RAA2L6060KIT

LiDAR Receiver and Control Solution Starter Kit

Description

The RAA2L6060KIT LiDAR Receiver & Control Solution Starter Kit provides a comprehensive system for initial lab evaluation and application tests of three-dimensional object detection using the "Time-Of-Flight" (ToF) principle. This principle uses light pulses that are emitted and reflected by objects for detection.

At the core of the LiDAR Starter Kit is the Renesas RAA2L6060 multi-channel LiDAR frontend IC. This IC triggers the light emitter(s), which are typically implemented with laser diodes. The reflected light pulses are captured by a photo array, and the resulting data are pre-processed and transmitted via Quad-SPI to the post-processing microcontroller.

For post-processing, the kit utilizes the Renesas R-Car V3M SoC. This system-on-chip (SoC) provides adequate performance for most users' post-processing, object detection, and classification requirements. The kit includes an ethernet port and HDMI interface for data output.

The RAA2L6060KIT includes a Graphical User Interface (GUI) and firmware/software examples, enabling users to execute lab/system tests and to develop application specific code.
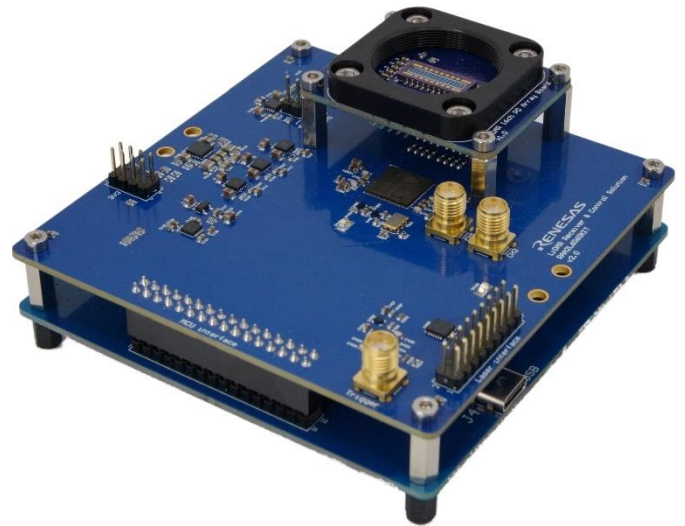
Contents

1. Delivery Package

The RAA2L6060KIT contains the following hardware needed for initial lab evaluation and application tests:

- Evaluation Board Stack based on three PCBs
  - RAA2L6060 LiDAR IC board with supporting components
  - R-Car V3M SoC board with supporting components
  - 32 Channel PIN Photo-Array with lense mounting socket
- USB-C cable for power supply and firmware updates/development
- USB-to-Ethernet adapter and Ethernet cable for data transmission to a PC
- Graphical User Interface (GUI) to be executed on a Windows PC

Additional components may be required for specific customer applications (not included in the kit):

- 5V Power Supply (USB-C or 5mm connector), current rating ≥2.0 A
- Light Emitter / Laser to stimulate the Time-of-Flight measurement
- Optical lens for the Photo-Array

2. Hardware Description

The hardware kit includes essential components such as the RAA2L6060 LiDAR IC board for system control and data acquisition, the R-Car V3M SoC board, which provides advanced processing capabilities, and a 16-Channel PIN Photo-Array with a lens mounting socket for precise optical measurements. It also comes with a USB-C cable for power supply and SoC programming, along with an Ethernet cable and Ethernet-to-USB adapter for seamless data transmission to a PC. Additional optional accessories can further enhance the functionality of your specific applications.
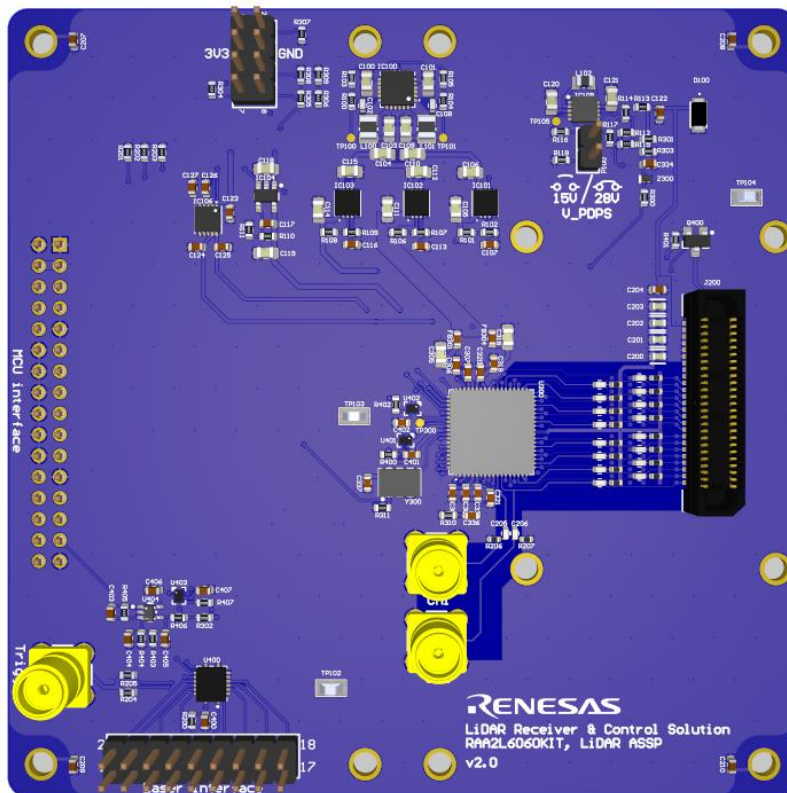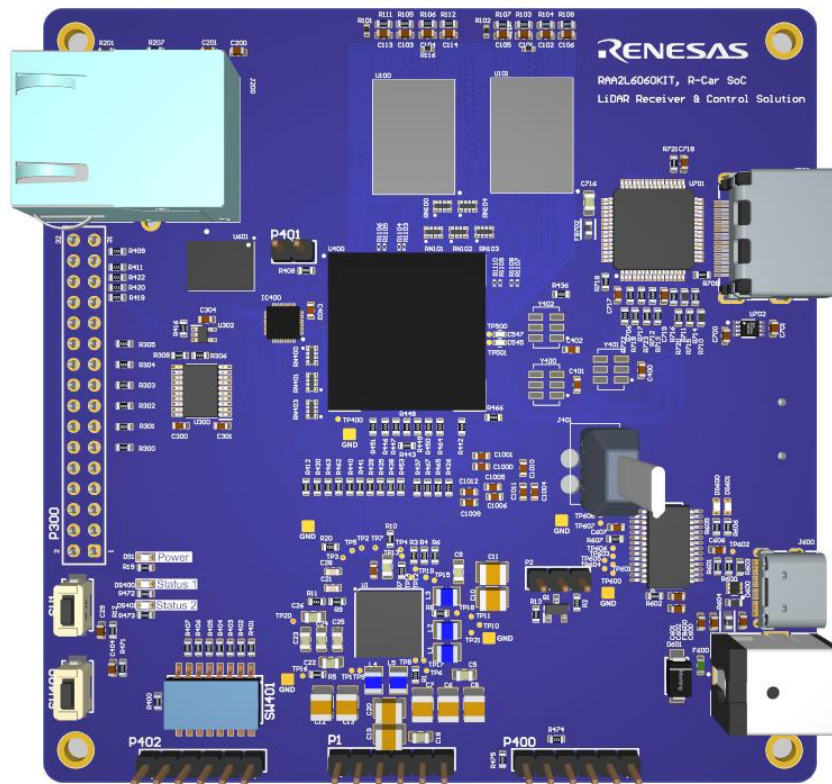

Figure 1: RAA2L6060 LiDAR IC Board

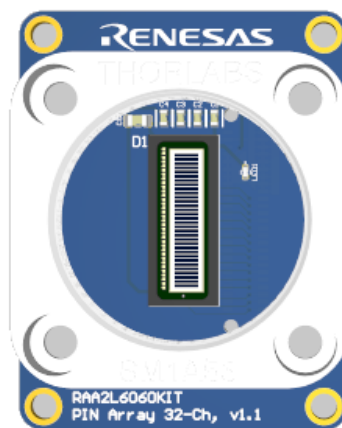**Figure 2: R-Car V3M SoC Board**

Figure 3: 32-Channel PIN Photo-Array Board

3. Graphical User Interface (GUI) Description

The Graphical User Interface (GUI) for the RAA2L6060 kit provides an intuitive platform for configuring and monitoring the system. It requires a PC with Microsoft Windows for installation and two free USB port for operation, ensuring seamless interaction with the hardware components.
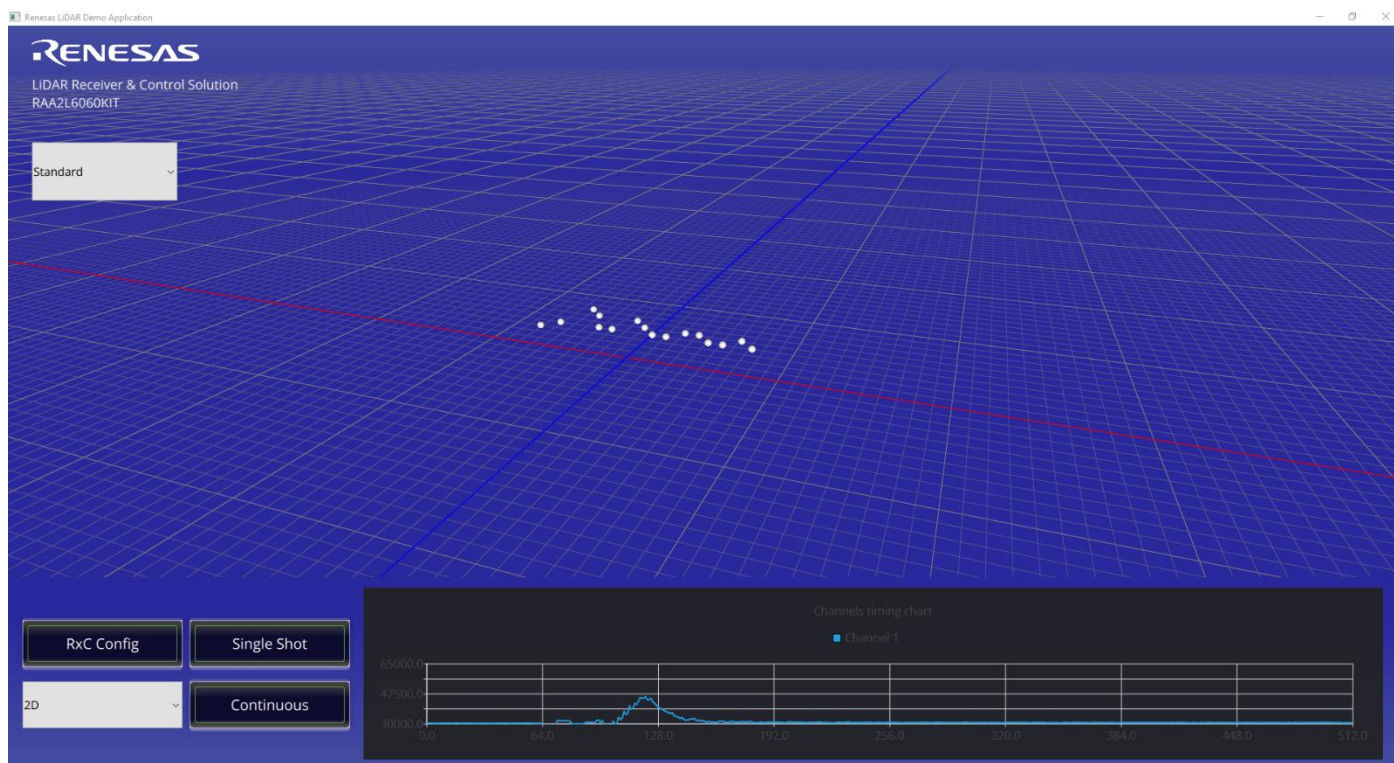

Figure 4: 1GUI Starting Page

4. Collaterals

Application development support documents are available on request.

5. Ordering Information

Orderable Part Number	Description
RAA2L6060KIT	RAA2L6060 LiDAR Receiver & Control Solution Starter Kit