BRD4320A Reference Manual

Wizard Gecko WGM110 Wi-Fi® Module Radio Board Reference Manual

The easy to use Silicon Labs Wizard Gecko WGM110 Wi-Fi Module offers best-in-class size with high RF performance for long range.

WGM110 Module combines an integrated antenna, a high performance Wi-Fi transceiver, an energy efficient 32-bit MCU and a ready to use all inclusive Wi-Fi software and SDK.

A reliable, secure and flexible protocol stack together with the features listed above and the required certifications offer a rapid Time to Market solution. Silicon Labs' BGScript™ scripting language allows standalone application design without the need for an external host CPU.

Silicon Labs offers worldwide application engineering support.

RADIO BOARD FEATURES

- Wi-Fi Module: WGM110
  - 802.11b/g/n compliant
  - TX power: +16 dBm
  - RX sensitivity: -98 dBm
  - CPU core: 32-bit ARM® Cortex-M3
  - Flash memory: 1 MB
  - RAM: 128 kB
- microSD card slot
- USB 2.0 micro-B connector (Device Mode support)
- Modular certification
  - FCC
  - IC
  - Japan
  - Korea
- CE compliant
- Fully plug-in compatible with Silicon Labs Wireless Starter Kit Mainboard (BRD4001A)

1. BRD4320A Radio Board Description

The BRD4320A Radio Board contains the Wizard Gecko WGM110 Wi-Fi Module soldered onto a carrier board with two connectors. The connectors on the carrier board are used for attaching the BRD4320A on to a Silicon Labs Wireless Starter Kit Mainboard BRD4001A and together these two boards and the software in the WGM110 Module make up the Wizard Gecko Wi-Fi Module Wireless Starter Kit.

2. Radio Board Key Features

The key features of the Wizard Gecko WGM110 Wi-Fi Module are listed below.

Key features

- Wizard Gecko WGM110 Wi-Fi Module
- USB connector for:
  - USB data connection
  - Stand-alone powering
- microSD card slot:
  - File system: FAT 16 or FAT 32
  - Supported memory size: max. 32 GB
  - Supported memory card types: microSD or microSDHC

3. BRD4320A Connector

The board-to-board connector scheme allows access to all Wizard Gecko WGM110 Wi-Fi Module GPIO pins as well as to the RESET signal. For more information on the functionalities of the available pins please see the *WGM110 Wi-Fi Module Data Sheet*.

3.1 BRD4320A Connector Pin Associations

The figure below shows the pin mapping on the connector to the Module pins and their corresponding function on the Wireless Starter Kit Mainboard.

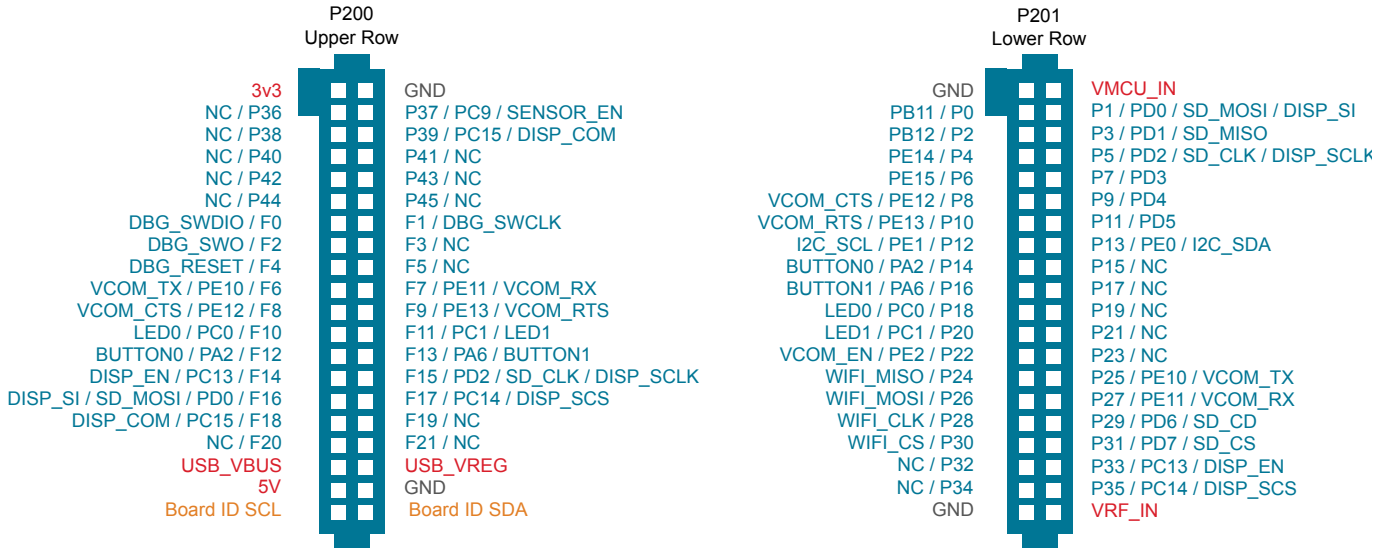

Figure 3.1. Simplicity Connector

3.2 BRD4320A Connector Type

BRD4320A contains two dual-row, female socket, 0.05" pitch polarized connectors (P/N: SFC-120-T2-L-D-A-K-TR) which provide the interface to the Wireless Starter Kit Mainboard. The Mainboard has the corresponding male header pin connectors (P/N: TFC-120-02-F-D-LC-ND).

4. MicroSD Card Slot

BRD4320A contains a microSD card slot which is connected to the Wizard Gecko WGM110 Wi-Fi Module. It enables testing of SW applications utilizing a microSD or microSDHC card. The memory card can be accessed from the host processor using BGAPI commands, BGScript commands or by using the internal HTTP Server of the Module.

Note: The microSD card slot is located on the bottom side of the BRD4320A Radio Board. To install a microSD or microSDHC card remove the Radio Board from the WSTK Mainboard and push the microSD or microSDHC card into the card slot with the metal contacts of the memory card facing towards the PCB and attach the Radio Board back into WSTK Mainboard connectors.

CHARACTERISTICS

Supported file systems: FAT 16 and FAT 32

Maximum memory size: 32 GB.

Supported memory card types: microSD and microSDHC.

Programming related information

The microSD card slot is connected to **USART1 Location 1** of the WGM110 Module and the **Chip Select** to **Port D Bit 7**.

GPIO pinout, interfaces and alternative locations are described in the *WGM110 Wi-Fi Module Data Sheet*, hardware configuration in the *UG161: WGM110 Wi-Fi Module Configuration User's Guide* and related commands in detail in the *WGM110 API Reference Manual*.

The connection between the microSD card slot and the WGM110 Module are shown below:

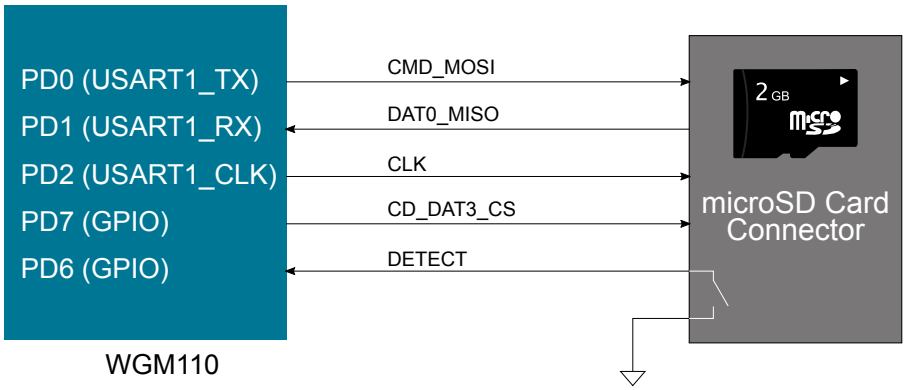

Figure 4.1. Connection between Radio Board microSD Card Slot and WGM110 Module

5. USB Connector

BRD4320A contains a micro USB connector which is connected directly to the Wizard Gecko WGM110 Wi-Fi Module's USB port. This USB connector may be used in SW application tests as an interface between the Module and external devices such as a PC and/or simply to provide power to the Module. This is a useful feature since it allows the Module to be powered externally while the WSTK main board can be switched completely off.

The radio board contains a voltage regulator and a transisor switch that automatically connects the regulated supply to the module power supply. The power select slide switch on the WSTK Mainboard should be set to *USB* or *BAT* to avoid conflict with the Mainboard power supply when using the USB connector.

Note: Software configuration details for using the USB connector of the Radio Board are described in the *"UG161: WGM110 Wi-Fi Module Configuration User's Guide"*.

CHARACTERISTICS

Supported USB standards: USB Full Speed

USB connector type: micro USB (female)

Maximum data transfer speed: 12 Mb/s.

The connection between the USB connector and the WGM110 Module are shown below:

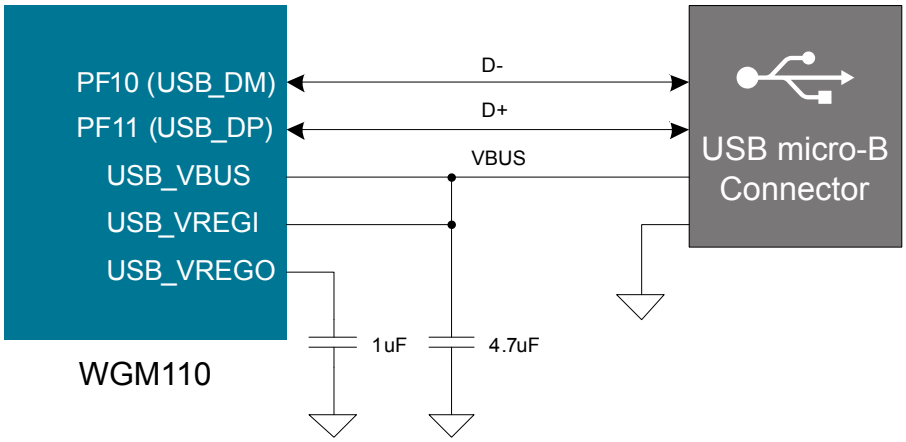

Figure 5.1. Connection between the Radio Board USB Connector and WGM110 Module

6. Mechanical Details

The Wizard Gecko WGM110 Wi-Fi Module Radio Board is illustrated in the figures below.

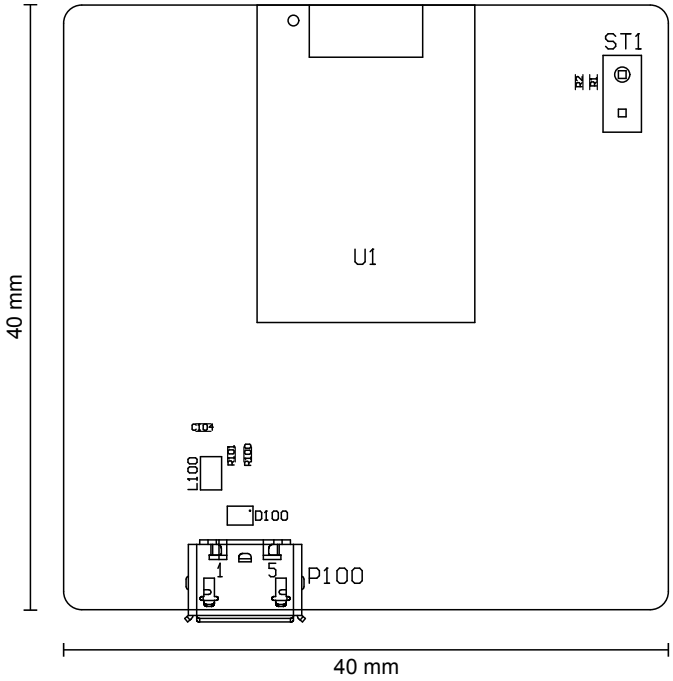

Figure 6.1. BRD4320A Top View

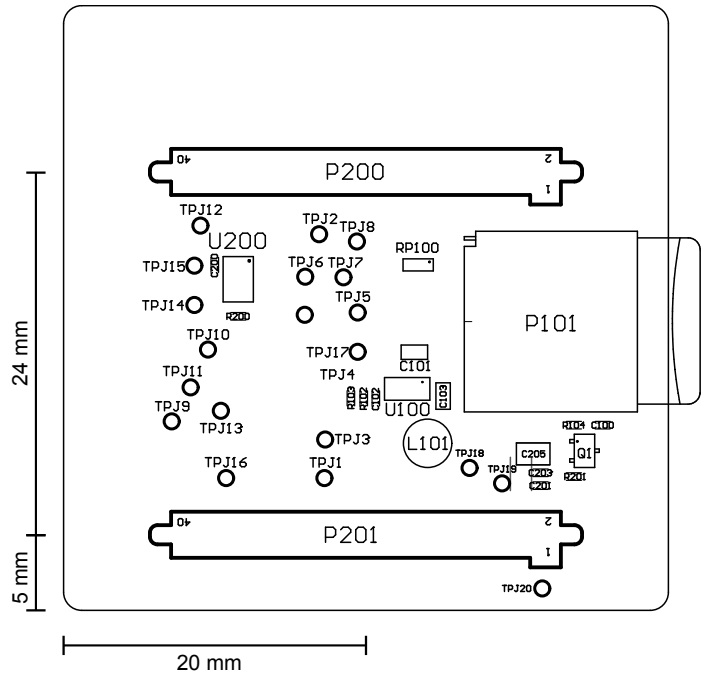

Figure 6.2. BRD4320A Bottom View

7. Radio Board Revision History and Errata

7.1 Revision History

The kit revision can be found printed on the back side of the Radio Board.

Table 7.1. Radio Board Revision History

Kit Revision	Released	Description
A01	22.02.2016	Initial kit release.

7.2 Errata

There are no known errata at present.

8. Document Revision History

Revision 1.01

2016-05-23

Full production release with Module certifications.

Revision 1.00

2016-02-22

Initial document release.

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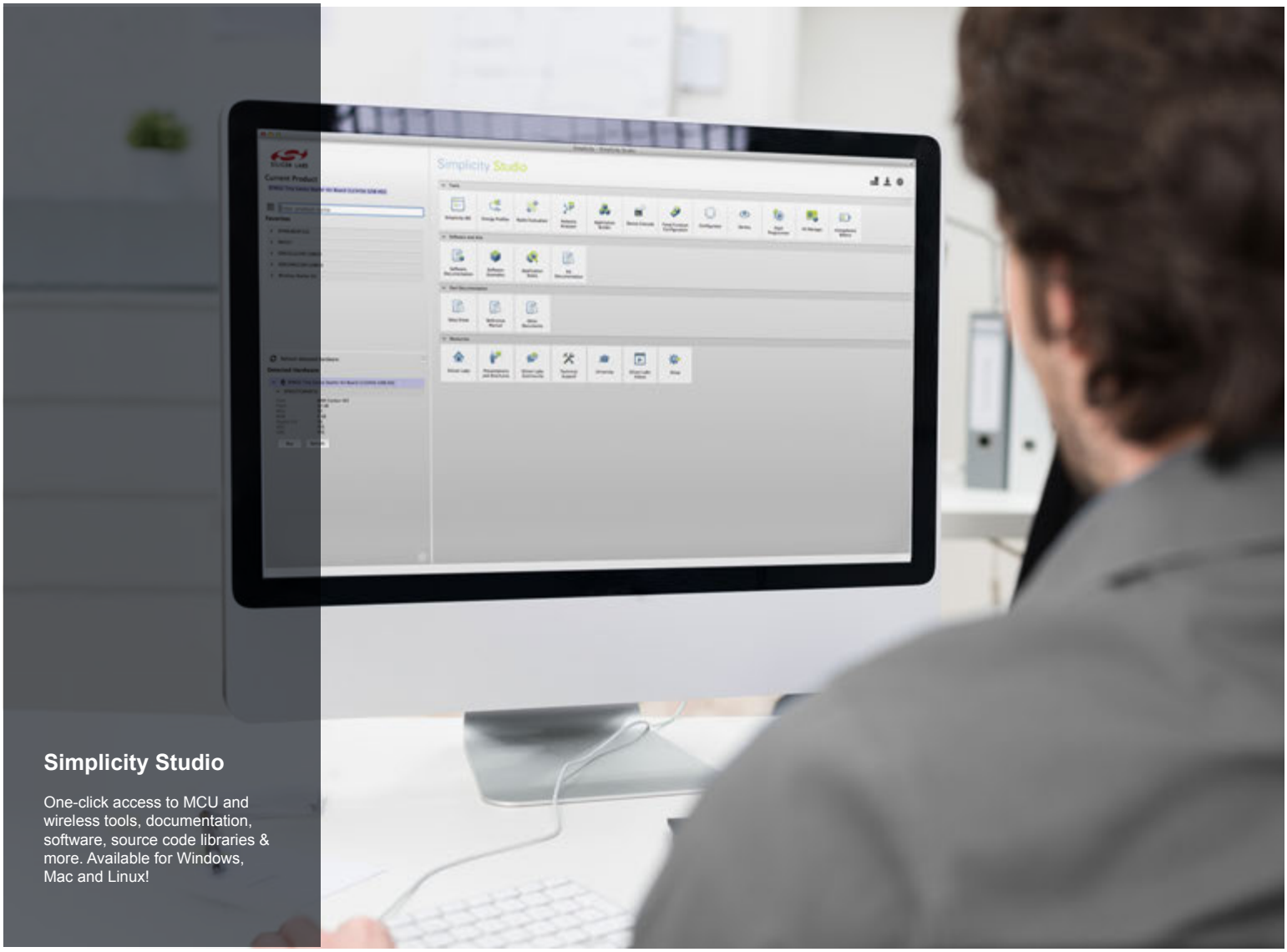

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