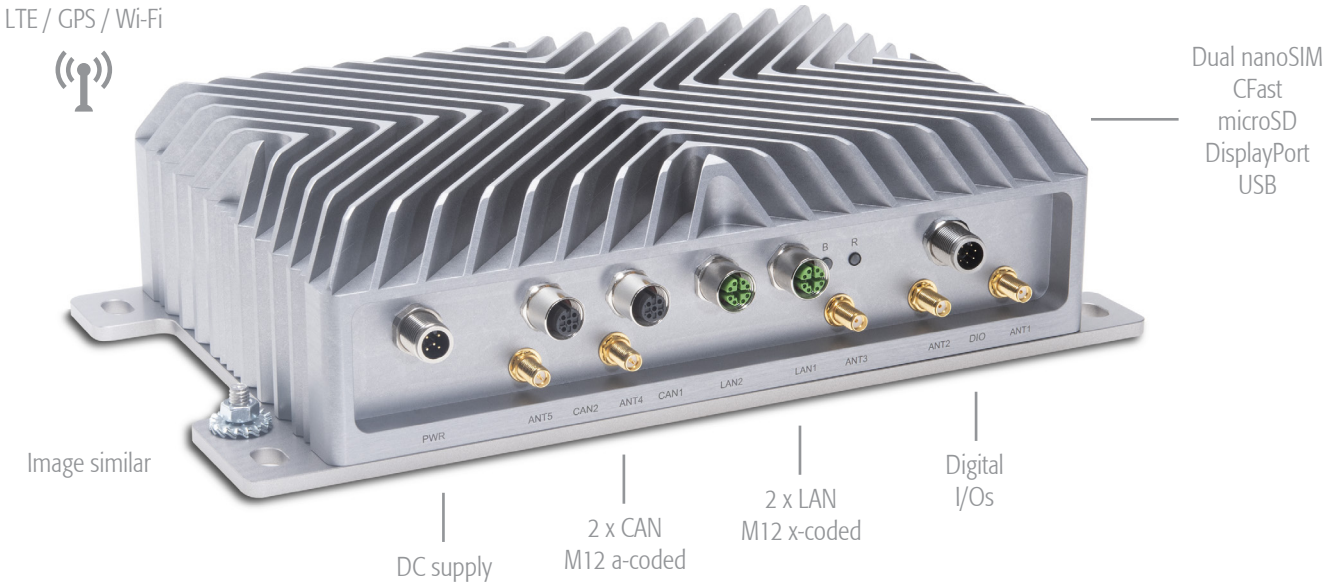
AI Rugged Computer

COMPACT AI Rugged Vehicle Series

Intelligent Machine Learning Unit with NVIDIA Jetson AGX Orin

first draft

Rugged AI Computer



RPC/COMPACT RSL A4 Series

This fanless RPC COMPACT-A4 generation is based on the NVIDIA Jetson AGX Orin processor module and offers a wide range of highly integrated interface options.
The ultra rugged and uncompromising design allows the use in the most demanding AI applications on mobile systems as well as in outdoor applications with harsh environmental conditions and guarantees long-term availability.

- **24/7 continuous operation**
- **Extended AI computing**
- **Wide temperature range –40°C ... +70°C**
- **Sealed housing with IP67 / IP69 protection**
- **Shock and vibration resistant**

NVIDIA
Linux for Tegra (L4T)

CE

Product Highlights

Ultra rugged
Sealed housing, protection class IP67 & IP69
Maintenance free
Power Ignition controller
No moving parts / passively cooled
Pressure equalization membrane
Resistance to chemicals
Long term availability (fixed BOM)

Product Features

Jetson AGX Orin SoC with
1792-core NVIDIA Ampere GPU
with 56 Tensor Cores
8-Core ARM Cortex-A78AE CPU (ARM v8.2)
32GB 256-Bit LPDDR5 RAM soldered on board
Storage options: NVMe M.2 2280
10GbE Ethernet, CAN2.0A/B, RS232, GPIOs
Rugged M12 connectors

Industries

Agriculture
Construction
Transportation
Off-Highway Vehicles
Heavy Industry
Autonomous Mobile Robots (AMRs)
Oudoor applications

		Order Code RPC/RSLA4-TBD[1]
Processor module / Performance		
NVIDIA Jetson AGX Orin 32GB | 1792-core NVIDIA Ampere GPU with 56 Tensor Cores 8-Core Cortex-A78AE CPU (ARM v8.2 64-bit)		•
NVIDIA Jetson AGX Orin 64GB | 2048-core NVIDIA Ampere GPU with 64 Tensor Cores 12-Core ARM Cortex- A78AE CPU (ARM v8.2 64-bit)		optional
Memory / Storage		
256-Bit LPDDR5 RAM soldered on board		32GB
eMMC 5.1 Flash Storage on board		64GB
microSD Card socket		1
M.2 2280 Key M socket (for NVMe SSD) [2]		1
Features		
Real time clock (RTC) with battery backup Renata CR2477 (950 mAh)		•
Hardware Watchdog & Temperature supervisor, Buzzer		•
Inertial measurement unit (IMU)[1] STMicroelectronics ISM330DHCXTR		on request
Communication Interfaces		
Display output behind the back service cover		DisplayPort 1.4
Internal USB version 2.0 OTG behind the back service cover	(micro USB Type AB)	1
USB version 2.0 behind the back service cover	(Type A)	2
10GbE Ethernet (10GBASE-T)	(M12 female x-coded)	2
CAN 2.0A / CAN 2.0B (active/passive), CAN FD supported, isolated	(M12 female a-coded)	2
GPIO (Digital I/Os 12/24VDC)	(M12 male a-coded)	4 in & 2 out
Serial RS232	(M12 female a-coded)	1
Mini PCIe socket [2] - used for extensions depending on configuration		1 full-size
I2C bus [2]		1
up to 2x USB version 3.1	(M12 female a-coded or Fischer MiniMax series connector)	optional
4x Power over Ethernet - IEEE802.3at 10/100/1000Mbit taller housing: h103mm	(4x M12 female x-coded)	optional
up to 8x GMSL2 camera inputs taller housing: h103mm	(FAKRA-Z)	optional
Wireless Connectivity		
Cellular 4G Module with GNSS (LTE/UMTS/GSM) Module tbd - M2M only!		optional
Cellular 5G Module (4G/3G fallback) with GNSS Module tbd - M2M only!		optional
Wireless LAN (Wi-Fi 6) 802.11ax/ac/a/b/g/n 2T2R Module tbd		optional
High Accuracy GNSS Positioning Module w/ RTK and heading support [1] u-blox ZED F9 series		optional
Technical Data		
Dimensions mm (housing, excl. mounting)		w250 x h75 x d170
Net weight in gram		~3000
Non isolated input voltage, with Ignition controller reverse polarity protected	(M12 5P male a-coded)	9 ... 45VDC
Power consumption [3]		tbd
Environmental Conditions		
Operating temperature [3]		–25°C ... +65°C
Storage temperature		–25°C ... +80°C
Ingress protection standard according to EN60529 (ISO 20653)		IP67 / IP69
Conformal coating [4]		on request
Road vehicles, UN/ECE R10 (E-mark) [5]		on request
Shock ISO 15003 / EN60068-2-64 (designed to meet)		•
Vibration ISO 15003 / EN60068-2-64 (desigend to meet)		•
EMI-Conformity		EN55032 / EN55035
Safety (designed to meet)		EN62368-1
Radio and Telecommunication (designed to meet)		RED
MTBF @ 25°C ambient according to Telcordia SR-332, Environment GB, excluding battery		~325 000h

[1] Please contact factory for minimum order quantities
[2] Internal connector
[3] Depending on installation situation, power mode and interface connection. Please see user documentation.
[4] On all possible components (excl. NVIDIA Xavier Module, connectors and wireless devices)
[5] 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. It also includes a requirement for burst, surge, harmonics & flicker and provides advice and requirements for electrical vehicles.

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Version 0.1 | March 2022

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