# RQX-58x Series

ROScube-X High-Performance AI Embedded Computer For Intelligent Robotic Development

**RQX-58G/580, RQX-58G-E/580-E**

**User's Manual**




| | |
|---|---|
| **Manual Rev.:** | 1.0 |
| **Revision Date:** | March 2, 2022 |
| **Part No:** | 50M-00065-1000 |

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Leading **EDGE COMPUTING**

# Revision History

| Revision | Release Date | Description of Change(s) |
|---|---|---|
| 1.0 | 2022-03-02 | Initial release |

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# Preface

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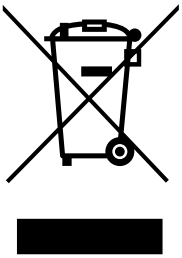
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### Conventions

Take note of the following conventions used throughout this manual to make sure that users perform certain tasks and instructions properly.

NOTE: Additional information, aids, and tips that help users perform tasks.

CAUTION: Information to prevent ***minor*** physical injury, component damage, data loss, and/or program corruption when trying to complete a task.
*ATTENTION: Informations destinées à prévenir les blessures corporelles mineures, les dommages aux composants, la perte de données et/ou la corruption de programme lors de l'exécution d'une tâche.*

WARNING: Information to prevent ***serious*** physical injury, component damage, data loss, and/or program corruption when trying to complete a specific task.
*AVERTISSEMENT: Informations destinées à prévenir les blessures corporelles graves, les dommages aux composants, la perte de données et/ou la corruption de programme lors de l'exécution d'une tâche spécifique.*

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# 1 Introduction

## 1.1 Overview

ADLINK's ROScube-X RQX-58x Series, a ROS 2 enabled robotic controller powered by the NVIDIA® Jetson AGX Xavier™ module, features an integrated NVIDIA Volta™ GPU, dual deep learning accelerators and a wide variety of interfaces including GMSL2 camera connectors for advanced robotic system integration. The RQX-58x Series 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-performance AI computing capabilities with minimal power consumption.

## 1.2 Features

- High-performance AI embedded computer for intelligent robotic 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

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## 1.3 Packing List

Before unpacking, check the shipping carton for any damage. If the shipping carton and/or contents are damaged, inform your dealer immediately. Retain the shipping carton and packing materials for inspection. Obtain authorization from your dealer before returning any product to ADLINK. Ensure that the following items are included in the package.

- RQX-58x Series Fanless Embedded Computer
- Accessories
  - Power cable (lockable Molex connector to Phoenix terminal block connector)
  - Wall-mount brackets
  - Screw pack
  - Power on/off extension cable

## 1.4 Optional Accessories

- **AC/DC Adapter**
  - 160W (P/N: 31-62120-0010)
  - 220W (P/N: 31-62149-0000)
- **Wi-Fi Module:** Intel® Wireless-AC9260 M.2 2230, Dual-Band 2x2 Wi-Fi + Bluetooth 5 kit (P/N: 91-95266-0010)
- **LTE Module**: EG25-G LTE Module Cat4 LTE/WCDMA/GSM/GPS (P/N: 91-xxxxx-xxxx)

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# 2 Specifications

## 2.1 RQX-58G(-E), RQX-580(-E)

| Model Name | RQX-58G/58G-E | RQX-580/580-E |
|---|---|---|
| **System Core** | | |
| **NVIDIA Module** | NVIDIA® Jetson AGX Xavier™ | |
| **CPU** | 8-core Carmel ARM v8.2 64-bit CPU, 8MB L2 + 4MB L3<br>Maximum Operating Frequency: 2.26GHz | |
| **GPU** | 512-core Volta GPU with 64 Tensor Cores<br>11 TFLOPS (FP16), 22 TOPS (INT8)<br>Maximum Operating Frequency: 1.37GHz | |
| **Memory** | 32GB 256-Bit LPDDR4x | |
| **eMMC** | 32GB eMMC 5.1 | |
| **Front Panel I/O Interfaces** | | |
| **Display** | 1x HDMI 2.0a | |
| **Ethernet** | 2x GbE (IEEE 802.1AS, IEEE 1588 v2) | |
| **USB 3.0** | 4x USB Type A<br>2x USB Type A with lockable connector | |
| **Serial Port** | COM1: RS-232/485; COM2: RS-232 | |
| **USB OTG** | 1x USB 2.0 OTG Micro-A/B port for updating OS environment | |
| **microSD card slot** | 1x microSD card | |
| **Side Panel I/O Interfaces** | | |
| **DB-50 Connector** | UART, SPI, CAN, $I^2C$, PWM, 20-bit GPIO | |
| **Internal I/O Connectors** | | |
| **M.2 Expansion** | 1x Socket 2, Key M 2280 for Storage (NVMe SSD)<br>1x Socket 1, Key A+E 1630/2230 for Wi-Fi | |
| **Mini PCIe** | 1x Mini PCIe socket for 4G/LTE or GPS module | |
| **USIM** | 1x USIM socket | |
| **RTC Battery** | CR2450W Li 3.0V 550mAh | |

**Table 2-1: RQX-58G/58G-E, RQX-580/580-E Specifications**

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| Model Name | RQX-58G/58G-E | RQX-580/580-E |
|---|---|---|
| **LED Indicators** | | |
| **User Defined** | 6x user defined LEDs<br>Green: U1,U2,U3, U6<br>Amber: U5<br>Yellow: U4 | |
| **Camera Interfaces** | | |
| **FAKRA connectors** | 2x mini FAKRA quad-port conn. (for GMSL2 camera, driver supports LI-AR0233-GMSL2 camera) | N/A |
| **Expansion Box (“E” models only)** | | |
| **Dimensions** | 132(W) x 210(D) x 80(H) mm | |
| **PCIe slot** | 1x PCIe Gen3 x8 (x16 slot), 1x PCIe Gen3 x4 | |
| **Power Requirements** | | |
| **DC Power Input** | 9-36V (±5% tolerance, reverse polarity protection) | |
| **AC/DC Power Adapter** | 160W/220W, 90-264VAC to 24 VDC<br>power cable: lockable Molex connector to Phoenix terminal block connector | |
| **Power Switch** | 1x power button (supports auto power-on)<br>1x power on/off extension cable for robotics | |
| **Recovery and Reset** | 1x recovery button<br>1x hardware reset button | |
| **Mechanical** | | |
| **Dimensions** | 190(W) x 210(D) x 80(H) mm (7.48 x 8.27 x 3.149 inches)<br>“-E” models: 322(W) x 210(D) x 80(H) mm<br>(12.68 x 8.27 x 3.149 inches) | |
| **Mounting** | Wall mount kit | |

**Table 2-1: RQX-58G/58G-E, RQX-580/580-E Specifications**

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| Model Name | RQX-58G/58G-E | RQX-580/580-E |
|---|---|---|
| **Environmental** | | |
| **Operating Temperature** | 0°C to 50°C at full CPU clock speed<br>-20°C to 70°C (-4 °F to 158 °F ) at reduced CPU clock speed | |
| **Operating Humidity** | Approx. 95% @40°C (non-condensing) | |
| **Storage Temperature** | -40°C to 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<br>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)<br>• 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)<br>• IEC 61000-4-4 (EFT, ±2kV at 5KHz on power port, ±1kV at 5KHz on signal port)<br>• IEC 61000-4-5 (Surge, ±2kV line to earth CM on power port, ±1kV line to earth CM on signal port)<br>• IEC 61000-4-6 (CS, 10Vrms with 1kHz sine wave, 80% AM from 0.15MHz-80MHz)<br>• IEC 61000-4-8 (power-frequency magnetic fields)<br>• IEC 61000-4-11 (voltage DIPs & voltage interruptions) | |
| **Safety** | EN 62368-1 (LVD) | |
| **Software** | | |
| **SDK** | ADLINK Neuron SDK, NVIDIA Jetson SDK | |
| **Environment** | Ubuntu 18.04 L4T | |
| **Operating System** | | |
| **Environment** | Ubuntu 18.04 L4T | |
| **Middleware** | ROS, ROS 2 | |

**Table 2-1: RQX-58G/58G-E, RQX-580/580-E Specifications**

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## 2.2 RQX-58x Series Functional Block Diagram

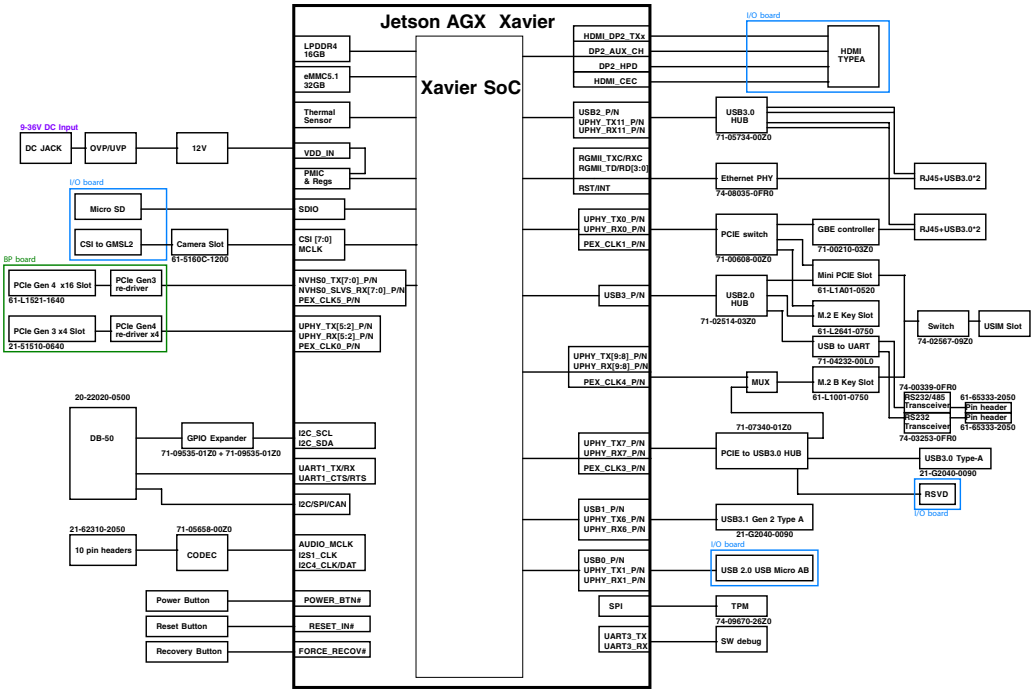



**Figure 2-1: RQX-58x Series Functional Block Diagram**

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## 2.3 Display Options

With computing and graphic performance enhancement from its 8th and 9th Generation Intel® processors, the RQX-58x Series controller can support three independent displays with the following configuration.

| Port | Resolution |
|---|---|
| HDMI 2.0a/b | 4096x2160@60Hz |

**Table 2-2: Maximum Display Resolution**

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## 2.4 Mechanical Dimensions

All dimensions in mm

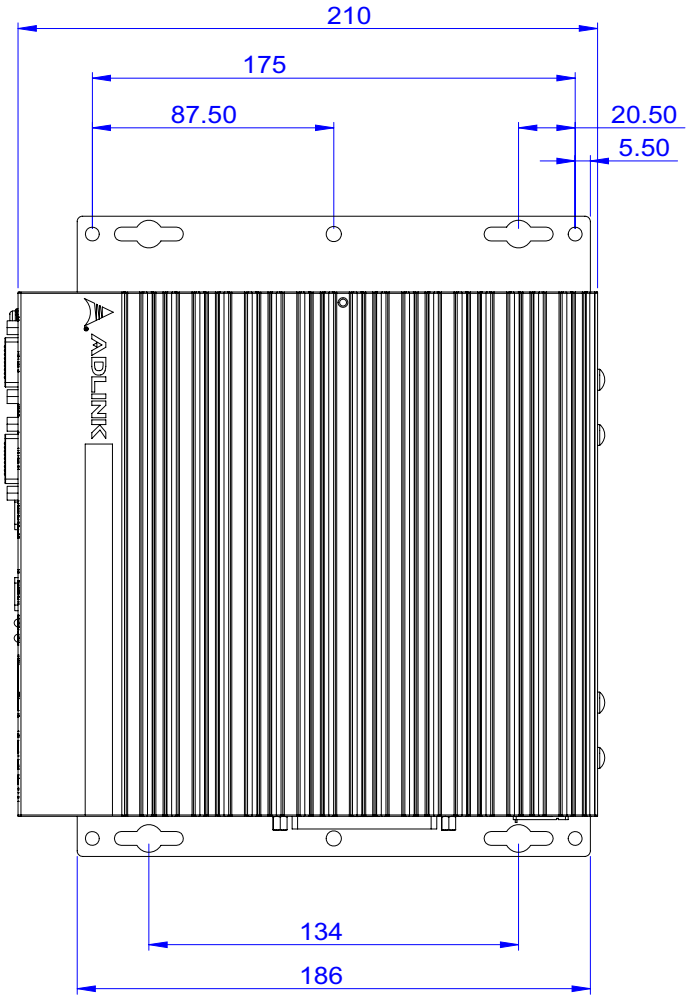



**Figure 2-2: RQX-58x Series Top View**

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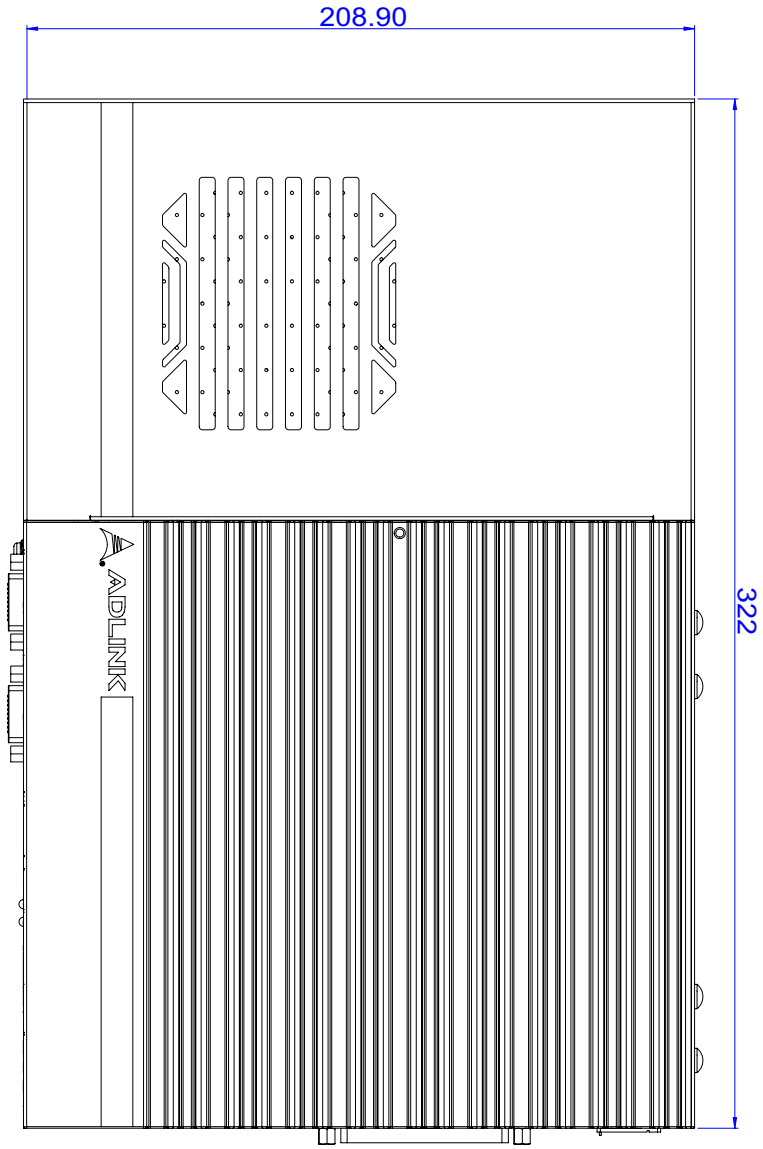



**Figure 2-3: RQX-58x Series "E" Top View**

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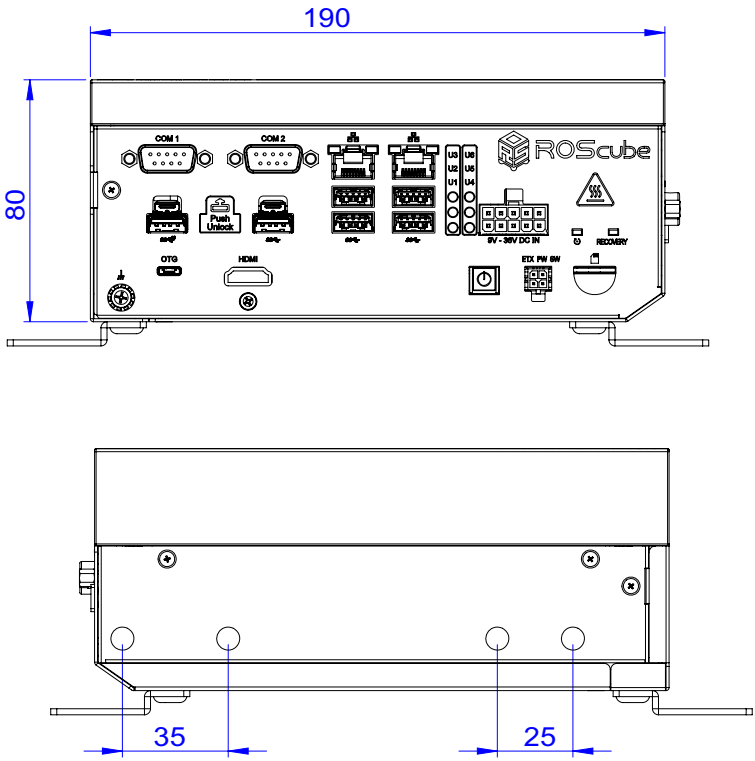



**Figure 2-4: RQX-580 Front and Rear View**

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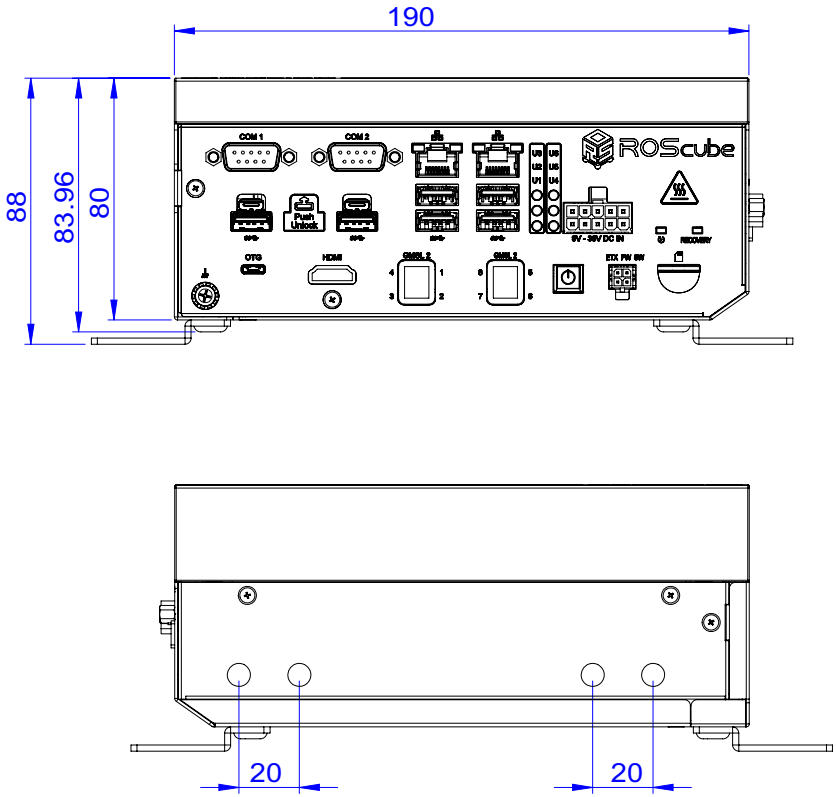



**Figure 2-5: RQX-58G Front and Rear View**

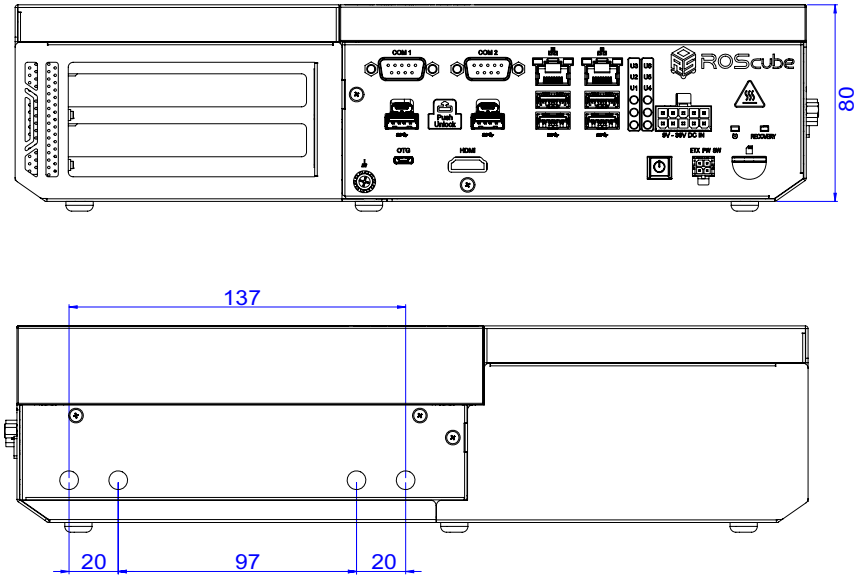



**Figure 2-6: RQX-580-E Front and Rear View**

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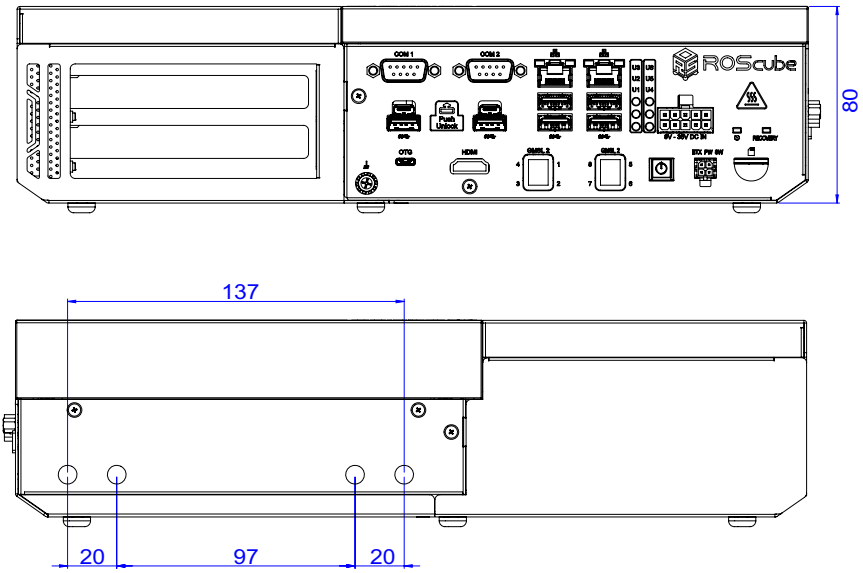



**Figure 2-7: RQX-58G-E Front and Rear View**

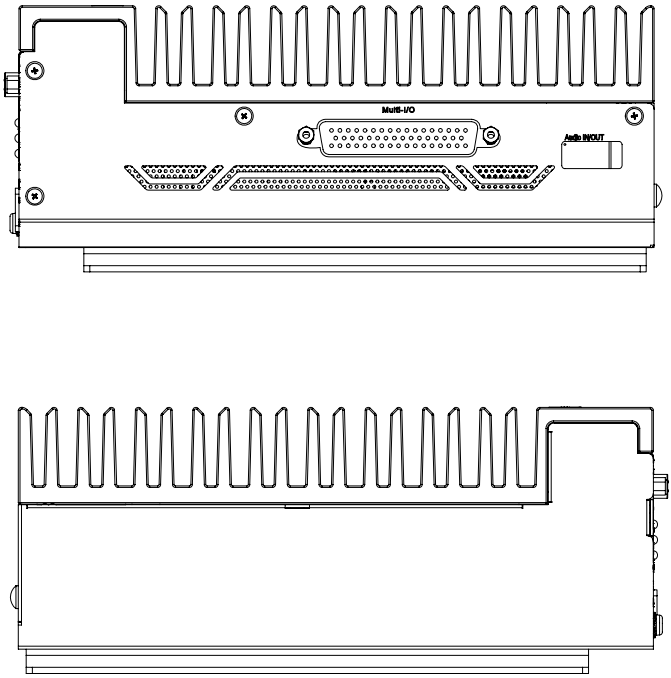



**Figure 2-8: RQX-58x Series Side View**

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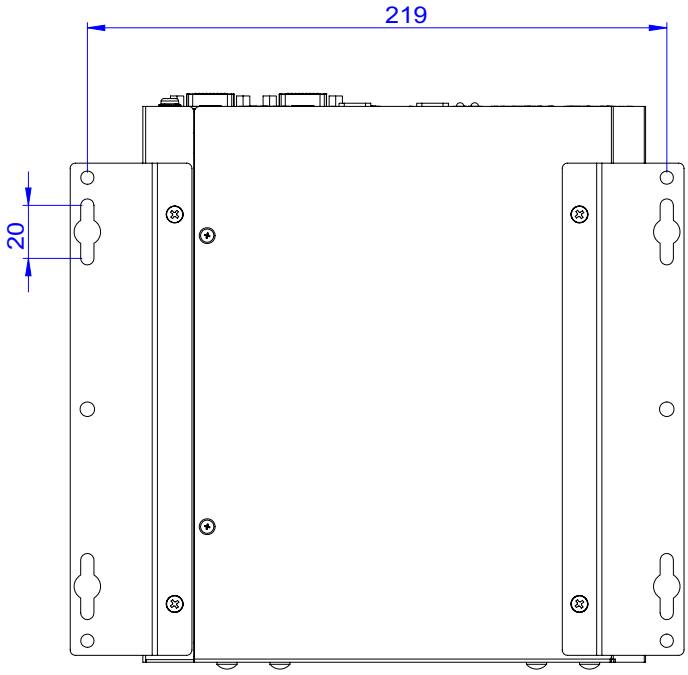



**Figure 2-9: RQX-58x Series Bottom View**

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# 3 System Layout

## 3.1 Front Panel

The RQX-58x Series provides the following front panel access features.

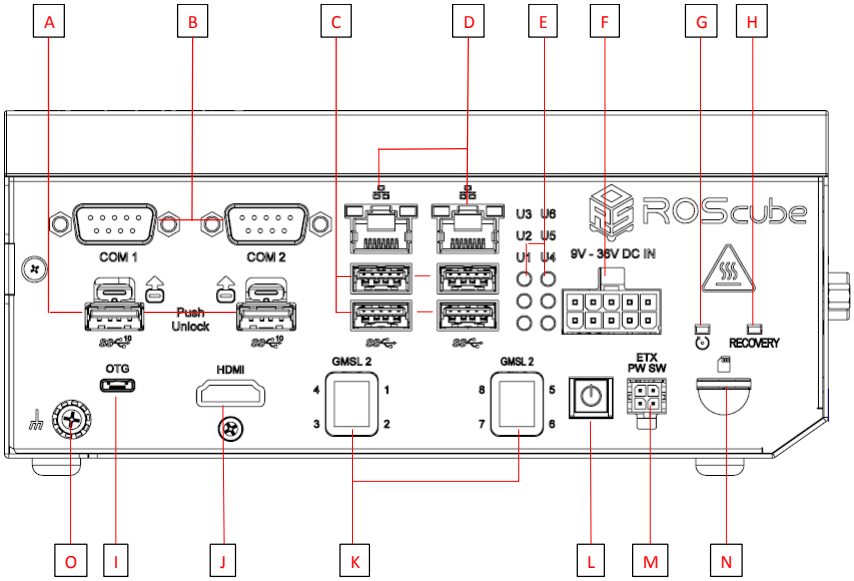



**Figure 3-1: Front Panel I/O**

| | | | |
|---|---|---|---|
| **A** | Lockable USB 3.0 Type A x2 | **I** | USB 2.0 OTG port x1 |
| **B** | COM Port x2 | **J** | HDMI port with screw x1 |
| **C** | USB 3.0 Type A x4 | **K** | Mini FAKRA quad connector x2 (only on RQX-58G/-E) |
| **D** | Gigabit Ethernet x2 | **L** | Power ON/OFF button |
| **E** | User define LEDs x6 | **M** | Power on/off extension connector |
| **F** | ATX DC power input | **N** | microSD card slot x1 |
| **G** | Reset button | **O** | Ground screw |
| **H** | Recovery button | | |

**Table 3-1: Front Panel I/O Legend**

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The RQX-58x Series provides the following side panel access features.

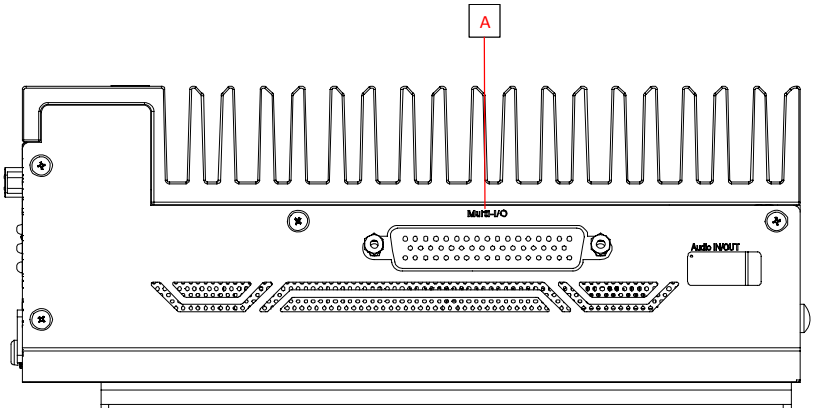



**Figure 3-2: Front Panel I/O**

| | |
|---|---|
| **A** | Multi-I/O (DB-50) |

**Table 3-2: Side Panel I/O Legend**

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### 3.1.1 Power Button

The power button is a non-latched push button with a blue LED indicator. The system is turned on when the button is pressed, and the power LED lights. If the system hangs, press and hold the button for 5 seconds to turn it off.

### 3.1.2 Reset Button

The reset button executes a hard system reset.

### 3.1.3 LED Indicators

Six user-defined LEDs are provided on the front panel.

| LED | Color | LED | Color |
|---|---|---|---|
| U3 | Green | U6 | Green |
| U2 | Green | U5 | Amber |
| U1 | Green | U4 | Yellow |

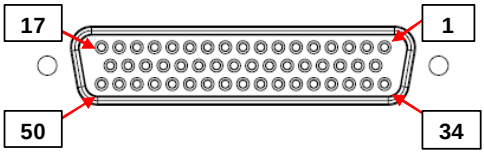
### 3.1.4 Reset Button

The reset button executes a hard system reset.

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### 3.1.5 Multi-I/O DB-50 Connector

The RQX-58x Series provides comprehensive I/O for autonomous robotics via a DB-50 connector on the right side of the chassis: CANbus x1, UART x1, SPI x1, $I^2C$ x1, PWM and GPIO0-19.



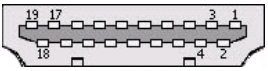

| Pin | Signal | Notes | Pin | Signal | Notes |
|---|---|---|---|---|---|
| 1 | NC | | 26 | SPI_MOSI | 1.8V |
| 2 | NC | | 27 | GPIO 13 | Push-Pull (3.3V) |
| 3 | NC | | 28 | GPIO 14 | Push-Pull (3.3V) |
| 4 | NC | | 29 | GPIO 15 | Push-Pull (3.3V) |
| 5 | GPIO 0 | Push-Pull (3.3V) | 30 | GPIO 16 | Push-Pull (3.3V) |
| 6 | GPIO 1 | Push-Pull (3.3V) | 31 | GPIO 17 | Push-Pull (3.3V) |
| 7 | GPIO 2 | Push-Pull (3.3V) | 32 | GPIO 18 | Push-Pull (3.3V) |
| 8 | GPIO 3 | Push-Pull (3.3V) | 33 | GPIO 19 | Push-Pull (3.3V) |
| 9 | GPIO 4 | Push-Pull (3.3V) | 34 | NC | |
| 10 | GPIO 5 | Push-Pull (3.3V) | 35 | NC | |
| 11 | GPIO 6 | Push-Pull (3.3V) | 36 | NC | |
| 12 | GPIO 7 | Push-Pull (3.3V) | 37 | NC | |
| 13 | GPIO 8 | Push-Pull (3.3V) | 38 | UART_RX | 3.3V |
| 14 | GPIO 9 | Push-Pull (3.3V) | 39 | UART_ TX | 3.3V |
| 15 | GPIO 10 | Push-Pull (3.3V) | 40 | CAN_H | |
| 16 | GPIO 11 | Push-Pull (3.3V) | 41 | CAN_L | |
| 17 | GPIO 12 | Push-Pull (3.3V) | 42 | I2C_CLK | 3.3V |
| 18 | NC | | 43 | I2C_DATA | 3.3V |
| 19 | NC | | 44 | 5V | Combined max. 1A |
| 20 | NC | | 45 | 5V | |
| 21 | NC | | 46 | 3.3V | Max. 1A |
| 22 | PWM | 3.3V | 47 | GND | |
| 23 | SPI_CLK | 1.8V | 48 | GND | |
| 24 | SPI_CS | 1.8V | 49 | GND | |
| 25 | SPI_MISO | 1.8V | 50 | GND | |

**Table 3-3: Multi-I/O DB-50 Connector Pin Definition**

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### 3.1.6 HDMI Connector

The RQX-58x Series provides one HDMI connector with lock screw for connection to an external monitor.




| Pin # | Signal | Pin # | Signal |
|---|---|---|---|
| 1 | TMDS Data2+ | 2 | TMDS Data2 Shield |
| 3 | TMDS Data2– | 4 | TMDS Data1+ |
| 5 | TMDS Data1 Shield | 6 | TMDS Data1– |
| 7 | TMDS Data0+ | 8 | TMDS Data0 Shield |
| 9 | TMDS Data0– | 10 | TMDS Clock+ |
| 11 | TMDS Clock Shield | 12 | TMDS Clock– |
| 13 | CEC | 14 | Reserved |
| 15 | SCL | 16 | SDA |
| 17 | DDC/CEC Ground | 18 | +5 V Power |
| 19 | Hot Plug Detect | | |

**Table 3-4: HDMI Connector Pin Definition**

### 3.1.7 USB 3.0 Ports

The RQX-58x Series provides 2x USB 3.0 Type A lockable ports and 4x USB 3.0 Type A standard ports on the front panel. All USB 3.0 ports are compatible with SuperSpeed Gen1, high-speed, full speed, and low-speed USB device.

| USB 3.0 Ports | Lockable USB 3.0 Ports |
|---|---|
| • Speed: 5G/bps<br>• Color: Blue<br>• Voltage: 5V<br>• Current: 1A continue<br>• Inrush current: 1.3A max<br>• Protection: OVP, OCP | • Speed: 5G/bps<br>• Color: Blue<br>• Voltage: 5V<br>• Current: 1.8A continue<br>• Inrush current: 2A max<br>• Protection: OVP, OCP |

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### 3.1.8 Gigabit Ethernet Ports

There are two Gigabit Ethernet ports on the front panel supporting the following:

- IEEE 802.3az Energy Efficient Ethernet
- IEEE 802.1as-2011 Timing and Synchronization for Time-Sensitive Applications in Bridged Local Area Networks
- IEEE 802.31 Qav Forwarding and Queuing Enhancements for Time-Sensitive Streams
- IEEE 802.3x Pause Packets and Priority Flow Control
- Support for frames of up to 9KB

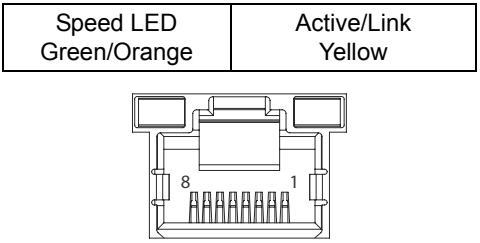



**Figure 3-3: Ethernet Port and LEDs**

| Pin # | 10BASE-T/ 100BASE-TX | 1000BASE-T |
|---|---|---|
| 1 | TX+ | LAN_TX0+ |
| 2 | TX- | LAN_TX0- |
| 3 | RX+ | LAN_TX1+ |
| 4 | — | LAN_TX2+ |
| 5 | — | LAN_TX2- |
| 6 | RX- | LAN_TX1- |
| 7 | — | LAN_TX3+ |
| 8 | — | LAN_TX3- |

**Table 3-5: Ethernet Port Pin Definition**

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| LED Color | Status | Description |
|---|---|---|
| Yellow | Off | Ethernet port is disconnected. |
| | Blinking | Ethernet port is connected and active. |

**Table 3-6: Active/Link LED Indicators**

| LED Color | Status | Description |
|---|---|---|
| Green/Orange | Off | 10 Mbps |
| | Amber | 100 Mbps |
| | Green | 1000 Mbps |

**Table 3-7: Speed LED Indicators**

### 3.1.9 DC Power Input

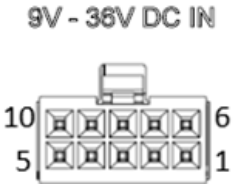



**Figure 3-4: DC Power Input**

| Pin | Signal | | |
|---|---|---|---|
| 1 | GND | 6 | VCC (9-36VDC) |
| 2 | GND | 7 | VCC (9-36VDC) |
| 3 | GND | 8 | VCC (9-36VDC) |
| 4 | GND | 9 | VCC (9-36VDC) |
| 5 | GND | 10 | VCC (9-36VDC) |

**Table 3-8: DC Power Input Pin Definition**

Refer to Section 4.1: Attach DC Power Connector on page 33 to install the DC Power Connector to the DC Power Input.

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Please use an approved power source as certified by IEC or UL. The maximum ambient operating temperature (Tma) is described in “Important Safety Instructions”. Altitude during operation is up to 2000 m where output meets LPS and SELV circuit requirements.

### Power Source Rating

| | Voltage | Current (RQX-580/58G) | Current (RQX-580-E/58G-E) |
|---|---|---|---|
| DC Power Source | 9 to 36V DC | 17.5A to 4.4A | 24.44A to 6.11A |
| AC-to-DC Adapter | 24V DC | 6.67A | 9.17A |




Before providing DC power, ensure the voltage and polarity provided are compatible with the DC input. Improper input voltage and/or polarity can be responsible for system damage.
*AVERTISSEMENT: Avant de fournir une alimentation CC, assurez-vous que la tension et la polarité fournies sont compatibles avec l'entrée CC. Une tension d'entrée et / ou une polarité incorrectes peuvent être responsables de dommages au système.*

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### 3.1.10 COM Port Connectors

The RQX-58x Series provides two COM ports through D-sub 9-pin connectors. COM1 support RS-232/485 (software configurable) and COM2 supports RS-232.

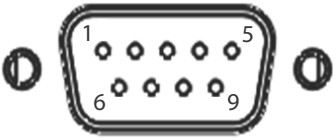



**Figure 3-5: COM Port D-Sub 9-pin**

| Pin | Signal Name | |
|---|---|---|
| | RS-232 | RS-485 |
| 1 | DCD# | 485DATA- |
| 2 | RXD | 485DATA+ |
| 3 | TXD | N/S |
| 4 | DTR# | N/S |
| 5 | GND | N/S |
| 6 | DSR# | N/S |
| 7 | RTS# | N/S |
| 8 | CTS# | N/S |
| 9 | RI# | N/S |

**Table 3-9: COM Port D-Sub 9-pin RS-232/485 Pin Definitions**

To change the mode for your device, open the terminal interface in Ubuntu and use the command:

```
/sys/class/sp339_mode_ctl/
echo rs232 or rs485
```

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### 3.1.11 microSD Card Slot

The RQX-58x Series provides a micro SD card slot supporting storage up to 2 TB.

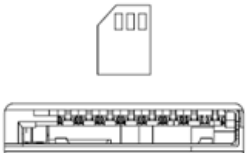


**Figure 3-6: microSD Card Slot**

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | DATA2 | 7 | DATA0 |
| 2 | DATA3 | 8 | DATA1 |
| 3 | CMD | 9 | GND |
| 4 | VDD | 10 | GND |
| 5 | CLK | 11 | DET |
| 6 | GND | 12 | GND |

**Table 3-10: microSD Card Slot Pin Definition**

### 3.1.12 USB 2.0 OTG Port

This USB 2.0 OTG port is provided for system recovery and to update the SW image.

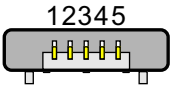



**Figure 3-7: USB 2.0 OTG Micro-A/B Port**

| Pin | Signal |
|---|---|
| 1 | VBUS |
| 2 | D- |
| 3 | D+ |
| 4 | ID |
| 5 | GND |

**Table 3-11: USB 2.0 OTG Micro-A/B Pin Definition**

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### 3.1.13 mini FAKRA Connector

The mini FAKRA connector is only available on the RQX-58G(-E) series, and provides quad ports for each connector. A total 8 devices can be connected to RQX-58G(-E). The RQX-58G provides 8 camera channels using 4 dual GMSL2 deserializers. The detailed mapping from deserializers to GPIO is as follows:

| Camera # | Sensor ID | GPIO # | MIPI-CSI2 |
|---|---|---|---|
| 1 | 0 | 50 | CSI-0 / CSI-A |
| 2 | 1 | 50 | CSI-1 / CSI-B |
| 3 | 2 | 51 | CSI-2 / CSI-C |
| 4 | 3 | 51 | CSI-3 / CSI-D |
| 5 | 4 | 52 | CSI-4 / CSI-E |
| 6 | 5 | 52 | CSI-5 / CSI-F |
| 7 | 6 | 53 | CSI-6 / CSI-G |
| 8 | 7 | 53 | CSI-7 / CSI-H |

**Table 3-12: mini FAKRA Connector Pin Definition**

Quad Fakra GMSL Cable: 4 position mate-AX to 4x FAKRA Z-code 50Ω cable. Cable lengths of 1, 3, 6 and 12 meters are available.

| P/N | Description |
|---|---|
| 30-60185-0000-A0 | 1 meter 1:4 FAKRA cable |
| 30-60185-0000-A0 | 3 meter 1:4 FAKRA cable |
| 30-60185-0000-A0 | 6 meter 1:4 FAKRA cable |
| 30-60185-0000-A0 | 12 meter 1:4 FAKRA cable |

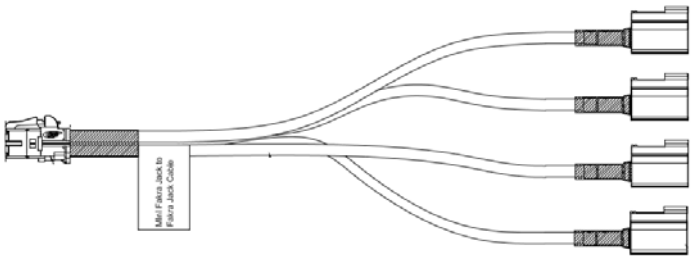


**Figure 3-8: mini FAKRA Connector**

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## 3.2 Internal I/O Connectors

### 3.2.1 Board Layout

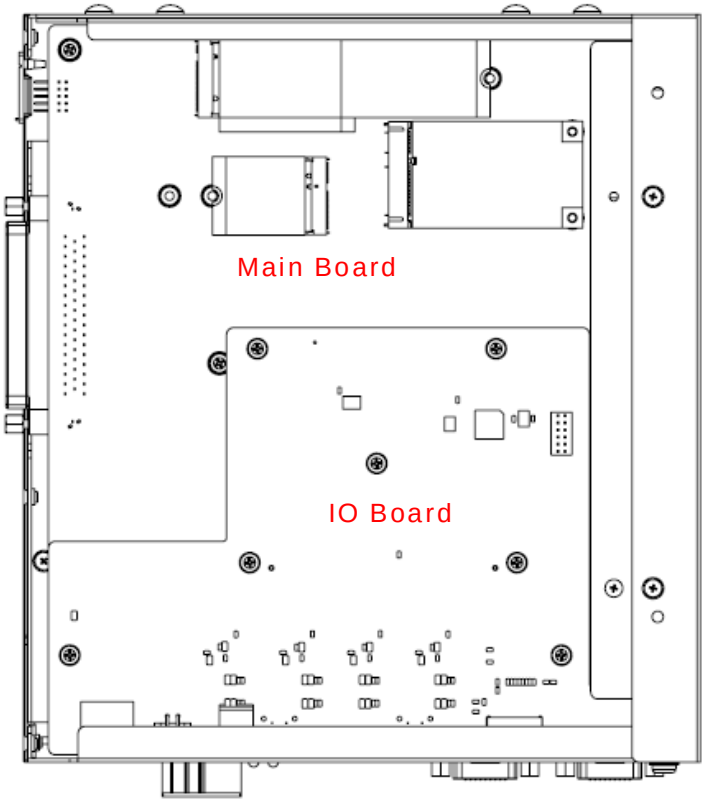



**Figure 3-9: RQX-58x Board Layout**

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### 3.2.2 Mainboard Connectors

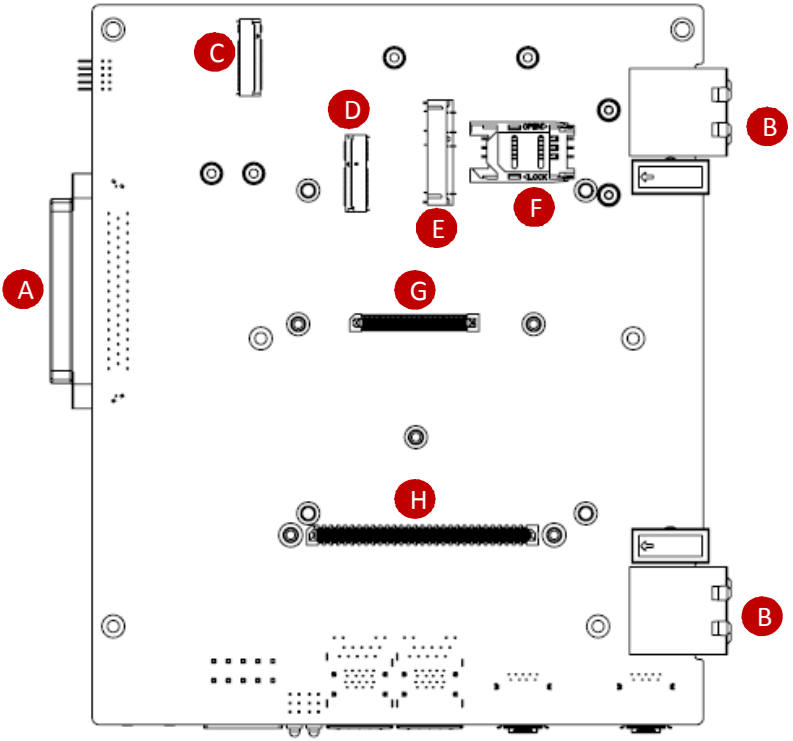



**Figure 3-10: RQX-58x Mainboard Connectors**

| | | | |
|---|---|---|---|
| **A** | DB50 connector | **E** | Mini PCIe slot |
| **B** | Carrier Board B2B connector | **F** | SIM card slot |
| **C** | M.2 M Key slot | **G** | MIPI B2B connector |
| **D** | M.2 A+E Key slot | **H** | IO Board B2B connector |

**Table 3-13: RQX-58x Mainboard Connector Legend**

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### 3.2.3 IO Board Connectors

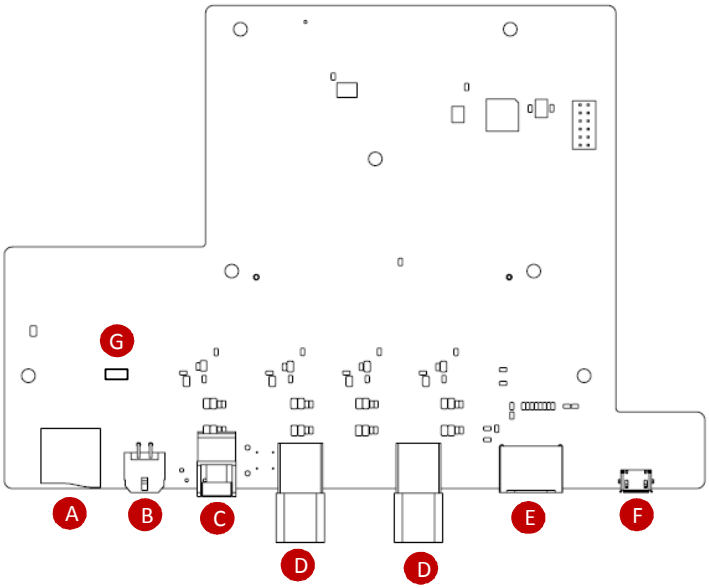



**Figure 3-11: Function Module Connectors**

| | |
|---|---|
| **A** | microSD card slot |
| **B** | Extend power header |
| **C** | Power On/Off button |
| **D** | Mini FAKRA connector |
| **E** | HDMI Connector |
| **F** | USB 2.0 OTG Micro-A/B (for recovery) |
| **G** | Local/Extension Power On/Off Jumper |

**Table 3-14: Function Module Connector Legend**

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### 3.2.4 Mini PCIe

The internal Mini PCIe slot (Rev. 1.2) supports full size Mini PCIe cards for 4G/LTE or GPS modules (connector label: CN1601).

### 3.2.5 SIM Card Slot

The SIM card socket connects to the Mini PCIe slot (CN1601) on the mainboard.

### 3.2.6 M.2 M Key Slot

The internal M.2 M Key slot provides support NVMe SSD storage (connector label: CN1801).

### 3.2.7 M.2 A+E Key Slot

The internal M.2 A+E Key slot provides support for a Wi-Fi module (connector label: CN1701).

### 3.2.8 SW Debug Port

An internal pin header is provided for SW debug (CN1501).




**Figure 3-12: SW Debug Port**

| Pin | Signal |
|---|---|
| 1 | UART_TX |
| 2 | NC |
| 3 | UART_RX |
| 4 | NC |
| 5 | GND |
| | NC |

**Table 3-15: USB 2.0 OTG Micro-A/B Pin Definition**

### 3.2.9 Local/Extension Power On/Off Jumper

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This jumper switch (J11) selects whether the local or extended power On/Off is used to control power on/off of the device.

| Pins | Local (default) | Extension |
|---|---|---|
| 1-2 | Short | Open |
| 2-3 | Open | Short |

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# 4 Getting Started

This chapter describes the steps needed to begin using the RQX-58x Series in your application.

## 4.1 Attach DC Power Connector

Locate the DC power cable shown below that is included in the Accessory Box. Insert connector P2 into the ATX DC Power Input “F” shown in **Figure 3-1** on page 17.




Connect a DC power source as described in **Section 3.1.9: DC Power Input on page 23** to the inputs of connector P1, connecting “positive” (red) to Pin1 and “negative” (black) to Pin 2.

---

WARNING:

Before providing DC power, ensure the voltage and polarity provided are compatible with the DC input. Improper input voltage and/or polarity can be responsible for system damage.
*AVERTISSEMENT: Avant de connecter à une source de courant continu, veuillez vous assurer de la polarité de la tension conformément à l'entrée CC du PC. Une tension et/ou une polarité incorrectes peuvent causer des dommages irréversibles sur le système.*

---

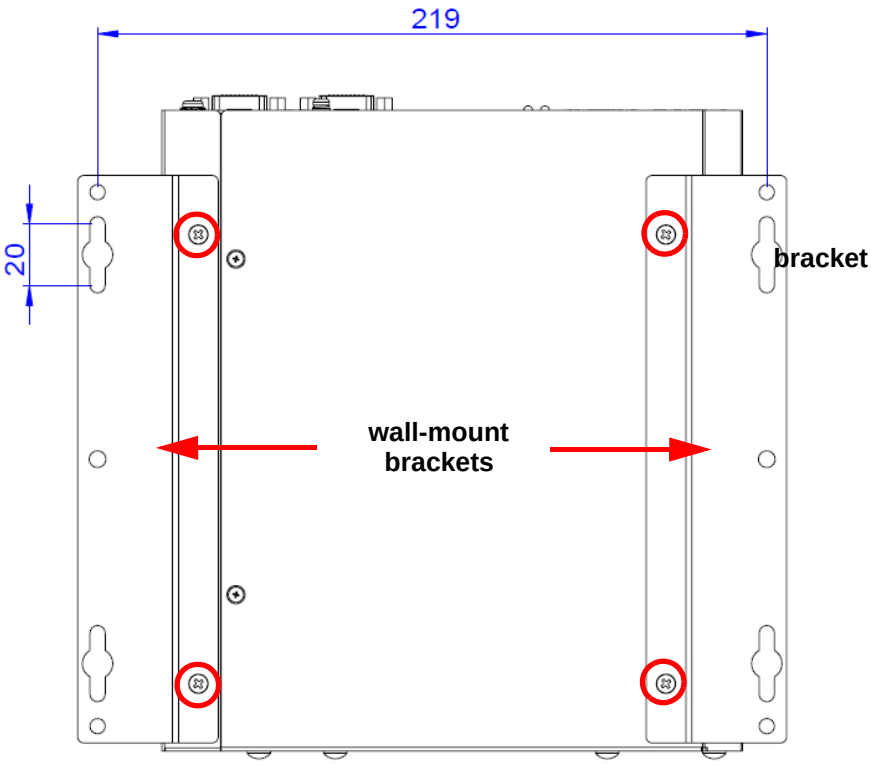
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## 4.2 Mounting the RQX-58x Series

### 4.2.1 Install the Wall-mount Brackets

Use the 4 M4 6mm screws included in the Accessory Box to attach the 2 included wall-mount brackets to the chassis as indicated by the red circles below.

*Utilisez les 4 vis M4 6 mm incluses dans la boîte d'accessoires pour fixer les 2 supports de montage mural inclus au châssis, comme indiqué par les cercles rouges ci-dessous.*

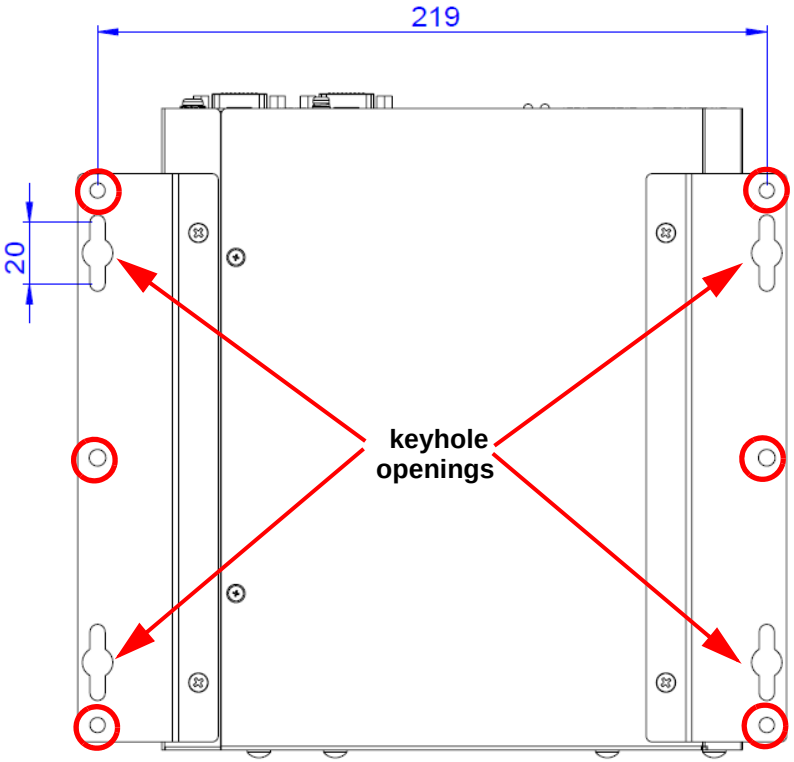



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## Mounting the Device / Montage de l'Appareil

Mount the device to a wall using the 4 keyhole openings indicated or the 6 mounting holes circled in red, according to the spacing dimensions of the holes in the bracket as shown in Figure 2-2 RQX-58x Series Top View.

*Montez l'appareil sur un mur à l'aide des 4 ouvertures de trou de serrure en fonction des dimensions d'espacement des trous dans le support, comme indiqué dans Figure 2-2 RQX-58x Series Top View.*




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# Appendix A Power


NOTE:

Information in this Appendix is for power budget planning and design purposes only. Actual power consumption may differ based on final application.

## A.1 Power Consumption Reference

The power consumption provided below is based on lab data in which 24V DC is applied and current is measured by the DC power supply. The power consumption (W) is calculated as the product of applied voltage (V) and the current (A).

The platform was tested with the following external I/O interfaces connected to supported devices: HDMI monitor, keyboard/mouse, USB dummy load, COM loopback, and Ethernet port.

Information is presented for reference only. Actual power consumption will vary with different attached devices and operating system.

| System | Power Off (S5) | System Idle | MAXN type0 | Mode 30W type all | Recommended Power Supply |
|---|---|---|---|---|---|
| RQX-58G(-E) | 6.48W | 40.1W | 96.7W | 123.5W | 160W |
| RQX-580(-E) | 2.1W | 16.05W | 96.7W | 59.37W | 160W |

**Table A-1: Power Consumption**

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# Important Safety Instructions

For user safety, please read and follow all instructions, Warnings, Cautions, and Notes marked in this manual and on the associated device before handling/operating the device, to avoid injury or damage.

- Read these safety instructions carefully.
- Keep the User's Manual for future reference.
- Read the Specifications section of this manual for detailed information on the recommended operating environment.
- The device can be operated at an ambient temperature of 50ºC with DC input, and 35ºC with AC/DC power adapter input.
- It is recommended that the device be installed in Information Technology Rooms that are in accordance with Article 645 of the National Electrical Code and NFPA 75.
- To avoid electrical shock and/or damage to device:
  - Keep device away from water or liquid sources.
  - Keep device away from high heat or humidity.
  - Keep device properly ventilated (do not block or cover ventilation openings).
  - Always use recommended voltage and power source settings.
  - Always install and operate device near an easily accessible electrical outlet.
  - Secure the power cord (do not place any object on/over the power cord).
  - Only install/attach and operate device on stable surfaces and/or recommended mountings.
  - The power cord must be connected to a socket or outlet with a ground connection.
- If the device will not be used for long periods of time, turn off and unplug from its power source.
- Never attempt to repair the device, which should only be serviced by qualified technical personnel using suitable tools.

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- A Lithium-type battery may be provided for uninterrupted backup or emergency power.




Risk of explosion if battery is replaced with one of an incorrect type; please dispose of used batteries appropriately.

- This equipment is not suitable for use in locations where children are likely to be present.
- The device must be serviced by authorized technicians when:
  - The power cord or plug is damaged
  - Liquid has entered the device interior
  - The device has been exposed to high humidity and/or moisture
  - The device is not functioning or does not function according to the User's Manual
  - The device has been dropped and/or damaged and/or shows obvious signs of breakage
- Disconnect the power supply cord before loosening the thumbscrews and always fasten the thumbscrews with a screwdriver before starting the system up
- The device shall be installed only in a server room or computer room where access is:
  - Restricted to qualified service personnel or users familiar with restrictions applied to the location, reasons therefor, and any precautions required
  - Only afforded by the use of a tool or lock and key, or other means of security, and controlled by the authority responsible for the location



**BURN HAZARD**

**Hot surface! Do not touch!** Touching this surface could result in bodily injury. To reduce risk, allow the surface to cool before touching.

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# Consignes de Sécurité Importante

*S'il vous plaît prêter attention stricte à tous les avertissements et mises en garde figurant sur l'appareil, pour éviter des blessures ou des dommages.*

- *Lisez attentivement ces consignes de sécurité.*
- *Conservez le manuel de l'utilisateur pour pouvoir le consulter ultérieurement.*
- *Lisez la section Spécifications de ce manuel pour des informations détaillées sur l'environnement d'exploitation recommandé.*
- *L'appareil peut être utilisé à une température ambiante de 50°C avec entrée CC et 35°C avec entrée adaptateur secteur CA/CC.*
- *Il est recommandé d'installer l'appareil dans des salles de technologie de l'information conformes à l'article 645 du National Electrical Code et à la NFPA 75.*
- *Pour éviter les chocs électriques et/ou d'endommager l'appareil:*
  - *Tenez l'appareil à l'écart de toute source d'eau ou de liquide.*
  - *Tenez l'appareil à l'écart d'une forte chaleur ou d'une humidité élevée.*
  - *Maintenez l'appareil correctement ventilé (n'obstruer ou ne couvrez pas les ouvertures de ventilation).*
  - *Utilisez toujours les réglages de tension et de source d'alimentation recommandés.*
  - *Installez et utilisez toujours l'appareil près d'une prise de courant facilement accessible.*
  - *Fixez le cordon d'alimentation (ne placez aucun objet sur le cordon d'alimentation).*
  - *Installez/fixez et utilisez l'appareil uniquement sur des surfaces stables et/ou sur les fixations recommandées.*
  - *Le cordon d'alimentation doit être connecté à une prise ou à une prise de courant avec mise à la terre.*

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- Si l'appareil ne doit pas être utilisé pendant de longues périodes, éteignez-le et débranchez-le de sa source d'alimentation
- *N'essayez jamais de réparer l'appareil, qui ne doit être réparé que par un personnel technique qualifié à l'aide d'outils appropriés*
- *Une batterie de type Lithium peut être fournie pour une alimentation de secours ininterrompue ou d'urgence.*

---




*ATTENTION: Risque d'explosion si la pile est remplacée par une autre de type incorrect. Veuillez jeter les piles usagées de façon appropriée.*

---

- *Cet équipement ne convient pas à une utilisation dans des lieux pouvant accueillir des enfants.*
- *L'appareil doit être entretenu par des techniciens agrees lorsque:*
- *Le cordon d'alimentation ou la prise est endommagé(e)*
- *Un liquide a pénétré à l'intérieur de l'appareil.*
- *L'appareil a été exposé à une forte humidité et/ou de la buée.*
- *L'appareil ne fonctionne pas ou ne fonctionne pas selon le manuel de l'utilisateur.*
- *L'appareil est tombé et/ou a été endommagé et/ou présente des signes évidents de dommage.*
- *Débranchez le cordon d'alimentation avant de desserrer les vis à oreilles et serrez toujours les vis à oreilles avec un tournevis avant de mettre le système en marche.*
- *L'appareil doit être installé uniquement dans une salle de serveurs ou une salle informatique où l'accès est:*
  - *Réservé au personnel de service qualifié ou aux utilisateurs familiarisés avec les restrictions appliquées à l'emplacement, aux raisons de ces restrictions et toutes les précautions requises*
  - *Uniquement autorisé par l'utilisation d'un outil, d'une serrure et d'une clé, ou d'un autre moyen de sécurité, et contrôlé par l'autorité responsable de l'emplacement.*

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| | |
|---|---|
|  | ***RISQUE DE BRÛLURES***<br><br>***Partie chaude!*** *Ne touchez pas cette surface, cela pourrait entraîner des blessures. Pour éviter tout danger, laissez la surface refroidir avant de la toucher.* |

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# Getting Service

**Ask an Expert:** http://askanexpert.adlinktech.com

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