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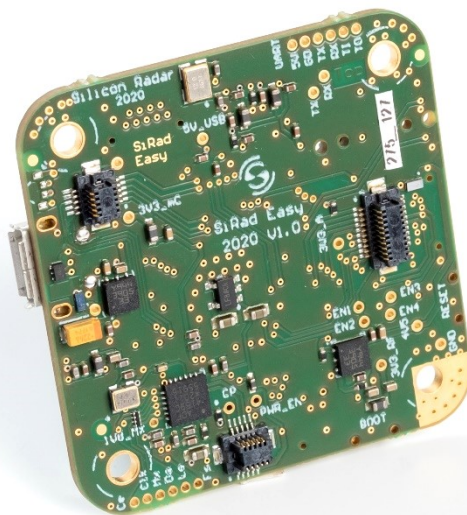


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Product Sheet

SiRad Easy r4 Base Board*



*Available as SiRad_Easy_r4_Base_Board+ (including Micro-B to Type-A USB cable).

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Version Control

Version	Changed section	Description of change	Reason for change
1.0	all		Initial document
1.1	1, 2	Few changes	Minor corrections

Table of Contents

1	Overview	3
1.1	Hardware.....	3
1.2	Software.....	3
1.3	System Compatibility	3
2	Specifications	4
3	Mechanical Drawing.....	4
4	Pinout Description.....	5
5	Modular System	5

1 Overview

1.1 Hardware

- ARM Cortex-M7 microcontroller
- Pluggable front end boards from 24 GHz up to 300 GHz
- 40 mm x 40 mm PCB with 4 x M2.5 screw holes (pluggable front ends may be bigger)
- Power and data over micro-B USB to virtual COM port on PC
- UART over optional 1.27 mm pitch standard pin header
- 3 x RFE Board connectors mounted (P1, P2, P3)
- 3 x Breakout Board connectors mounted (PX1, PX2, PX3)
- Reset and flash buttons

Required: Micro-B to Type-A USB cable, part number [GC 2510-MB02](#) by GE, included in the package with SiRad_Easy_r4_Base_Board+.

Required: SiRad Easy® r4 RFE board, e.g. [SiRad Easy® r4 RFE Board TRA_120_002](#).

1.2 Software

- Graphical user interface (GUI) for setup and data display
- Embedded signal processing, hardware accelerated by ARM Cortex-M7
- Continuous Wave (CW) or Frequency-Modulated Continuous Wave (FMCW) mode
- Individual fixed frequencies (CW) or saw tooth ramping (FMCW)
- Single ramps or ramp groups of 2 up to 128 ramps
- Sample frequency from 0.059 MS/s up to 2.571 MS/s
- Number of acquired ADC samples from 32 to 2048
- Number of FFT points from 32 to 2048 points
- Different standard CFAR detectors and target list for up to 16 targets
- Optional DC cancellation, modified Blackman-Harris windowing, fixed FIR filter, variable down sampling, FFT averaging over up to 3 target results

1.3 System Compatibility

PC:

- Microsoft Windows 10
- 1 free USB port, 2 free USB ports when debugging
- Active USB Hub between PC and SiRad Easy® r4 is recommended (≥ 1000 mA)

Alternative devices:

- Supports 230k / 1Mbaud UART speed
- Enables implementation of SiRad Easy® r4 custom protocol in any programming language
- Power supply 5 V, ≥ 1000 mA recommended

2 Specifications

Parameter	Value
Size	40 mm x 40 mm x 11 mm (with debug connector mounted)
Weight	8.5 g (with debug connector mounted)
Power Supply	Provided by either <ul style="list-style-type: none"> • USB port (active USB Hub with ≥ 1000 mA max. current supply is recommended between PC and SiRad Easy® r4) • 5 V / GND on pin header port (UART), ≥ 1000 mA max. current recommended • SiRad Easy® r4 Breakout Board
Interfaces	1 x Micro-B to Type-A USB to virtual COM port 3 x RFE Board connectors mounted (P1, P2, P3) <ul style="list-style-type: none"> • 2 x signal I/O port (10 pins), BTB connector (0.5 mm pitch) • 1 x signal I/O port (20 pins), BTB connector (0.5 mm pitch) 3 x Breakout Board connectors mounted (PX1, PX2, PX3) <ul style="list-style-type: none"> • 1 x signal I/O port (10 pins), BTB connector (0.5 mm pitch) • 2 x signal I/O port (20 pins), BTB connector (0.5 mm pitch) 1 x Power, UART + trigger I/O port (6 pins, 1.27 mm pitch), pin header bar mountable <ul style="list-style-type: none"> • 5V, GD, TX, RX, TI (Trigger In), TO (Trigger Out) • 230400 baud / 1 Mbaud communication speed • 8 bit, 1 start bit, 1 stop bit, no parity, no flow control 1 x PLL debug port (6 pins, 1.27 mm pitch), pin header bar mountable

3 Mechanical Drawing

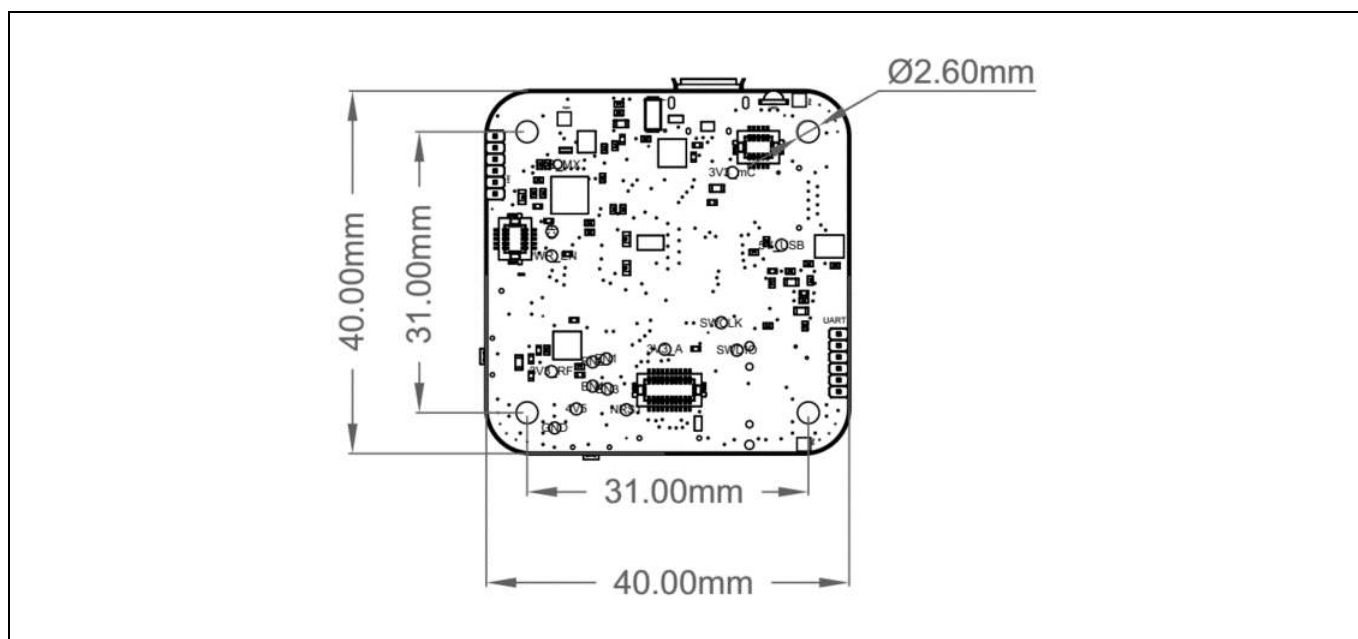


Figure 1 Mechanical Drawing

4 Pinout Description

Below figures show the pinout descriptions of the RFE & Breakout Board connectors, connected test points and header bar pins.

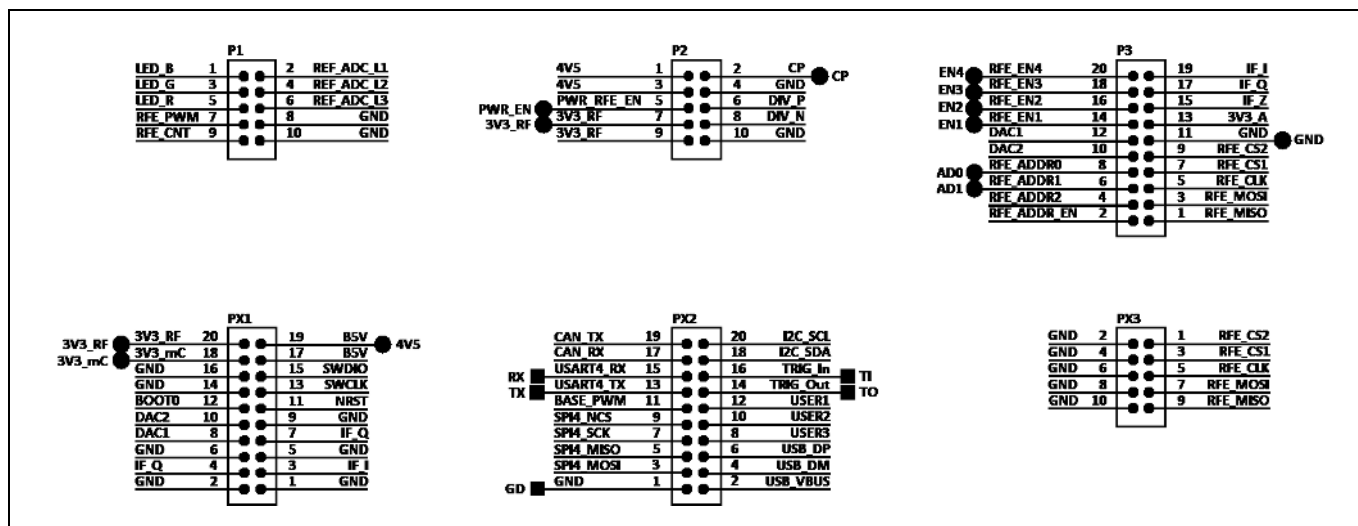


Figure 2 Pinout Description - Version 1.0

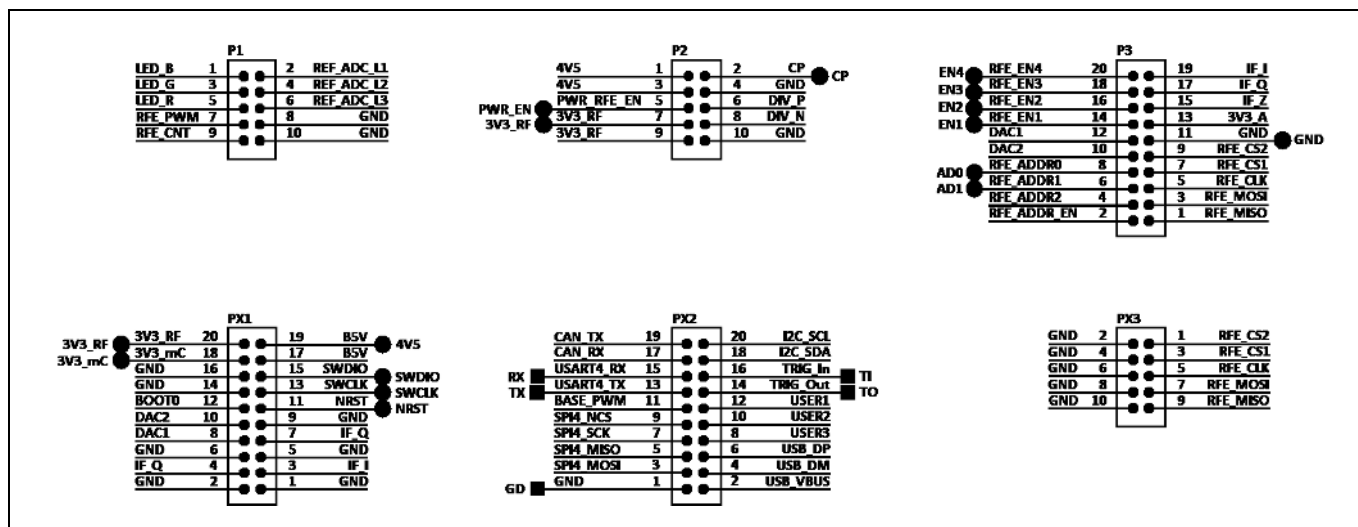


Figure 2 Pinout Description - Version 1.1

5 Modular System

The SiRad Easy® r4 Base Board is part of the [SiRad Easy® r4](#) modular evaluation kit, consisting of Base Board, exchangeable RFE boards covering select radar transceivers of Silicon Radar’s portfolio, Breakout Board and other accessories. A detailed description and compatibility information of related parts can be found under [SiRad Easy® r4 Boards & Accessories](#).