

ROScube-I E series

Embedded Robotic Controller with Extension Box, Powered by Intel®

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 expansions with ruggedized cassette
- Auto-remote power on for Robotic
- Real-time access for CANbus, GPIO and Serial port

Preliminary



Introduction

The ADLINK ROScube-I, a ROS 2-enabled robotic controller based on Intel® 9th Gen Xeon®, Core™ i7/i3 and 8th Gen Intel® Core™ i5 BGA processor processors, with exceptional I/O connectivity enables 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 makes additional functional and performance expansion possible. ROScube-I supports the full complement of resources developed with ADLINK's 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).

Software Support

- Ubuntu 18.04 LTS
- Neuron SDK
- ROS/ROS 2 Intel® Open VINO™ (TBD)

Ordering Information

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

Optional Accessories

- **Wireless Module**
Intel® 2T2R AC (P/N: 29-E9260-2010)
- **CANbus mini PCIe module**
Dual channel: FARO-FS900 (P/N: 92-97142-0010)
PEAK IPHE-003049
Single channel: PEAK IPEH-003048
- **AC/DC Power adapter**
280W (P/N: 91-95263-0010)
220W (P/N: 31-62149-0000)

Specifications

Model Name	RQI-58-E	RQI-57-E	RQI-55-E	RQI-53-E
System Core				
Processor	Intel® Xeon® 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			
Memory	Dual SO-DIMMs Dual DDR4 16G 2400MHz	Dual SO-DIMMs Dual DDR4 16G 2400MHz	Dual SO-DIMMs Dual DDR4 8G 2400MHz	Dual SO-DIMMs Dual DDR4 4G 2400MHz
Display	2 x DP++ and 1x HDMI			
Front Panel I/O Interface				
Ethernet	4x Intel GbE: 3x i211AT + 1x i219LM With iAMT Support, IEEE 1588 and 802.1AS			
Series Port	COM 1/2 : RS-232/422/485			
USB	USB 3.1 Gen1 Type A with lockable connector x 2 USB 3.1 Gen 1 Type A x 4 USB 2.0 Type A x 4			
Multi-I/Os on DB50	I ² C x 2, 8 x DI and 8 x DO DI: VIH: 2 to 5.25V VIL: 0 to 0.8V DO: VOH: 2.4 to 5V VOL: 0 to 0.5V Current: 24mA/per channel Optional accessory: PEAK single/dual CANbus specification: Bit rates from 5k bit/s up to 1Mbit/s Galvanic isolation on the CAN connection up to 300V, separate on the CAN channel ANTZER FARO-FS900 dual channel specification: Include 3D Gyroscope and Accelerometer Baud rate from 125K to 1Mbps			
Mini-PCIe	2x full size (one for CAN, one for WiFi or LTE)			
M.2	1x Socket 1, Key A, 2230 for wifi			
USIM	1			
TPM	TPM 2.0			
Expansion Slots	1 x PCIe Gen 3 x 16 + 1 x PCIe Gen 3 x 4			
LED indicator				
WD LED	1 x watch dog LED Blinking Yellow for watchdog timer start Solid Yellow for when timer is expired			
Diag-Alert LED	1 x Diag-alert LED Solid Green for no physical storage connected, blinking Green for no memory is installed on either SODIMM socket			
Storage LED	1 x Storage LED, Blinking Amber for HD read/write			
U1~U5 LED	5 x user defined, Green for U2~U5, Red for U1			
Storage Devices				
M.2 B key or B+M Key	M.2 SSD 256G	M.2 SSD 256G	M.2 SSD 128G	M.2 SSD 64G
Power Requirements				
DC Power supply Input	9-32V (+/- 5% tolerance, reversed polarity protection)			
Power consumption	20~12.5A			
AC/DC Power adapter Input	Optional Accessory: 220W adapter			
Power ON/OFF button	Power ON/OFF			
System Reset button	Hardware Reset			
Mechanical				
Dimensions(WxDxH)	165(W) x 240(D) x 210(H) mm (6.496 x 9.449 x 8.267 inch)			
Weight	TBD			
Mounting	Wall mount			

Specifications

Model Name	RQX-58G	RQX-580
Environmental		
Operating Temperature	-20~70°C(-4°F~158°F, w/ 1x SODIMM) -20~60°C(-4°F~140°F, w/ 2x SODIMM)	
Operating Humidity	~95% @40°C (non-condensing)	
Storage Temperature	-40~85°C (-40°F~185°F)	
Vibration	IEC 60068-2-6: Resonance search 1G, 5-500Hz, 3 axes IEC 60068-2-64: Operating 5Grms, 5-500 Hz, 3 axes w/ SSD	
Shock	MIL-STD-202G Method 213B, Table 213-I Condition A: Operating 50G, half sine 11ms duration w/ M.2 SSD	
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 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-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	
Environment	Ubuntu 18.04 LTS	
Middleware	ROS/ROS 2 Intel® OpenVINOTM (TBD)	

