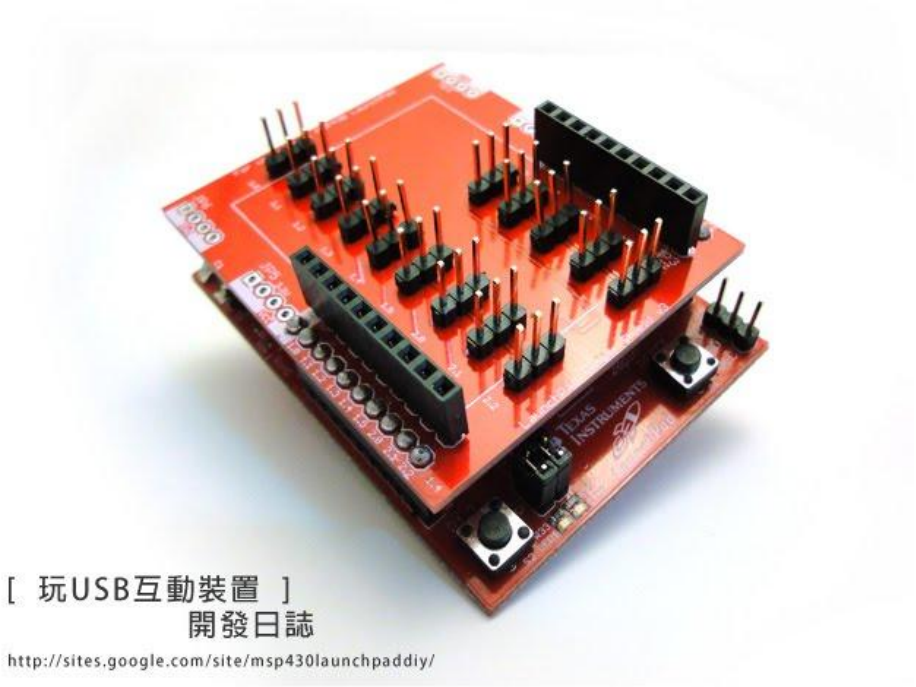
[OST - MSP430 launchpad]

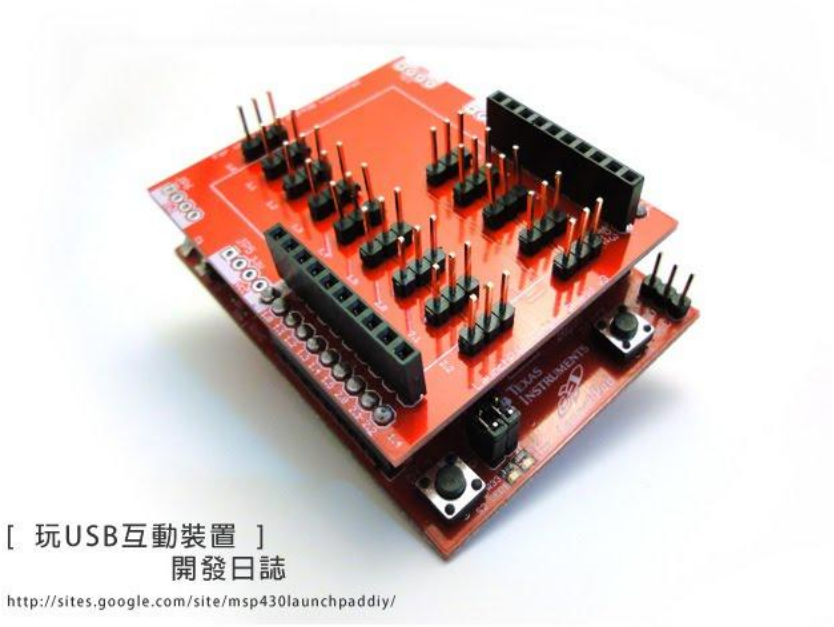


Sensor Base booster pack user guide

1.feature

Sensor Base Booster Pack is an bridge board from TI msp430 LaunchPad board to sensor and make it easier when user connect a sensor device. By using this booster pack, user can have more fun with sensor application, such as plug-and-play external sensor board to measure environment status. Here is the hardware feature description as following:

- **sensor input** - max. support 14 port input.output (P1 for 8 ports , P2 for 6 ports)。user can connect separate sensor by each port , the detail pin define by chip datasheet. the sensor input max. voltage is 3.6V , min. voltage is 0V reference to ground.
- **voltage VCC** – provide 3.3V voltage source
- **ground GND -** provide 0V ground reference



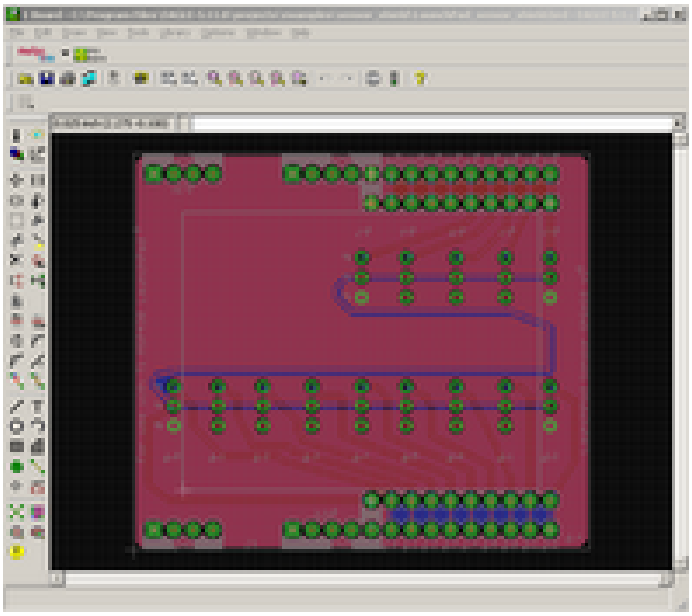
2.assembly procedure

- 1.check pcb board contain two layers, please use connector on the top side
- 2.solder 10PIN female connector on two side of the pcb board.
- 3.solder 3PIN male connector on top side of the pcb board.

table1 connector pinout

MSP430-EXP430G2

Header Pin Numbers	Sensor base booster pack	MSP430 G2553 Name		MSP430 G2553 Name	Sensor base booster pack	Header Pin Numbers
1	VCC	VCC		GND	GND	20
2	P1.0	P1.0 (LED1)		XIN		19
3	P1.1	P1.1 (UART)		XOUT		18
4	P1.2	P1.2 (UART)		TEST		17
5	P1.3	P1.3 (S2)		RST (S1)		16
6	P1.4	P1.4		P1.7	P1.7	15
7	P1.5	P1.5		P1.6 (LED2)	P1.6	14
8	P2.0	P2.0		P2.5	P2.5	13
9	P2.1	P2.1		P2.4	P2.4	12
10	P2.2	P2.2		P2.3	P2.3	11
Header Pin Numbers	Sensor base booster pack	MSP430 G2553 Name		MSP430 G2553 Name	Sensor base booster pack	Header Pin Numbers



3.first time install software

3.1 step 1 - launchpad usb driver

LaunchPad shipping included with standard USB type cable, we recommend to use it for computer usb port.

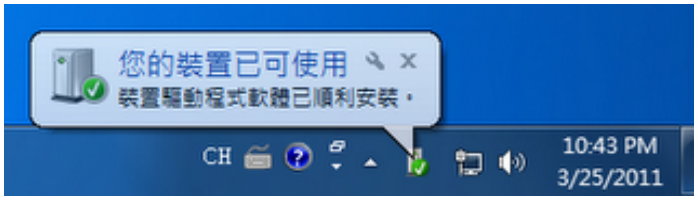
- launchpad windows usb driver also available at official website:

  http://e2e.ti.com/cfs-file.ashx/__key/CommunityServer-Discussions-Components-Files/166/4456.LaunchPad_5F00_Driver.zip

- when first time plug in LaunchPad board, windows system will show toolbar message as "now is search and install device driver.

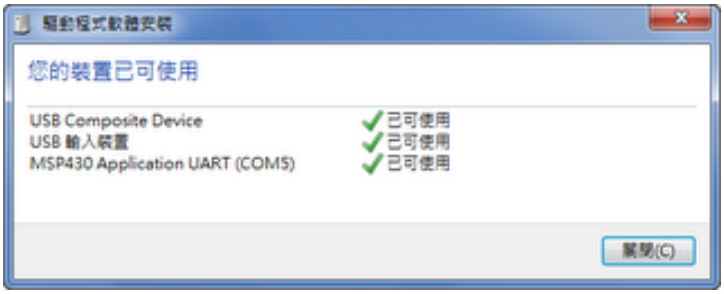
- select driver folder \Step1_USB launchpad driver for windows\430cdc.inf

- wait for windows system ready and complete driver installation。



- message show "your device already available"

*usb driver install procedure only necessary run on the very first time with new computer



- check control panel>>system>>device manager>>
  device port(COM and LPT)"option >>find this new USB device.

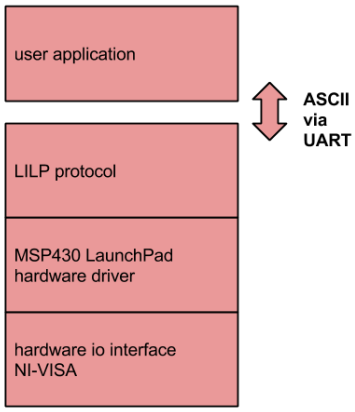
- please note this example as port setting at COM5, the real application for COM PORT number maybe a difference value like COM6...COM7....or any number.

- check USB device name "MSP430 Application UART" message.

- congratulation ! end of usb driver installation.

3.2. step 2 - LILP uploader

sensor base booster pack is an extension kit that based on TI MSP430 LaunchPad microprocessor.To provide user have more friendly method to build their application own application code, we recommend use "**LILP**" protocol (LabVIEW Interface for LaunchPad I/O Protocol).



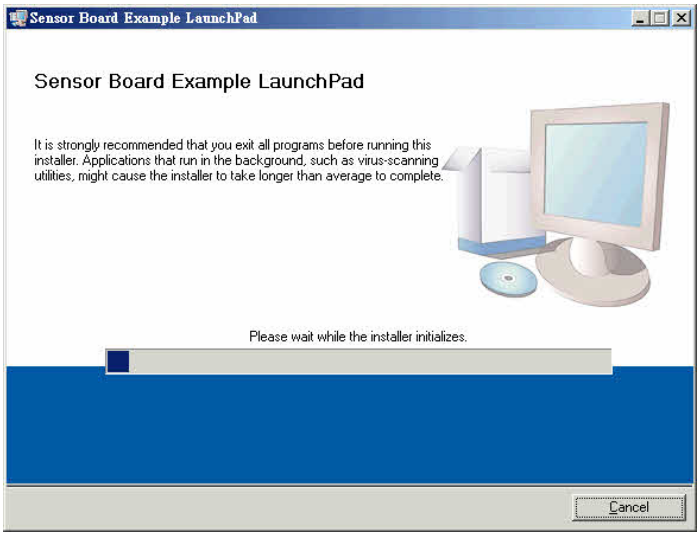
*LILP uploader procedure only necessary run on the very first time with new launchpad board.

* this protocol support chip model for MSP430G2553, the original chip attached on MSP430G2 launchpad board.

- plug launchpad board usb on laptop computer usb port
- run \Step2_LILPv3 uploader\LILP uploader_v1.0.0219\LILP_uploader.exe
- click the "**upload LILPv3**" button
- check the message on the screen
- congratulation ! end of LILPv3 installation.

3.3.step 3- install application : sensor board example

- run \Step3_appliaction GUI\setup.exe



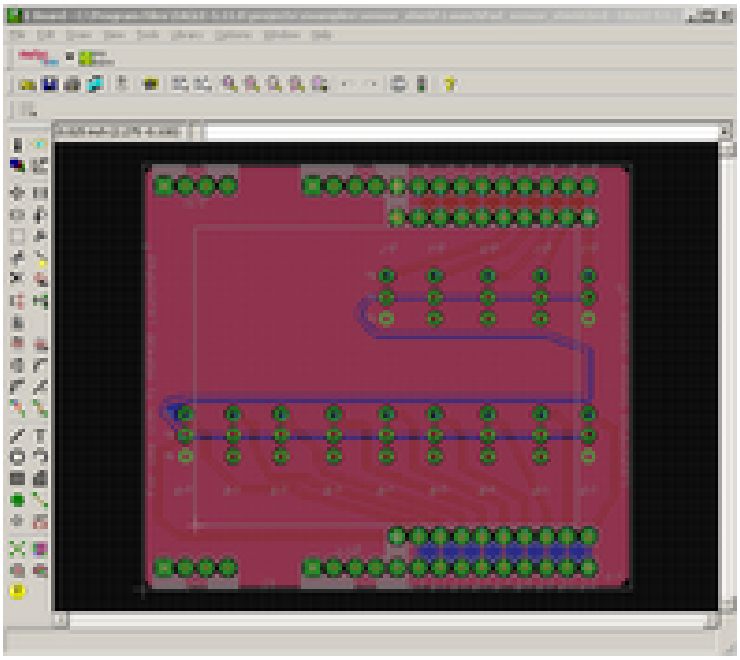
*install application procedure only necessary run on the very first time with new computer.

4.run application: sensor board example

operation introduction：

- 1. run the virtual panel application as sensor value watcher.
- 2. check value will change depend on the sensor input.
- 3. as the same method, user can connect any external sensor to the launchPad board.

5. pcb board design

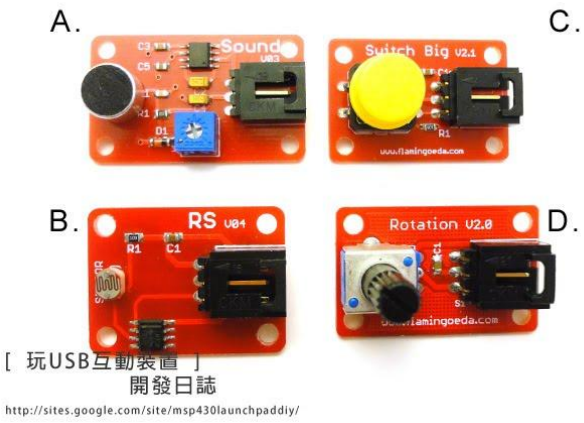


top side pcb board

bottom side pcb board

6.sensor and cable information (optional)

here are example to several sensor modules for sensor base board, it is optional and not include in sensor base booster pack.



3 PIN connector

Analog Input Cable Connectors

Each Analog Input uses a 3-pin, 0.100 inch pitch locking connector. Pictured here is a plug with the connections labeled. The connectors are commonly available - refer to the Table below for manufacturer part numbers.

Cable Connectors		
Manufacturer	**Part Number**	**Description**
Molex	50-57-9403	3 Position Cable Connector
Molex	16-02-0102	Wire Crimp Insert for Cable Connector
Molex	70543-0002	3 Position Vertical PCB Connector
Molex	70553-0002	3 Position Right-Angle PCB Connector (Gold)
Molex	70553-0037	3 Position Right-Angle PCB Connector (Tin)
Molex	15-91-2035	3 Position Right-Angle PCB Connector - Surface Mount

Note: Most of the above components can be bought at www.digikey.com

CONN HOUSING 3POS .100 W/LATCH C-Grid® SL™ 70066

CONN TERM FEMALE 22-24AWG TIN C-Grid® SL™ 70058

CONN HEADER 3POS .100 VERT GOLD C-Grid® SL™ 70543

7.more information

if something else you want to ask discussion group and technical support.

http://sites.google.com/site/msp430launchpaddiy/

http://sites.google.com/site/msp430launchpaddiy/home/tao-lun-qu