

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-A101E¹ IPC/RSA2120-A101S¹

AI Railway Computer

| 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 ² | | 1 | 1 |
| CFast socket with retention frame ² | | 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 ² | | 1 | 1 |
| I2C bus ² | | • | • |
| Buzzer | | • | • |
| MIPI CSI-2 Camera Interface ² | | • | • |
| Wireless Connectivity | | | |
| Wireless LAN IEEE 802.11a/b/g/n/ac dual-band 2x2 MIMO & Bluetooth 4.1 | (2x RP-SMA) | optional ¹ | optional ¹ |
| Cellular Module (LTE/UMTS/GSM) with GNSS positioning functionality Sierra Wireless MC7455 - M2M only! | (3x SMA) | optional ¹ | optional ¹ |
| Dual SIM Support (nanoSIM to mPCIe slot ³) | | • | • |
| 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 ³ | (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 ⁴ | | -40°C ... +70°C | -25°C ... +70°C |
| Operating temperature class according to EN50155 | | OT4 ⁴ | OT3 ⁴ |
| Storage temperature | | -40°C ... +85°C | -25°C ... +80°C |
| Ingress protection standard according to EN60529 | | IP40 | IP40 |
| Conformal coating ⁴ | | 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 |

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

² Internal connector
⁴ 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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