

AI Rugged Computer

COMPACT AI Rugged Vehicle Series

Computer Vision Edge Unit with NVIDIA Jetson AGX Xavier

LTE / GNSS / Wi-Fi



Dual nanoSIM
microSD
HDMI
USB

USB 3.1,
Digital I/Os

Image similar

DC supply
PPS In
RS232
M12 a-coded
2x CAN
M12 a-coded
4x PoE LAN
M12 x-coded
2x LAN
M12 x-coded
8x GMSL2
FAKRA-Z

RPC/COMPACT RML A3 (E2)

This fanless RPC COMPACT-A3 is based on the NVIDIA Jetson AGX Xavier 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
- 8x camera inputs (GMSL2) with PoC
- Power Over Ethernet (PoE+), 48VDC out
- Sealed housing with IP67 protection
- Shock and vibration resistant

 **NVIDIA**
Linux for Tegra (L4T)



Product Highlights

Ultra rugged
Sealed housing, protection class IP67
Power Ignition controller
No moving parts / passively cooled
Pressure equalization membrane
Resistance to chemicals

Product Features

AGX Xavier or AGX Xavier Industrial
NVMe M.2 2280 storage options
PoE+ Power over Ethernet
8x GMSL2 camera inputs
Ethernet, RS232, Digital I/O, CAN-FD
SAE J1939 support
Rugged M12 connectors
PPS Input

Industries

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

Processor module / Performance

NVIDIA Jetson AGX Xavier 32GB RAM 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
NVIDIA Jetson AGX Xavier 64GB RAM 512-core NVIDIA Volta™ GPU with 64 Tensor Cores	on request	on request
NVIDIA Jetson AGX Xavier Industrial 512-Core NVIDIA Volta™ GPU (ECC) with 64 Tensor Cores	on request	on request

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) ²	1	1

Features

Inertial measurement unit (IMU) ^{STMicroelectronics ISM330DHCXTR}	•	•
Real time clock (RTC) with battery backup ^{Renata CR2477 (950 mAh)}	•	•

Communication Interfaces

Display output ^{behind the back service cover}	(1x Standard HDMI connector)	HDMI 2.0	HDMI 2.0
Internal USB version 2.0 OTG ^{behind the back service cover}	(micro USB Type AB)	1	1
USB version 2.0 ^{behind the back service cover}	(Type A)	2	2
Ethernet 10/100/1000 Mbit 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)
GMSL2 camera inputs, with Power over Coax (PoC), 12VDC ^{+/5%}	(FAKRA-Z, IP67)	8	8
		(max. camera power: 3W)	(max. camera power: 3W)
CAN 2.0A / CAN 2.0B (active/passive), CAN FD supported, isolated	(M12 female a-coded)	2	2
Digital I/O's, 12/24VDC	(M12 male a-coded)	4 in & 2 out	4 in & 2 out
Serial RS232 ^{RX, TX, RTS, CTS, GND}	(M12 male a-coded)	1	1
USB version 3.1 (5Gbit/s)	(Type A, IP67)	1	1
Mini PCIe socket ²		2	2
PPS Input ^{3.3V (LVCMOS), connected to Xavier GPIO}	(SMA)	1	1

Wireless Connectivity

Cellular 4G Module (LTE/UMTS/GSM) with built-in GNSS ^{6, Sierra Wireless EM7590 (Dual nano SIM support)}	3x SMA	none
Wireless LAN (Wi-Fi 5) 802.11a/b/g/n/ac dual-band 2x2 MIMO & Bluetooth 5.1 ^{Intel Wireless-AC 9260}	2x RP-SMA	none
Cellular 5G Module (4G/3G fallback) with GNSS	on request	on request
Wireless LAN (Wi-Fi 6) 802.11ax/ac/a/b/g/n dual-band 2x2 MIMO	on request	on request
High Accuracy (RTK) GNSS positioning module with optional heading support ^{u-blox ZED F9R / F9P}	on request	on request

Technical Data

Dimensions mm (housing, excl. mounting)	w250 x h100 x d170	w250 x h100 x d170
Net weight in gram	~3950	~3900
Non isolated input voltage, with Ignition controller ^{reverse polarity protected}	(M12 5P male a-coded)	9 ... 45VDC
Power consumption ³	depends on power mode (15W, 30W, MAXN)	

Environmental Conditions

Operating temperature ³	-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)	IP67	IP67
Conformal coating ⁴	on request	on request
Road vehicles, UN/ECE R10 (E-mark) ⁵	on request	on request
Shock ISO 15003 / EN60068-2-64 (designed to meet)	•	•
Vibration ISO 15003 / EN60068-2-64 (designed to meet)	•	•
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 ^{according to Telcordia SR-332, Environment GB, excluding battery}	~230 000	~280 000

¹ Please contact factory for minimum order quantities² Internal connector³ Depending on installation situation, power mode and interface connection. See user documentation⁴ 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.⁶ The first versions of this product, featured the Sierra Wireless EM7455 LTE module (RPC/RMLA3K22-M232S), this has been switched to the EM7590 for mass production, due to the EM7455 being EOL.

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