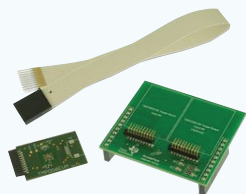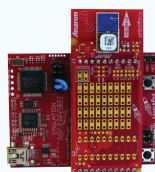# BoosterPack Ecosystem

TMP006 Infrared MEMS temperature sensor BoosterPack
- I2C-based temperature sensor can read surface temperature without making contact
- Can enable real-time readings or datalogging

Sub-GHz RF BoosterPack
- CC110L RF transceiver
- Great RF range!
- Includes 2x RF BoosterPacks
- Prototyping area
- Send & Receive RF data easily

>> See them all @ ti.com/boosterpacks

Software Tools

Energia
A simple open-source & community-driven code editor.

Easy-to-use functions for blinking LEDs, buzzing buzzers & sensing sensors.
>> www.energia.nu

Professional Software tools
LaunchPad is also supported by professional IDEs that provide industrial-grade features and full debug-capability. Set breakpoints, watch variables & more with LaunchPad.
>> www.ti.com/ccs

Meet the MSP430F5529

LaunchPad Evaluation Kit

Part Number: MSP-EXP430F5529LP
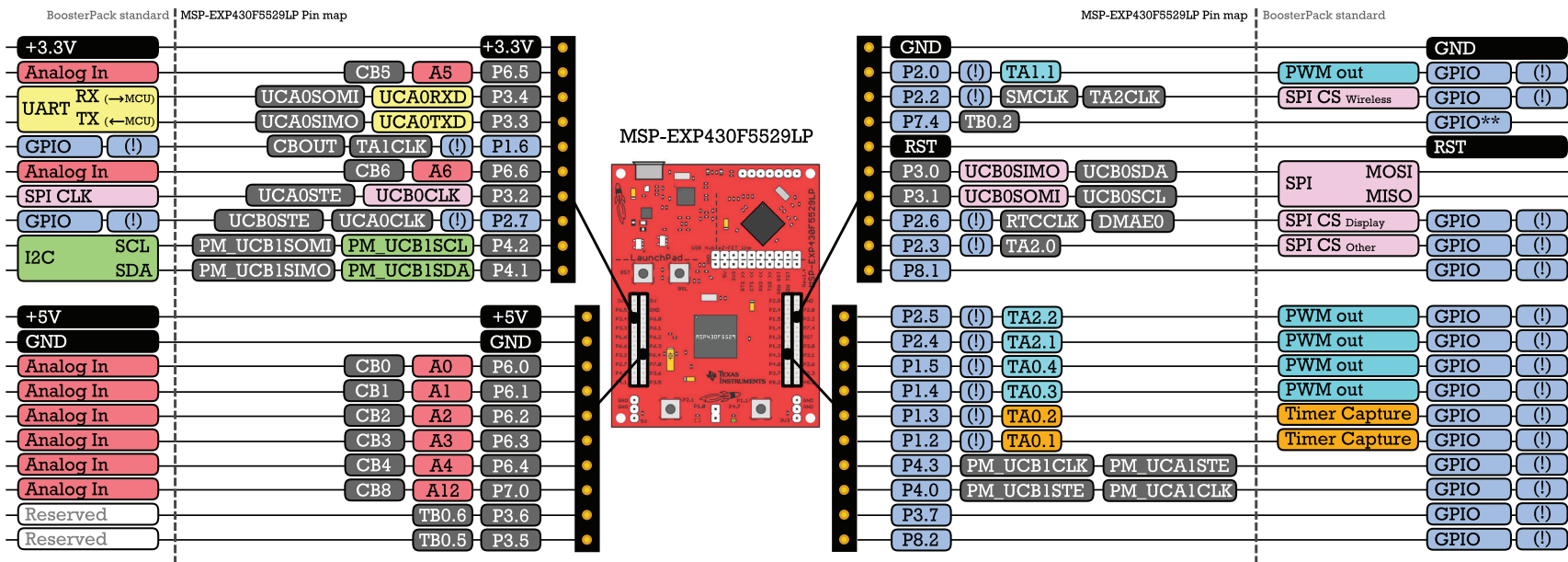
TEXAS INSTRUMENTS

Below are the pins exposed @ the MSP-EXP430F5529LP BoosterPack connector.

Also shown are functions that map with the BoosterPack pinout standard. Refer to the MSP430F5529 Datasheet for additional details.
NOTE: Some LaunchPads & BoosterPacks do not 100% comply with the standard, so please check your specific LaunchPad to ensure pin compatibility.
(!) Denotes I/O pins that are interrupt-capable.
** Some LaunchPads do not have a GPIO here. De-prioritize this pin when making a BoosterPack.

Left connectors

BoosterPack standard	MSP-EXP430F5529LP Pin map			
+3.3V			+3.3V	
Analog In	CB5	A5	P6.5	
UART RX (→MCU)	UCA0SOMI	UCA0RXD	P3.4	
UART TX (←MCU)	UCA0SIMO	UCA0TXD	P3.3	
GPIO (!)	CBOUT	TA1CLK (!)	P1.6	
Analog In	CB6	A6	P6.6	
SPI CLK	UCA0STE	UCB0CLK	P3.2	
GPIO (!)	UCB0STE	UCA0CLK (!)	P2.7	
I2C SCL	PM_UCB1SOMI	PM_UCB1SCL	P4.2	
I2C SDA	PM_UCB1SIMO	PM_UCB1SDA	P4.1	

BoosterPack standard	MSP-EXP430F5529LP Pin map		
+5V			+5V
GND			GND
Analog In	CB0	A0	P6.0
Analog In	CB1	A1	P6.1
Analog In	CB2	A2	P6.2
Analog In	CB3	A3	P6.3
Analog In	CB4	A4	P6.4
Analog In	CB8	A12	P7.0
Reserved		TB0.6	P3.6
Reserved		TB0.5	P3.5

MSP-EXP430F5529LP

Right connectors

MSP-EXP430F5529LP Pin map			BoosterPack standard	
GND			GND	
P2.0 (!)	TA1.1		PWM out	GPIO (!)
P2.2 (!)	SMCLK	TA2CLK	SPI CS Wireless	GPIO (!)
P7.4	TB0.2			GPIO**
RST			RST	
P3.0	UCB0SIMO	UCB0SDA	SPI MOSI	
P3.1	UCB0SOMI	UCB0SCL	SPI MISO	
P2.6 (!)	RTCCLK	DMAE0	SPI CS Display	GPIO (!)
P2.3 (!)	TA2.0		SPI CS Other	GPIO (!)
P8.1				GPIO (!)

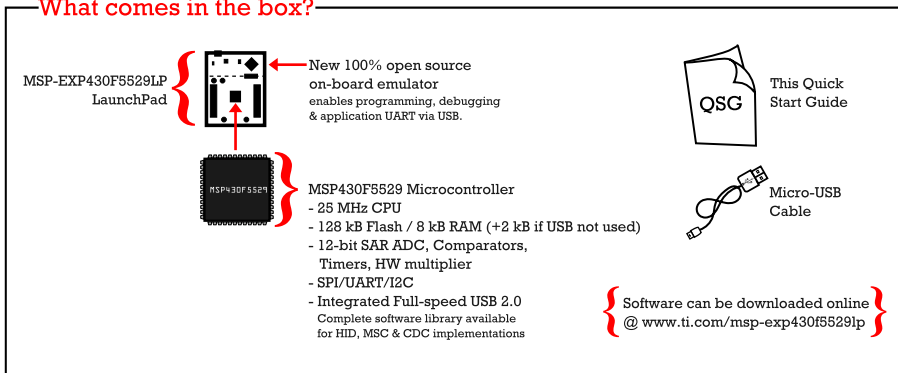| MSP-EXP430F5529LP Pin map			BoosterPack standard	
P2.5 (!)	TA2.2		PWM out	GPIO (!)
P2.4 (!)	TA2.1		PWM out	GPIO (!)
P1.5 (!)	TA0.4		PWM out	GPIO (!)
P1.4 (!)	TA0.3		PWM out	GPIO (!)
P1.3 (!)	TA0.2		Timer Capture	GPIO (!)
P1.2 (!)	TA0.1		Timer Capture	GPIO (!)
P4.3	PM_UCB1CLK	PM_UCA1STE		GPIO (!)
P4.0	PM_UCB1STE	PM_UCA1CLK		GPIO (!)
P3.7				GPIO (!)
P8.2				GPIO (!)

A closer look at your new LaunchPad

Featured microcontroller: MSP430F5529

This LaunchPad is great for...

- General purpose applications due to its 25MHz CPU, integrated Full-speed USB 2.0 & analog/digital integration
- Battery-operated applications thanks to it's low-power capabilities
- Beginners & experienced developers alike thanks to it's multiple points of entry into software development
  (Energia for beginners & industrial-grade tools like CCS or IAR for more advanced development)

What comes in the box?

MSP-EXP430F5529LP LaunchPad

New 100% open source on-board emulator
enables programming, debugging & application UART via USB.

MSP430F5529 Microcontroller
- 25 MHz CPU
- 128 kB Flash / 8 kB RAM (+2 kB if USB not used)
- 12-bit SAR ADC, Comparators, Timers, HW multiplier
- SPI/UART/I2C
- Integrated Full-speed USB 2.0
  Complete software library available for HID, MSC & CDC implementations

QSG

This Quick Start Guide

Micro-USB Cable

Software can be downloaded online @ www.ti.com/msp-exp430f5529lp

MSP-EXP430F5529LP Overview

Complete USB development kit
This micro USB connector can be used to:
- Program & debug the MSP430F5529 target MCU.
- Interface with the USB-enabled MSP430F5529 MCU (MSC, HID & CDC).
- Enable communication to the PC via back-channel UART.

On-board USB Hub
Both emulator and the target MSP430F5529 device are brought out to the micro USB connector.

RESET

Bootstrap Loader (BSL) Button

eZ-FET on-board emulator
Enables debugging/programming as well as communication back to the PC. The eZ-FET can also provide power to the target MCU.

Jumpers to isolate emulator from target MCU

40-pin BoosterPack connector (J1 & J5)

MSP430F5529 Microcontroller
- Featuring integrated USB 2.0

Button/Switch 1 (S1)

Button/Switch 2 (S2)

User LEDs (LED1 & LED2)

Let's get started!

The out-of-box demo:
The MSP-EXP430F5529LP LaunchPad features an MSP430F5529 device that is pre-loaded with some demo functionality.

1. Connecting the hardware
Connect the LaunchPad using the included USB cable to a computer. If prompted, let it install necessary software.

2. The Demo Application
When connected to your computer, the device enumerates on the computer as a composite USB device to demonstrate 2 USB implementations.

MSC (Mass Storage Class) Hard drive
When plugged in over USB, the LaunchPad enumerates as a Mass Storage Class device. The LaunchPad shows up as a removable disk ("F5529LP") on the computer and contains several files on FAT volume.
- Button1.txt = "Hello World"
- Button2.txt = This contains ASCII art of the LaunchPad "Rocket" logo
- MSP430_USB_LaunchPad.url
- ReadMe.txt

HID (Human Interface Device) Keyboard
The LaunchPad also enumerates as a HID Keyboard. By pressing S1 or S2 button on your LaunchPad, the text stored in the Button1 and Button2.txt files will be sent to your computer as "keystrokes." Open up a text editor to see the incoming characters! You can personalize the pre-set character strings by simply editing the Button1 and Button2.txt files. This demo is limited to 2048 characters in each txt file.
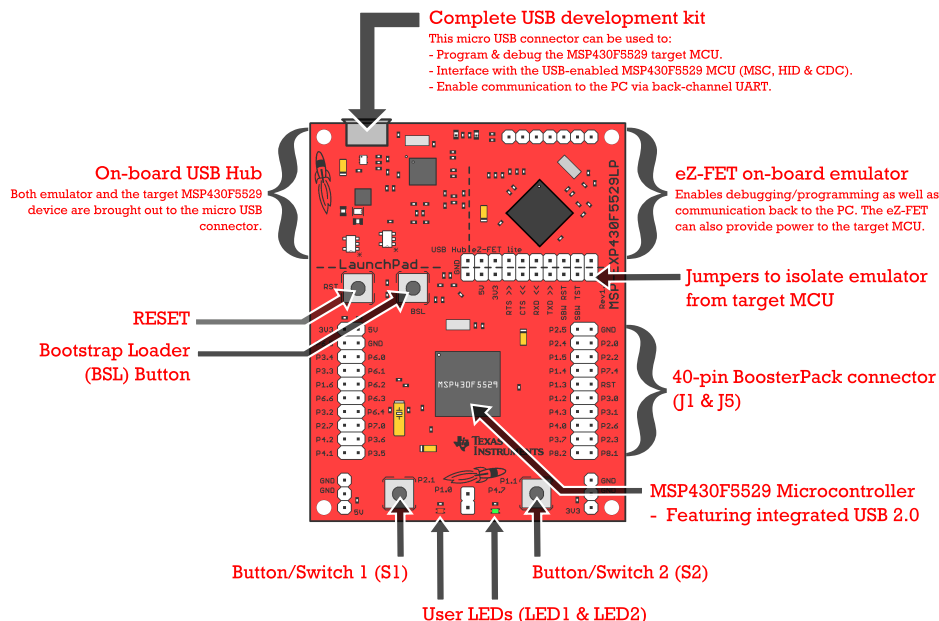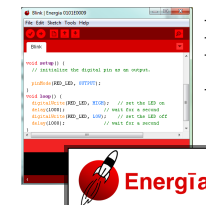
3. Finding USB resources
The MSP430F5529 device is supported by a robust USB development ecosystem, which includes open source APIs for MSC, HID & CDC USB implementations. Also, a GUI-based USB descriptor tool is available, which can help you generate your USB drivers to ease your development! You can find more @ www.ti.com/msp430usbdevpack

Where do I go next?
This LaunchPad provides multiple-points of entry in terms of software development. You can use a friendlier code editing tool, such as the open source, community-made Energia, or a full-fledged industrial-grade development environment like Code Composer Studio.

Energia
A wonderful community-driven, open-source code editor that provides a simple & friendly development environment.

- Open source & community-driven
- Based on the Wiring framework
- Robust collection of intuitive function calls & APIs
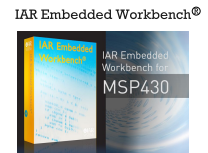- Many code example & projects to help you get started quickly

Energia

www.energia.nu

Professional Tools
Professional development tools are also available and provide advanced capabilities like full debug support enabling you to set breakpoints, watch variables, step through your code & more.

Code Composer Studio™ IDE

IAR Embedded Workbench®

www.ti.com/ccs

www.ti.com/iar

IMPORTANT NOTICE

Products		Applications	
Audio	www.ti.com/audio	Automotive and Transportation	www.ti.com/automotive
Amplifiers	amplifier.ti.com	Communications and Telecom	www.ti.com/communications
Data Converters	dataconverter.ti.com	Computers and Peripherals	www.ti.com/computers
DLP® Products	www.dlp.com	Consumer Electronics	www.ti.com/consumer-apps
DSP	dsp.ti.com	Energy and Lighting	www.ti.com/energy
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Interface	interface.ti.com	Medical	www.ti.com/medical
Logic	logic.ti.com	Security	www.ti.com/security
Power Mgmt	power.ti.com	Space, Avionics and Defense	www.ti.com/space-avionics-defense
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