

UG642: SiWN917Y-X Wi-Fi 6 2.4 GHz Bluetooth LE 5.4 4 MB Flash Antenna Co-Processor Module Radio Board User's Guide

The SiWN917Y-X Module Wi-Fi 6 and Bluetooth LE 4 MB Flash RF-Pin Co-processor Radio Board (BRD4357C) is best explored through a EXP Adapter Board for Co-Processor Expansion Kit or a Shield Adapter Board for Co-Processor Expansion Kit.

The EXP Adapter Board for Co-Processor Expansion Kit (Si-EB8045A) includes compatible connectors that supports SPI and SDIO to connect to Silicon Labs EFR32/EFM32 hosts. It also includes an EXP-to-SD Card accessory board to extend compatibility with third-party MCU or MPU host platform's SDIO connection.

The Shield Adapter Board for Co-Processor Expansion Kit (Si-EB8045C) features an Arduino Uno compatible connector that supports SPI to connect with some of the most popular open-source platforms like Arduino or other third-party MCU or MPU host platforms with that interface.

BRD4357C RADIO BOARD FEATURES

- SiWN917Y-X Wireless NCP module with 4 MB Flash (SiWN917Y100LGAXA)
- Co-axial Connector (2.4 GHz band)

ORDERING INFORMATION

- SiWN917Y-RB4357C

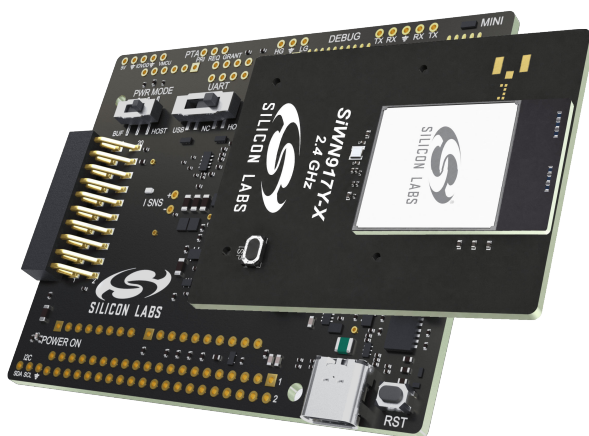


Table of Contents

- 1. Introduction 3**
 - 1.1 Ordering Information 3
 - 1.2 Getting Started. 3
- 2. Hardware Overview 4**
 - 2.1 Hardware Layout 4
 - 2.2 Block Diagram 5
- 3. Connectors 6**
 - 3.1 Radio Board Connector 7
- 4. Kit Configuration and Upgrades 10**
 - 4.1 Firmware Upgrades 10
- 5. Schematics, Assembly Drawings, and BOM 11**
- 6. Kit Revision History 12**
 - 6.1 SiW917Y-RB4357C Revision History 12
- 7. Document Revision History 13**

1. Introduction

The BRD4357C Radio Board can only be plugged in to the BRD8045x adapter board, unlike other radio boards that can be plugged into any mainboard. Through the adapter board, the BRD4357C Radio Board interfaces with external host boards like Silicon Labs EFR32 and EFM32 devices, and popular open-source platforms like Arduino and Raspberry Pi. The adapter board includes several tools for evaluating and developing wireless applications.

Refer to the document [UG569: Adapter Board for Co-Processor Boards User's Guide](#).

1.1 Ordering Information

BRD4357C can be obtained as part of SiW917Y-RB4357C.

Table 1.1. Ordering Information

Part Number	Description	Contents
SiW917Y-RB4357C	SiWN917Y-X Wi-Fi 6 2.4 GHz Bluetooth LE 5.4 4 MB Flash Antenna Co-Processor Module Radio Board	1x BRD4357C Wi-Fi 6 2.4 GHz Bluetooth LE 5.4 4 MB Flash Antenna Co-Processor Module Radio Board

1.2 Getting Started

For detailed instructions on how to get started, see the Silicon Labs Hardware Development Tools page at <https://docs.silabs.com/wisecconnect/latest/wisecconnect-getting-started/getting-started-with-ncp-mode-with-efr32>.

2. Hardware Overview

2.1 Hardware Layout

The layout of the SiWN917Y Wi-Fi 6 and Bluetooth LE 4 MB Flash RF-Pin Co-Processor Module Radio Board (BRD4357C) is shown in the following figure.

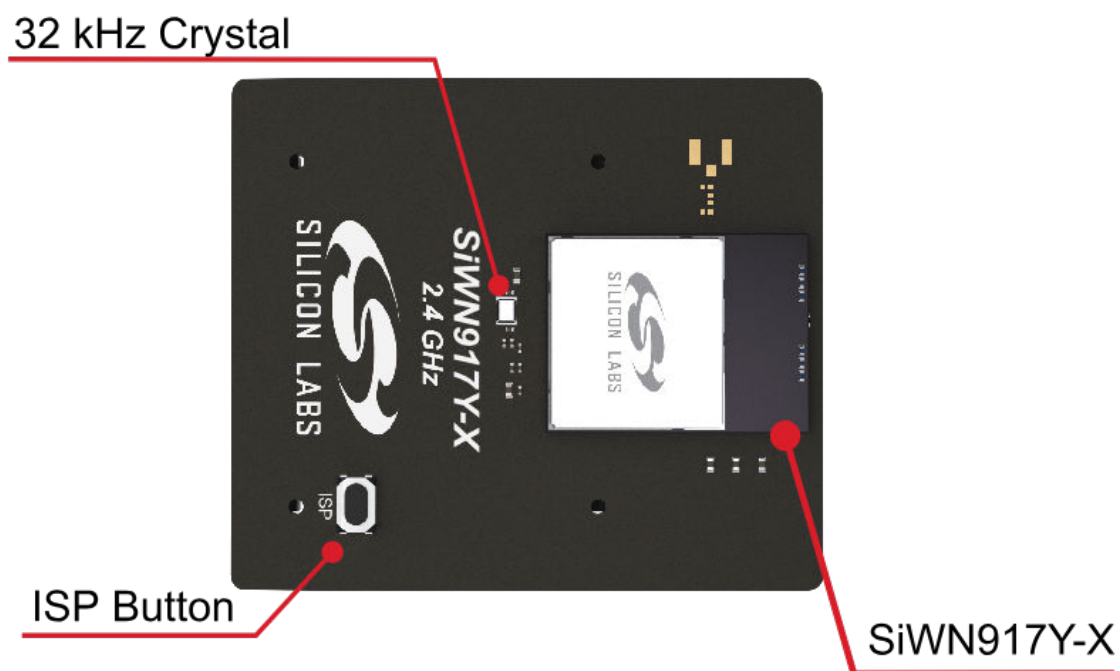


Figure 2.1. Hardware Layout of BRD4357C Radio Board

2.2 Block Diagram

An overview of the SiWN917Y Wi-Fi 6 and Bluetooth LE 4 MB Flash RF-Pin Co-Processor Module Radio Board (BRD4357C) is shown in the following figure.

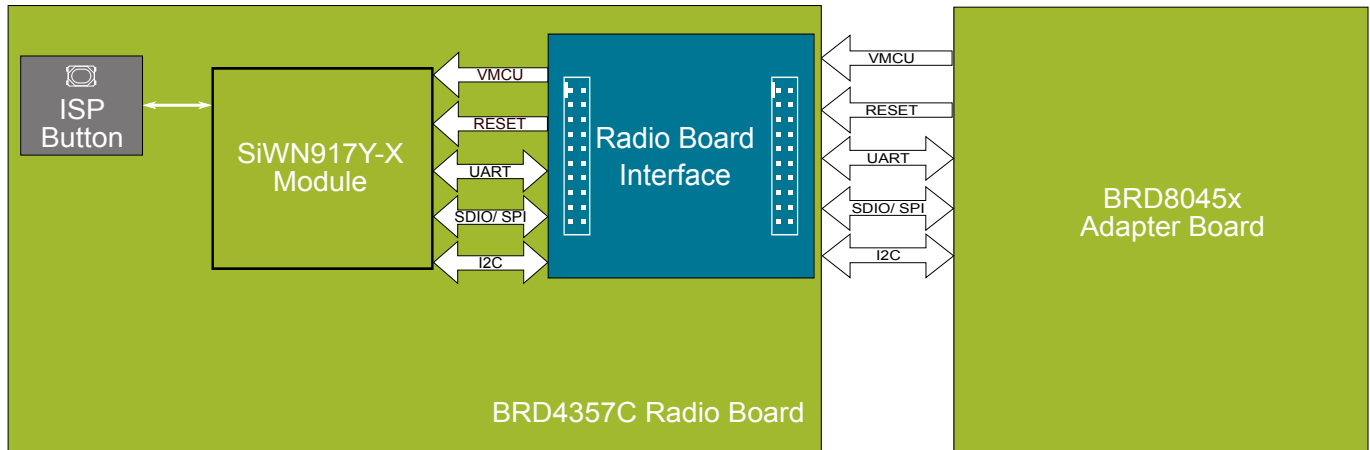


Figure 2.2. Radio Board Block Diagram

3. Connectors

The BRD4357C Radio Board can interface with different host boards through the connectors available on the adapter board (BRD8045x). The three kit variants, each with a different adapter board, are designed to interface with different hosts in different ways.

Refer to the document [UG569: Adapter Board for Co-Processor Boards User's Guide](#) to get an overview of the adapter board connectivity.

3.1 Radio Board Connector

The signals from the SiWN917Y-X are routed to the corresponding peripherals and pins. The table below includes an overview of the adapter board connection with the BRD4357C Radio Board.

Table 3.1. Radio Board Pinout (P200)

Pin	BRD8045A Adapter Board Pinout	BRD8045B Adapter Board Pinout	BRD8045C Adapter Board Pinout	SiWN917Y-X Pinout
1	3V3	3V3	3V3	Board controller supply
3	RADIO_P36	RADIO_P36	RADIO_P36	Optionally connectable to GPIO_26
5	NC	NC	NC	–
7	RADIO_P40	RADIO_P40	RADIO_P40	GPIO_52
9	RADIO_P42	RADIO_P42	RADIO_P42	GPIO_54
11	RADIO_P44	RADIO_P44	RADIO_P44	GPIO_56
13	RADIO_F0	RADIO_F0	RADIO_F0	TMS
15	RADIO_F2	RADIO_F2	RADIO_F2	TDO
17	RADIO_F4	RADIO_F4	RADIO_F4	POC_IN
19	RADIO_F6	RADIO_F6	RADIO_F6	ULP_GPIO_11
21	RADIO_F8	RADIO_F8	RADIO_F8	GPIO_8
23	RADIO_F10	RADIO_F10	RADIO_F10	ULP_GPIO_0
25	RADIO_F12	RADIO_F12	RADIO_F12	UULP_VBAT_GPIO_2
27	RADIO_F14	RADIO_F14	RADIO_F14	UULP_VBAT_GPIO_0
29	RADIO_F16	RADIO_F16	RADIO_F16	ULP_GPIO_1
31	RADIO_F18	RADIO_F18	RADIO_F18	ULP_GPIO_5
33	RADIO_F20	RADIO_F20	RADIO_F20	–
35	NC	NC	NC	–
37	5V	5V	5V	–
39	BOARD_ID_SCL	BOARD_ID_SCL	BOARD_ID_SCL	–
2	GND	GND	GND	–
4	RADIO_P37	RADIO_P37	RADIO_P37	ULP_GPIO_2
6	NC	NC	NC	–
8	RADIO_P41	RADIO_P41	RADIO_P41	GPIO_53
10	RADIO_P43	RADIO_P43	RADIO_P43	GPIO_55
12	RADIO_P45	RADIO_P45	RADIO_P45	GPIO_57
14	RADIO_F1	RADIO_F1	RADIO_F1	TCK
16	RADIO_F3	RADIO_F3	RADIO_F3	TDI
18	NC	NC	NC	–
20	RADIO_F7	RADIO_F7	RADIO_F7	UPL_GPIO_9
22	RADIO_F9	RADIO_F9	RADIO_F9	GPIO_9
24	RADIO_F11	RADIO_F11	RADIO_F11	GPIO_10
26	RADIO_F13	RADIO_F13	RADIO_F13	GPIO_11
28	RADIO_F15	RADIO_F15	RADIO_F15	ULP_GPIO_8
30	RADIO_F17	RADIO_F17	RADIO_F17	ULP_GPIO_4

Pin	BRD8045A Adapter Board Pinout	BRD8045B Adapter Board Pinout	BRD8045C Adapter Board Pinout	SiWN917Y-X Pinout
32	RADIO_F19	RADIO_F19	RADIO_F19	–
34	RADIO_F21	RADIO_F21	RADIO_F21	–
36	NC	NC	NC	–
38	GND	GND	GND	–
40	BOARD_ID_SDA	BOARD_ID_SDA	BOARD_ID_SDA	–

Table 3.2. Radio Board Pinout (P201)

Pin	BRD8045A Adapter Board Pinout	BRD8045B Adapter Board Pinout	BRD8045C Adapter Board Pinout	SiWN917Y-X Pinout
1	GND	GND	GND	–
3	NC	NC	NC	–
5	RADIO_P2	RADIO_P2	RADIO_P2	–
7	RADIO_P4	RADIO_P4	RADIO_P4	–
9	NC	NC	NC	–
11	NC	NC	NC	–
13	RADIO_P10	RADIO_P10	RADIO_P10	–
15	RADIO_P12	RADIO_P12	RADIO_P12	ULP_GPIO_7
17	RADIO_P14	RADIO_P14	RADIO_P14	UULP_VBAT_GPIO_0
19	RADIO_P16	RADIO_P16	RADIO_P16	ULP_GPIO_1
21	RADIO_P18	RADIO_P18	RADIO_P18	ULP_GPIO_5
23	RADIO_P20	RADIO_P20	RADIO_P20	GPIO_7
25	RADIO_P22	RADIO_P22	RADIO_P22	–
27	RADIO_P24	RADIO_P24	RADIO_P24	GPIO_46
29	RADIO_P26	RADIO_P26	RADIO_P26	GPIO_47
31	RADIO_P28	RADIO_P28	RADIO_P28	GPIO_48
33	RADIO_P30	RADIO_P30	RADIO_P30	GPIO_49
35	RADIO_P32	RADIO_P32	RADIO_P32	GPIO_50
37	RADIO_P34	RADIO_P34	RADIO_P34	GPIO_51
39	GND	GND	GND	–
2	VMCU	VMCU	VMCU	–
4	RADIO_P1	RADIO_P1	RADIO_P1	–
6	RADIO_P3	RADIO_P3	RADIO_P3	–
8	RADIO_P5	RADIO_P5	RADIO_P5	–
10	RADIO_P7	RADIO_P7	RADIO_P7	–
12	NC	NC	NC	–
14	NC	NC	NC	–
16	RADIO_P13	RADIO_P13	RADIO_P13	ULP_GPIO_6
18	RADIO_P15	RADIO_P15	RADIO_P15	ULP_GPIO_8
20	RADIO_P17	RADIO_P17	RADIO_P17	ULP_GPIO_4
22	RADIO_P19	RADIO_P19	RADIO_P19	GPIO_6

Pin	BRD8045A Adapter Board Pinout	BRD8045B Adapter Board Pinout	BRD8045C Adapter Board Pinout	SiWN917Y-X Pinout
24	RADIO_P21	RADIO_P21	RADIO_P21	Optionally connectable to GPIO_12
26	RADIO_P23	RADIO_P23	RADIO_P23	Optionally connectable to GPIO_15
28	RADIO_P25 (SiWx_SPI_EXP)	RADIO_P25 (SDIO_RPi/ SiWx_SPI_SHIELD)	RADIO_P25 (SiWx_SPI_SHIELD)	GPIO_25
30	RADIO_P27 (SiWx_SPI_EXP)	RADIO_P27 (SDIO_RPi/ SiWx_SPI_SHIELD)	RADIO_P27 (SiWx_SPI_SHIELD)	GPIO_26
32	RADIO_P29 (SiWx_SPI_EXP)	RADIO_P29 (SDIO_RPi/ SiWx_SPI_SHIELD)	RADIO_P29 (SiWx_SPI_SHIELD)	GPIO_27
34	RADIO_P31 (SiWx_SPI_EXP)	RADIO_P31 (SDIO_RPi/ SiWx_SPI_SHIELD)	RADIO_P31 (SiWx_SPI_SHIELD)	GPIO_28
36	RADIO_P33 (SiWx_SPI_EXP)	RADIO_P33 (SDIO_RPi/ SiWx_SPI_SHIELD)	RADIO_P33 (SiWx_SPI_SHIELD)	GPIO_29
38	RADIO_P35 (SiWx_SPI_EXP)	RADIO_P35 (SDIO_RPi/ SiWx_SPI_SHIELD)	RADIO_P35 (SiWx_SPI_SHIELD)	GPIO_30
40	NC	NC	NC	–

4. Kit Configuration and Upgrades

4.1 Firmware Upgrades

Upgrade the kit firmware through Simplicity Studio. Simplicity Studio automatically checks for new updates on startup.

Detailed instructions to upgrade the SiWN917Y-X Connectivity Firmware can be found on the Silicon Labs web pages: <https://docs.silabs.com/wisconnect/latest/wisconnect-getting-started/getting-started-with-ncp-mode-with-efr32#upgrade-the-si-wx91x-connectivity-firmware>

5. Schematics, Assembly Drawings, and BOM

Schematics, assembly drawings, and Bill of Materials (BOM) are available through Simplicity Studio after the kit documentation package is installed. These resources are also available on the applicable kit pages on the Silicon Labs website at <http://www.silabs.com/dev-tools>.

6. Kit Revision History

The kit revision is printed on the kit packaging label, as shown in the following figure. The revision history given in this section may not list every kit revision. Revisions with minor changes may be omitted.

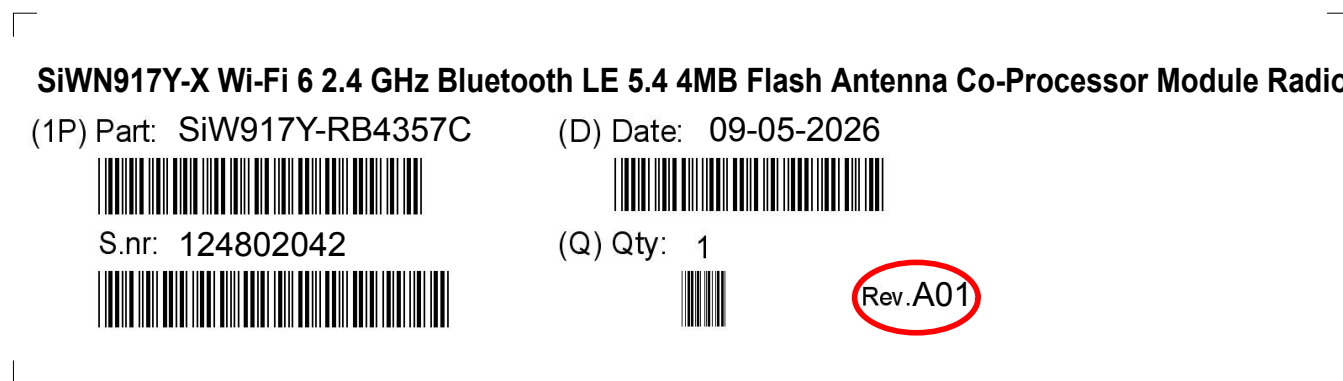


Figure 6.1. Kit Label

6.1 SiW917Y-RB4357C Revision History

Kit Revision	Released	Description
A00	27 May 2026	Initial kit release.

7. Document Revision History

Revision 1.0

July, 2026

- Fixed board number and kit images.
- Fixed 32 kHz crystal on [Figure 2.1. Hardware Layout of BRD4357C Radio Board](#) .
- Fixed typos and rephrased some of the content.
- Updated [Kit Revision History](#).

Revision 0.9

May, 2026

- Preliminary document revision.



The Leading Innovator in Low-Power Wireless.



IoT Portfolio

silabs.com/products



Simplicity Studio

silabs.com/simplicity



Quality

silabs.com/quality



Support & Community

silabs.com/community

Disclaimer

Silicon Labs provides customers with data sheets, application notes and product briefs ("Product Documentation") that are intended to present current, accurate and in-depth information about Silicon Labs' integrated circuits, peripherals, modules and other products ("Products"). Silicon Labs may also provide reference designs, schematics, design files, software, tools, documentation, consultation and other customer support materials ("Support Materials") that are intended solely to assist customers in developing their own modules, boards or other applications or products that include one or more Silicon Labs Products and may not be used for any other purposes.

Characterization data, device specifications, memory sizes, memory addresses and typical parameters can and do vary in different applications and are provided for illustrative purposes only, are subject to change without notice, and should not be relied upon without independent verification. Product firmware may be updated during the manufacturing process for security or reliability purposes.

Product Documentation does not imply or expressly grant any license to design or fabricate integrated circuits or modules. Customers are solely responsible for the design and distribution of their products including the acquisition of licenses to any necessary intellectual property rights.

Product Documentation and Support Materials are not authorized for use in or in connection with FDA Class III devices or military, automotive or aviation applications and shall in no circumstances be used in weapons of mass destruction or systems capable of delivering such weapons.

SILICON LABS DOES NOT WARRANT THAT PRODUCT DOCUMENTATION OR SUPPORT MATERIALS WILL MEET YOUR REQUIREMENT OR THAT THEIR OPERATION WILL BE UNINTERRUPTED OR THAT ANY SOFTWARE WILL BE ERROR-FREE. PRODUCT DOCUMENTATION AND SUPPORT MATERIALS ARE PROVIDED "AS IS" AND "WITH ALL FAULTS." SILICON LABS MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, REGARDING THE ACCURACY, COMPLETENESS, RELIABILITY, OR SUITABILITY OF PRODUCT DOCUMENTATION OR SUPPORT MATERIALS, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT. SILICON LABS DISCLAIMS ALL IMPLIED WARRANTIES.

Trademark Notice

Silicon Laboratories®, Silicon Labs®, Silabs®, and the Silicon Labs S-logo as well as other product or service names used herein are trademarks or registered trademarks of Silicon Laboratories Inc. For more information, please visit: [Silicon Labs Trademark Use Guidelines - Silicon Labs](#). Arm®, Cortex® and Keil® are trademarks or registered trademarks of Arm Holdings or Arm Limited. All other third-party products or brand names mentioned herein are trademarks of their respective holders.