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)

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Specifications

Model Name	RQX-58G RQX-58G-E	RQX-580 RQX-580-E
System Core		
Processor	NVIDIA® Jetson AGX Xavier™	
CPU	Carmel ARMv8.2 2.26GHz	
GPU	512-core 1.37GHz	
Memory	32GB on module	
eMMC	32GB on module	
Display	1x HDMI 2.0a	
Front Panel I/O Interface		
Ethernet	2x GbE	
USB 3.0	4x USB Type A 2x USB Type A with lockable connector	
Serial Port	COM1: RS-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 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		
User Defined	5x user defined LEDs Green: U1,U2,U3 Amber: U5 Yellow: U4	
Power LED	1x Power ON LED	
Camera Interfaces		
FAKRA connectors	2x mini FAKRA connectors, Quad port (for GMSL2 camera, driver support AR0233-GMSL2 and Sony ISX021 cameras)	N/A
Expansion BOX		
	1x PCIe Gen3 x8 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)	
AC/DC Power Adapter	160W/220W AC/DC power adapter with Molex lockable connector to Phoenix terminal block connector (see optional accessory)	
Power Switch	1x power button	
Recovery and Reset	1x Recovery 1x Hardware Reset button	
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)	
Mounting	Wall mount kit	

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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 61000-4-8** (power-frequency magnetic fields) **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	

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