



Rugged Computer RML A4AGX

Computer Vision Edge Unit with NVIDIA Jetson AGX Orin



Product Highlights

24/7 continuous operation 8x camera inputs (GMSL2) with PoC Power Over Ethernet (PoE+), 48VDC out High shock and vibration resistance IP67, IP69K rating









Rugged Computer RML A4AGX

Order Code RPC/RMLA4AGX32-M202S¹ RPC/RMLA4AGX32-N202S¹

| Processor module / Performance NVIDIA Jetson ASX Orin 326B 1792-core Ampere GPU with 56 Tensor Cores 8-core NVIDIA Arm® Cortex A78AE CPU NVIDIA Jetson AGX Orin 64GB 2048-core Ampere GPU with 64 Tensor Cores 12-core NVIDIA Arm® Cortex A78AE CPU NVIDIA Jetson AGX Orin Industrial 2048-core Ampere GPU with 64 Tensor Cores (ECC) 12-core NVIDIA Arm® Cortex A78AE CPU Memory / Storage 256-bit LPDDR5 RAM (204.8GB/s) soldered on module 32GB eMMC 51 Flash Storage on board 64GB M.2 2280 Key M socket (for 240GB − 2TB NVMe SSD) 1 Features Inertial measurement unit (IMU) STMicro ISM330DHCXTR √ Real time clock (RTC), with battery backup Renata CR2477 (950 mAh) √ Communication Interfaces DisplayPort 1.4a @ 8K60 behind the service cover (rear) Internal USB version 2.0 behind the service cover (rear) USB version 2.0 behind the service cover (rear) USB version 3.1 (5 Gbit/s) with dustcap (Type A) 1 Ethernet 10GbE (10GBASE-T) (M12 female, x-coded) 1 Ethernet 10GbE (10GBASE-T) (M12 female, x-coded) 1 Power sour Ethernet 16bE (PoE+), IEEE802.3at (M12 female, x-coded) 4 Power sour Ethernet 16bE (PoE+), IEEE802.3at (M12 female, x-coded) 4 Power sour Ethernet 16bE (PoE+), IEEE802.3at (M12 female, x-coded) 4 Power sour cine quelyment, producing 48VDC out, Total maximal power: 39W GMSL2 camera inputs, with Power over Coax (PoC), 12VDC* 1/-5x (Fakra-Z) 8 | √ see page 3 on request¹ 32GB 64GB 1 √ √ 1 1 2 1 |
|---|--|
| 12-core NVIDIA Arm® Cortex A78AE CPU NVIDIA Jetson AGX Orin Industrial 2048-core Ampere GPU with 64 Tensor Cores (ECC) 212-core NVIDIA Arm® Cortex A78AE CPU Memory / Storage 256-bit LPDDR5 RAM (204.8GB/s) soldered on module 32GB eMMC 5.1 Flash Storage on board 64GB M.2 2280 Key M socket (for 240GB − 2TB NVMe SSD) 1 Features Inertial measurement unit (IMU) STMicro ISM330DHCXTR Real time clock (RTC), with battery backup Renata CR2477 (950 mAh) √ Communication Interfaces DisplayPort 1.4a @ 8K60 behind the service cover (rear) 1 Internal USB version 2.0 behind the service cover (rear) (Type A) 2 USB version 3.1 (5 Gbit/s) with dustcap (Type A) 1 Ethernet 10GbE (100/1000 BASE-T) (M12 female, x-coded) 1 Ethernet 11GbE (100/1000 BASE-T) (M12 female, x-coded) 1 Power over Ethernet 1GbE (POE+), IEEE802.3at Power sourcing equipment, producing 48VDC out, Total maximal power: 39W GMSL2 camera inputs, with Power over Coax (PoC), 12VDC*/-5x (Fakra-Z) 8 | on request ¹ 32GB 64GB 1 √ √ 1 1 2 |
| Memory / Storage 256-bit LPDDR5 RAM (204.8GB/s) soldered on module 256-bit LPDDR5 RAM (204.8GB/s) 266-bit LPDDR | 32GB 64GB 1 √ √ 1 1 1 2 |
| 256-bit LPDDR5 RAM (204.8GB/s) soldered on module 32GB 25MMC 5.1 Flash Storage on board 64GB 22280 Key M socket (for 240GB − 2TB NVMe SSD) 1 Features nertial measurement unit (IMU) STMicro ISM330DHCXTR Real time clock (RTC), with battery backup Renata CR2477 (950 mAh) Communication Interfaces DisplayPort 1.4a @ 8K60 behind the service cover (rear) Internal USB version 2.0 behind the service cover (rear) USB version 2.0 behind the service cover (rear) (Type A) 2 USB version 3.1 (5 Gbit/s) with dustcap Ethernet 10GbE (10GBASE-T) (M12 female, x-coded) Power over Ethernet 1GbE (PoE+), IEEE802.3at Power sourcing equipment, producing 48VDC out, Total maximal power: 39W GMSL2 camera inputs, with Power over Coax (PoC), 12VDC+/-5x (Fakra-Z) | 64GB 1 |
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| AMMC 5.1 Flash Storage on board M.2 2280 Key M socket (for 240GB − 2TB NVMe SSD) 1 Features Inertial measurement unit (IMU) STMicro ISM330DHCXTR Aceal time clock (RTC), with battery backup Renata CR2477 (950 mAh) Communication Interfaces DisplayPort 1.4a @ 8K60 behind the service cover (rear) Internal USB version 2.0 behind the service cover (rear) JSB version 2.0 behind the service cover (rear) (Type A) 2 JSB version 3.1 (5 Gbit/s) with dustcap Ethernet 10GbE (10GBASE-T) (M12 female, x-coded) Power over Ethernet 1GbE (PoE+), IEEE802.3at Power sourcing equipment, producing 48VDC out, Total maximal power: 39W CMSL2 camera inputs, with Power over Coax (PoC), 12VDC+ ^{1-5%} (Fakra-Z) | 1 |
| M.2 2280 Key M socket (for 240GB − 2TB NVMe SSD) 1 Features Inertial measurement unit (IMU) STMicro ISM330DHCXTR Real time clock (RTC), with battery backup Renata CR2477 (950 mAh) Communication Interfaces DisplayPort 1.4a @ 8K60 behind the service cover (rear) Internal USB version 2.0 behind the service cover (rear), for device flashing and SSH access only (micro USB Type AB) USB version 2.0 behind the service cover (rear) (Type A) 2 USB version 3.1 (5 Gbit/s) with dustcap (Type A) 1 Ethernet 10GbE (10GBASE-T) (M12 female, x-coded) Power over Ethernet 1GbE (PoE+), IEEE802.3at Power sourcing equipment, producing 48VDC out, Total maximal power: 39W CMSL2 camera inputs, with Power over Coax (PoC), 12VDC+/-5x (Fakra-Z) | √ √ 1 1 2 |
| nertial measurement unit (IMU) STMicro ISM330DHCXTR Aceal time clock (RTC), with battery backup Renata CR2477 (950 mAh) Communication Interfaces DisplayPort 1.4a @ 8K60 behind the service cover (rear) Internal USB version 2.0 behind the service cover (rear), for device flashing and SSH access only (micro USB Type AB) USB version 2.0 behind the service cover (rear) (Type A) 2 USB version 3.1 (5 Gbit/s) with dustcap (Type A) 1 Ethernet 10GbE (10GBASE-T) (M12 female, x-coded) 1 Power over Ethernet 1GbE (PoE+), IEEE802.3at Power sourcing equipment, producing 48VDC out, Total maximal power: 39W CMSL2 camera inputs, with Power over Coax (PoC), 12VDC+¹-5½ (Fakra-Z) | 1 1 2 |
| Communication Interfaces DisplayPort 1.4a @ 8K60 behind the service cover (rear). Internal USB version 2.0 behind the service cover (rear) (Type A) USB version 3.1 (5 Gbit/s) with dustcap (Type A) Ethernet 10GbE (10GBASE-T) (M12 female, x-coded) Ethernet 1GbE (100/1000 BASE-T) (M12 female, x-coded) Power over Ethernet 1GbE (PoE+), IEEE802.3at (M12 female, x-coded) Power sourcing equipment, producing 48VDC out, Total maximal power: 39W CMSL2 camera inputs, with Power over Coax (PoC), 12VDC+1-5% (Fakra-Z) | 1 1 2 |
| Communication Interfaces DisplayPort 1.4a @ 8K60 behind the service cover (rear). Internal USB version 2.0 behind the service cover (rear) (Type A) USB version 3.1 (5 Gbit/s) with dustcap (Type A) Ethernet 10GbE (10GBASE-T) (M12 female, x-coded) Ethernet 1GbE (100/1000 BASE-T) (M12 female, x-coded) Power over Ethernet 1GbE (PoE+), IEEE802.3at (M12 female, x-coded) Power sourcing equipment, producing 48VDC out, Total maximal power: 39W CMSL2 camera inputs, with Power over Coax (PoC), 12VDC+1-5% (Fakra-Z) | 1 1 2 |
| DisplayPort 1.4a @ 8K60 behind the service cover (rear) 1 Internal USB version 2.0 behind the service cover (rear), for device flashing and SSH access only (micro USB Type AB) 1 USB version 2.0 behind the service cover (rear) (Type A) 2 USB version 3.1 (5 Gbit/s) with dustcap (Type A) 1 Ethernet 10GbE (10GBASE-T) (M12 female, x-coded) 1 Ethernet 1GbE (100/1000 BASE-T) (M12 female, x-coded) 1 Power over Ethernet 1GbE (PoE+), IEEE802.3at (M12 female, x-coded) 4 Power sourcing equipment, producing 48VDC out, Total maximal power: 39W GMSL2 camera inputs, with Power over Coax (PoC), 12VDC+/-5% (Fakra-Z) 8 | 1 2 |
| DisplayPort 1.4a @ 8K60 behind the service cover (rear) 1 Internal USB version 2.0 behind the service cover (rear), for device flashing and SSH access only (micro USB Type AB) 1 IJSB version 2.0 behind the service cover (rear) (Type A) 2 IJSB version 3.1 (5 Gbit/s) with dustcap (Type A) 1 IEthernet 10GbE (10GBASE-T) (M12 female, x-coded) 1 IEthernet 1GbE (100/1000 BASE-T) (M12 female, x-coded) 1 IPOwer over Ethernet 1GbE (PoE+), IEEE802.3at (M12 female, x-coded) 4 IPOwer sourcing equipment, producing 48VDC out, Total maximal power: 39W IGMSL2 camera inputs, with Power over Coax (PoC), 12VDC+1-5% (Fakra-Z) 8 | 1 2 |
| 1 1 1 2 2 2 2 2 2 2 | 1 2 |
| SBS version 2.0 Dehind the service cover (rear) (Type A) 2 | 2 |
| 1 1 1 2 2 2 2 2 2 2 | |
| thernet 10GbE (10GBASE-T) (M12 female, x-coded) 1 thernet 1GbE (100/1000 BASE-T) (M12 female, x-coded) 1 lower over Ethernet 1GbE (PoE+), IEEE802.3at (M12 female, x-coded) 4 ower sourcing equipment, producing 48VDC out, Total maximal power: 39W GMSL2 camera inputs, with Power over Coax (PoC), 12VDC+/-5% (Fakra-Z) 8 | 1 |
| Power over Ethernet 1GbE (100/1000 BASE-T) (M12 female, x-coded) 1 Power over Ethernet 1GbE (PoE+), IEEE802.3at (M12 female, x-coded) 4 Power sourcing equipment, producing 48VDC out, Total maximal power: 39W GMSL2 camera inputs, with Power over Coax (PoC), 12VDC+/-5% (Fakra-Z) 8 | |
| Power over Ethernet 1GbE (PoE+), IEEE802.3at (M12 female, x-coded) 4 ower sourcing equipment, producing 48VDC out, Total maximal power: 39W 6MSL2 camera inputs, with Power over Coax (PoC), 12VDC*/-5% (Fakra-Z) | 1 |
| ower sourcing equipment, producing 48VDC out, Total maximal power: 39W 6MSL2 camera inputs, with Power over Coax (PoC), 12VDC+/-5% (Fakra-Z) | 1 |
| GMSL2 camera inputs, with Power over Coax (PoC), 12VDC+ ^{1-5%} (Fakra-Z) | 4 |
| laximal power per port: 3W | 8 |
| CAN 2.0A / CAN 2.0B (active/passive), CAN FD supported, isolated (M12 female, a-coded) | 2 |
| SPIOs (Digital I/O's), current sinking, isolated 12/24VDC (M12 male, a-coded) 4in / 2out | 4in / 2out |
| Serial RS232 (M12 male, a-coded) 1 | 1 |
| Full size mini PCIe socket 1 | 1 |
| Wireless Connectivity | |
| Cellular 4G Module (LTE/UMTS/GSM) with GNSS Sierra Wireless EM7590 (Dual nano SIM support) 3 × SMA | none |
| Wireless LAN 802.11ax/ac/a/b/g/n (Wi-Fi 6E) dual-band 2x2 MIMO Intel Ax210 2 x RP-SMA | none |
| Cellular 5G module (4G/3G fallback) with GNSS on request | on request |
| High precision multiband GNSS module with optional heading support ¹ u-blox ZED-F9P/F9R on request | on request |
| Technical Data | |
| Dimensions excl. mounting holes [mm] w250 × h100 × d170 | w250 × h100 × d170 |
| Net weight [gram] ~4500 | ~4500 |
| Non-isolated input voltage with ignition controller and RP protection (M12 male, L-coded) 9.5 45VDC | 9.5 45VDC |
| Power consumption ³ ~tbd | ~tbd |
| • | **tbu |
| Software / OS NVIDIA JetPack SDK - Jetson Linux (Ubuntu based) ✓ | - |
| | |
| Environmental Conditions | 0F9C +0000 |
| Operating temperature ³ −25°C +60°C | -25°C +60°C |
| torage temperature -25°C +80°C | -25°C +80°C |
| ngress protection (designed to meet) IP67, IP69K | IP67, IP69K |
| Conformal coating ⁴ on request | on request |
| Shock according to ISO 15003 (designed to meet) 50g peak acc. (11ms) | 50g peak acc. (11ms |
| | 4.1g (10 – 350Hz) |
| /ibration according to ISO 15003 (designed to meet) 4.1g (10 – 350Hz) | |
| MC-Conformity EN55032 / EN55035 | EN55032 / EN55035 |
| MC-Conformity EN55032 / EN55035 Safety (designed to meet) EN62368-1 | EN55032 / EN55035 EN62368-1 |
| MC-Conformity EN55032 / EN55035 | EN55032 / EN55035 |



Please contact factory for minimum order quantities

Internal connector

Depending on installation situation and interface connection. Please see user documentation.

On all possible components (excl. AGX Orin module, connectors and wireless devices)



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Order Code RPC/RMLA4AGX64-M202S¹ RPC/RMLA4AGX64-N202S¹

| Processor module / Performance | | | |
|---|---------------------------------------|-------------------------|-------------------------|
| NVIDIA Jetson AGX Orin 64GB 2048-core Ampere GPU with 64 Tensor Cores 12-core NVIDIA Arm® Cortex A78AE CPU | | √ | √ |
| NVIDIA Jetson AGX Orin Industrial 2048-core Ampere GPU with 64 Tensor Cores (ECC) 12-core NVIDIA Arm® Cortex A78AE CPU | | on request ¹ | on request ¹ |
| Memory / Storage | | | |
| 256-bit LPDDR5 RAM (204.8GB/s) soldered on module | | 64GB | 64GB |
| eMMC 5.1 Flash Storage on board | | 64GB | 64GB |
| M.2 2280 Key M socket (for 240GB - 2TB NVMe SSD) | | 1 | 1 |
| Forthurs | | | |
| Features Inertial measurement unit (IMU) STMicro ISM330DHCXTR | | √ | ./ |
| Real time clock (RTC), with battery backup Renata CR2477 (950 mAh) | | ./ | ./ |
| Real time clock (kTC), with battery backup kendia ck2477 (950 mAn) | | • | • |
| Communication Interfaces | | | |
| DisplayPort 1.4a @ 8K60 behind the service cover (rear) | | 1 | 1 |
| Internal USB version 2.0 behind the service cover (rear), for device flashing and SSH access only | · · · · · · · · · · · · · · · · · · · | 1 | 1 |
| USB version 2.0 behind the service cover (rear) | (Type A) | 2 | 2 |
| USB version 3.1 (5 Gbit/s) with dustcap | (Type A) | 1 | 1 |
| Ethernet 10GbE (10GBASE-T) | (M12 female, x-coded) | 1 | 1 |
| Ethernet IGbE (100/1000 BASE-T) | (M12 female, x-coded) | 1 | 1 |
| Power over Ethernet 1GbE (PoE+), IEEE802.3at Power sourcing equipment, producing 48VDC out, Total maximal power: 39\\ | (M12 female, x-coded) v | 4 | 4 |
| GMSL2 camera inputs, with Power over Coax (PoC), 12VDC+/-5% Maximal power per port: 3W | (Fakra-Z) | 8 | 8 |
| CAN 2.0A / CAN 2.0B (active/passive), CAN FD supported, isolated | (M12 female, a-coded) | 2 | 2 |
| GPIOs (Digital I/O's), current sinking, isolated 12/24VDC | (M12 male, a-coded) | 4in / 2out | 4in / 2out |
| Serial RS232 | (M12 male, a-coded) | 1 | 1 |
| Full size mini PCIe socket | | 1 | 1 |
| Wireless Connectivity | | | |
| Cellular 4G Module (LTE/UMTS/GSM) with GNSS Sierra Wireless EM7590 (| Dual nano SIM support) | 3 × SMA | none |
| Wireless LAN 802.11ax/ac/a/b/g/n (Wi-Fi 6E) dual-band 2x2 MIMO Intel AX210 | | 2 × RP-SMA | none |
| Cellular 5G module (4G/3G fallback) with GNSS | | on request | on request |
| High precision multiband GNSS module with optional heading support ¹ u-blox ZED-F9P/F9R | | on request | on request |
| Technical Data | | | |
| Dimensions excl. mounting holes [mm] | | w250 × h100 × d170 | w250 × h100 × d170 |
| Net weight [gram] | | ~4500 | ~4500 |
| Non-isolated input voltage with ignition controller and RP protection | (M12 male, L-coded) | 9.5 45VDC | 9.5 45VDC |
| Power consumption ³ | | ~tbd | ~tbd |
| Software / OS | | | |
| NVIDIA JetPack SDK – <u>Jetson Linux</u> (Ubuntu based) | | √ | √ |
| Environmental Conditions | | | |
| Operating temperature ³ | | −25°C +60°C | −25°C +60°C |
| Storage temperature | | −25°C +80°C | −25°C +80°C |
| ngress protection (designed to meet) | | IP67, IP69K | IP67, IP69K |
| Conformal coating ⁴ | | on request | on request |
| Shock according to ISO 15003 (designed to meet) | | 50g peak acc. (11ms) | 50g peak acc. (11ms) |
| Vibration according to ISO 15003 (designed to meet) | | 4.1g (10 – 350Hz) | 4.1g (10 – 350Hz) |
| EMC-Conformity | | EN55032 / EN55035 | EN55032 / EN55035 |
| Safety (designed to meet) | | EN62368-1 | EN62368-1 |
| Radio and Telecommunication (designed to meet) | | RED | n/a |
| Estimated MTBF @ 25°C ambient according to Telcordia SR-332, Environment GB, excluding I | pattery and SSD | ~tbd | ~tbd |



Please contact factory for minimum order quantities

Internal connector

Depending on installation situation and interface connection. Please see user documentation.

On all possible components (excl. AGX Orin module, connectors and wireless devices)