



## IPC/COMPACT A3 - RML

This fanless RML 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
- Railway approved EN50155
- Power over Ethernet (PoE+), 48VDC out
- 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
- Each LAN interface has its own dedicated NIC
- Long term availability (fixed BOM)
- Maintenance free
- 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
- Storage options: NVMe M.2 2280 & CFast
- Ethernet, USB, Passive or Active CAN
- LTE, GNSS and WiFi options
- Aluminum & stainless steel housing

### Industries / Applications

- 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

AI Performance	32 TOPs	32 TOPs
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**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 Key M socket (for NVMe SSD) <sup>2</sup>	1	1
CFast socket with retention frame <sup>2</sup>	1	1

**Features**

Inertial measurement unit (IMU) STMicroelectronics ISM330DHCXTR	•	•
Real time clock (RTC) with goldcap backup (charge holds typ. 48h)	•	•
Hardware Watchdog & Temperature supervisor	•	•
Intelligent power management	•	•
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 <small>behind the cover</small> (micro USB Type AB)		1	1
Ethernet 10/100/1000 BASE-T (M12 female x-coded)		2	2
Power over Ethernet - IEEE802.3at 10/100/1000Mbit (M12 female x-coded)		4	4
PSE - Power sourcing equipment, producing 48VDC out		(total max power: 39W)	(total max power: 39W)
Active/passive-CAN ESD protected, isolated (DSUB9)		2	2
RS232 / RS422/485 (DSUB9)		optional	optional
Digital I/O's, 24VDC (up to 4 inputs & 4 outputs)		optional	optional
Analog input <sup>1</sup> , 0-20mA or -10...+10V / 0... 30V <small>(16bit resolution Accuracy: +/- 0.1%)</small> (up to 4 inputs)		optional	optional
Mini PCIe socket <sup>2</sup> - used for extensions depending on configuration		2 full-size / 1 half-size	2 full-size / 1 half-size
I2C bus <sup>2</sup>		1	1
MIPI CSI-2 / GMSL 1&2 Camera interface <sup>1</sup>		on request	on request

**Wireless Connectivity**

Cellular 4G Module (LTE/UMTS/GSM) <small>Sierra Wireless MC7455 - M2M only! with GNSS and dual nano SIM (full size Mini PCIe)</small>		3x SMA	none
Wireless LAN IEEE 802.11a/b/g/n/ac dual-band 2x2 MIMO <small>Sparklan WPEB-263ACNI (half size Mini PCIe)</small>		2x RP-SMA	none
High Accuracy GNSS Positioning Module w/ RTK support <sup>1</sup> , u-blox ZED F9P		optional	none
Cellular 5G Module (4G/3G fallback) with GNSS <small>Module tbd</small>		optional	optional
Wireless LAN (Wi-Fi 6) 802.11ax/ac/a/b/g/n 2T2R <small>Module tbd</small>		optional	optional

**Technical Data**

Dimensions w255 x h103 x d125 mm (housing, incl. mounting)		•	•
Net weight in gram		~2800	~2800
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		>10ms	>10ms
Power consumption <sup>3</sup>		depends on power mode (15W, 30W, MAXN)	

**Environmental Conditions**

Operating temperature <sup>3</sup>		-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 <sup>4</sup>		PCX	PCX
Shock		IEC/EN 61373	IEC/EN 61373
Vibration		IEC/EN 61373	IEC/EN 61373
EMC-Conformity		EN 50121-3-2(IEC 62236-3-2)	EN 50121-3-2(IEC 62236-3-2)
Fire protection (designed to meet)		EN 45545-2 HL3	EN 45545-2 HL3
Safety (designed to meet)		EN 62368-1	EN 62368-1
Radio and Telecommunication (designed to meet)		RED	none
MTBF @ 25°C ambient <small>according to Telcordia SR-332, environment GB</small>		~280 000h	~390 000h

<sup>1</sup> Please contact factory for minimum order quantities<sup>3</sup> Depending on installation situation and interface connection. Please see user documentation.<sup>2</sup> Internal connector<sup>4</sup> 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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industrial computing

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