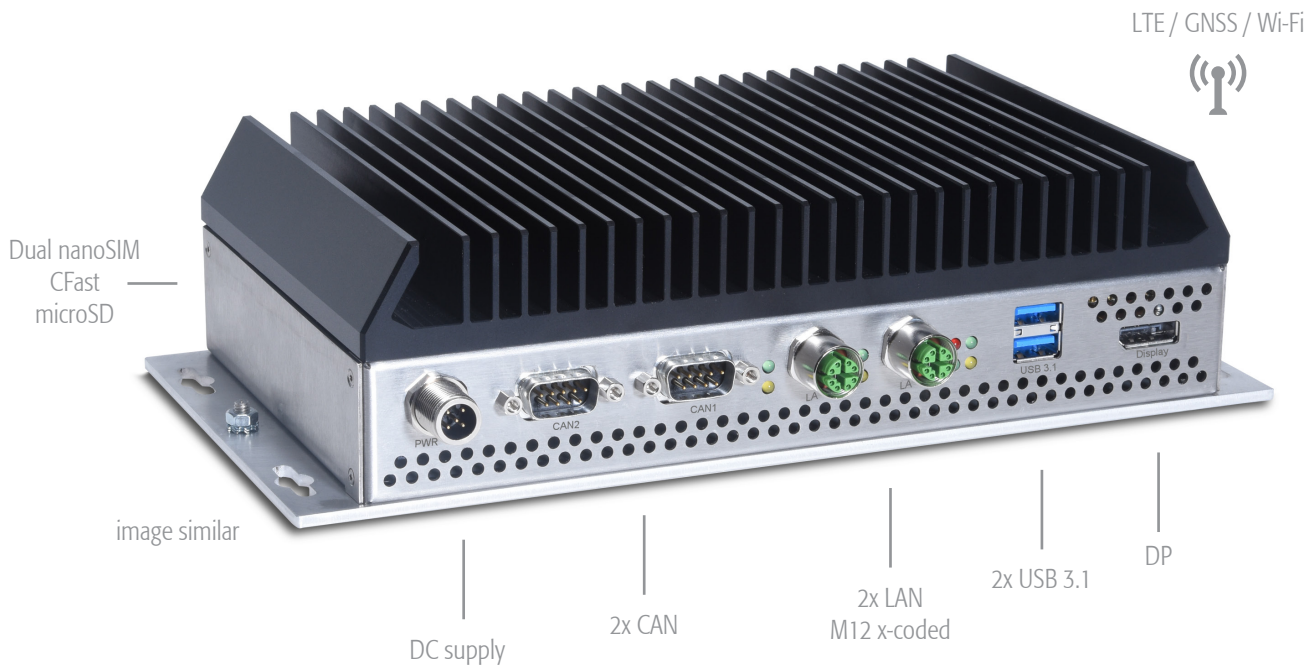


COMPACT AI Railway Series

Intelligent Machine Learning Unit with NVIDIA Jetson AGX Xavier



IPC/COMPACT A3 - RSL

This fanless RSL 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 AI railway and rolling stock applications and guarantees long term availability.

- 24/7 continuous operation
- Extended AI Computing
- Railway approved EN50155
- Passively cooled, no moving parts
- Long term availability with fixed BOM

 **NVIDIA.** Linux for Tegra (L4T)

Product Highlights

No moving parts / passively cooled
Shock and vibration resistant
Galvanically isolated railway power supply
Long term availability (fixed BOM)
Maintenance free
Inertial measurement unit (IMU)
Goldcap instead of battery backup for RTC

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
Socket for CFast, M.2 NVMe
Ethernet, USB, Passive or Active CAN
LTE, GNSS and WiFi options
Aluminum & Stainless steel housing

Markets

Railway (rolling stock)
Transportation

Processor module / Performance

NVIDIA Jetson AGX Xavier (JAX) | 512-Core NVIDIA Volta™ GPU with 64 Tensor Cores
8-Core ARM v8.2 64-bit NVIDIA Carmel CPU

NVIDIA Jetson AGX Xavier **Industrial** (JAXi) | 512-Core NVIDIA Volta™ GPU with 64 Tensor Cores
8-Core ARM v8.2 64-bit NVIDIA Carmel CPU

optional
p/n: IPC/RSLA3K21-A101E

optional
p/n: IPC/RSLA3K21-C101E

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 / (64GB on JAXi)

32GB / (64GB on JAXi)

microSD Card socket

1

1

M.2 2280 NVMe socket²

1

1

CFast socket with retention frame²

1

1

Features

Inertial measurement unit (IMU) STMicroelectronics ISM330DHCXTR

•

•

Real time clock (RTC) with goldcap backup (charge holds typ. 48h)

•

•

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 ^{behind the cover}

(micro USB Type AB)

1

1

Ethernet 10/100/1000Mbit

(M12 female x-coded)

2

2

Active/passive-CAN ESD protected, isolated

(DSUB9)

2

2

Power over Ethernet - IEEE802.3at 10/100/1000Mbit ^{requires taller housing: h103mm}

(RJ45 / M12 female x-coded)

optional

optional

Serial RS232 / RS422/RS485

(DSUB9)

optional

optional

Digital I/O's, 24VDC

(up to 4 inputs & 4 outputs)

optional

optional

Analog input, 16bit resolution, voltage input: -10 ...+10V / 0 ... 30V ^{Accuracy: +/- 0.1%}

(4 inputs)

optional

optional

Analog input, 16bit resolution, current: 0-20mA

(4 inputs)

optional

optional

I2C bus²

•

•

MIPI CSI-2 / GMSL2 / FPDLinkIII Camera interface¹

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 u-blox ZED F9P

optional

none

Technical Data

Dimensions [mm] (housing, incl. mounting plate)

w255 x h63 x d125

w255 x h63 x d125

Net weight [gram]

~2300

~2300

Isolated input voltage with ignition controller and reverse polarity protection

(M12 5P male a-coded)

16.8 ... 45VDC

16.8 ... 45VDC

Interruption of voltage supply time: EN50155 Class S2

>10ms

>10ms

Environmental ConditionsOperating temperature (JAX)³

-25°C ... +65°C

-25°C ... +65°C

Storage temperature (JAX)

-25°C ... +80°C

-25°C ... +80°C

Operating temperature (JAXi), complies with EN50155 class OT4³

-40°C ... +70°C

-40°C ... +70°C

Storage temperature (JAXi)

-25°C ... +85°C

-25°C ... +85°C

Ingress protection standard according to EN60529

IP20

IP20

Conformal coating⁴

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

none

MTBF @ 25°C ambient[†] according to Telcordia SR-332, Environment GB, excluding battery

~325 000h

~435 000h

¹ Please contact factory for minimum order quantities² Internal connector³ Depending on installation situation and interface connection. Please see user documentation.⁴ On all possible components (excl. NVIDIA Xavier 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.