ROScube-X series

Embedded Robotic Controller Powered by NVIDIA®

Features

- Powerful AI computing for intelligent robotics development
- Excellent performance per watt with power consumption as low as 20 W
- Ruggedized, secure connectivity with locking USB ports
- Comprehensive I/O for connecting a wide range of devices
- Time synchronization with GMSL2 camera and IMU
- Auto-remote power on for Robotic
- Real-time access for CANbus, GPIO and Serial port

Preliminary

Introduction

ADLINK's ROScube-X, a ROS2-enabled robotic controller powered by the NVIDIA® Jetson AGX Xavier module, features an integrated NVIDIA Volta GPU and dual deep learning accelerators, with 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**
  Embedded Robotic Controller Powered by NVIDIA® Jetson AGX Xavier™ with Fakra GMSL2
- **RQX-580**
  Embedded Robotic Controller Powered by NVIDIA® Jetson AGX Xavier™

Software Support

- **Ubuntu 18.04 LTS**
- **Neuron SDK**
- **Nvidia Jetson SDK**

Optional Accessories

- **Wireless Module**
  Intel® 2T2R AC (P/N: 29-E9260-2010)
- **External Antenna**
- **AC/DC Power adapter**
  220W (P/N: 31-62149-0000)
  160W (P/N: 31-62120-0010)

Specifications

Model Name	RQX-58G	RQX-580
System Core		
Processor	NVIDIA® Jetson AGX Xavier™	
CPU	Carmel ARMv8.2 2.26GHz	
GPU	512-core 1.37GHz	
Memory	On board 32GB	
eMMC	32GB on module	
Graphic Output		
Graphic Output	1x HDMI 2.0a	
Front Panel I/O Interface		
Ethernet	2x GbE (with IEEE 1588 and 802.1AS)	
USB 3.1 GEN2	Type A x1 with lockable connector	
USB 3.1 GEN1	Type A x4 Type A x1 with lockable connector	
Serial Port	COM1: RS232/485 + COM2: RS-232	
Side Panel I/O Interface		
GPIO	20 bit	
Other control signals	UART, SPI, CAN, I2C, PWM, ADC with isolation	
Internal I/O connectors		
M.2 Extension	1x Socket 2, Key B+M 3042/2280	
M.2 Extension	1 x Socket 1, Key A+E 1630/2230	
mPCIe	1x miniPCIe socket	
USIM	1x USIM socket	
RTC	2-pin 1.25mm wafer	
IMU		
9-axis sensor	1x BMX055 9-axie sensor integrated Time sync with GMSL2 camera	
Storage Device		
SD Card	1x MicroSD	
LED indicator		
U1~U6 LED	6x user defined Green for U1, U2, U3, U6 Amber for U5 Yellow for U4	
Camera Interface		
FAKRA connector	6x FAKRA connector (for GMSL2 camera, driver support for LI-AR0233-GMSL2 camera)	None
Power Requirements		
DC Power supply Input	9-36V (+/-5% tolerance, reversed polarity protection)	
Power Consumption	xxA-xxA	
AC/DC Power adapter Input	**Optional Accessory:** 160W/220W AC/DC power adapter With Molex-Phoenix connector	
Power ON/OFF button	Power ON/OFF	
Recovery and Reset button	Recovery / Hardware Reset	
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)	
Weight	TBD	
Mounting	Wall mount	

Specifications

Model Name	RQX-58G	RQX-580
Environmental		
Operating Temperature	0~50°C with full CPU frequency -20~70°C (-4°F~158°F) with reduce CPU frequency	
Operating Humidity	~95% @40°C (non-condensing)	
Storage Temperature	-40~85°C	
Vibration	**IEC 60068-2-64:** Operating 5Grms, 5-500 Hz, 3 axes	
Shock	**MIL-STD-202G Method 213B, Table 213-I condition A:** Operating 100G, half sine 11ms duration. (w/o extension)	
EMI	CE & FCC class A (EN61000-6-4/-6-2)	
EMS	**IEC 61000-4-2** (ESD, contact: +/- 8kV, Air: +/-15kV w/ expansion box) **IEC 61000-4-3** (RS, 10V/m from 80~1000MHz, 3V/m from 1400~2000MHz, 1V/m from2000~2700MHz, 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-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 field) **IEC 61000-4-11** (Voltage DIPs & Voltage Interruptions)	
Safety	UL, cUL	
MTBF	TBD	
Software		
SDK	Neuron SDK, NVIDIA Jetson SDK	
Environment	Ubuntu 18.04 LTS	