

AI Vehicle Computer

**COMPACT AI Vehicle Series**

Intelligent Machine Learning Unit with NVIDIA Jetson TX2



**IPC/COMPACT A2 - RM**

This fanless RM COMPACT-A2 generation is based on the NVIDIA Jetson TX2 processor module and offers a wide range of interface options. The robust and uncompromising industrial design allows the implementation in the most demanding AI applications and guarantees long term availability.

- 24/7 continuous operation
- Extended AI Computing
- 6 LAN Interfaces w/ individual NIC's
- Power over Ethernet (PoE+), 48VDC out
- Long term availability with fixed BOM



**Product Highlights**

Maintenance free  
Goldcap instead of battery backup  
No moving parts / passive cooling  
ARM CPU core  
Hardware watchdog  
Temperature supervision  
ESD- protection on all interfaces  
Long term availability (fixed BOM)  
Shock and vibration resistant

**Product Features**

256-core NVIDIA Pascal™ GPU  
Dual-Core NVIDIA Denver 2 64-Bit CPU  
Quad-Core ARM® Cortex®-A57 MPCore  
8GB 128-bit LPDDR4 RAM soldered on board  
Socket for CFast  
Ethernet, USB, Passive or Active CAN  
Optional 4G LTE connectivity  
Aluminum & Stainless steel housing  
Protection class IP40

**Markets / Applications**

Automated Guided Vehicle (AGV)  
Transportation  
Construction Vehicles



Order Code IPC/RMA2I20-A203S<sup>1</sup> IPC/RMA2I20-B203S<sup>1</sup> IPC/RMA2I20-C203S<sup>1</sup>

Processor module / Performance				
NVIDIA Jetson TX2   256-core NVIDIA Pascal™ GPU		•	•	•
NVIDIA Jetson TX2 4GB   256-core NVIDIA Pascal™ GPU		optional	optional	optional
NVIDIA Jetson TX2i   256-core NVIDIA Pascal™ GPU		optional	optional	optional
Dual-Core NVIDIA Denver 2 64-Bit CPU and Quad-Core ARM® Cortex®-A57 MPCore		•	•	•
AI Performance		1.3 TOPs	1.3 TOPs	1.3 TOPs
Memory / Storage				
Data Cache Size		2MB	2MB	2MB
4ch x 32-bit LPDDR4 RAM soldered on board		8GB	8GB	8GB
eMMC 5.1 Flash Storage on board		32GB	32GB	32GB
microSD Card socket <sup>2</sup>		1	1	1
CFast socket with retention frame <sup>2</sup>		1	1	1
Features				
Inertial measurement unit (IMU) STMicroelectronics ISM330DLC		•	•	•
Real time clock (RTC) with battery backup Renata CR2477N (950mAh)		•	•	•
Real time clock (RTC) with Goldcap backup (48h)		optional	optional	optional
Hardware Watchdog & Temperature supervisor		•	•	•
Intelligent power management (Power Ignition Controller)		•	•	•
Communication Interfaces				
Graphic interface		DisplayPort 1.2	DisplayPort 1.2	DisplayPort 1.2
USB version 3.0 (Type A)		2	2	2
Internal USB version 2.0 OTG <small>behind the cover</small> (micro USB Type AB)		1	1	1
Ethernet 10/100/1000Mbit (1x native, 1x I210-IT) (M12 female x-coded)		2	2	2
Power over Ethernet - IEEE802.3at 10/100/1000Mbit (M12 female x-coded / RJ45)		4x M12 (total max power: 39W)	4x RJ45 (total max power: 39W)	4x M12 (total max power: 39W)
PSE - Power sourcing equipment, producing 48VDC out				
Active/passive-CAN ESD protected, isolated (1x DSUB9)		2	2	2
RS232 / RS422/485 ESD protected (DSUB9)		optional	optional	optional
Mini PCIe socket <sup>2</sup>		1	1	1
I2C bus <sup>2</sup>		•	•	•
Buzzer		•	•	•
MIPI CSI-2 Camera Interface <sup>2</sup>		•	•	•
Wireless Connectivity				
Cellular Module (LTE/UMTS/GSM) with GNSS positioning Sierra Wireless MC7455 - M2M only!		3x SMA	3x SMA	none
Dual SIM Support (nanoSIM to mPCIe slot <sup>2</sup> )		•	•	none
Wireless LAN IEEE 802.11a/b/g/n/ac dual-band 2x2 MIMO & Bluetooth 4.1		2x RP-SMA	2x RP-SMA	none
Technical Data				
Dimensions w174 x h82 x d127 mm <small>(housing without mounting bracket)</small>		•	•	•
Net weight in gram		~ 1100	~ 1100	~ 1100
Non isolated input voltage, reverse polarity protected (M12 4P male A-coded)		9... 45VDC	9... 45VDC	9... 45VDC
Current consumption typ. in mA @ 24V without Add-Ins, idle		~ 625	~ 625	~ 625
Power consumption typ. in Watt @ 24V without Add-Ins, idle		~ 15	~ 15	~ 15
Environmental Conditions				
Operating temperature <sup>3</sup>		-25°C ... +65°C	-25°C ... +65°C	-25°C ... +65°C
Storage temperature		-25°C ... +80°C	-25°C ... +80°C	-25°C ... +80°C
Protection standard		IP40	IP40	IP40
UN/ECE R10 (E-mark) certification		on request	on request	on request
Conformal coating <sup>4</sup>		on request	on request	on request
Shock (designed to meet)		EN60068-2-27	EN60068-2-27	EN60068-2-27
Vibration (designed to meet)		EN60068-2-64	EN60068-2-64	EN60068-2-64
EMI-Conformity		EN55032 / EN55035	EN55032 / EN55035	EN55032 / EN55035
Safety (designed to meet)		EN62368-1	EN62368-1	EN62368-1
Radio and Telecommunication (designed to meet)		RED	RED	RED
MTBF @ 25°C ambient <small>according to Telcordia SR-332, Environment GB, excluding battery</small>		~ 390 000h	~ 390 000h	~ 515 000h

<sup>1</sup> Please contact factory for minimum order quantities

<sup>2</sup> Internal connector

<sup>3</sup> Depending on installation situation and interface connection. Please see user documentation.

<sup>4</sup> On all possible components (excl. TX2(i) 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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Version 1.3 | December 2020

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## Assured Systems

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