

ROScube-X series

Embedded Robotic Controller Powered by NVIDIA® Jetson AGX Xavier™ Module

Features

- Powerful AI computing for intelligent robotics development
- Excellent performance per watt with power consumption as low as 30 W
- Ruggedized, secure connectivity with locking USB ports
- Comprehensive I/O for connecting a wide range of devices
- Time synchronization with GMSL2 camera



Introduction

ROScube-X, a ROS 2 enabled robotic controller powered by the NVIDIA® Jetson AGX Xavier module, features an integrated NVIDIA Volta GPU and dual deep learning accelerators and a wide variety of interfaces including GMSL2 camera connectors for advanced robotic system integration. ROScube-X supports the full complement of resources developed with the NVIDIA JetPack SDK and ADLINK's Neuron SDK, and is specifically suited for robotic applications demanding high-AI computing with minimal power consumption.

Software Support

- Ubuntu 18.04 L4T
- Neuron SDK, Neuron IDE, Neuron Library
- NVIDIA Jetson SDK



Ordering Information

- RQX-58G / RQX-58G-E
 Embedded Robotic Controller Powered by NVIDIA® Jetson AGX Xavier™ with FAKRA GMSL2 / w/ expansion box
- RQX-580 / RQX-580-E
 Embedded Robotic Controller Powered by NVIDIA[®] Jetson AGX Xavier™ / w/ expansion box

Optional Accessories

- Wireless Module Intel[®] Wireless-AC 9260 M.2 2230, Dual-Band 2x2 Wi-Fi + Bluetooth+ 5 kit (P/N: 91-95266-0010)
- FAKRA cable for GMSL camera
- AC/DC Power Adapter
 220W AC/DC Power Adapter (P/N: 31-62149-0000)
 160W AC/DC Power Adapter (P/N: 31-62120-0010)

ROScube-X series



Specifications

System Core NVIDIA® Jetson AGX Xavier™	Model Name	RQX-58G RQX-58G-E	RQX-580 RQX-580-E
CPU	System Core		
S12-core 1.37GHz	Processor	NVIDIA [®] Jetson AGX Xavier™	
Memory eMMC 32GB on module Display 1x HDMI 2.0a Front Panel I/O Interface Ethernet 2x GbE 4x USB Type A 32GB on module Display 1x HDMI 2.0a Front Panel I/O Interface Ethernet 2x GbE 4x USB Type A 3x USB Type A 3x USB Type A with lockable connector Serial Port COM1: R5-232/485; COM2: R5-232 OTG 1x OTG port for change environment image Side Panel I/O Interface DB-50 connector UART, SPI, CANbus x1, 12C, PWM, 20-bit GPIO Audio IN/OUT Internal I/O connectors 1x Socket 2, Key B+M 2280 for Storage (Need NVMe SSD) 1x Socket 1, Key A+E 1630/2230 for Wifi Mini PCle 1x Mini PCle socket for LTE, GPS USIM 1x USIM Socket RTC 3V 550mAh Sensor 9-axis sensor Fime sync with GMSL2 camera External Storage SD Card 1x MicroSD card slot LED indicator Sx user defined LEDs Green: U1,U2,U3 Amber: U5 Yellow: U4 Power LED 1x Power ON LED Camera Interfaces 2x mini FAKRA connectors, Quad port FAKRA connectors (for GMSL2 camera, driver support AR0233-GMSL2 and Sony ISX021 camera) 1x PCle Gen3 x4 Slot, support up to 75W 1x PCle Gen3 x4 Slot, support up to 25W Power Requirements DC Power Input 9-36V (±5% tolerance, reverse polarity protection)		Carmel ARMv8.2 2.26GHz	
eMMC Display 1x HDMI 2.0a Front Panel I/O Interface Ethernet 2x CbE 4x USB Type A 2x USB Type A 2x USB Type A with lockable connector COM1: R5-232/485; COM2: R5-232 OTG 1x OTG port for change environment image Side Panel I/O Interface DB-50 connector Audio IN/OUT 1x audio input/output Internal I/O connectors M.2 Extension 1x Socket 2, Key B+M 2280 for Storage (Need NVMe SSD) 1x Socket 1, Key A+E 1630/2230 for Vinif Mini PCIe 1x Mini PCIe 2x Mini PCIe 3x USIM socket RTC 3x USIM socket RTC 3x USIM socket Sensor 9-axis sensor Time sync with GMSL2 camera External Storage SD Card 1x MicroSD card slot LED indicator Sx user defined LEDs Green: U1,U2,U3 Amber: U5 Yellow: U4 Power LED Camera Interfaces 2x mini FAKRA connectors, Quad port FAKRA connectors (for GMSL2 camera, driver support AR0233-GMSL2 and Sony ISX021 cameras) Expansion BOX 1x PCIe Gen3 xk Slot, support up to 75W 1x PCIe Gen3 xk Slot, support up to 25W Power Requirements DC Power Input 9-36V (±5% tolerance, reverse polarity protection) 160W/220W AC/DC		512-core 1.37GHz	
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Ethernet		32GB on module	
Ethernet			ИI 2.0a
USB 3.0 2x USB Type A with lockable connector Serial Port COM1: PS-232/485; COM2: RS-232 OTG 1x OTG port for change environment image Side Panel I/O Interface DB-50 connector UART, SPI, CANbus x1, I2C, PWM, 20-bit GPIO Audio IN/OUT 1x audio input/output Internal I/O connectors M.2 Extension 1x Socket 2, Key B+M 2280 for Storage (Need NVMe SSD) 1x Socket 1, Key A+E 1630/2230 for Wifi Mini PCIe 1x Mini PCIe 1x Mini PCIe socket for LTE, GPS USIM 1x USIM socket RTC 3v 550mAh Sensor 9-axis sensor Time sync with GMSL2 camera External Storage SD Card 1x MicroSD card slot LED indicator Su user defined LEDs Green: U1, U2, U3 Amber: U5 Yellow: U4 Power LED 2x mini FAKRA connectors, Quad port (for GMSL2 camera, driver support AR0233-GMSL2 and Sony ISX021 cameras) Expansion BOX N/A Power Requirements DC Power Input 9-36V (±5% tolerance, reverse polarity protection)	-		
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DC Power Input 9-36V (±5% tolerance, reverse polarity protection) 160W/220W AC/DC	Power Requirements		· · · · · · · · · · · · · · · · · · ·
160W/220W AC/DC	-	9-36V (±5% tolerance. rev	verse polarity protection)
AC/DC Power Adapter power adapter with Molex lockable connector to Phoenix terminal block connector (see optional accessory)	AC/DC Power Adapter	power adapter with Molex lockable connector to Phoenix terminal block connector (see optional accessory)	
Power Switch 1x power button	Power Switch	· ·	
Recovery and Reset 1x Recovery 1x Hardware Reset button	Recovery and Reset		
Mechanical	Mechanical		
Dimensions 190(W) x 210(D) x 80(H) mm (7.48 x 8.27 x 3.149 inch) With Expansion: 322(W) x 210(D) x 80(H) mm (12.68 x 8.27 x 3.149 inch)	Dimensions	With Expansion: 322(W) x 210(D) x 80(H) mm (12.68 x 8.27 x 3.149 inch)	
Mounting Wall mount kit	Mounting		

ROScube-X series

Specifications

Model Name	RQX-58G RQX-58G-E	RQX-580 RQX-580-E	
Environmental			
Operating Temperature	0 to 50°C at full CPU frequency with 0.6m/s airflow -20 to 70°C (-4°F to 158°F with 1.4GHz CPU) with 0.6m/s airflow		
Operating Humidity	Approx. 95% @40°C (non-condensing)		
Storage Temperature	-40~85°C		
Vibration	IEC 60068-2-64: Operating 3Grms, 5-500 Hz, 3 axes		
Shock	MIL-STD-202G Method 213B, Table 213-I condition A Operating: 30G, half sine 11ms duration. (w/o expansion)		
EMI	CE & FCC class A (EN61000-6-4/-6-2)		
EMS	IEC 61000-4-2 (ESD, contact: ±4kV, air: ±8kV w/ expansion) IEC 61000-4-3 (RS, 10V/m from 80-1000MHz, 3V/m from 1400-2000MHz, 1V/m from 2000-2700MHz, 1kHZ sine wave, 80% AM) IEC 61000-4-4 (EFT, ±2kV at 5KHz on power port, ±1kV at 5KHz on signal port) IEC 61000-4-5 (Surge, ±2kV line to earth CM on power port, ±1kV line to earth CM on signal port) IEC 61000-4-6 (CS, 10Vrms with 1kHz sine wave, 80% AM from 0.15MHz-80MHz) IEC 61000-4-11 (voltage DIPs & voltage interruptions)		
Safety	LVD		
Software			
SDK	ADLINK Neuron SDI	ADLINK Neuron SDK, NVIDIA Jetson SDK	
Environment	Ubuntu 18.04 L4T		
Middleware	ROS/ROS 2, Neuron Library DDS with shared memory DDS with extra QoS		

