# CC256x MSP430 TI Bluetooth Stack

## Contents

#### **Demo Overview**

#### Requirements

Hardware Software

#### Hardware Setup

MSP430F5438 Experimenter's Board EZ430-RF256x MSP430F5529 Experimenter's Board CC256XB Information

#### Software Setup

Downloading and Installing the Software Flashing the Bluetooth Code Platform Specific EZ430 IAR CCS MSP430F5438/MSP430F5529 IAR CCS

#### Demos

**Classic Bluetooth Demos** SPP Demo HID Demo A3DP Demo A3DP MultiRoom Demo HFP Demo Classic BT + BLE Demos SPP + SPPLE Demo KeyFob Demo SPPLE Demo Lite Bluetooth Low Energy Demos ANP Demo HRP Demo HTP Demo PASP Demo HOGP Demo PXP Demo

FMP Demo

See Also

# **Demo Overview**

This demo allows users to evaluate TI's CC256x Bluetooth device by using the PAN1323EMK kit and the MSP-EXP430F5438 board. The CC256x+MSP430 Bluetooth sample applications are provided to enable a rich out-of-box experience to the user. These applications allow the user to use a console to send Bluetooth commands, setup a Bluetooth Device to accept connections, connect to a remote Bluetooth device, and communicate over Bluetooth.



# Requirements

# Hardware

CC256xQFNEM (http://www.ti.com/tool/cc256xqfnem)

MSP-EXP430F5438 Experimenter Board (http://www.ti.com/tool/msp-exp430f5438)

Note 1: For downloading the sample demos to the EVM, you require MSP430 USB Debugging Interface (http://www.ti.com/tool/msp-fet430uif). This needs to be purchased separately.

Note 2: Hardware depends on the application, specific demos will have detailed hardware configurations. But all the APPS should work with the hardware listed above.

# Software

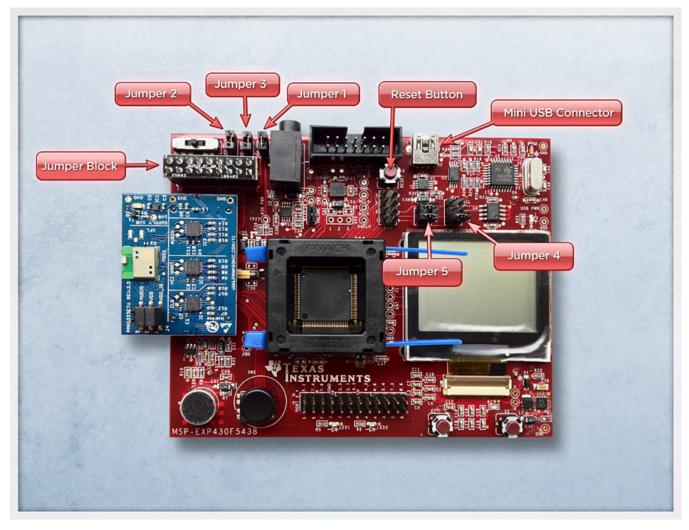
- CC256x+MSP430 Bluetooth Software Contains the Sample Applications Download (http://www.ti.com/tool/tibluetoothstack-sdk)
- Lite FET-Pro430 Tool To flash the example code in the MSP430 chip Download (http://www.elprotronic.com/download.html)

# **Hardware Setup**

# MSP430F5438 Experimenter's Board

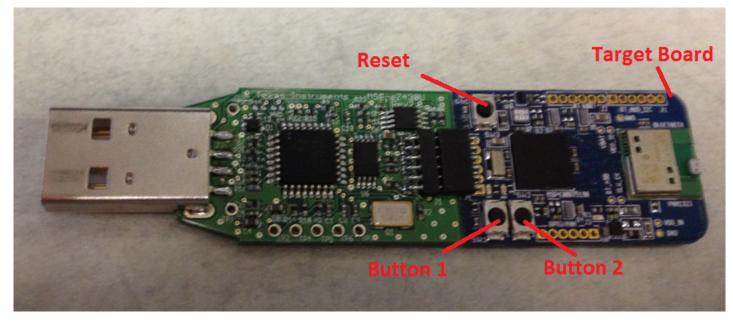
a) Connect the CC256x board PAN1323ETU (http://www.panasonic.com/industrial/electronic-components/rf-modules/bluetooth/pan1323etu.aspx) onto the MSP-EXP430F5438 board (http://www.ti.com/tool/msp-exp430f5438) using the RF1/RF2 connectors (RF EVM connectors)

- b) Place the included jumper block on RF3 connector.
- c) Make sure that JP1, JP2, JP3, JP4 and JP5 are as shown in the picture below.
- d) Make sure the other default jumper configuration remains on your MSP-EXP430F5438 board



# EZ430-RF256x

- a) On Windows-7, please run the windows applications in administrator mode.
- b) Connect the RF256xT Target Board to the USB board. The picture below shows the connected boards.



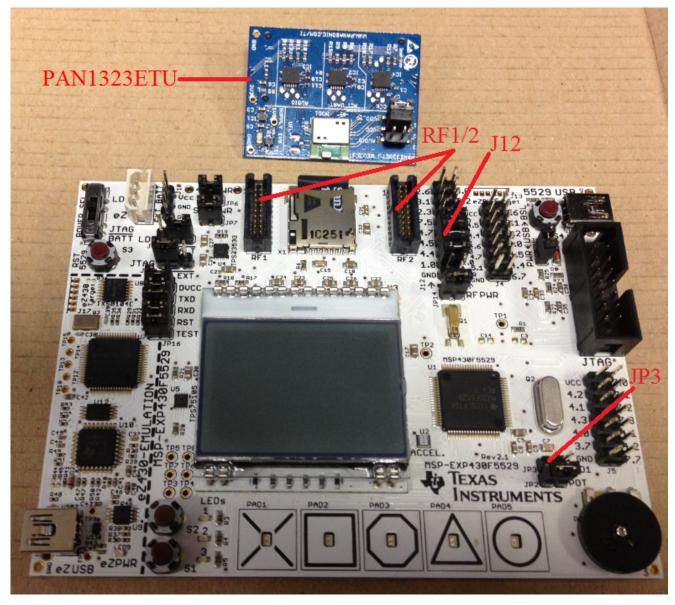
# MSP430F5529 Experimenter's Board

a) Connect the CC256x board PAN1323ETU (http://www.panasonic.com/industrial/electronic-components/rf-modules/bluetooth/pan1323etu.aspx) onto the MSP-EXP430F5529 board (http://www.ti.com/tool/msp-exp430f5529) using the RF1/RF2 connectors (RF EVM connectors)

b) Remove the JP3 Jumper.

c) In J12, make sure Pin 3 to Pin 4 (P1.0 to P2.0), Pin 5 to Pin 6 (P4.4 to P4.0), Pin 7 to Pin 8 (P4.5 to P4.6), Pin 9 to Pin 10 (P4.7 to P2.4) are connected as shown in the picture.

d) Make sure the other default jumper configuration remains on your MSP-EXP430F5529 board



# **CC256XB** Information

To use the CC256XB module, the patch CC256XB.h has to be included. To make sure this patch is included, in BTPSVend.C add a line

#define \_\_SUPPORT\_CC256XB\_PATCH\_\_

This will make sure that the CC256XB patch is loaded and the CC256XB module can be used without issues.

# **Software Setup**

# Downloading and Installing the Software

The Bluetooth SDK can be downloaded from here (http://www.ti.com/tool/tibluetoothstack-sdk). You will be prompted for a TI login when you try to download the SDK. If you don't already have a TI login you will be asked to create one. After creating a TI login you will need to complete the export approval form. After completing the form a request will be submitted to TI for approval. After the request is approved you will see a confirmation on the next page and be provided with a link to download the software. Click the "Download" button to start the download.

After the download completes run the setup file (e.g. CC256x\_MSP430\_Bluetopia\_SDK\_vx\_x\_Setup.exe). The setup process will ask you to accept the TI Bluetooth Stack Clickwrap License Agreement. After accepting the license agreement the SDK will be installed to "C:\TI\Connectivity\CC256X BT\CC256X MSP430 Bluetopia SDK\". The SDK can be accessed using Start / Programs / Texas Instruments / CC256x MSP430 Bluetopia SDK v x.x.

You now have access to sample applications' source code as well as binaries to flash directly to your MSP430 board.

# Flashing the Bluetooth Code

Customers can use MSP430 Flasher with MSP430DLLV3 after updating the firmware of FET430 USB Emulator. For instructions visit MSP430 FET430 setup

You can use the included batch file Flash\_CC256x\_MSP430\_Bluetopia.bat to flash the software The flashing tool (MSP430Flasher.exe) and documentation (MSP430Flasher\_Doc.pdf) are available under Tools folder at the install location.

Once MSP430Flasher tool is ready to flash the code, you can use the included batch file or the shortcut Flash\_CC256x\_MSP430\_Bluetopia.bat to flash the BR/EDR SPP sample application to the board.

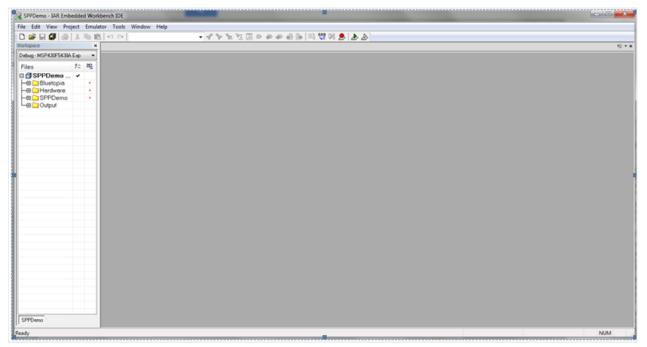
# **Platform Specific**

## EZ430

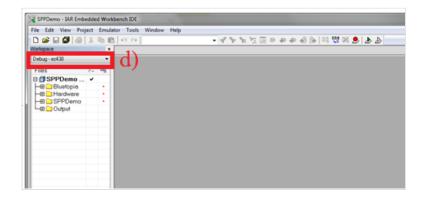
All the demo apps have support for EZ430. Here is the software configurations for the demos:

### IAR

- a) Go to TI's\_Bluetooth\_Stack\_Version-Number\_MSP430\MSP430\_Experimentor\Samples. Here you will see a list of samples.
- b) Select the demo that you want to load on the device. For our example we will use SPPDemo
- c) Navigate to Projects->IAR and select SPPDemo.eww . The IDE should open.



d) In the workspace tab, the configurations to load the device should be present. From the dropdown menu, select either debug or release configurations for EZE-430. In our case we select, Debug-EZE 430.



e) Select download and debug(make sure that the EZE-430 device is conencted) by either clicking on the Play icon or selecting Project->Download and Debug.

f) Let the IDE debug and load the software on the device. This may take 5-10 minutes. Once it is done debugging, click on the X on the IDE to stop debugging.

g	g Emulator Tools Window Help		
3	1 I I I I I I I I I I I I I I I I I I I		
3	t)		
Ť.		f0 <b>* *</b>	Disassembly ×
	Main.c		Go to 🗸
	if((Result = InitializeApplication(&HCI_DriverInformation, &BTPS_Initialization)) > 0)		4010 +
	/* Save the Bluetooth Stack ID. */		Disassembly ^
	BluetoothStackID = (unsigned int)Result;		021E0A 40B2 00
			TA1CCTL0 = CCIE
	/* Go ahead an enable HCILL Mode. */		021E10 40B2 00
	HCILL_Init();		TAICTL  = TACLR
	HCILL_Configure(BluetoothStackID, HCILL_MODE_INACTIVITY_TIMEOUT, HCILL_MODE_RETRANSMIT_TIMEOUT, TRUE);		021E16 D2A2 03
	(4 Coll by one lighting shall applied by the station		TAICTL  = TASSE
	<pre>/* Call the main application state machine. */ while(1)</pre>		021E1A D0B2 01
	ApplicationMain();		021E20 0110
	- }		WDTCTL = WDTPW
			main:
			021E22 40B2 5Å
	/* The following is the Main application entry point. This function */		HAL_ConfigureHa
	/* vill configure the hardware and initialize the OS Abstraction */		021E28 13B2 18
	<pre>/* layer, create the Main application thread and start the scheduler.*/ int main(void)</pre>	=	enable_interr
			021E2C D232
	/* Turn off the watchdog timer */		MainThread();
	➡ WDTCTL = WDTPW   WDTHOLD;		021E2E 13B2 0C
			HAL LedTogql
		+ <del>-</del>	

g) The software is now ready to use. To begin using the profile disconnect and reconnect the EZE-430 after flashing.

#### CCS

a) Open Code Composer Studio 5. Select File->Switch Workspace. Navigate to the folder where the TI's Bluetooth Stack Samples are located and make a new folder for the workspace.

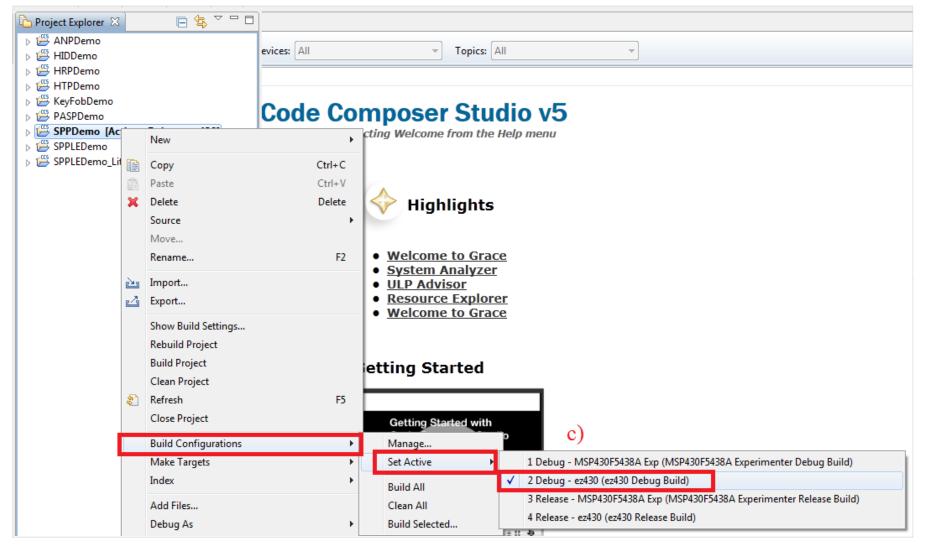
Workspace Launcher	Select Workspace Directory
Select a workspace Code Composer Studio stores your projects in a folder called a workspace.	Select the workspace directory to use.
Choose a workspace folder to use for this session. Workspace C:\Users\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430  Browse Copy Settings	A) Danlaw_Bluetopia_DataLogger_4_0_1_8 Danlaw_Bluetopia_DataLogger_4_0_1_8 DopenOffice.org 3.2 (en-US) Installation Files StackGAPLE TI_Bluetopia_4_0_1_6_MSP430 Documentation MSP430_Experimentor E
OK         Cancel	Folder: Workspace Make New Folder OK Cancel

CCS will now exit and reload the software. Each time you load a project it is preferable to create a new workspace for it.

b) Select Project-> Import Existing CCS Eclipse project. In the select Auto search directory point to the TI's\_Bluetooth\_Stack\_Version-Number\_MSP430\MSP430\_Experimentor\Samples folder. CCS will recognize all available profiles. Select all profiles and hit finish. (If you prefer you can selectively load the profiles you want).

Import CCS Eclipse Project	ts	- 0 ×
Select Existing CCS Eclips Select a directory to search	se Project for existing CCS Eclipse projects.	
Select search-directory:	C:\Users\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples $b$ )	Browse
Select archive file:		Browse
Discovered projects:		
♥       Image: SppLEDemo_Lite         ♥       Image: SppLEDemo_[C:\]         ♥       Image: ANPDemo_[C:\]         ♥       Image: HRPDemo_[C:\]         ♥       Image: KeyFobDemo_[C:\]         ♥       Image: HIDDemo_[C:\]         ♥       Image: HIDDemo_[C:\]         ♥       Image: SppDemo_[C:\]         ♥       Image: SppDemo_[C:\]	Users\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\PASP = [C:\Users\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\\PASP \Users\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\SPPL Jsers\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\ANPD Jsers\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\HRPDe C:\Users\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\HRPDe Sers\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\HRDDer sers\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\HIDDer Jsers\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\HIDDer Jsers\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\HIDDer Jsers\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\HIDDer Jsers\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\HIDDer Jsers\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\HIDDer III	Select All Deselect All Refresh b)
Copy projects into work Automatically import re <u>Open the Resource Explorer</u>		
?	Finish	Cancel

c) The projects should load on the left in Project Explorer. Click on the profile that you want to load. By default it should select the Debug, MSP 430 configuration for the profile. To change the configuration, right click on the profile-> Build Configurations -> Set Active. Select either the debug or release configuration for EZE-430.



d) To begin flashing the device, select from the toolbar \* -> Debug as -> Code composer session. Let the IDE debug and load the software on the device. This may take 5-10 minutes. Once it is done debugging, click on the stop button on the IDE to stop debugging.

参 Deb	ug 🛛	🎽 🖗	· 🖩 🔳 👌 👁 🌫	⊙. <u>.</u> ₽	🔶 - 🕹	🧄 🗸 🗖 🗗	🕪 Variables 🖾 🕼 Expressions 🗄	888 Registers
	ъ <sup>р</sup> п	bDemo [Code Composer Studio - Device Debugging] MSP430 USB1/MSP430 (Suspended - HW Breakpoint)					Name	Туре
		main() at Main.c:102 0x0276F0						
	=	c_int00_noexit() 0x0075F0 (the entry point was reached)						
🕖 TI R	esourc	e Explorer 🛛 🖸 Main.c 🗵						
92		ApplicationMain();						
93	}							
94 ] 95								
96		The following is the Main application entry point. This function	on */					
97		will configure the hardware and initialize the OS Abstraction	*/					
98		layer, create the Main application thread and start the scheduler ain(void)	er.*/					
100 {	[							
101		Turn off the watchdog timer	*/					
102 103	WD	TCTL = WDTPW   WDTHOLD;						
104	/*	Configure the hardware for its intended use.	*/					
105	HAI	L_ConfigureHardware();						
106 107	/*	Enable interrupts and call the main application thread.	*/					
108	_	enable_interrupt();						
109	Ma	inThread();						
110 111	/*	MainThread should run continously, if it exits an error occured.	*/					
112		ile(1)						
113 114	{	101 Lottool (0).						
114		HAL_LedToggle(0); BTPS_Delay(100);						
116	}							
117]	ł							
118 119								
120								
	€							

e) The software is now ready to use. To begin using the profile disconnect and reconnect the EZE-430 after flashing.

## MSP430F5438/MSP430F5529

IAR

- a) Go to TI's\_Bluetooth\_Stack\_Version-Number\_MSP430\MSP430\_Experimentor\Samples. Here you will see a list of samples.
- b) Select the demo that you want to load on the device. For our example we will use SPPDemo

c) Navigate to Projects->IAR and select SPPDemo.eww . The IDE should open.

SPPDemo - IAR Embedded Workbench IDE		- 0 - X
File Edit View Project Emulator Tools Window	Help	
	• < > > 1 = = = = = = = = = = = = = = = = =	
Workspace ×		10 • •
Debug - MSP430F5438A Exp 🔹		
Files #: Ba		
B SPPDemo V		
-® Bluetopia		
-G Hardware •		
-B SPPDemo •		
Les 🖸 Output		
SPPDemo		
SPTDemo		
eady		NUM

d) In the workspace tab, the configurations to load the device should be present. From the dropdown menu, select either debug or release configurations for EZE-430. In our case we select, Debug-MSP430F5438A.

File Edit View Project Emulator				
🗅 🚅 🖬 🛃 🚳 X 🖻 🛍 🖡	5 CX	<ul> <li>イタタビ回日</li> </ul>	P P 4 3 1 1 1 1 1 1	ñ 🕭 🕭 2
Windoward W				
Debug - MSP430F5438A Exp 🔹				
Files + 22 Mg	1)			
	•)			
SPPDemo 🗸				
-B Bluetopia •				
-C Hardware				
-B SPPDemo •				
Le Output				

e) Select download and debug(make sure that the MSP430 device is conencted) by either clicking on the Play icon or selecting Project->Download and Debug.

f) Let the IDE debug and load the software on the device. This may take 5-10 minutes. Once it is done debugging, click on the X on the IDE to stop debugging.

Emulator Tools Window Help			
□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □			
x f)			
<sup>x</sup> x ♀ Main.c	f() <b>* x</b>	Disassembly	×
if((Result = InitializeApplication(&HCI_DriverInformation, &BTPS_Initialization)) > 0)		Go to	•
	<u>^</u>	Disassembly	
/* Save the Bluetooth Stack ID. */		021E0A	40B2 00
<pre>BluetoothStackID = (unsigned int)Result;</pre>			0 = CCIE
/* Go ahead an enable HCILL Mode. */		021E10	40B2 00
HCILL Init();		TA1CTL	= TACLE
HCILL Configure (BluetoothStackID, HCILL MODE INACTIVITY TIMEOUT, HCILL MODE RETRANSMIT TIMEOUT, TRUE);		021E16	D2A2 03
		TA1CTL	= TASSE
/* Call the main application state machine. */		021E1A	D0B2 01
while(1)		}	
ApplicationMain();		021E20	0110
		WDTCTL	= WDTPW
		main:	
/* The following is the Main application entry point. This function */		021E22	
/* will configure the hardware and initialize the OS Abstraction */			figureHa
/* layer, create the Main application thread and start the scheduler.*/	=	021E28	
int main (void)			e_interr D232
		021E2C MainThr	
/* Turn off the watchdog timer */		021E2E	
<pre>wDTCTL = wDTPW   wDTHOLD;</pre>			LedToggl
✓ III	+ +	III	1001031

g) The software is now ready to use. To begin using the profile disconnect and reconnect the MSP430 after flashing.

### ccs

**Note:** The MSP430F5529 is not supported with CCS due to code size limitations.

a) Open Code Composer Studio 5. Select File->Switch Workspace. Navigate to the folder where the TI's Bluetooth stack Samples are located and make a new folder for the workspace.

Workspace Launcher	Select Workspace Directory
Select a workspace Code Composer Studio stores your projects in a folder called a workspace.	Select the workspace directory to use.
Choose a workspace folder to use for this session. Workspace C:\Users\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430  Browse Copy Settings	A) Danlaw_Bluetopia_DataLogger_4_0_1_8 Danlaw_Bluetopia_DataLogger_4_0_1_8 DopenOffice.org 3.2 (en-US) Installation Files StackGAPLE TI_Bluetopia_4_0_1_6_MSP430 Documentation MSP430_Experimentor E
OK         Cancel	Folder: Workspace Make New Folder OK Cancel

CCS will now exit and reload the software. Each time you load a project it is preferable to create a new workspace for it.

b) Select Project-> Import Existing CCS Eclipse project. In the select Auto search directory point to the TI's\_Bluetooth\_Stack\_Version-Number\_MSP430\MSP430\_Experimentor\Samples folder. CCS will recognize all available profiles. Select all profiles and hit finish. (If you prefer you can selectively load the profiles you want).

Import CCS Eclipse Projects	- O X
Select Existing CCS Eclipse Project Select a directory to search for existing CCS Eclipse projects.	
Select search-directory: C:\Users\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples b)	Browse
Select archive file:	Browse
Discovered projects:	
PASPDemo       [C:\Users\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\PASP         SPPLEDemo_Lite       [C:\Users\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\SPPL         SPPLEDemo       [C:\Users\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\SPPL         SPPLEDemo       [C:\Users\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\SPPL         SPPLEDemo       [C:\Users\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\ANPD         SPPLEDemo       [C:\Users\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\ANPD         SPPLEDemo       [C:\Users\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\HRPDc         SPPLEDemo       [C:\Users\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\HRPDc         SPPDemo       [C:\Users\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\Key         SPPDemo       [C:\Users\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\HIDDer         SPPDemo       [C:\Users\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\HIDDer         SPPDemo       [C:\Users\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\HIDDer         SPPDemo       [C:\Users\athirupathi\Desktop\TI_Bluetopia_4_0_1_6_MSP430\MSP430_Experimentor\Samples\HIDDer         SPPDemo       [C:\Users\athirupathi\Desktop\TI_Blueto	Select All Deselect All Refresh b)
Copy projects into workspace Automatically import referenced projects Open the Resource Explorer and browse available example projects	
? Finish	Cancel

c) The projects should load on the left in Project Explorer. Click on the profile that you want to load. By default it should select the Debug, MSP 430 configuration for the profile. To change the configuration, right click on the profile-> Build Configurations -> Set Active. Select either the debug or release configuration for MSP430.

🏠 Project Exp	plorer	× 🖻 🕏 🖓 🗖					
▷ ﷺ ANPD ▷ ﷺ HIDDe	emo		)evices: All	•	Topic	s: All	<b>*</b>
▷ ﷺ HRPDemo ► HTPDemo						URL:	
HIPD		20					
PASPI							I Resource Explorer
⊳ 📂 SPPD ⊳ 🖽 SPPLE		New	•	1			
▷ B SPPLE		Сору	Ctrl+C				A place to browse examples, documentation, and online
	Ê	Paste	Ctrl+V				
	×	Delete	Delete				Filters at the top of this window can be used to narrow
		Source	+				<ul> <li>"Packages" filter will limit the available content in the let</li> </ul>
		Move					<ul> <li>"Devices" filter will further narrow the content that is app</li> <li>"Topics" works the same way as the "Devices" filter, it for the same way as the "Devices" filter.</li> </ul>
		Rename	F2				
	2.	Import					The free form filter in the left pane accepts keyword(s), more than one keywords. Use the <b>Back</b> and <b>Forward</b>
	ڭ ك	Export					more than one keywords, ose the <b>Duck</b> and <b>Forward</b>
				-			
		Show Build Settings					These are some available examples and docum
		Rebuild Project					<u>StellarisWare</u> ₩
		Build Project					• <u>controlSUITE</u> ••
	-	Clean Project					<u>C55x DSP Library</u> C55x Image Library
	81	Refresh	F5				<u>Chronos</u>
		Close Project			_		● <u>LaunchPad</u> ▶
		Build Configurations	×.	Manage	1		● <u>SimpliciTI</u> №
		Make Targets	۰.	Set Active 🕨	$\checkmark$	1 Debug - I	MSP430F5438A Exp (MSP430F5438A Experimenter Debug Build)
		Index	+	Build All		2 Debug - e	ez430 (ez430 Debug Build)
		Add Files		Clean All		3 Release -	MSP430F5438A Exp (MSP430F5438A Experimenter Release Build)
		Debug As	×	Build Selected	_	4 Release -	ez430 (ez430 Release Build)

d) To begin flashing the device, select from the toolbar is -> Debug as -> Code composer session. Let the IDE debug and load the software on the device. This may take 5-10 minutes. Once it is done debugging, click on the stop button on the IDE to stop debugging.

参 Debug	X 🗎 🕺	💷 🖪 🔿 👁 🤝 🗇 🖉	🕹 🗇 🖓 🗖 🗖	🕪 Variables 🛛 😚 Expressions	해해 Registers
	/FobDemo [Code Composer Studio - Device Debugging]			Name	Туре
e de la companya de l	TI MSP430 USB1/MSP430 (Suspended - HW Breakpoint)				
	main() at Main.c:102 0x0276F0 c.int00_noexit() 0x0075F0 (the entry point was reached)				
	<ul> <li>Childen of the entry point was reacted)</li> </ul>				
~					
	urce Explorer 🕜 Main.c 🔀				
92 93	ApplicationMain(); }				
94 }	1				
95 96	/* The following is the Main application entry point. This function	*/			
97	/* will configure the hardware and initialize the OS Abstraction	*/			
	/* layer, create the Main application thread and start the schedule	r.*/			
100 {	main(void)				
101	/* Turn off the watchdog timer	*/			
102 103	WDTCTL = WDTPW   WDTHOLD;				
104	/* Configure the hardware for its intended use.	*/			
105 106	HAL_ConfigureHardware();				
	/* Enable interrupts and call the main application thread.	*/			
108 109	_enable_interrupt(); MainThread();				
110	1011111/200();				
	<pre>/* MainThread should run continously, if it exits an error occured. while(1)</pre>	*/			
50005	{				
114	HAL_LedToggle(0);				
115 116	BTPS_Delay(100);				
117 }	, ,				
118 119					
120					

e) The software is now ready to use. To begin using the profile disconnect and reconnect the MSP430 after flashing.

# Demos

# **Classic Bluetooth Demos**

## SPP Demo

• This application shows how to utilize the SPP module and also how handle the different callback events. The application can be used to interface with a remote SPP Client or Server.

• For a step by step demonstration on how to run this application visit the SPP Demo Wiki.

### HID Demo

- The human interface device enables a host to connect and control a HID device.
- For a step by step demonstration on how to run this application visit the <u>HID Demo Wiki</u>.

### A3DP Demo

- The Assisted Advanced Audio Distribution Profile shows how to send stereo audio over Bluetooth.
- For a step by step demonstration on how to run this application for the Sink Role visit the A3DP Demo Sink Wiki
- For a step by step demonstration on how to run this application for the Source Role visit the A3DP Demo Source Wiki

## A3DP MultiRoom Demo

- The A3DP MultiRoom demo allows us to stream high quality audio to 2 different speakers at the same time.
- For a step by step demonstration on how to run the MultiRoom application visit the A3DP MultiRoom Demo Wiki.

## **HFP Demo**

- The Hands Free Profile shows how to provide remote control and voice connections over Bluetooth to a mobile device. This profile supports the HandsFree Role.
- For a step by step demonstration on how to run this application visit the HFP Demo Wiki

# **Classic BT + BLE Demos**

## SPP + SPPLE Demo

- This application shows how to utilize Low Energy (LE) and the GATT profile. This sample emulates using SPP over LE using the GATT Profile. This sample acts as a LE Master and LE Slave.
- This application also shows how to utilize the SPP module and how to handle the different SPP callback events. This will act as either a SPP Server or SPP Client and exposes the same command set for SPP as the SPPDemo.
- For a step by step demonstration on how to run this application visit the SPP + SPPLE Demo Wiki.

## **KeyFob Demo**

- The KeyFobDemo is used to demonstrate button press or accelerometer data over LE.
- For a step by step demonstration on how to run this application visit the KeyFob Demo Wiki.

## **SPPLE Demo Lite**

- The SPPLE Lite demo is a server-only version of SPP LE where, in addition to supporting the SPP LE protocol, the classic Bluetooth profile SPP is also initialized as a server, and the device is ready to accept connections over classic Bluetooth (a.k.a. BR/EDR) or Bluetooth Low Energy (BLE).
- For a step by step demonstration on how to run this application visit the SPPLE Demo Lite Wiki.

# **Bluetooth Low Energy Demos**

### ANP Demo

- This application shows how to utilize Low Energy (LE) and the GATT profile. This sample implements the Alert Notification Profile (ANP) using the GATT profile. This sample acts as a LE Master and LE Slave.
- For a step by step demonstration on how to run this application visit the ANP Demo Wiki.

### **HRP Demo**

- This application shows how to utilize Low Energy (LE) and the GATT profile. This sample implements the Heart Rate Monitoring Profile (HRP) using the GATT profile. This sample acts as a LE Master and LE Slave.
- For a step by step demonstration on how to run this application visit the HRP Demo Wiki.

### **HTP Demo**

- This application shows how to utilize Low Energy (LE) and the GATT profile. This sample implements the Health Thermometer Profile (HTP) using the GATT profile. This sample acts as a LE Master and LE Slave.
- For a step by step demonstration on how to run this application visit the HTP Demo Wiki.

### **PASP** Demo

- This application shows how to utilize Low Energy (LE) and the GATT profile. This sample implements the Phone Alert Status Profile (PASP) using the GATT profile. This sample acts as a LE Master and LE Slave.
- For a step by step demonstration on how to run this application visit the PASP Demo Wiki.

### **HOGP Demo**

- This application shows how to utilize Low Energy (LE) and the GATT profile. This sample implements the Human Interface Device (HID) using the GATT profile.
- For a step by step demonstration on how to run this application visit the HOGP Demo Wiki.
- {HOGP Demo Legacy page}.

### PXP Demo

- This application shows how to utilize Low Energy (LE) and the GATT profile. This sample implements the ProXimity Profile(PXP) using the GATT profile. This sample acts as a LE Master and Slave.
- For a step by step demonstration on how to run this application visit the PXP Demo Wiki.

## FMP Demo

- This application shows how to utilize Low Energy (LE) and the GATT profile. This sample implements the Find Me Profile(FMP) using the GATT profile. This sample acts as a LE Master and Slave.
- For a step by step demonstration on how to run this application visit the <u>FMP Demo Wiki</u>.

# See Also

CC256x Main Wiki Page

CC256x Tiva TI Bluetooth Stack

TI Bluetooth Stack Download (http://www.ti.com/tool/tibluetoothstack-sdk)

<ul> <li>{{</li> <li>1. switchcategory:MultiCore</li> <li>For technical support on MultiCore devices, please post your questions in the <u>C6000 MultiCore Forum</u></li> <li>For questions related to the BIOS MultiCore SDK (MCSDK), please use the <u>BIOS Forum</u></li> <li>Please post only comments related to the article CC256x MSP430 T</li> <li>Bluetooth Stack here.</li> </ul>	<ul> <li>please post your questions in the C6000 MultiCore Forum</li> <li>For questions related to the BIOS MultiCore SDK (MCSDK), please use the BIOS Forum</li> </ul>		DaVinci=For technical support on DaVincoplease post your questions on The DaVinci Forum. Please post only comments about the article CC256x MSP430 TI	MSP430=For technical support on MSP430 please post your questions on The MSP430 Forum. Please post only comments about the article CC256x MSP430 TI Bluetooth Stack here.	OMAP35x=For technical support on	support on OMAP please post your questions on <u>The OMAP</u> Forum. Please post only comments about the	MAVRK=For technical support on MAVRK please post your questions on The MAVRK Toolbox Forum. Please post only comments about the article CC256x MSP430 TI Bluetooth Stack here.	For technical support please post your questions at <u>http://e2e.ti.com</u> . Please post only comments about the article CC256x MSP430 TI Bluetooth Stack here. }}
				Links				
Amplifiers & Lin Audio Broadband RF/I Clocks & Timers Data Converters	F & Digital Radio Interface	iability	<ul> <li>Microco</li> </ul>	rocessors Signal Process ontrollers (MCI Applications P	Tem Sors (DSP)	ches & Multiplexe perature Sensors eless Connectivity	& Control ICs	

Retrieved from "https://processors.wiki.ti.com/index.php?title=CC256x\_MSP430\_TI\_Bluetooth\_Stack&oldid=222132"

This page was last edited on 21 October 2016, at 09:26.

Content is available under Creative Commons Attribution-ShareAlike unless otherwise noted.