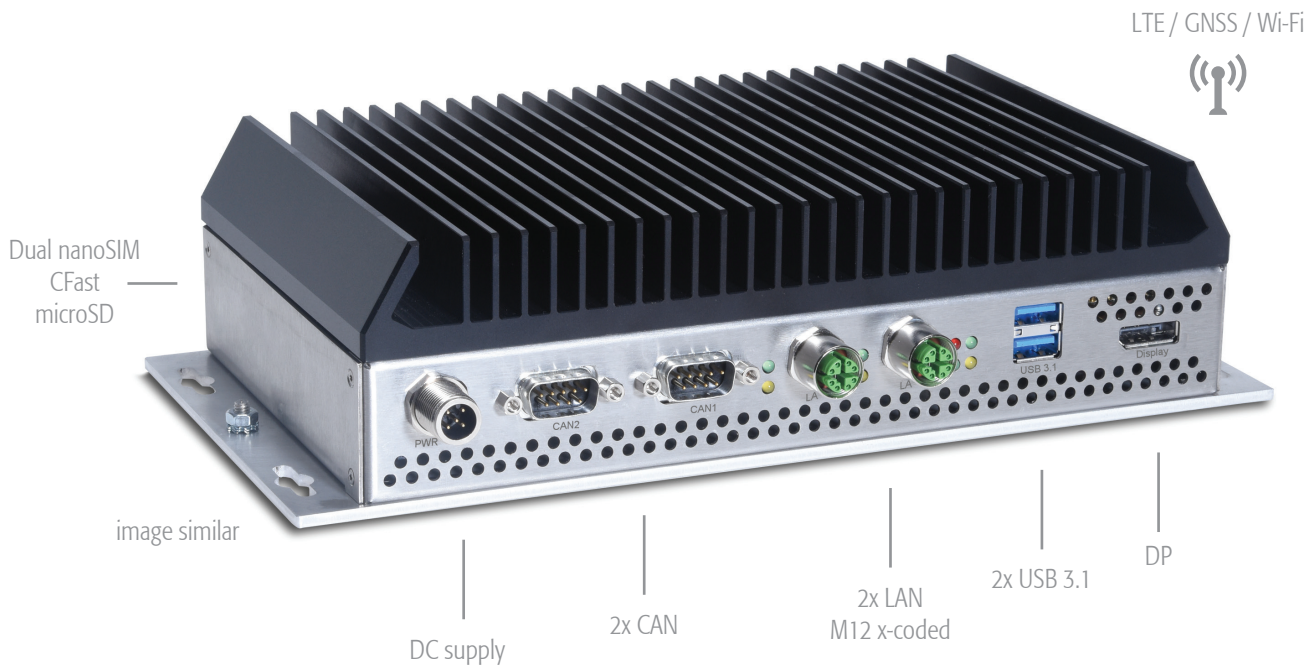


COMPACT AI Railway Series

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 applications and guarantees long term availability.

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

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

Product Highlights

No moving parts / passively cooled
Positioning capabilities with dead reckoning
Power ignition controller
Long term availability (fixed BOM)
Maintenance free
Shock and vibration resistant
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
Ethernet, USB, Passive or Active CAN
LTE, GNSS and WiFi options
Aluminum & Stainless steel housing

Markets

Production and Industrial Automation
Automated Guided Vehicles (AGV)
Transportation
Logistics
Robotics

Railway (rolling stock)



Processor module / PerformanceNVIDIA Jetson AGX Xavier (32GB) | 512-Core NVIDIA Volta™ GPU with 64 Tensor Cores
8-Core ARM v8.2 64-bit NVIDIA Carmel CPU

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	32GB
microSD Card socket	1	1
M.2 2280 socket ²	1	1
CFast socket with retention frame ²	1	1

Features

Inertial measurement unit (IMU) STMicroelectronics ISM330DHCXTR	•	•
Real time clock (RTC) with goldcap backup (charge holds 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	none
Serial RS232 / RS422/RS485 (DSUB9)		optional	none
Digital I/O's, 24VDC (up to 4 inputs & 4 outputs)		optional	none
Analog input, 16bit resolution, voltage input: -10 ...+10V / 0 ... 30V ^{Accuracy: +/- 0.1%} (4 inputs)		optional	none
Analog input, 16bit resolution, current: 0-20mA (4 inputs)		optional	none
I2C bus ²		•	•
MIPI CSI-2 / GMSL2 / FPDLinkIII Camera interface ¹		on request	on request

Wireless Connectivity

Cellular 4G Module (LTE/UMTS/GSM) Sierra Wireless MC7455- M2M only! (full size miniPCIe Slot)	2x SMA	none
Dual SIM Support (nanoSIM to mPCIe slot)	•	none
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
GNSS Positioning Module (GPS, Galileo, Glonass, Beidou) u-blox NEO-M8U Module ^{incl. acceleration sensor and gyroscope}	1x 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 Conditions

Operating temperature ³	-25°C ... +55°C	-25°C ... +55°C
Storage temperature	-25°C ... +80°C	-25°C ... +80°C
Ingress protection standard according to EN60529	IP20	IP20
Conformal coating ⁴	PCX	PCX
UN/ECE R10 (E-mark) certification	on request	on request
Shock	EN61373 / EN60068-2-27	EN61373 / EN60068-2-27
Vibration	EN61373 / EN60068-2-64	EN60068-2-64 / 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}	~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.

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