AI Railway Computer

COMPACT AI Railway Series

Intelligent Machine Learning Unit with NVIDIA Jetson TX2(i)

GNSS / Wi-Fi / BT
optional LTE

Dual nanoSIM
CFast
uSD
DisplayPort

PWR   CAN   USB 3.0 USB 3.0   ACT LAN 2   ACT LAN 1   R   B   LINK

DC Supply
16.8 … 45VDC

2x CAN

2x USB 3.0

2x LAN
M12 x-coded

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

NVIDIA Linux for Tegra (L4T)

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

CE

Your partner for reliable embedded computer and display solutions.

	Order Code	IPC/RSA2I19-A101E[1]	IPC/RSA2I20-A101S[1]
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 harge 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 behind the cover	(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 [2])		•	•
Technical Data			
Dimensions w174 x h52 x d127 mm (housing without mounting bracket)		•	•
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 according to Telcordia SR-332, Environment GB, excluding battery		~715 000h	~700 000h

[1] Please contact factory for minimum order quantities
[2] Internal connector
[3] Different and slightly bigger housing required (approx: 236 x 52 x 127 mm)
[4] Depending on installation situation and interface connection. Please see user documentation.
[5] On all possible components (excl. TX2(i) Module, connectors and wireless devices)

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