AI Rugged Computer

COMPACT AI Rugged Vehicle Series

Intelligent Machine Learning Unit with NVIDIA Jetson AGX Xavier

LTE / GPS / Wi-Fi

Dual nanoSIM
CFast
microSD
DisplayPort
USB

Image similar
depending on model

DC supply

2 x CAN
M12 a-coded

2 x LAN
M12 x-coded

optional
I/Os

RPC/COMPACT RSL A3 Series

This fanless RPC COMPACT-A3 generation is based on the NVIDIA Jetson AGX Xavier (Industrial) 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)

E₁ 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

AGX Xavier or AGX Xavier Industrial
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, Passive or Active CAN
Rugged M12 connectors

Industries

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

Your partner for reliable embedded computer and display solutions.

	Order Code	RPC/RSLA3K22-B102S[1]	RPC/RSLA3K22-C102S[1]	RPC/RSLA3K22-D102S[1]
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 Carmel 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) [2]		1	1	1
CFast socket with retention frame [2]		1	1	1
Features				
Inertial measurement unit (IMU) STMicroelectronics ISM330DHCXTR		•	•	•
Real time clock (RTC) with battery backup Renata CR2477 (950 mAh)		•	•	•
Hardware Watchdog & Temperature supervisor, Buzzer		•	•	•
Communication Interfaces				
Graphic interface behind the back service cover		DisplayPort 1.2	DisplayPort 1.2	DisplayPort 1.2
Internal USB version 2.0 OTG behind the back service cover	(micro USB Type AB)	1	1	1
USB version 2.0 behind the back service cover	(Type A)	2	2	2
Ethernet 10/100/1000 Mbit 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)	2	2	2
Power over Ethernet - IEEE802.3at 10/100/1000Mbit taller housing: h103mm	(M12 female x-coded)	optional	optional	optional
USB version 2.0	(M12 female a-coded)	optional	optional	none
Serial RS232 / RS422/485[1]	(M12 female a-coded)	optional	optional	none
Digital I/O's, 12/24VDC[1]	(M12 male a-coded)	optional	optional	4 in & 2 out
Analog input[1], 0-20mA or -10...+10V / 0... 30V (16bit resolution Accuracy: +/- 0.1%)	(up to 4 inputs)	optional	optional	none
Mini PCIe socket [2] - used for extensions depending on configuration		1 full-size / 1 half-size	1 full-size / 1 half-size	1 full-size / 1 half-size
I2C bus [2]		1	1	1
MIPI CSI-2 / GMSL2 / FPDLinkIII Camera interface [1]		on request	on request	on request
Wireless Connectivity				
Cellular 4G Module (LTE/UMTS/GSM) Sierra Wireless MC7455 - M2M only! with GNSS and dual nano SIM (full size Mini PCIe)		3x SMA	none	none
Wireless LAN IEEE 802.11a/b/g/n/ac dual-band 2x2 MIMO Sparklan WPEB-263ACNI (half size Mini PCIe)		2x RP-SMA	none	none
High Accuracy GNSS Positioning Module w/ RTK support [1] u-blox ZED F9P		optional	none	none
Cellular 5G Module (4G/3G fallback) with GNSS Module tbd		optional	optional	optional
Wireless LAN (Wi-Fi 6) 802.11ax/ac/a/b/g/n 2T2R Module tbd		optional	optional	optional
Technical Data				
Dimensions mm (housing, excl. mounting)		w250 x h75 x d170	w250 x h75 x d170	w250 x h75 x d170
Net weight in gram		~3050	~3000	~3050
Non isolated input voltage, with Ignition controller reverse polarity protected	(M12 5P male a-coded)	9 ... 45VDC	9 ... 45VDC	9 ... 45VDC
Power consumption [3]		depends on power mode (15W, 30W, MAXN)		
Environmental Conditions				
Operating temperature [3]		−25°C ... +65°C	−25°C ... +65°C	−25°C ... +65°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 [4]		on request	on request	on request
Road vehicles, UN/ECE R10 (E-mark) [5]		on request	on request	on request
Agriculture ISOBUS		hardware ready	hardware ready	hardware ready
Shock ISO 15003 / EN60068-2-64 (designed to meet)		•	•	•
Vibration ISO 15003 / EN60068-2-64 (desigend 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 according to Telcordia SR-332, Environment GB, excluding battery		~325 000h	~435 000h	~400 000

(right margin note: choose one)

[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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industrial computing

Order Code	RPC/RSLA3K21-B102E[1]	RPC/RSLA3K21-C102E[1]	RPC/RSLA3K21-D102E[1]
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
QSPI NOR Flash Storage	64MB	64MB	64MB
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) [2]	1	1	1
CFast socket with retention frame [2]	1	1	1
Features			
Inertial measurement unit (IMU) STMicroelectronics ISM330DHCXTR	•	•	•
Real time clock (RTC) with battery backup Renata CR2477 (950 mAh)	•	•	•
Hardware Watchdog & Temperature supervisor	•	•	•
Buzzer	•	•	•
Communication Interfaces			
Graphic interface behind the back service cover	DisplayPort 1.2	DisplayPort 1.2	DisplayPort 1.2
Internal USB version 2.0 OTG behind the back service cover (micro USB Type AB)	1	1	1
USB version 2.0 behind the back service cover (Type A)	2	2	2
Ethernet 10/100/1000 Mbit 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)	2	2	2
Power over Ethernet - IEEE802.3at 10/100/1000Mbit taller housing: h103mm (M12 female x-coded)	optional	optional	optional
USB version 2.0 (M12 female a-coded)	optional	optional	none
Serial RS232 / RS422/485[1] (M12 female a-coded)	optional	optional	none
Digital I/O's, 12/24VDC[1] (M12 male a-coded)	optional	optional	4 in & 2 out
Analog input[1], 0-20mA or -10...+10V / 0... 30V (16bit resolution Accuracy: +/- 0.1%) (up to 4 inputs)	optional	optional	none
Mini PCIe socket [2] - used for extensions depending on configuration	1 full-size / 1 half-size	1 full-size / 1 half-size	1 full-size / 1 half-size
I2C bus [2]	1	1	1
MIPI CSI-2 / GMSL2 / FPDLinkIII Camera interface [1]	on request	on request	on request
Wireless Connectivity			
Cellular 4G Module (LTE/UMTS/GSM) Sierra Wireless MC7455 - M2M only! with GNSS and dual nano SIM (full size Mini PCIe)	3x SMA	none	none
Wireless LAN IEEE 802.11a/b/g/n/ac dual-band 2x2 MIMO Sparklan WPEB-263ACNI (half size Mini PCIe)	2x RP-SMA	none	none
High Accuracy GNSS Positioning Module w/ RTK support [1] u-blox ZED F9P	optional	none	none
Cellular 5G Module (4G/3G fallback) with GNSS Module tbd	optional	optional	optional
Wireless LAN (Wi-Fi 6) 802.11ax/ac/a/b/g/n 2T2R Module tbd	optional	optional	optional
Technical Data			
Dimensions mm (housing, excl. mounting)	w250 x h75 x d170	w250 x h75 x d170	w250 x h75 x d170
Net weight in gram	~3050	~3000	~3050
Non isolated input voltage, with Ignition controller reverse polarity protected (M12 5P male a-coded)	9 ... 45VDC	9 ... 45VDC	9 ... 45VDC
Power consumption [3]	depends on power mode (15W, 30W, MAXN)		
Environmental Conditions			
Operating temperature [3]	−40°C ... +70°C	−40°C ... +70°C	−40°C ... +70°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 [4]	on request	on request	on request
Road vehicles, UN/ECE R10 (E-mark) [5]	on request	on request	on request
Agriculture ISOBUS	hardware ready	hardware ready	hardware ready
Shock ISO 15003 / EN60068-2-64 (designed to meet)	•	•	•
Vibration ISO 15003 / EN60068-2-64 (desigend 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 according to Telcordia SR-332, Environment GB, excluding battery	~315 000	~415 000	~380 000

[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.

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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