

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.

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

Software Support

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



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	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 32GB on module eMMC 32GB on module Display 1x HDMI 2.0a Front Panel I/O Interface 2x GBE Ethernet 2x GBE USB 3.0 2x 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 Pose connector D8-50 connector UART, SPI, CANDUS x1, IZC, PMM, 20-bit GPIO Audio IN/OUT 1x audio input/output Internal I/O connectors 1x Socket 2, Key BH-M 2280 for Storage (Need NVMe SSD) M.2 Extension 1x Socket 3, Key AH-1 630/2230 for Wifi Mini PCle 1x Mini PCle socket for LTE, GPS USIM 1x Mini PCle socket for LTE, GPS Sensor 3v 550mAh Sensor 3v 550mAh Sensor 5v user defined LEDs External Storage 5x x ser defined LEDs Storage and 1x MicroSD card slot LED indicator User Defined 5x x ser defined LEDs Green: U1,UZ,U3 Amber U5 AFAKRA connectors 2x mini FAKRA conn				
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Display 1x HDMI 2.0a Front Panel I/O Interface Ethermet 2x GbE USB 3.0 4x USB Type A 4x USB Type A Serial Port COM1: RS-232/485; COM2: RS-232 OTG 1x OTG port for change environment image Side Panel I/O Interface USB 50 connector USA 50 connector UART, SPI, CANBUS x1, IZC, PWM, 20-bit CPIO Audio IN/OUT 1 x audio input/output Internal I/O connectors 1x Socket 2, Key B+M 2280 for Storage (Need NVMe SSD) M2 Extension 1x Socket 2, Key B+M 2280 for Storage (Need NVMe SSD) Mini PCIe 1x MINIPCIE socket for ITE, GPS USIM 1x USIM socket RTC 3v 50mAh Sensor Time sync with CMSL2 camera External Storage Time sync with CMSL2 camera Sto Card 1x MicroSD card slot LED indicator 5x user defined LEDs User Defined 5x user defined LEDs Green: UT, UZ, U3 Amber: U5 Yellow: U4 Yellow: U4 Power LED 1x Power ON LED Camera Interfaces 2x mini FAKRA connectors, Quad port <td></td> <td colspan="2"></td>				
Ethernet				
Ethernet			/II 2.0a	
Serial Port	-	,		
Serial Port CoM1: RS-232/485; COM2: RS-232	Ethernet			
OTG Side Panel I/O Interface DB-50 connector UART, SPI, CANbus x1, I2C, PWM, 20-bit GPIO Audio IN/OUT Ix 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 Wiff Mini PCIe 1x Mini PCIe socket for LTE, GPS USIM 1x 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 User Defined Socket 1x Power ON LED Camera Interfaces 2x mini FAKRA connectors, Quad port (for GMSL2 camera, driver support AR0233-GMSL2 and Sony ISX021 cameras) External Storage SD Card 1x Power ON LED Camera Interfaces 2x mini FAKRA connectors, Quad port (for GMSL2 camera, driver support AR0233-GMSL2 and Sony ISX021 cameras) Expansion BOX 1x PCIe Gen3 x4 Slot, support up to 75W 1x PCIe Gen3 x4 Slot, support up to 25W Power Requirements DC Power Input 9-36V (±5% tolerance, reverse polarity protection) 160W/220W AC/DC AC/DC Power Adapter (see optional accessory) Power Switch 1x power button 1x power solvelly mm (7.48 x 8.27 x 3.149 inch) With Expansions 322(W) x 210(D) x 80(H) mm (7.48 x 8.27 x 3.149 inch)		2x USB Type A with lockable connector		
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With Expansion: 322(W) x 210(D) x 80(H) mm (12.68 x 8.27 x 3.149 inch)	Mechanical			
	Dimensions			
	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 SDK, NVIDIA Jetson SDK	
Environment	Ubuntu 18.04 L4T	
Middleware	ROS/ROS 2, Neuron Library DDS with shared memory DDS with extra QoS	

