

# **Bluetooth EZ-Extender® Manual**

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## Regulatory Compliance

The Bluetooth EZ-Extender is designed to be used solely in a laboratory environment. The board is not intended for use as a consumer end product or as a portion of a consumer end product. The board is an open system design which does not include a shielded enclosure and therefore may cause interference to other electrical devices in close proximity. This board should not be used in or near any medical equipment or RF devices.

The Bluetooth EZ-Extender is currently being processed for certification that it complies with the essential requirements of the European EMC directive 89/336/EEC amended by 93/68/EEC and therefore carries the “CE” mark.



The Bluetooth EZ-Extender contains ESD (electrostatic discharge) sensitive devices. Electrostatic charges readily accumulate on the human body and equipment and can discharge without detection. Permanent damage may occur on devices subjected to high-energy discharges. Proper ESD precautions are recommended to avoid performance degradation or loss of functionality. Store unused extender boards in the protective shipping package.





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## Contents



# PREFACE

Thank you for purchasing the Bluetooth EZ-Extender<sup>®</sup>, Analog Devices, Inc. daughter board to a Blackfin<sup>®</sup> evaluation system with the new expansion interface II (such as the ADSP-BF518F EZ-Board<sup>®</sup>) or the older STAMP interface (such as the ADSP-BF537 EZ-KIT Lite<sup>®</sup>).

Blackfin processors are embedded processors that support a Media Instruction Set Computing (MISC) architecture. This architecture is the natural merging of RISC, media functions, and digital signal processing characteristics towards delivering signal processing performance in a microprocessor-like environment.

The Bluetooth EZ-Extender is designed to be used in conjunction with an EZ-KIT Lite or an EZ-Board running the open source Linux operating system (OS). For more information about running Linux OS on a Blackfin processor, go to <http://blackfin.uclinux.org/gf/>.

## Product Overview

The Bluetooth EZ-Extender is a separately sold daughter board that plugs onto an EZ-KIT Lite supporting the STAMP interface or an EZ-Board/EZ-Kit Lite supporting the expansion interface II connector. The extender board isolates the low-level configuration and communication tasks of integrating Bluetooth and radio frequency (RF) wireless technologies in your Blackfin board designs.

Please visit [www.analog.com/EX2-Bluetooth](http://www.analog.com/EX2-Bluetooth) for additional information, including CCES support.

## Product Overview

The board extends the capabilities of the Blackfin evaluation system by providing a connection to the Bluegiga WT12 Bluetooth module.

The board features:

- Bluegiga WT12 Bluetooth module
  - Bluetooth radio antenna
  - Fully implemented protocol stack
  - HCI and iWRAP firmware
- USB interface
  - Full speed USB interface for communicating with other compatible digital devices. The WT12 module acts as a USB peripheral.
- UART interface
  - Standard UART interface for communicating with other serial devices
  - Supports hardware flow control
- Expansion interface
  - Allows other EZ-Extenders to be stacked

All of the power necessary to operate the extender is derived from the mating EZ-KIT Lite/EZ-Board. Before using any of the interfaces, follow the setup procedure in [“Bluetooth EZ-Extender Setup”](#) on page 1-3.

## Purpose of This Manual

The *Bluetooth EZ-Extender Manual* describes operation and configuration of the extender board components. A schematic and a bill of materials are provided for reference.

## Intended Audience

The primary audience for this manual is a programmer who is familiar with Analog Devices processors. This manual assumes that the audience has a working knowledge of the appropriate processor architecture and instruction set.

Programmers who are unfamiliar with Analog Devices processors can use this manual but should supplement it with other texts that describe your target architecture. For the locations of these documents, see [“Related Documents”](#).

Programmers who are unfamiliar with CrossCore Embedded Studio<sup>®</sup> (CCES) or VisualDSP++<sup>®</sup> should refer to the online help and user’s manuals.

## Manual Contents

The manual consists of:

- Chapter 1, [“Using the Bluetooth EZ-Extender”](#) on page 1-1  
Provides basic board information.
- Chapter 2, [“Bluetooth EZ-Extender Hardware Reference”](#) on page 2-1  
Provides information about the hardware aspects of the board.

## What's New in This Manual

- Appendix A, “[Bluetooth EZ-Extender Bill Of Materials](#)” on [page A-1](#)  
Provides a list of components used to manufacture the board.
- Appendix B, “[Bluetooth EZ-Extender Schematic](#)” on [page B-1](#)  
Provides the resources to allow board-level debugging or to use as a reference guide.

## What's New in This Manual

This is revision 1.1 of the *Bluetooth EZ-Extender Manual*. The manual has been updated to include CCES information. In addition, modifications and corrections based on errata reports against the previous manual revision have been made.

For the latest version of this manual, please refer to the Analog Devices Web site.

## Technical Support

You can reach Analog Devices processors and DSP technical support in the following ways:

- Post your questions in the processors and DSP support community at EngineerZone<sup>®</sup>:  
<http://ez.analog.com/community/dsp>
- Submit your questions to technical support directly at:  
<http://www.analog.com/support>

- E-mail your questions about processors, DSPs, and tools development software from **CrossCore Embedded Studio** or **VisualDSP++**:

Choose **Help > Email Support**. This creates an e-mail to [processor.tools.support@analog.com](mailto:processor.tools.support@analog.com) and automatically attaches your **CrossCore Embedded Studio** or **VisualDSP++** version information and `license.dat` file.

- E-mail your questions about processors and processor applications to:  
[processor.support@analog.com](mailto:processor.support@analog.com) or  
[processor.china@analog.com](mailto:processor.china@analog.com) (Greater China support)
- In the **USA only**, call **1-800-ANALOGD** (1-800-262-5643)
- Contact your Analog Devices sales office or authorized distributor. Locate one at:  
[www.analog.com/adi-sales](http://www.analog.com/adi-sales)
- Send questions by mail to:  
Processors and DSP Technical Support  
Analog Devices, Inc.  
Three Technology Way  
P.O. Box 9106  
Norwood, MA 02062-9106  
USA

## Supported Products

The Bluetooth EZ-Extender is designed as an extender board to the ADSP-BF518F and ADSP-BF526 EZ-Board evaluation systems. The extender also is compatible with the Blackfin evaluation systems featuring the STAMP interface, such as the ADSP-BF548 and ADSP-BF527 EZ-KIT Lites.

## Product Information

# Product Information

Product information can be obtained from the Analog Devices Web site and the online help.

## Analog Devices Web Site

The Analog Devices Web site, [www.analog.com](http://www.analog.com), provides information about a broad range of products—analogue integrated circuits, amplifiers, converters, and digital signal processors.

To access a complete technical library for each processor family, go to [http://www.analog.com/processors/technical\\_library](http://www.analog.com/processors/technical_library). The manuals selection opens a list of current manuals related to the product as well as a link to the previous revisions of the manuals. When locating your manual title, note a possible errata check mark next to the title that leads to the current correction report against the manual.

Also note, [MyAnalog](#) is a free feature of the Analog Devices Web site that allows customization of a Web page to display only the latest information about products you are interested in. You can choose to receive weekly e-mail notifications containing updates to the Web pages that meet your interests, including documentation errata against all manuals. [MyAnalog](#) provides access to books, application notes, data sheets, code examples, and more.

Visit [MyAnalog](#) to sign up. If you are a registered user, just log on. Your user name is your e-mail address.

## EngineerZone

EngineerZone is a technical support forum from Analog Devices. It allows you direct access to ADI technical support engineers. You can search FAQs and technical information to get quick answers to your embedded processing and DSP design questions.

Use EngineerZone to connect with other DSP developers who face similar design challenges. You can also use this open forum to share knowledge and collaborate with the ADI support team and your peers. Visit <http://ez.analog.com> to sign up.

## Related Documents

For additional information about the product, refer to the following publications.

Table 1. Related Processor Publications

Title	Description
<ul style="list-style-type: none"> <li>• <i>ADSP-BF512/ADSP-BF514/ADSP-BF516/ADSP-BF518(F) Blackfin Embedded Processor Data Sheet</i></li> <li>• <i>ADSP-BF522/ADSP-BF523/ADSP-BF524/ADSP-BF525/ADSP-BF526/ADSP-BF527 Blackfin Embedded Processor Data Sheet</i></li> <li>• <i>ADSP-BF542/ADSP-BF544/ADSP-BF547/ADSP-BF548/ADSP-BF549 Blackfin Embedded Processor Data Sheet</i></li> </ul>	General functional description, pinout, and timing of the processor
<ul style="list-style-type: none"> <li>• <i>ADSP-BF51x Blackfin Processor Hardware Reference</i></li> <li>• <i>ADSP-BF52x Blackfin Processor Hardware Reference</i></li> <li>• <i>ADSP-BF54x Blackfin Processor Hardware Reference</i></li> </ul>	Description of the internal processor architecture and all register functions
<i>Blackfin Processor Programming Reference</i>	Description of all allowed processor assembly instructions

## Related Documents



# 1 USING THE BLUETOOTH EZ-EXTENDER

This chapter describes the Bluetooth EZ-Extender's package contents, configuration, installation procedure, and interfaces.

The information is presented in the following order.

- [“Package Contents” on page 1-2](#)  
Describes the product's package contents.
- [“Bluetooth EZ-Extender Default Configuration” on page 1-2](#)  
Describes the board's default configuration.
- [“Bluetooth EZ-Extender Setup” on page 1-3](#)  
Provides the board's setup procedure.
- [“Flash Memory Interface” on page 1-4](#)  
Describes the on-board flash memory interface.
- [“UART Interface” on page 1-4](#)  
Describes the on-board UART interface.
- [“Bluetooth Module” on page 1-4](#)  
Describes the on-board Bluetooth interface.
- [“USB Interface” on page 1-5](#)  
Describes the on-board USB interface.

## Package Contents

- [“Expansion Interface” on page 1-5](#)  
Describes the board’s expansion interface.
- [“Example Programs” on page 1-5](#)  
Describes the example programs installed with the board’s software.

For more information about the mating Blackfin processor, see documents referred to as [“Related Documents”](#).

## Package Contents

Your package contains the Bluetooth EZ-Extender.

If anything is missing, contact the vendor where you purchased your Bluetooth EZ-Extender or contact Analog Devices, Inc.

## Bluetooth EZ-Extender Default Configuration

The Bluetooth EZ-Extender contains ESD (electrostatic discharge) sensitive devices. Electrostatic charges readily accumulate on the human body and equipment and can discharge without detection. Permanent damage may occur on devices subjected to high-energy discharges. Proper ESD precautions are recommended to avoid performance degradation or loss of functionality. Store unused extender boards in the protective shipping package.



## Using the Bluetooth EZ-Extender

When removing the Bluetooth EZ-Extender from the package, handle the board carefully to avoid the discharge of static electricity, which can damage some components (see [Figure 1-1](#)).

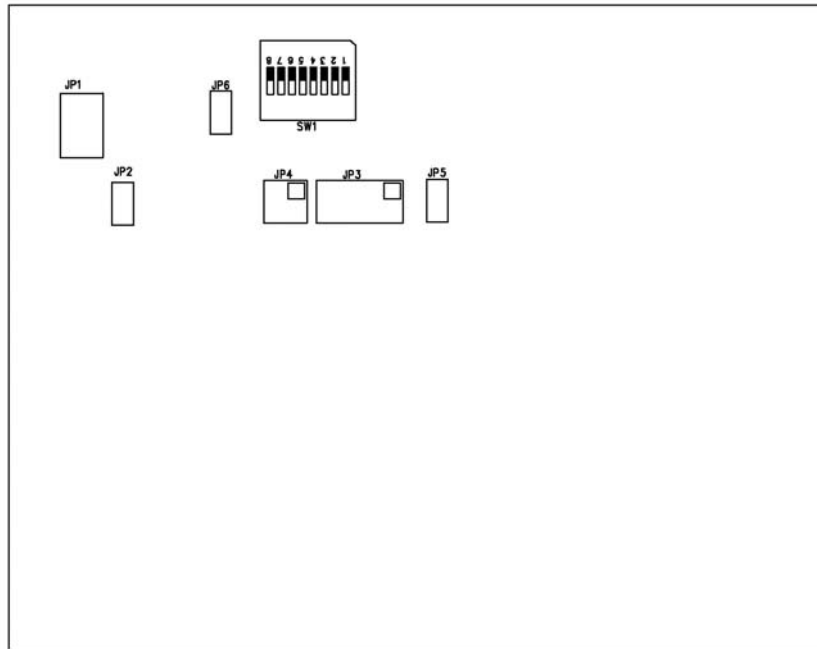


Figure 1-1. Default EZ-Extender Hardware Setup

[Figure 1-1](#) shows the default jumper and switch settings, connector locations, and LED used in installation. Confirm that your board is in the default configuration before using the board.

## Bluetooth EZ-Extender Setup

It is important to set up all components of the system containing the Bluetooth EZ-Extender and then apply power to the system. Power on your system after the Bluetooth EZ-Extender has been connected to the

## Flash Memory Interface

EZ-Board or EZ-KIT Lite. Do not install or remove the Bluetooth EZ-Extender when power is applied to the EZ-Board or EZ-KIT Lite.

## Flash Memory Interface

The Bluetooth EZ-Extender is equipped with an I<sup>2</sup>C serial flash memory chip for data configuration. Flash memory is programmed by the factory. For more information, refer to [“TWI Flash Address Configuration Jumper \(JP1\)” on page 2-6](#) and [“TWI Flash Write Protect Jumper \(JP2\)” on page 2-6](#).

## UART Interface

The UART interface is used for general communication between the processor and WT12 Bluegiga Bluetooth module. The interface has a max baud rate of 3.0 Mbaud. Flow control is supported via SW1. Refer to [“Configuration Switch” on page 2-3](#) for more information.

## Bluetooth Module

The Bluegiga WT12 module is a next-generation, class 2, Bluetooth 2.0 plus EDR module. The WT12 is a highly integrated and sophisticated Bluetooth module, containing all of the necessary elements from Bluetooth radio antenna to a fully implemented protocol stack. Therefore, the WT12 module provides an ideal solution for developers who want to integrate Bluetooth wireless technology into their design with limited knowledge of Bluetooth and RF technologies.

By default, the WT12 module is equipped with powerful and easy-to-use iWRAP firmware. iWRAP enables users to access Bluetooth functionality with simple ASCII commands delivered to the WT12 module over the UART interface.

## Using the Bluetooth EZ-Extender

Besides the iWRAP firmware, the module has an option for other firmware options. Standard Host Command Interface (HCI) firmware is supported – an ideal solution for systems where the host system is capable of running the entire Bluetooth stack and profiles, and the WT12 module is utilized as the physical radio over the UART interface.

## USB Interface

The device operates as a USB peripheral responding to requests from a master host controller, such as a PC. Both the OHCI and UHCI standards are supported. The set of implemented USB endpoints can behave as specified in the USB section of the Bluetooth v 2.0 and EDR specification or, alternatively, can appear as a set of endpoints appropriate to USB audio devices, such as speakers.

## Expansion Interface

Expansion interface connectors on top of the Bluetooth EZ-Extender allow other EZ-Extenders to be mounted on top of the Bluetooth EZ-Extender. The UART interface is not brought up to the expansion interface because the interface is used by the WT12 Bluetooth module. All other signals are passed up to the expansion interface from the mating EZ-KIT Lite or EZ-Board through the Bluetooth EZ-Extender.

## Example Programs

For more information about using the Bluetooth EZ-Extender and running  $\mu$ Clinux on a Blackfin processor, go to

[http://docs.blackfin.uclinux.org/doku.php?id=hw:cards:bluetooth\\_ez-extender](http://docs.blackfin.uclinux.org/doku.php?id=hw:cards:bluetooth_ez-extender).

## Example Programs

## 2 BLUETOOTH EZ-EXTENDER HARDWARE REFERENCE

This chapter describes the hardware design of the Bluetooth EZ-Extender.

The following topics are covered.

- [“System Architecture” on page 2-2](#)  
Describes the daughter board’s configuration and explains how the board components interface with the processor and EZ-Board.
- [“Configuration Switch” on page 2-3](#)  
Shows the location and describes the board’s configuration switch.
- [“Jumpers” on page 2-5](#)  
Shows the location and describes the board’s jumpers.
- [“Power LED” on page 2-7](#)  
Shows the location and describes the board’s power LED.
- [“Connectors” on page 2-8](#)  
Shows the locations, describes, and provides part numbers for the on-board connectors. In addition, the manufacturer and part number information is provided for the mating parts.

## System Architecture

# System Architecture

A block diagram of the Bluetooth EZ-Extender is shown in [Figure 2-1](#).

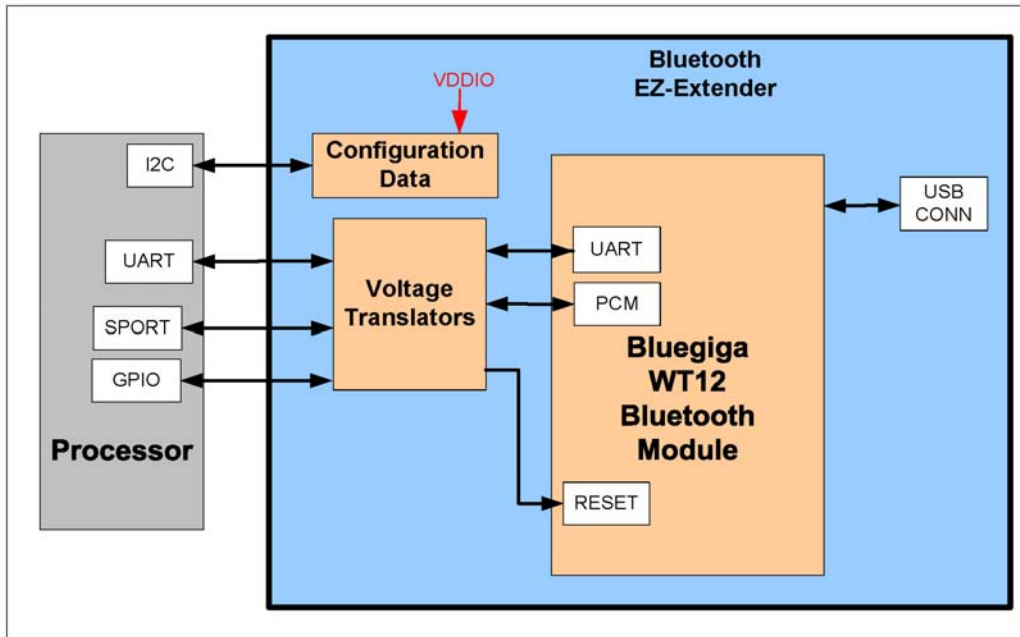


Figure 2-1. Bluetooth EZ-Extender Block Diagram

The block diagram illustrates how the UART, SPORT, and USB ports are interfaced the Bluetooth module and processor on a mating EZ-KIT Lite/EZ-Board. The block diagram is a high-level diagram and does not show the voltage translation circuitry or the clock buffers. The schematic pages are available in [“Bluetooth EZ-Extender Schematic”](#) on page B-1.

The board supports 3.3, 2.5, and 1.8 volt I/O. The on-board voltage translator automatically translates the motherboard signals to the correct voltage levels.



## Bluetooth EZ-Extender Hardware Reference

The board contains a Bluegiga WT12 class 2, a Bluetooth 2.0, and EDR module, described in “[Bluetooth Module](#)” on [page 1-4](#). The EZ-Extender is equipped with an I<sup>2</sup>C serial flash memory chip for data storage and configuration.

### Configuration Switch

This section describes the board’s configuration switch (SW1). The switch location is shown in [Figure 2-2](#).

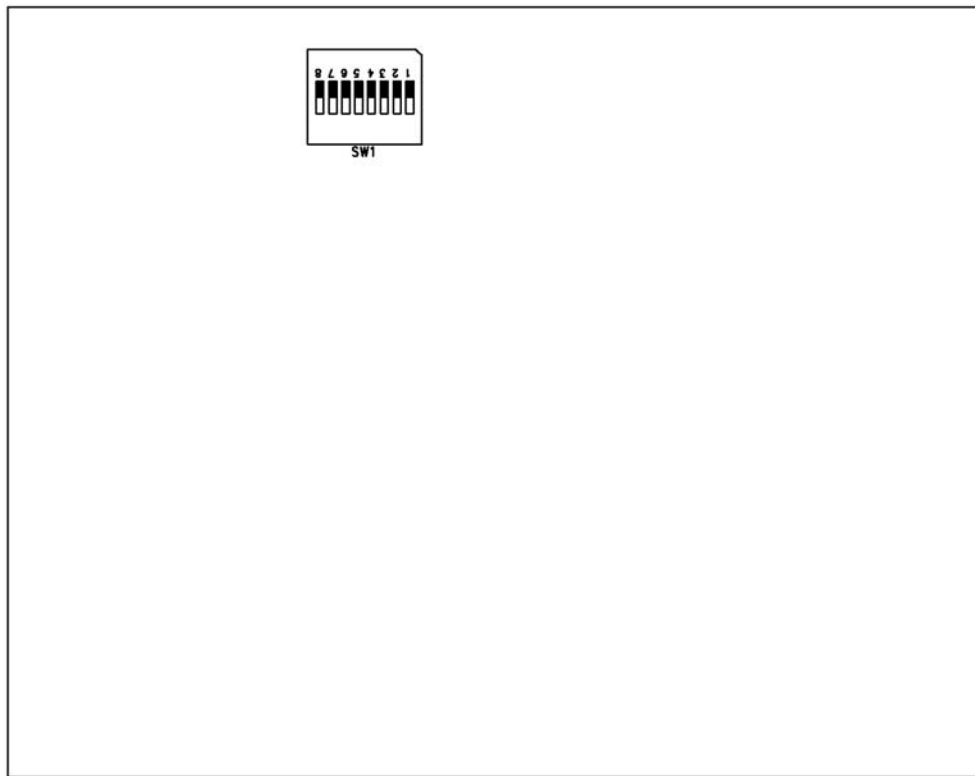


Figure 2-2. Configuration Switch Location

## Configuration Switch

Positions 7 and 8 of the configuration switch enable or disable UART flow control. Other switch positions are intended for internal Analog Devices test purposes only and not supported.

By default, SW1 is all OFF. The switch settings are shown in [Table 2-1](#).

Table 2-1. Configuration Switch (SW1)

SW1 Position	UART Flow Control Off	UART Flow Control On
SW1.1	OFF	OFF
SW1.2	OFF	OFF
SW1.3	OFF	OFF
SW1.4	OFF	OFF
SW1.5	OFF	OFF
SW1.6	OFF	OFF
SW1.7	OFF	ON
SW1.8	OFF	ON

## Jumpers

This section describes functionality of the configuration jumpers. [Figure 2-3](#) shows the jumper locations.

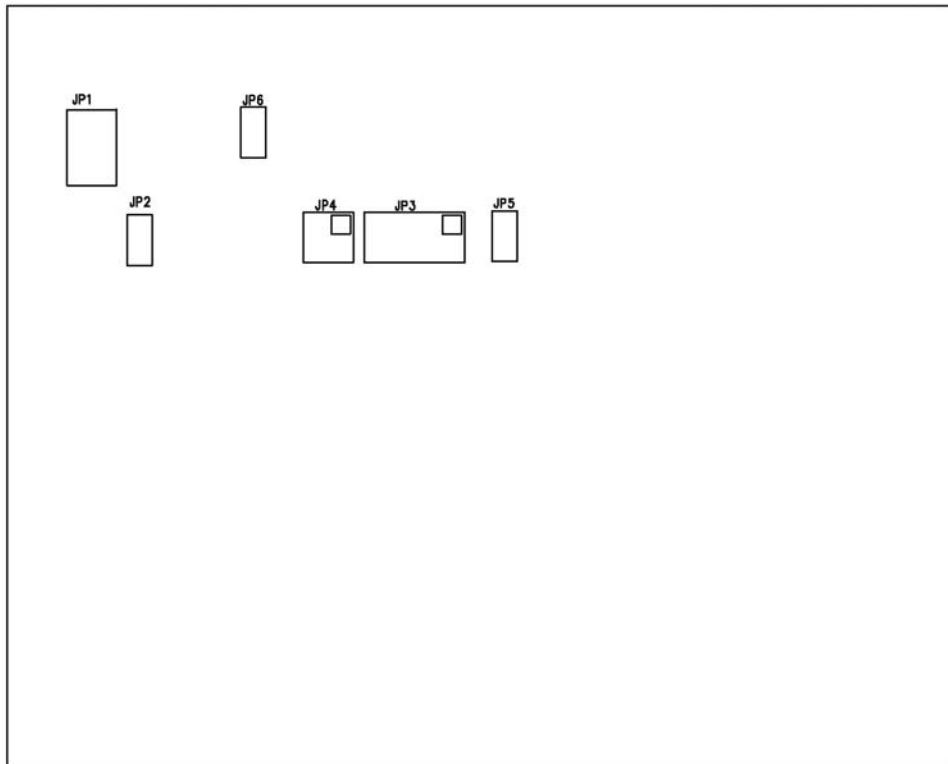


Figure 2-3. Jumper Locations

## Jumpers

### **TWI Flash Address Configuration Jumper (JP1)**

The TWI flash address configuration jumper (JP1) controls the base address of the configuration flash memory. When multiple EZ-Extenders are stacked on top of each other, it may be necessary to change the JP1 setting to avoid any conflict with the configuration flash memory on another EZ-Extender. The default is no jumper installed.

### **TWI Flash Write Protect Jumper (JP2)**

The TWI flash write protect jumper (JP2) is not available; the jumper is intended for internal Analog Devices test purposes only. The default is no jumper installed.

### **Soft Reset Configuration Jumpers (JP3–4)**

The software reset configuration jumpers (JP3–4) determine which GPIO signal is used to perform a soft reset of the Bluegiga WT12 Bluetooth module. The default is no jumpers installed.

### **Bluetooth Module Default Configuration Jumper (JP5)**

The Bluegiga WT12 Bluetooth module default configuration jumper (JP5) resets the module's settings to the default values. This feature requires software support; refer to the example programs for more information. The default is no jumper installed.

### **UART Receive Data Jumper (JP6)**

The UART receive data jumper (JP6) is not available; the jumper is intended for internal Analog Devices test purposes only. The default is no jumper installed.

## Power LED

This section describes the power LED (LED1). When LED1 is lit up, it indicates that the board is powered. [Figure 2-4](#) shows the LED location.

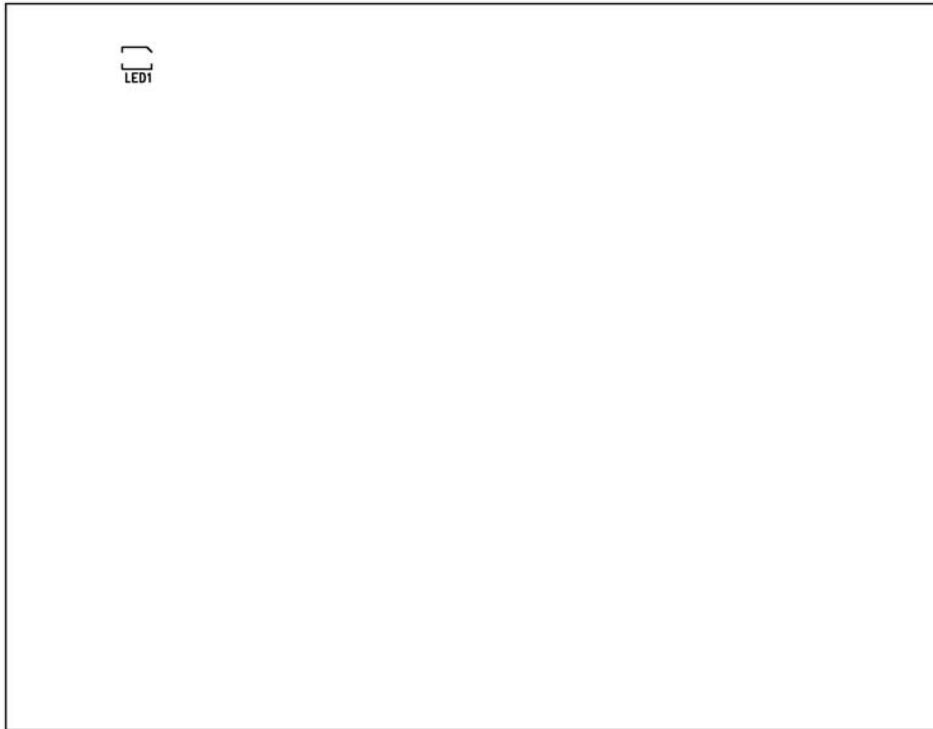


Figure 2-4. Power LED Location

## Connectors

# Connectors

This section describes connector functionality and provides information about mating connectors. The connector locations are shown in [Figure 2-5](#). Dashed lines indicate connectors on the bottom side of the board.

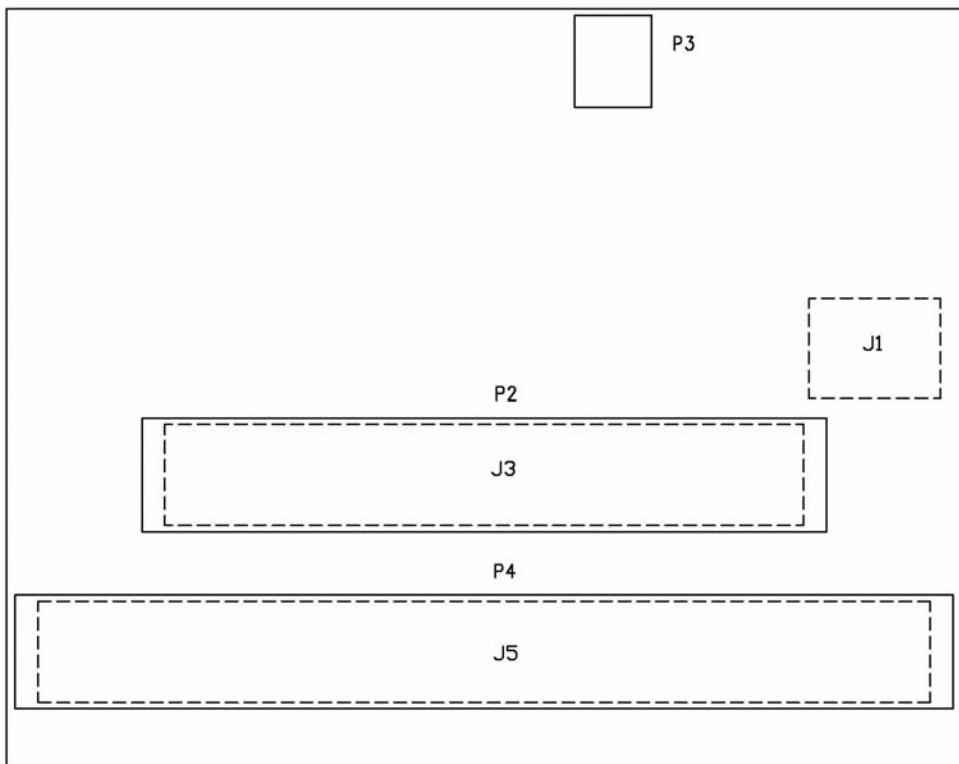


Figure 2-5. Connector Locations

## Bluetooth EZ-Extender Hardware Reference

### STAMP UART Connector (J1)

The STAMP UART connector (J1) allows the Bluetooth EZ-Extender to be plugged onto an EZ-KIT Lite development board supporting a STAMP interface. The J1 connector is located on the bottom side of the board. For availability and pricing of the connectors, contact Samtec.

Refer to [“Expansion Interface” on page 1-5](#) or more information.

Part Description	Manufacturer	Part Number
10-position 0.1”, SMT socket	SAMTEC	SSW-105-22-F-D-VS
<b>Mating Connector</b>		
10-position 0.1”, SMT header	SAMTEC TSSH	TSSH-105-01-L-DV-A

### Expansion Interface II Connector (J3)

The board-to-board connector (J3) provides signals for the SPI, TWI, UART, SPORT interfaces and general-purpose I/O (GPIO) signals of the mating EZ-Board. The connector is located on the bottom side of the board. For availability and pricing of the connectors, contact Samtec.

Refer to [“Expansion Interface” on page 1-5](#) for more information.

Part Description	Manufacturer	Part Number
50-position 0.1”, SMT socket	SAMTEC	SSW-125-22-F-D-VS
<b>Mating Connector</b>		
50-position 0.1”, SMT header	SAMTEC	TSSH-125-01-L-DV-A

## Connectors

### Expansion Interface II Connector (J5)

The board-to-board connector (J5) provides signals for the PPI, TWI interfaces and GPIO signals of the mating EZ-Board. The connector is located on the bottom side of the board. For availability and pricing of the connectors, contact Samtec.

Refer to [“Expansion Interface” on page 1-5](#) for more information.

Part Description	Manufacturer	Part Number
70-position 0.1”, SMT socket	SAMTEC	SSW-135-22-F-D-VS
<b>Mating Connector</b>		
70-position 0.1”, SMT header	SAMTEC	TSSH-135-01-L-DV-A

### Expansion Interface II Connector (P2)

The board-to-board connector (P2) provides signals for the SPI, TWI, SPORT interfaces and GPIO signals of the mating EZ-Board. The connector is located on the top side of the board. For availability and pricing of the connectors, contact Samtec.

Refer to [“Expansion Interface” on page 1-5](#) for more information.

Part Description	Manufacturer	Part Number
50-position 0.1”, SMT socket	SAMTEC	TSSH-125-01-L-DV-A
<b>Mating Connector</b>		
50-position 0.1”, SMT header	SAMTEC	SSW-125-22-F-D-VS



## Bluetooth EZ-Extender Hardware Reference

### Expansion Interface II Connector (P4)

The board-to-board connector (P4) provides signals for the PPI, TWI interfaces and GPIO signals of the mating EZ-Board. The connector is located on the top side of the board. For availability and pricing of the connectors, contact Samtec.

Refer to [“Expansion Interface” on page 1-5](#) for more information.

Part Description	Manufacturer	Part Number
70-position 0.1”, SMT socket	SAMTEC	TSSH-135-01-L-DV-A
<b>Mating Connector</b>		
70-position 0.1”, SMT header	SAMTEC	SSW-135-22-F-D-VS

### USB Connector (P3)

Part Description	Manufacturer	Part Number
USB Mini-B connector	MOLEX	0675031010
<b>Mating Connector</b>		
USB Mini-B to USB A cable	ASSMANN	AK672M/2-3

## Connectors

# A BLUETOOTH EZ-EXTENDER BILL OF MATERIALS

The bill of materials corresponds to “[Bluetooth EZ-Extender Schematic](#)” on page B-1.

Ref.	Qty.	Description	Reference Designator	Manufacturer	Part Number
1	1	SN74LVC1G14DBVR SOT23-5	U4	DIGI-KEY	296-11607-1-ND
2	1	SN74LVC1G08 SOT23-5	U8	TI	SN74LVC1G08DBVR
3	1	WT12 ICS010	U3	BLUEGIGA	WT12-A-AI
4	1	MIC94040 MLF4	U7	MICREL	MIC94040YFL
5	1	M24C02 TSSOP8DW	U2	ST MICRO	M24C02-RDW6TP
6	1	SN74ALVC125 TVSOP14	U9	TI	SN74ALVC125DGVRE4
7	1	ADG3231 SOT23-6	U5	ANALOG DEVICES	ADG3231BRJZ-REEL
8	1	ADG3308 TSSOP20	U1	ANALOG DEVICES	ADG3308BRUZ
9	1	DIP8 SWT016	SW1	C&K	TDA08H0SB1
10	1	IDC 3X2 IDC3X2_SMT	JP1	SAMTEC	TSM-103-01-T-DV
11	1	USB_MINI-B 5PIN CON028	P3	MOLEX	0675031010
12	1	IDC 2X2 IDC2X2	JP4	FCI	68737-404HLF

Ref.	Qty.	Description	Reference Designator	Manufacturer	Part Number
13	1	IDC 4X2 IDC4X2	JP3	SULLINS	GEC04DAAN
14	1	IDC 25x2 IDC25x2_SMTA	P2	SAMTEC	TSSH-125-01-L-DV-A
15	1	IDC 35x2 IDC35x2_SMTA	P4	SAMTEC	TSSH-135-01-L-DV-A
16	1	IDC 35X2 IDC35x2_SMT_F	J5	SAMTEC	SSW-135-22-F-D-VS
17	1	IDC 25X2 IDC25x2_SMT_F	J3	SAMTEC	SSW-125-22-F-D-VS
18	3	IDC 2X1 IDC2X1_SMT	JP2,JP5-6	SAMTEC	TSM-102-01-T-SV
19	1	IDC 5X2 IDC5x2_SMT_F	J1	SAMTEC	SSW-105-22-F-D-VS
20	12	0.1UF 10V 10% 0402	C1-12	AVX	0402ZD104KAT2A
21	9	10K 1/16W 5% 0402	R1-4,R6,R14-17	VISHAY	CRCW040210K0FKED
22	7	22 1/16W 5% 0402	R11-12,R18-22	PANASONIC	ERJ-2GEJ220X
23	1	1.5K 1/10W 5% 0603	R8	PANASONIC	ERJ-3GEYJ152V
24	1	330 1/10W 5% 0603	R5	VISHAY	CRCW0603330RJNEA
25	1	GREEN LED001	LED1	PANASONIC	LN1361CTR
26	1	47.0K 1/16W 1% 0402	R9	ROHM	MCR01MZPF4702
27	2	10NH 5% 0402	L1-2	PANASONIC	ELJ-QF10NJF
28	2	15K 1/16W 5% 0402	R7,R13	PANASONIC	ERJ-2GEJ153X
29	1	27K 1/16W 5% 0402	R10	PANASONIC	ERJ-2GEJ273X

2

# BLUETOOTH

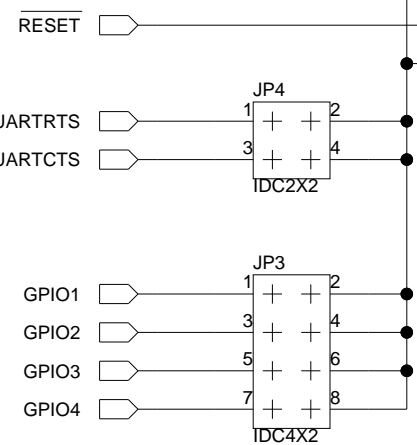
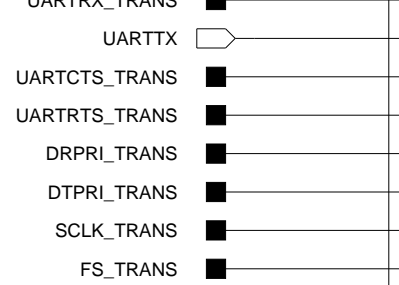
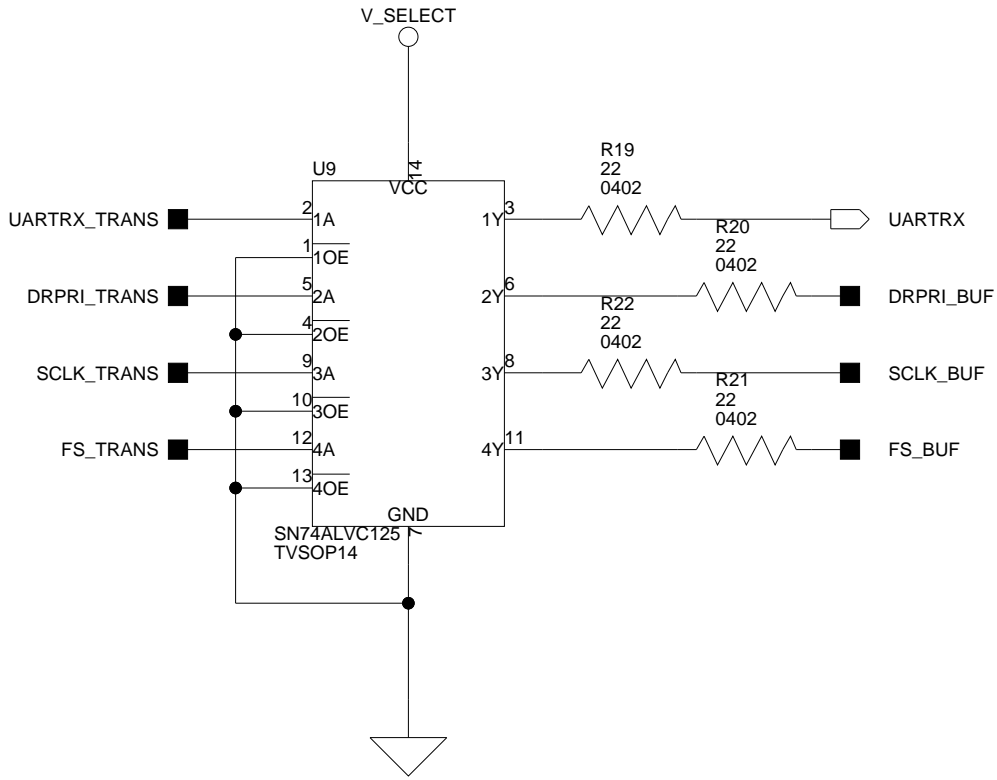
3

4

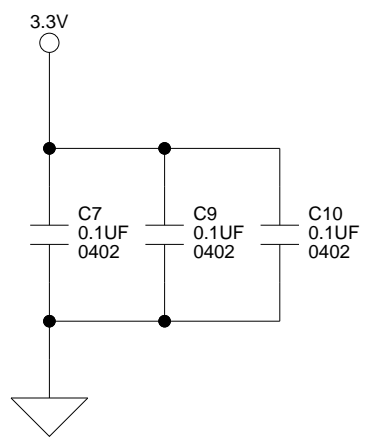
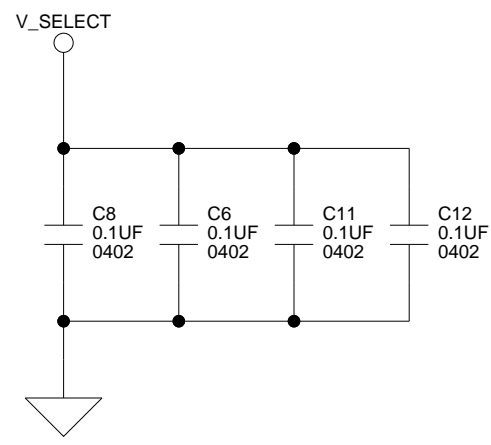
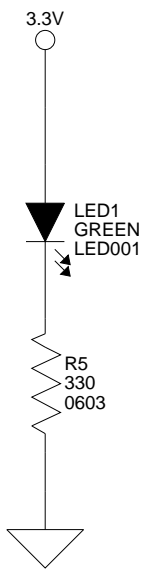
A

B

2



3



4

A

B

2

DRPRI  
SCLK  
FS

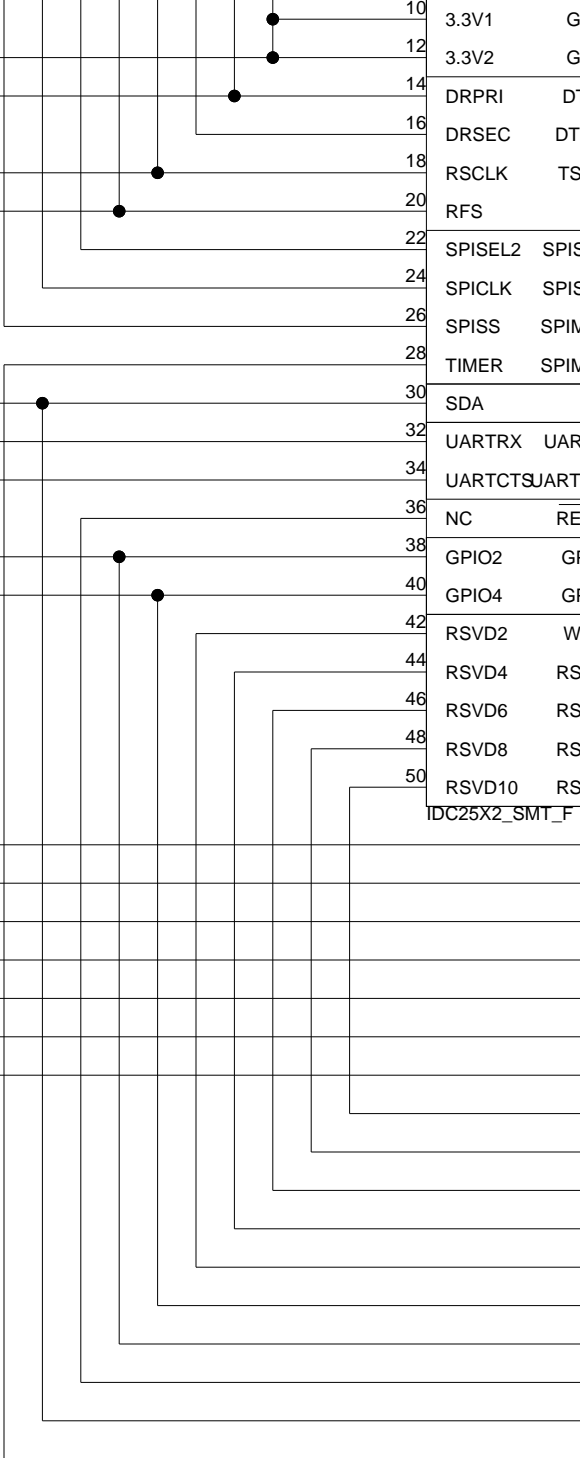
SDA  
UARTRX  
UARTCTS

GPIO2  
GPIO4

3

GPIO3  
GPIO1  
RESET  
UARTRTS  
UARTTX  
SCL  
DTPRI

4



A

B

2

18	PP0D0	
20	PPI0D2	
22	PPI0D4	
24	PPI0D6	
26	PPI0D8	
28	PPI0D10	
30	PPI0D12	
32	PPI0D14	
34	PPI0D16	
36	TIMER1/GPIO	TIMER
38	TIMER3/GPIO	

3

40	PPI1FS2	
42	PPI1CLK	
44	PP1D0/PPI0D18	PPI1D1
46	PPI1D2/PPI0D20	PPI1D3
48	PPI1D4/PPI0D22	PPI1D5
50	PPI1D6	
52	PPI1D8	
54	PPI1D10	
56	PPI1D12	
58	PPI1D14	
60	PPI1D16	
62	NC	
64	RSVD2	
66	RSVD4	
68	RSVD6	
70	RSVD8	
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4

A

B



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