

## COMPACT AI Vehicle Series

Intelligent Machine Learning Unit with NVIDIA Jetson AGX Xavier

LTE / GNSS / Wi-Fi



Dual nanoSIM  
CFast  
microSD



DC supply

2x CAN

4x PoE LAN  
RJ45

2x LAN  
M12 x-coded

2x USB 3.1

DP

## 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



### Product Highlights

UNECE-R10 (E-mark) certified  
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: NVMe M.2 2280 & CFast  
Ethernet, USB, CAN (J1939)  
LTE, GNSS and WiFi  
Aluminum & stainless steel housing

### Industries

Automotive  
Autonomous Mobile Robots (AMRs)  
Transportation  
Robotics  
Off-highway vehicles

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 2280 Key M socket (for NVMe SSD) <sup>2</sup>		1	1
CFast socket with retention frame <sup>2</sup>		1	1
Features			
Inertial measurement unit (IMU) STMicroelectronics ISM330DHCXTR		•	•
Real time clock (RTC) with battery backup Renata CR2477 (950 mAh)		•	•
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 <small>behind the cover</small> (micro USB Type AB)		1	1
Ethernet 10/100/1000 BASE-T (M12 female x-coded)		2	2
Active/passive-CAN ESD protected, isolated (DSUB9)		2	2
Power over Ethernet - IEEE802.3at 10/100/1000Mbit (RJ45)		4	4
PSE - Power sourcing equipment, producing 48VDC out (total max power: 39W)		(total max power: 39W)	(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 <sup>2</sup>		1	1
MIPI CSI-2 / GMSL2 / FPDLinkIII Camera interface <sup>1</sup>		on request	on request
Wireless Connectivity			
Cellular 4G Module (LTE/UMTS/GSM) with GNSS Sierra Wireless MC7455- M2M only! (full size miniPCIe Slot)		3x SMA	none
Dual SIM Support			
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 Accuracy GNSS Positioning Module w/ RTK support <sup>1</sup> u-blox ZED F9P		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 ... 45VDC	9 ... 45VDC
Power consumption <sup>3</sup>		depends on power mode (15W, 30W, MAXN)	
Environmental Conditions			
Operating temperature <sup>3</sup>		-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 <sup>4</sup>		on request	on request
Road vehicles <sup>5</sup>		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 <small>according to Telcordia SR-332, Environment GB, excluding battery</small>		~325 000h	~435 000h

<sup>1</sup> Please contact factory for minimum order quantities<sup>2</sup> Internal connector<sup>3</sup> Depending on installation situation, interface connection and power mode. Please see user documentation.<sup>4</sup> On all possible components (excl. NVIDIA Xavier Module, connectors and wireless devices)<sup>5</sup> 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.

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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