

AI Railway Computer

**COMPACT AI Railway Series**

Intelligent Machine Learning Unit with NVIDIA Jetson TX2(i)



**IPC/COMPACT A2 - RS**

This fanless RS COMPACT-A2 generation is based on the NVIDIA Jetson TX2(i) 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
- Temperature according to EN50155 OT4
- Fully railway approved (EN50155 & EN45545)
- EN50155 Class S2 power supply



**Product Highlights**

Maintenance free  
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 WiFi extensions  
Aluminum & Stainless steel housing  
Protection class IP40  
EN50155 certified (OT4)

**Markets / Applications**

Railway (rolling stock)  
Transportation



Order Code IPC/RSA2119-A101E<sup>1</sup> IPC/RSA2120-A101S<sup>1</sup>

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Processor module / Performance			
NVIDIA Jetson TX2i   256-core NVIDIA Pascal™ GPU		•	optional
NVIDIA Jetson TX2   256-core NVIDIA Pascal™ GPU		n/a	•
NVIDIA Jetson TX2 4GB   256-core NVIDIA Pascal™ GPU		n/a	on request
Dual-Core NVIDIA Denver 2 64-Bit CPU and Quad-Core ARM® Cortex®-A57 MPCore		•	•
AI Performance		1.3 TOPs	1.3 TOPs
Memory / Storage			
Data Cache Size		2MB	2MB
4ch x 32-bit LPDDR4 RAM soldered on board		8GB	8GB
eMMC 5.1 Flash Storage on board		32GB	32GB
microSD Card socket <sup>2</sup>		1	1
CFast socket with retention frame <sup>2</sup>		1	1
Features			
Real time clock (RTC) with goldcap backup holds charge for 48h		•	•
Hardware Watchdog & Temperature supervisor		•	•
Intelligent power management		•	•
Inertial measurement unit (IMU) STMicroelectronics ISM330DLC		•	•
Communication Interfaces			
Graphic interface		DisplayPort 1.2	DisplayPort 1.2
USB version 3.0	(Type A)	2	2
Internal USB version 2.0 OTG <small>behind the cover</small>	(micro USB Type AB)	1	1
Ethernet 10/100/1000Mbit (1x native, 1x I210-IT)	(M12 female x-coded)	2	2
Active/passive-CAN ESD protected, isolated	(1x DSUB9)	2	2
RS232 / RS422/485 ESD protected	(DSUB9)	optional	optional
Mini PCIe socket <sup>2</sup>		1	1
I2C bus <sup>2</sup>		•	•
Buzzer		•	•
MIPI CSI-2 Camera Interface <sup>2</sup>		•	•
Wireless Connectivity			
Wireless LAN IEEE 802.11a/b/g/n/ac dual-band 2x2 MIMO & Bluetooth 4.1	(2x RP-SMA)	optional <sup>1</sup>	optional <sup>1</sup>
Cellular Module (LTE/UMTS/GSM) with GNSS positioning functionality Sierra Wireless MC7455 - M2M only!	(3x SMA)	optional <sup>1</sup>	optional <sup>1</sup>
Dual SIM Support (nanoSIM to mPCIe slot <sup>3</sup> )		•	•
Technical Data			
Dimensions w174 x h52 x d127 mm <small>(housing without mounting bracket)</small>		•	•
Net weight in gram		~950	~950
Isolated input voltage, with Ignition controller, reverse polarity protected	(M12 4P male a-coded)	16.8 ... 45VDC	16.8 ... 45VDC
16.8... 137.5VDC Input voltage, isolated and reverse polarity protected <sup>3</sup>	(M12 4P male a-coded)	optional	optional
Interruption of voltage supply time: EN50155 Class S2		>10ms	>10ms
Current consumption typ. in mA @ 24V without Add-Ins, idle		~400	~400
Power consumption typ. in Watt @ 24V without Add-Ins, idle		~10	~10
Environmental Conditions			
Operating temperature <sup>4</sup>		-40°C ... +70°C	-25°C ... +70°C
Operating temperature class according to EN50155		OT4 <sup>4</sup>	OT3 <sup>4</sup>
Storage temperature		-40°C ... +85°C	-25°C ... +80°C
Ingress protection standard according to EN60529		IP40	IP40
Conformal coating <sup>4</sup>		PCX	PCX
UN/ECE R10 (E-mark) certification		on request	on request
Shock		EN61373	EN61373
Vibration		EN61373	EN61373
EMI-Conformity		EN50121-3-2	EN50121-3-2
Safety (designed to meet)		EN62368-1	EN62368-1
Fire protection		EN45545-2 HL3	EN45545-2 HL3
Radio and Telecommunication (designed to meet)		RED	RED
MTBF @ 25°C ambient <small>according to Telcordia SR-332, Environment GB, excluding battery</small>		~715 000h	~700 000h

<sup>1</sup> Please contact factory for minimum order quantities  
<sup>2</sup> Different and slightly bigger housing required (approx: 236 x 52 x 127 mm)  
<sup>3</sup> On all possible components (excl. TX2(i) Module, connectors and wireless devices)

<sup>2</sup> Internal connector  
<sup>4</sup> Depending on installation situation and interface connection. Please see user documentation.

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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## Assured Systems

Assured Systems is a leading technology company with over 1,500 regular clients in 80 countries, deploying over 85,000 systems to a diverse customer base in 12 years of business. We offer high-quality and innovative rugged computing, display, networking and data collection solutions to the embedded, industrial, and digital-out-of-home market sectors.

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