



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
 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
 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 (32GB) | 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

AI Performance

optional
pn: IPC/RMLA3K21-A201E optional
pn: IPC/RMLA3K21-C201E
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 socket ²

1 1

CFast socket with retention frame ²

1 1

Features

Inertial measurement unit (IMU) STMicroelectronics ISM330DHCXTR

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

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Hardware Watchdog & Temperature supervisor

• •

Intelligent power management

• •

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

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

(4 inputs) optional optional

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

(4 inputs) optional optional

I2C bus ²

1 1

Buzzer

1 1

MIPI CSI-2 / GMSL 1&2 Camera interface ¹

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 (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

High accuracy GNSS module ¹ u-blox ZED-F9P module

optional none

Technical Data

Dimensions w255 x h103 x d125 mm (housing, incl. mounting)

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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

Environmental ConditionsOperating temperature ³

-25°C ... +55°C -25°C ... +55°C

Storage temperature

-25°C ... +80°C -25°C ... +80°C

Operating temperature (JAXi), complies with EN50155 class OT4 ³

-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 coating ⁴

PCX PCX

Shock

EN61373 EN61373

Vibration

EN61373 EN61373

EMI-Conformity

EN50121-3-2 EN50121-3-2

Fire protection (designed to meet)

EN45545-2 HL3 EN45545-2 HL3

Safety (designed to meet)

EN62368-1 EN62368-1

Radio and Telecommunication (designed to meet)

RED none

MTBF @ 25°C ambient according to Telcordia SR-332, environment GB

~280 000h ~390 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.