

AI Rugged Computer

**COMPACT AI Rugged Vehicle Series**

Computer Vision Edge Unit with NVIDIA Jetson AGX Xavier

LTE / GNSS / Wi-Fi



Dual nanoSIM  
CFAST  
microSD  
DisplayPort  
USB

image similar

DC supply | 2 x CAN M12 a-coded | 4 x GBE w/PoE M12 x-coded | 2 x LAN M12 x-coded

**RPC/COMPACT RML A3 Series**

This fanless RPC COMPACT-A3 generation 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
- Power Over Ethernet (PoE+), 48VDC out
- IP67 Protection
- Shock and vibration resistant
- Milled aluminium housing



**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**

- 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
- PoE+ Power over Ethernet
- Ethernet, USB, Passive or Active CAN
- Rugged M12 connectors

**Industries**

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

Order Code RPC/RMLA3K22-A204S<sup>1</sup> RPC/RMLA3K22-B204S<sup>1</sup> RPC/RMLA3K22-C202S<sup>1</sup>

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 Camel CPU				
AI Performance		32 TOPs	32 TOPs	32 TOPs
Memory / Storage				
Data L3 Cache Size		4MB	4MB	4MB
256-Bit LPDDR4x RAM soldered on board		32GB	32GB	32GB
eMMC 5.1 Flash Storage on board		32GB	32GB	32GB
microSD Card socket		1	1	1
M.2 2280 Key M socket (for NVMe SSD) <sup>2</sup>		1	1	1
CFast socket with retention frame <sup>2</sup>		1	1	1
Features				
Real time clock (RTC) with battery backup Renata CR2477 (950 mAh)		•	•	•
Inertial measurement unit (IMU) STMicroelectronics ISM330DHCXTR		on request	on request	on request
Communication Interfaces				
Graphic interface <sup>behind the cover</sup>		DisplayPort 1.2	DisplayPort 1.2	DisplayPort 1.2
Internal USB version 2.0 OTG <sup>behind the cover</sup> (micro USB Type AB)		1	1	1
USB version 2.0 <sup>behind the cover</sup> (Type A)		2	2	2
Ethernet 10/100/1000 BASE-T (M12 female x-coded)		2	2	2
CAN 2.0A / CAN 2.0B (active/passive), CAN FD supported, isolated (M12 female a-coded)		none	2	2
Power over Ethernet - IEEE802.3at 10/100/1000Mbit (M12 female x-coded)		4	4	4
PSE - Power sourcing equipment, producing 48VDC out		(total max power: 39W)	(total max power: 39W)	(total max power: 39W)
USB version 2.0 (M12 female a-coded)		on request	on request	on request
Serial RS232 / RS422/RS485 (M12 female a-coded)		on request	on request	on request
Digital I/O's, 24VDC (up to 4in & 4out)		on request	on request	on request
Analog input1, 0-20mA or -10...+10V / 0... 30V <sup>(16bit resolution Accuracy: +/- 0.1%)</sup> (4 inputs)		on request	on request	on request
Mini PCIe socket <sup>2 - used for extensions depending on configuration</sup>		1 full-size / 1 half-size	1 full-size / 1 half-size	1 full-size / 1 half-size
Wireless Connectivity				
Cellular 4G Module (LTE/UMTS/GSM) with built-in GNSS Telit LE910C4-WWX <sup>6</sup> (Dual nano SIM support)		3x SMA	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	2x RP-SMA	none
High Accuracy GNSS Positioning Module w/ RTK & optional heading support <sup>1</sup> u-blox ZED F9R / F9P		on request	on request	on request
Cellular 5G Module (4G/3G fallback) with GNSS		on request	on request	on request
Wireless LAN (Wi-Fi 6) 802.11ax/ac/a/b/g/n 2T2R		on request	on request	on request
Technical Data				
Dimensions mm (housing, excl. mounting)		w250 x h105 x d170	w250 x h105 x d170	w250 x h105 x d170
Net weight in gram		~3750	~3750	~3700
Non isolated input voltage, with Ignition controller, reverse polarity protected (M12 5P male a-coded)		9 ... 45VDC	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	-25°C ... +60°C
Storage temperature		-25°C ... +80°C	-25°C ... +80°C	-25°C ... +80°C
Ingress protection standard according to EN60529 (ISO 20653)		IP67 / IP69	IP67 / IP69	IP67 / IP69
Conformal coating <sup>4</sup>		on request	on request	on request
Road vehicles <sup>5</sup>		on request	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	EN55032 / EN55035
Safety (designed to meet)		EN62368-1	EN62368-1	EN62368-1
Radio and Telecommunication (designed to meet)		RED	RED	RED
MTBF @ 25°C ambient <sup>according to Telcordia SR-332, Environment GB, excluding battery and on request interfaces</sup>		~280 000h	~280 000h	~355 000h

Rugged AI Computer

<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: RPC/RMLA3K22-A202S, RPC/RMLA3K22-B202S)

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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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 Switzerland (Headquarters)  
+49 7741 9671-420 Germany and Austria



Order Code RPC/RMLA3K21-A202E<sup>1</sup> RPC/RMLA3K21-B202E<sup>1</sup> RPC/RMLA3K21-C202E<sup>1</sup>

**Processor module / Performance**

NVIDIA Jetson AGX Xavier Industrial   512-Core NVIDIA Volta™ GPU (ECC) with 64 Tensor Cores 8-Core ARM v8.2 64-bit NVIDIA Carmel CPU	•	•	•
Dual Arm® Cortex®-R5 in lockstep (Safety Cluster Engine)	•	•	•
AI Performance (INT8)	30 TOPs	30 TOPs	30 TOPs

**Memory / Storage**

Data L3 Cache Size	4MB	4MB	4MB
256-Bit LPDDR4x ECC RAM soldered on board	32GB	32GB	32GB
eMMC 5.1 Flash Storage on board	64GB	64GB	64GB
microSD Card socket	1	1	1
M.2 2280 Key M socket (for NVMe SSD) <sup>2</sup>	1	1	1
CFast socket with retention frame <sup>2</sup>	1	1	1

**Features**

Real time clock (RTC) with battery backup	not possible	not possible	not possible
Inertial measurement unit (IMU) STMicroelectronics ISM330DHCXTR	on request	on request	on request

**Communication Interfaces**

Graphic interface <sup>behind the cover</sup>		DisplayPort 1.2	DisplayPort 1.2	DisplayPort 1.2
Internal USB version 2.0 OTG <sup>behind the cover</sup>	(micro USB Type AB )	1	1	1
USB version 2.0 <sup>behind the cover</sup>	(Type A )	2	2	2
Ethernet 10/100/1000 BASE-T	(M12 female x-coded)	2	2	2
CAN 2.0A / CAN 2.0B (active/passive), CAN FD supported, isolated	(M12 female a-coded)	none	2	2
Power over Ethernet - IEEE802.3at 10/100/1000Mbit	(M12 female x-coded)	4	4	4
PSE - Power sourcing equipment, producing 48VDC out		(total max power: 39W)	(total max power: 39W)	(total max power: 39W)
USB version 2.0	(M12 female a-coded)	on request	on request	on request
Serial RS232 / RS422/RS485	(M12 female a-coded)	on request	on request	on request
Digital I/O's, 24VDC	(up to 4in & 4out)	on request	on request	on request
Analog input1, 0-20mA or -10...+10V / 0... 30V <sup>(16bit resolution Accuracy: +/- 0.1%)</sup>	(4 inputs)	on request	on request	on request
Mini PCIe socket <sup>2 - used for extensions depending on configuration</sup>		1 full-size / 1 half-size	1 full-size / 1 half-size	1 full-size / 1 half-size
I2C bus <sup>2</sup>		1	1	1

**Wireless Connectivity**

Cellular 4G Module (LTE/UMTS/GSM) with built-in GNSS Telit LE910C4-WWX <sup>6</sup> (Dual nano SIM support)		3x SMA	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	2x RP-SMA	none
High Accuracy GNSS Positioning Module w/ RTK support <sup>1</sup> u-blox ZED F9R / F9P		on request	on request	on request
Cellular 5G Module (4G/3G fallback) with GNSS		on request	on request	on request
Wireless LAN (Wi-Fi 6) 802.11ax/ac/a/b/g/n 2T2R		on request	on request	on request

**Technical Data**

Dimensions mm (housing, excl. mounting)		w250 x h105 x d170	w250 x h105 x d170	w250 x h105 x d170
Net weight in gram		~3750	~3750	~3700
Non isolated input voltage, with Ignition controller, reverse polarity protected (M12 5P male a-coded)		9 ... 45VDC	9 ... 45VDC	9 ... 45VDC
Power consumption <sup>3</sup>		depends on power mode (15W, 30W, MAXN)		

**Environmental Conditions**

Operating temperature <sup>3</sup>		-40°C ... +65°C	-40°C ... +65°C	-40°C ... +65°C
Storage temperature		-40°C ... +85°C	-40°C ... +85°C	-40°C ... +85°C
Ingress protection standard according to EN60529 (ISO 20653)		IP67 / IP69	IP67 / IP69	IP67 / IP69
Conformal coating <sup>4</sup>		on request	on request	on request
Road vehicles UN/ECE R10 (E-mark) <sup>5</sup>		on request	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	EN55032 / EN55035
Safety (designed to meet)		EN62368-1	EN62368-1	EN62368-1
Radio and Telecommunication (designed to meet)		RED	RED	RED
MTBF @ 25°C ambient <sup>6 according to Telcordia SR-332, Environment GB, excluding battery and on request interfaces</sup>		~270 000h	~270 000h	~340 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)

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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 Switzerland (Headquarters)  
+49 7741 9671-420 Germany and Austria



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## Assured Systems

Assured Systems is a leading technology company with over 1,500 regular clients in 80 countries, deploying over 85,000 systems to a diverse customer base in 12 years of business. We offer high-quality and innovative rugged computing, display, networking and data collection solutions to the embedded, industrial, and digital-out-of-home market sectors.

### 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