



a module solution provider

ZB7412E0B User Guide

ZB7 Module BoosterPack™ Plug-in Board

Drift 0.1

Prepared By	Reviewed By	Approved By

Index

1. INTRODUCTION.....	2
2. ZB7 MODULE BOOSTERPACK PLUG-IN BOARD.....	3
2.1. TOP SIDE	3
2.2. BOTTOM SIDE.....	3
2.3. SCHEMATICS.....	7
3. APPLICATION DEVELOPMENT	8
3.1. PROGRAMMING HARDWARE SETUP	8
3.2. MSP-EXP432P401R AND ZB7412E0B HARDWARE SETUP.....	9
4. HISTORY CHANGE	10

1. INTRODUCTION

The Jorjin ZB7 Module BoosterPack™ Plug-in board (ZB7412E0B) allows users to quickly and easily add Bluetooth low energy to a TI's LaunchPad™ development kit for developing network processor-based BLE applications. The ZB7 module can also be used to function as a standalone, System-on-Chip (SoC) device that can run additional sample applications using TI's royalty-free Bluetooth low energy software stack (BLE-Stack) software development kit (SDK). This user guide details how to run these standalone applications on the ZB7 module BoosterPack™, or on any custom board that incorporates the ZB7 module.

Note: To use the software examples from TI's website and the ZB7 Module BoosterPack, you also need a TI's MSP432 LaunchPad kit.

Note : BoosterPack, LaunchPad are trademarks of Texas Instruments.

2. ZB7 MODULE BOOSTERPACK PLUG-IN BOARD

In the following sub-sections, it'll divide into TOP and BOTTOM Side to explain details on the key parts and its features.

2.1. TOP Side

Figure 1 is TOP-Side picture of ZB7 module BoosterPack Plug-in Board.

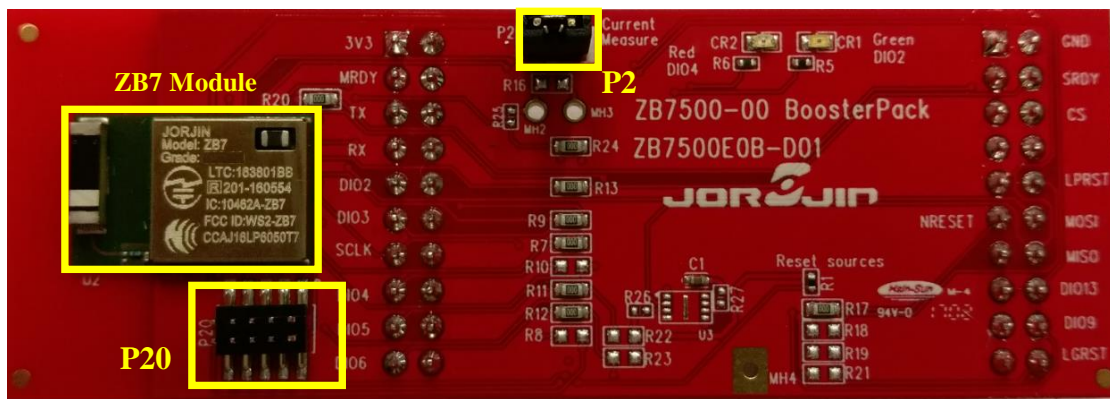


Figure 1. TOP Side of BoosterPack Plug-in Board

The picture above marks some key part and jumper, and Table 1 below shows the explanations to them in the details.

Items	Key Parts	Descriptions
1	ZB7 Module	The core module for performance evaluation. It's related feature can be referred to its datasheet.
2	P2	It is main power jumper for ZB7 module
3	P20	JTAG connection for programming and debugging the ZB7 module.

Table 1. TOP-Side Key parts of BoosterPack Plug-in Board

2.2. BOTTOM Side

Figure 2 is BOTTOM-Side picture of ZB7 module BoosterPack Plug-in Board.



Figure 2. Bottom Side of BoosterPack Plug-in Board

There are two BoostPack board mating connectors which are used for connecting to MSP432P401R LaunchPad Development Kit and are mounted on the bottom side as the picture above. Table 2 and Table 3 show the descriptions on the signals brought out from these two BoostPack mating connectors.

Pin Number	Pin Name	Pin Type	Descriptions
1	3V3	Power	3.3V power from MSP432P401R LaunchPad
2	NC	--	Not Connected
3	DIO_7 ⁽¹⁾	Digital/Analog I/O	GPIO, Sensor Controller, Analog
4	NC	--	Not Connected
5	DIO_0	Digital I/O	GPIO, Sensor Controller
6	NC	--	Not Connected
7	DIO_1	Digital I/O	GPIO, Sensor Controller
8	NC	--	Not Connected
9	DIO_2 ⁽¹⁾	Digital I/O	GPIO, Sensor Controller, High drive capability / Enable the Green LED
10	NC	--	Not Connected
11	DIO_3 ⁽¹⁾	Digital I/O	GPIO, Sensor Controller, High drive capability
12	NC	--	Not Connected
13	DIO_10	Digital/Analog I/O	GPIO, Sensor Controller, Analog / SPI_CLK signal for optional SPI flash

14	NC	--	Not Connected
15	DIO_4 ⁽¹⁾	Digital I/O	GPIO, Sensor Controller, High drive capability / Enable the Red LED
16	NC	--	Not Connected
17	DIO_5 ⁽¹⁾	Digital I/O	GPIO, High drive capability, JTAG_TDO
18	NC	--	Not Connected
19	DIO_6 ⁽¹⁾	Digital I/O	GPIO, High drive capability, JTAG_TDI
20	NC	--	Not Connected

Table 2. Bottom-Side J1 of BoosterPack Plug-in Board

Pin Number	Pin Name	Pin Type	Descriptions
1	NC	-	Not Connected
2	GND	GND	Ground
3	NC	-	Not Connected
4	DIO_8	Digital/Analog I/O	GPIO, Sensor Controller, Analog
5	NC	-	Not Connected
6	DIO_14	Digital/Analog I/O	GPIO, Sensor Controller, Analog
7	NC	-	Not Connected
8	NC	-	Not Connected
9	NC	-	Not Connected
10	LP_RESET ⁽²⁾	NC/Digital Input	Not Connected or Reset signal from MSP432P401R. Selectable by R18.
11	RESET_N ⁽²⁾	Digital Input	Reset, active-low. Selectable by R17.
12	DIO_11	Digital/Analog I/O	GPIO, Sensor Controller, Analog / SPI_MISO signal for optional SPI flash
13	NC	-	Not Connected
14	DIO_12	Digital/Analog I/O	GPIO, Sensor Controller, Analog / SPI_MOSI signal for optional SPI flash
15	NC	-	Not Connected
16	DIO_13	Digital/Analog I/O	GPIO, Sensor Controller, Analog

17	NC	-	Not Connected
18	DIO_9	Digital/Analog I/O	GPIO, Sensor Controller, Analog / SPI_CS signal for optional SPI flash
19	NC	-	Not Connected
20	NC ⁽²⁾	-	Not Connected

Table 3. Bottom-Side J2 of BoosterPack Plug-in Board

Note

(1) 0-ohm resistors (R7, R8, R9, R10, R11, R12) can be removed to selectively disconnect signals from BoosterPack connectors. Default is for only network-processor resistors to be mounted. Please see the schematic.

(2) 0-Ohm resistors (R17, R18, R19) to select different reset sources. Please see the schematic.

3. APPLICATION DEVELOPMENT

Texas Instrument had developed a development board, MSP432P401R LaunchPad Development Kit, for evaluating ZB7412E0B. Figure 4 shows the development kit and ZB7412E0B board

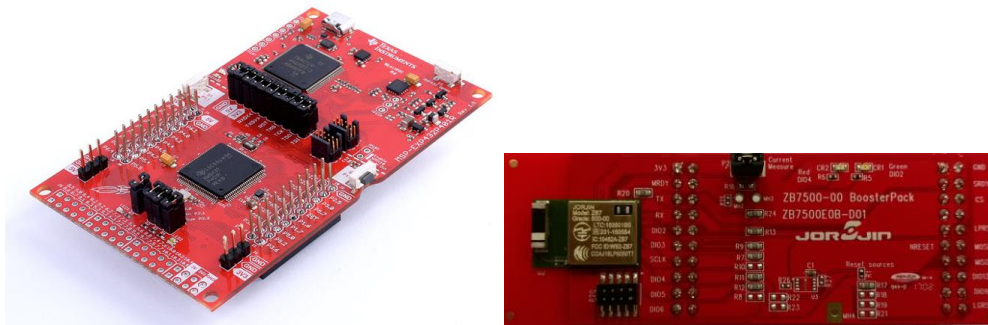


Figure 4. MSP-EXP432P401R and ZB7412E0B Board

3.1. Programming Hardware Setup

Use the following instructions to set up the hardware.

1. Connect the 10-pin JTAG cable to the JTAG pins on the ZB7412E0B, then connect the other end of the cable to the XDS110 Out pins on the MSP-EXP432P401R.

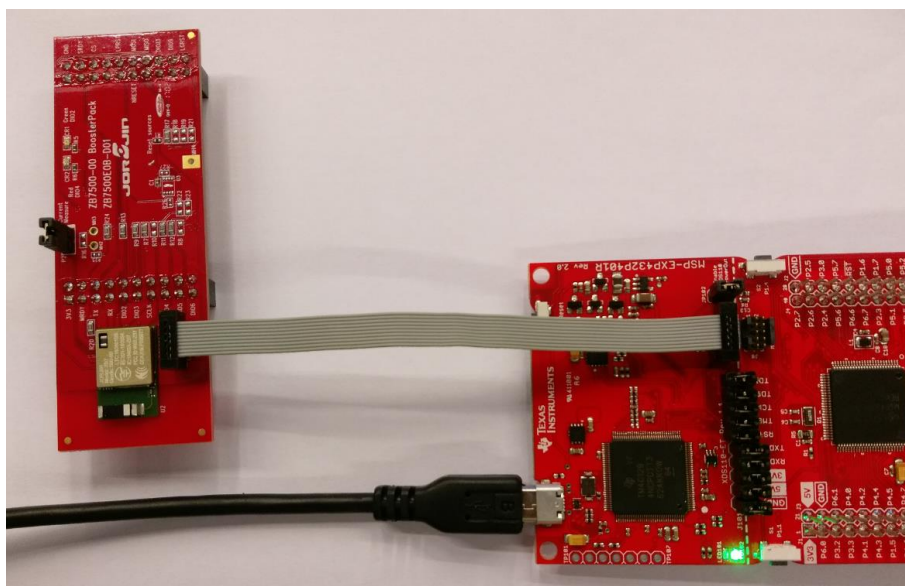


Figure 5. MSP-EXP432P401R to ZB7412E0B Connection

2. Ensure that the necessary jumpers are removed to isolate the XDS110 from the onboard of MSP-EXP432P401R (see the yellow box in Figure 6). Also, verify that the XDS110 power jumper (JP102) is selected to supply power to the ZB7412E0B.

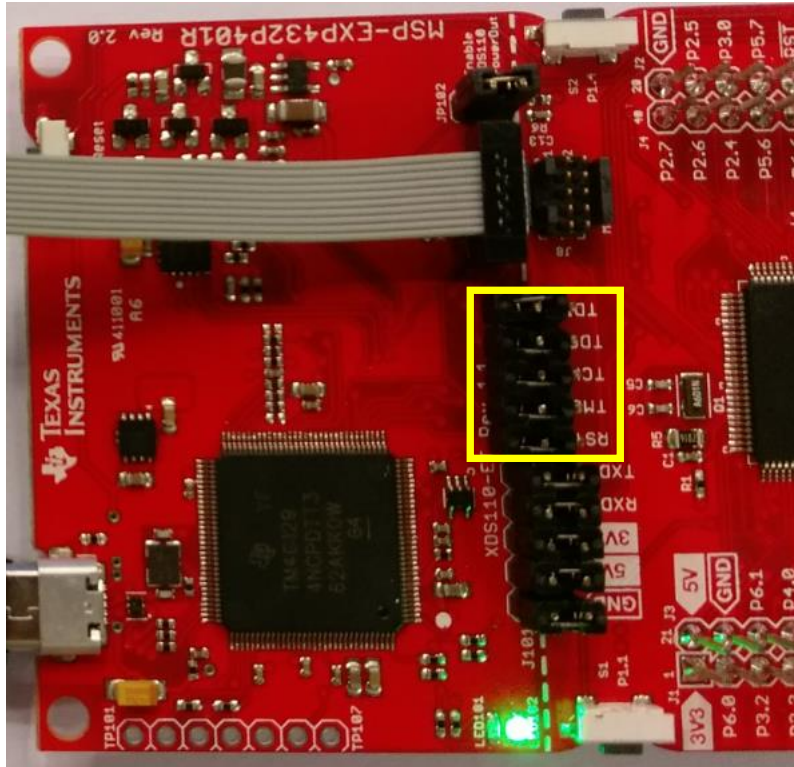


Figure 6. Jumpers to Remove on MSP-EXP432P401R

After completing the previous steps, the provided micro-USB cable can be used to power and program the ZB7412E0B as detailed in the software developer's guide..

3.2. MSP-EXP432P401R and ZB7412E0B Hardware Setup

The ZB7412E0B is the quick and easy way to add Bluetooth low energy to MSP-EXP432P401R development kit. Simply plug the ZB7412E0B into the MSP-EXP432P401R to get started! See the Figure 7.

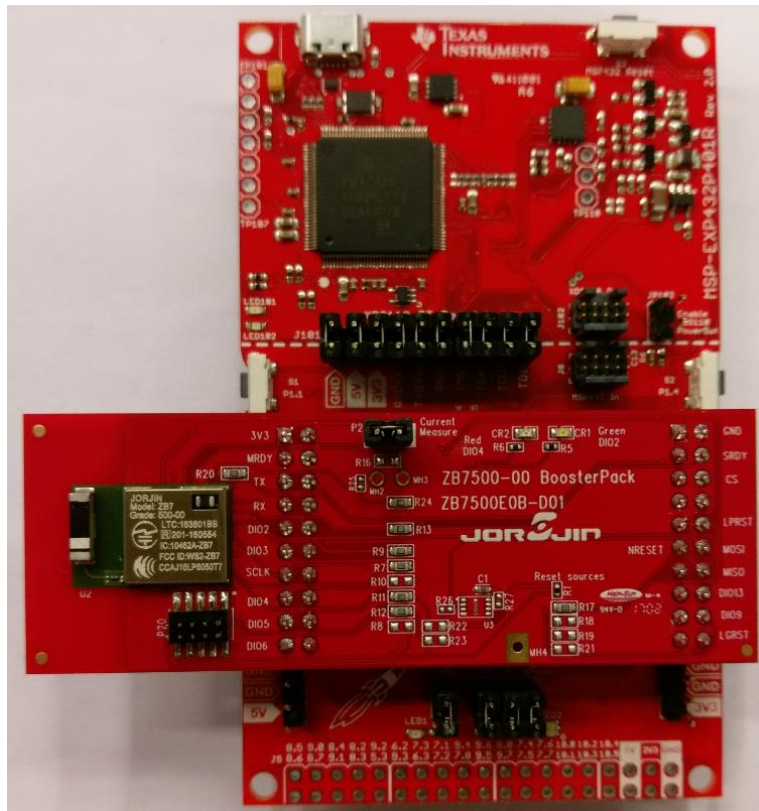


Figure 7. Plug ZB7412E0B into the MSP-EXP432P401R

More information available can refer to the link below
<http://www.ti.com/product/CC2650/toolssoftware>

4. HISTORY CHANGE

Revision	Date	Description
D 0.1	2017/Apr/07	Draft 0.1