ROScube-I Series

Embedded Real-Time Robotic Controller with Intel® Xeon®/Core™ Processor

Features

- x86-64 mainstream architecture for ROS 2 development
- Comprehensive I/O for connecting a wide range of devices
- Ruggedized, secure connectivity with locking USB ports
- External PCIe Gen3 expansion with ruggedized cassette
- Integrated both hard and soft real-time mechanism



Core only and expansion version.

Introduction

ADLINK ROScube-I is a real-time ROS 2 enabled robotic controller based on Intel® Xeon® 9th Gen Intel® Core™ i7/i3 and 8th Gen Intel® Core™ i5 processors featuring exceptional I/O connectivity supporting a wide variety of sensors and actuators for unlimited robotic applications. Also supported are Intel® VPU and NVIDIA GPU cards for computation of AI algorithms and inference. The extension box allows for convenient functional and performance expansion. ROScube-I supports the full complement of resources developed with ADLINK Neuron SDK, a perfect platform for development of industrial use service robotic applications such as autonomous mobile robots (AMR) and autonomous mobile industrial robots (AMIR).

Ordering Information

- **RQI-58 / RQI-58-E**
  Intel® Xeon® E-2276ME, DDR4 32G, 256G SSD / with expansion box
- **RQI-57 / RQI-57-E**
  Intel® Core™ i7-9850HE, DDR4 32G, 256GB SSD / with expansion box
- **RQI-55 / RQI-55-E**
  Intel® Core™ i5-8400H, DDR4 16G, 128GB SSD / with expansion box
- **RQI-53 / RQI-53-E**
  Intel® Core™ i3-9100HL, DDR4 8G, 64GB SSD / with expansion box

Software Support

- **Ubuntu 20.04 LTS**
- **ADLINK Neuron SDK**
- **ROS/ROS 2**
- **Intel® OpenVINO™**
- **ACRN**
- **Xenomai**

Optional Accessories

- **DDR 4 SO-DIMM Storage**
  Dual channel non-ECC 2400 MHz DDR4 8 GB memory (P/N: 29-6B800-L430)
  Dual channel non-ECC 2400 MHz DDR4 16 GB memory (P/N: 29-6BC00-L430)
- **Wireless Module**
  Intel® Wireless-AC 9260 M.2 2230, Dual-Band 2x2 Wi-Fi + Bluetooth+ 5 kit (P/N: 91-95266-0010)
- **CAN bus Mini PCIe Module**
  Dual channel: FARO-FP900 (P/N: 92-97142-0020)
- **AC/DC Power adapter**
  220W AC/DC power adapter (P/N: 31-62149-0000)
  280W AC/DC power adapter (P/N: 31-62162-1010-A0)

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

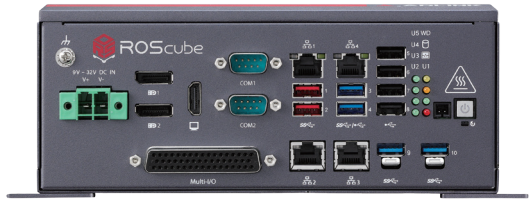
Specifications

Model Name	RQI-58 RQI-58-E	RQI-57 RQI-57-E	RQI-55 RQI-55-E	RQI-53 RQI-53-E
System Core				
Processor	Intel® Xeon® E-2276ME 45W	Intel® Core™ i7-9850HE 45W	Intel® Core™ i5-8400H 45W	Intel® Core™ i3-9100HL 25W
Core	6	6	4	4
Base Freq.	2.8GHz	2.7GHz	2.5GHz	1.6GHz
MAX Turbo Freq.	4.5GHz	4.4GHz	4.2GHz	2.9GHz
Chipset	Mobile Intel® CM246 Chipset			
Memory	2x DDR4 16GB 2400MHz, dual SO-DIMMs, up to 32GB	2x DDR4 16GB 2400MHz, dual SO-DIMMs, up to 32GB	2x DDR4 8GB 2400MHz, dual SO-DIMMs, up to 32GB	2x DDR4 4GB 2400MHz, dual SO-DIMMs, up to 32GB
Display	2x DP++ and 1x HDMI			
Front Panel I/O Interface				
Ethernet	**4x GbE**: 3x Intel® i211AT + 1x Intel® i219LM with iAMT support, IEEE 1588 and 802.1AS			
Series Port	COM 1/2: RS-232/422/485			
USB	2x USB 3.1 Gen1 Type A with lockable connectors 4x USB 3.1 Gen 1 Type A 4x USB 2.0 Type A			
Multi-I/Os on DB 50 connector (Support real time OS)	Two channel I^2C **8x Digital Input**: VIH: 2 to 5.25V, VIL: 0 to 0.8V **8x Digital Output:** VOH: 2.4 to 5V, VOL: 0 to 0.5V, Current: 24mA/per channel			
	Optional (Default do not install the module on the system): **Dual Channel:** FARO-FP900, PEAK IPEH-003049* **Single Channel:** PEAK IPEH-003048* ***: This module supports real time OS**			
Internal I/O Interfaces				
Mini PCIe	2x full size (one for CAN, one for Wi-Fi or LTE)			
M.2	1x Socket 1, Key A and A+E key, 2230 for Wi-Fi			
USIM	1x Socket			
TPM	TPM 2.0			
LED indicator				
Watchdog	1 x Watchdog LED			
Diagnostics	1 x Diag-Alert LED (indicates if no physical storage is connected or memory is installed)			
Storage	1x Storage activity LED			
User Defined	5x user defined LEDs (Green: U2-U5, Red: U1)			
Storage Devices				
M.2 B key or B+M Key	256GB mSATA SSD		128GB mSATA SSD	64GB mSATA SSD
Expansion Box*				
Expansion Slots	1x PCIe Gen3 x 16 1x PCIe Gen3 x 4 *: Only for –E model			
Power Requirements				
DC Power Input	9-32V (±5% tolerance, reverse polarity protection)			
Power consumption	16.7-4.7A (w/o expansion box) 29-8.75A (w/ expansion box)			
AC/DC Power Adapter	**Optional:** 160W, 220W or 280W AC/DC power adapter, see order information			
Power Switch	1x power ON/OFF button			
System Reset	Hardware reset button			
EXT Power Header	1x Extend the power on/off button for robot system			
Mechanical				
Dimensions	**w/o expansion box:** 210(W) x 240(D) x 86(H) mm (8.267 x 9.449 x 3.385 inches) **w/ expansion box:** 210(W) x 240(D) x 165(H) mm (8.267 x 9.449 x 6.496 inches)			
Weight	3.6kg w/o expansion box 4.6kg w/ expansion box			
Mounting	Wall mount kit			

Specifications

Model Name	RQI-58 RQI-58-E	RQI-57 RQI-57-E	RQI-55 RQI-55-E	RQI-53 RQI-53-E
Environmental				
Operating Temperature	-20~70°C(-4°F~158°F w/ 1x SODIMM) with 0.6m/s air flow condition. -20~60°C(-4°F~140°F, w/ 2x SODIMM) with 0.6m/s air flow condition. *Default: 2x DDR4 memory			
Operating Humidity	~95% @40°C (non-condensing)			
Storage Temperature	-40~85°C(-40°F~185°F)			
Vibration	**IEC 60068-2-6:** 1G, 5-500Hz, 3 axes **IEC 60068-2-64:** Operating 5Grms, 5-500 Hz, 3 axes w/ M.2 SSD			
Shock	**MIL-STD-202G Method 213B,Table 213-I Condition A** Operating: 100G, half sine 11ms duration w/ M.2 SSD			
EMI	CE & FCC Class B with validated AC/DC adapter (EN61000-6-4/-2)			
EMS	**IEC 61000-4-2** (ESD, contact: ±8kV, air: ±15kV) **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	UL, cUL, CB			
Software Support				
SDK	ADLINK Neuron SDK			
Compatible environment	Ubuntu 20.04 LTS Xenomai, ACRN			
Middleware	ROS/ROS 2 Intel® OpenVINO™ DDS with shared memory DDS with extra QoS Neuron Library			





LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

All products and company names listed are trademarks or trade names of their respective companies.
Updated Nov. 16, 2020. ©2020 ADLINK Technology, Inc. All Rights Reserved.
All specifications are subject to change without further notice.