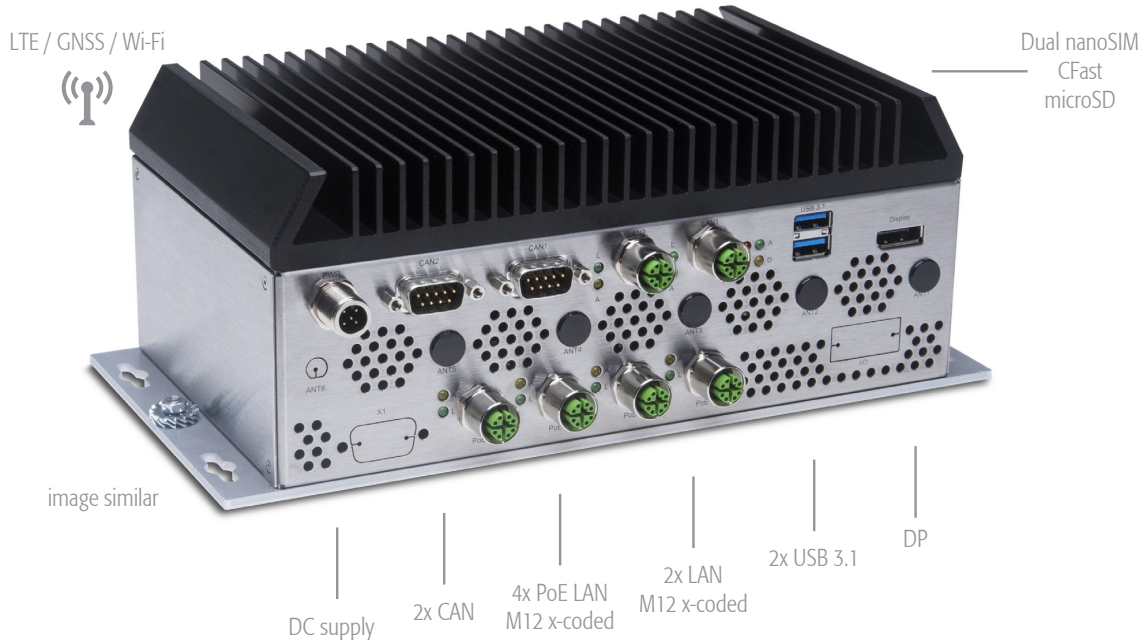


AI Vehicle Computer

## COMPACT AI Vehicle Series

Computer Vision Edge Unit with NVIDIA Jetson AGX Xavier



## 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 mobile AI applications and guarantees long term availability.

- Power over Ethernet (PoE+), 48VDC out
- 24/7 continuous operation
- Extended AI Computing
- Passively cooled, no moving parts
- Long term availability with fixed BOM

**NVIDIA**  
Linux for Tegra (L4T)



### Product Highlights

UNECE-R10 (E-mark) certified  
Positioning capabilities with dead reckoning  
Power ignition controller  
Each LAN interface has its own dedicated NIC  
Shock and vibration resistant  
LTE and Wi-Fi connectivity options  
No moving parts / passively cooled

### 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, CAN (J1939)  
LTE, GNSS and WiFi  
Aluminum & stainless steel housing

### Industries

Automotive  
Transportation  
Autonomous Mobile Robots (AMRs)  
Robotics  
Off-highway vehicles

Order Code IPC/RMLA3K22-A206S<sup>1</sup> IPC/RMLA3K22-D203S<sup>1</sup>

AI Vehicle Computer

## 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

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 Key M socket (for NVMe SSD) <sup>2</sup> | 1    | 1    |
| CFlash socket with retention frame <sup>2</sup>   | 1    | 1    |

## Features

|                                                                   |            |            |
|-------------------------------------------------------------------|------------|------------|
| Inertial measurement unit (IMU) STMicroelectronics ISM330DHCXTR   | on request | on request |
| Real time clock (RTC) with battery backup Renata CR2477 (950 mAh) | •          | •          |

## Communication Interfaces

|                                                                                                       |                        |                        |
|-------------------------------------------------------------------------------------------------------|------------------------|------------------------|
| Graphic interface                                                                                     | DisplayPort 1.2        | DisplayPort 1.2        |
| USB version 3.1 (10 Gbit/s) (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                      |
| CAN 2.0A / CAN 2.0B (active/passive), CAN FD supported, isolated (DSUB9)                              | 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) | (total max power: 39W) |
| 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                   |
| MIPI CSI-2 / GMSL2 / FPDLinkIII Camera interface <sup>1</sup>                                         | on request             | on request             |

## Wireless Connectivity

|                                                                                                              |            |      |
|--------------------------------------------------------------------------------------------------------------|------------|------|
| Cellular 4G Module (LTE/UMTS/GSM) with built-in GNSS Telit LE910C4-WWXX <sup>6</sup> (Dual nano SIM support) | 3x SMA     | none |
| Wireless LAN IEEE 802.11a/b/g/n/ac dual-band 2x2 MIMO & Bluetooth 5.0 Emwicon WMX6218 <sup>6</sup>           | 2x RP-SMA  | none |
| High Accuracy GNSS Positioning Module w/ RTK & optional heading support <sup>1</sup> u-blox ZED F9R / F9P    | on request | none |

## Technical Data

|                                                                                                           |                                        |                   |
|-----------------------------------------------------------------------------------------------------------|----------------------------------------|-------------------|
| Dimensions [mm] (housing, incl. mounting plate)                                                           | w256 x h95 x d127                      | w256 x h95 x d127 |
| Net weight [gram]                                                                                         | ~2800                                  | ~2750             |
| Non isolated input voltage with ignition controller and reverse polarity protection (M12 5P male a-coded) | 9 ... 45VDC                            | 9 ... 45VDC       |
| Power consumption <sup>3</sup>                                                                            | depends on power mode (15W, 30W, MAXN) |                   |

## Environmental Conditions

|                                                                                                     |                    |                   |
|-----------------------------------------------------------------------------------------------------|--------------------|-------------------|
| Operating temperature <sup>3</sup>                                                                  | -25°C ... +60°C    | -25°C ... +60°C   |
| Storage temperature                                                                                 | -25°C ... +80°C    | -25°C ... +80°C   |
| Ingress protection standard according to EN60529 (ISO 20653)                                        | IP20               | IP20              |
| Conformal coating <sup>4</sup>                                                                      | on request         | on request        |
| Road vehicles <sup>5</sup>                                                                          | UNECE-R10 (E-mark) | on request        |
| Shock                                                                                               | EN60068-2-27       | EN60068-2-27      |
| Vibration                                                                                           | EN60068-2-64       | EN60068-2-64      |
| EMI-Conformity                                                                                      | EN55032 / EN55035  | EN55032 / EN55035 |
| Safety (designed to meet)                                                                           | EN62368-1          | EN62368-1         |
| Radio and Telecommunication (designed to meet)                                                      | RED                | RED               |
| MTBF @ 25°C ambient <small>according to Telcordia SR-332, Environment GB, excluding battery</small> | ~280 000h          | ~355 000h         |

<sup>1</sup>Please contact factory for minimum order quantities

<sup>2</sup>Internal connector

<sup>3</sup>Depending on installation situation, interface connection and power mode. Please see user documentation.

<sup>4</sup>On all possible components (excl. NVIDIA Xavier Module, connectors and wireless devices)

<sup>5</sup>UN/ECE-R10 is the type-approval test for European automotive electronics. It includes a variety of testing including RF immunity and emissions, transient immunity and emissions.

<sup>6</sup>These LTE and Wi-Fi modules have replaced the previously used Sierra Wireless MC7455 and SparkLAN WPEB-263ACNI(BT) due to these modules going EOL (previous products: IPC/RMLA3K22-A203S)

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Syslogic Datentechnik AG  
Täferstrasse 28  
CH-5405 Baden Dättwil

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For further information and support:

info@syslogic.com  
support@syslogic.com  
www.syslogic.com

+41 56 200 90 40  
+49 7741 9671-420

Switzerland (Headquarters)  
Germany and Austria

**syslogic**  
industrial computing

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### US

[sales@assured-systems.com](mailto:sales@assured-systems.com)

Sales: +1 347 719 4508

Support: +1 347 719 4508

1309 Coffeen Ave  
Ste 1200  
Sheridan  
WY 82801  
USA

### EMEA

[sales@assured-systems.com](mailto:sales@assured-systems.com)

Sales: +44 (0)1785 879 050

Support: +44 (0)1785 879 050

Unit A5 Douglas Park  
Stone Business Park  
Stone  
ST15 0YJ  
United Kingdom

VAT Number: 120 9546 28

Business Registration Number: 07699660