1.2	DisplayPort 1.2
USB version 3.1	(Type A)	2	2
Internal USB version 2.0 OTG behind the cover	(micro USB Type AB)	1	1
Ethernet 10/100/1000Mbit	(M12 female x-coded)	2	2
Active/passive-CAN ESD protected, isolated	(DSUB9)	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)
Serial RS232 / RS422/RS485	(DSUB9)	optional	none
Digital I/O's, 24VDC	(up to 4 inputs & 4 outputs)	optional	none
Analog input, 16bit resolution, voltage input: -10 ...+10V / 0 ... 30V Accuracy: +/- 0.1%	(4 inputs)	optional	none
Analog input, 16bit resolution, current: 0-20mA	(4 inputs)	optional	none
I2C bus [2]		1	1
MIPI CSI-2 / GMSL2 / FPDLinkIII Camera interface [1]		on request	on request
Wireless Connectivity			
Cellular 4G Module (LTE/UMTS/GSM) Sierra Wireless MC7455- M2M only! with dual nano SIM support	(full size miniPCIe Slot)	2x SMA	none
GNSS Positioning module (GPS, Galileo, Glonass, Beidou) u-blox NEO-M8U module incl. acceleration sensor and gyroscope		1x SMA	none
Wireless LAN IEEE 802.11a/b/g/n/ac dual-band 2x2 MIMO Sparklan WPEB 263ACNI(BT)	(half size MiniPCIe Slot)	2x RP-SMA	none
High precision GNSS module [1] u-blox ZED-F9P module		optional	none
Technical Data			
Dimensions [mm] (housing, incl. mounting plate)		w255 x h103 x d125	w255 x h103 x d125
Net weight [gram]		~2300	~2300
Non isolated input voltage with ignition controller and reverse polarity protection	(M12 5P male a-coded)	9 ... 36VDC	9 ... 36VDC
Power consumption typ. in Watt @ 24V without Add-Ins, idle		~15	~15
Environmental Conditions			
Operating temperature [3]		–25°C ... +60°C	–25°C ... +60°C
Storage temperature		–25°C ... +80°C	–25°C ... +80°C
Ingress protection standard according to EN60529 (ISO 20653)		IP20	IP20
Conformal coating [4]		on request	on request
Road vehicles [5]		UNECE-R10 (E-mark)	UNECE-R10 (E-mark)
Shock		EN60068-2-27	EN60068-2-27
Vibration		EN60068-2-64	EN60068-2-64
EMI-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 according to Telcordia SR-332, Environment GB, excluding battery		~325 000h	~435 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. NVIDIA Xavier Module, connectors and wireless devices)
[5] UN/ECE-R10 is the type-approval test for European automotive electronics. It includes a variety of testing including RF immunity and emissions, transient immunity and emissions. It also includes a requirement for burst, surge, harmonics & flicker and provides advice and requirements for electrical vehicles.

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Version 0.6 | November 2020

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Assured Systems

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