SAB-TFBGAxxx Quick Start Guide

This document applies to SAB-TFBGA100, SAB-TFBGA180, and SAB-TFBGA208.

THE SAB-TFBGAxxx WILL NOT WORK WITHOUT A USB-ICP PROGRAMMER!
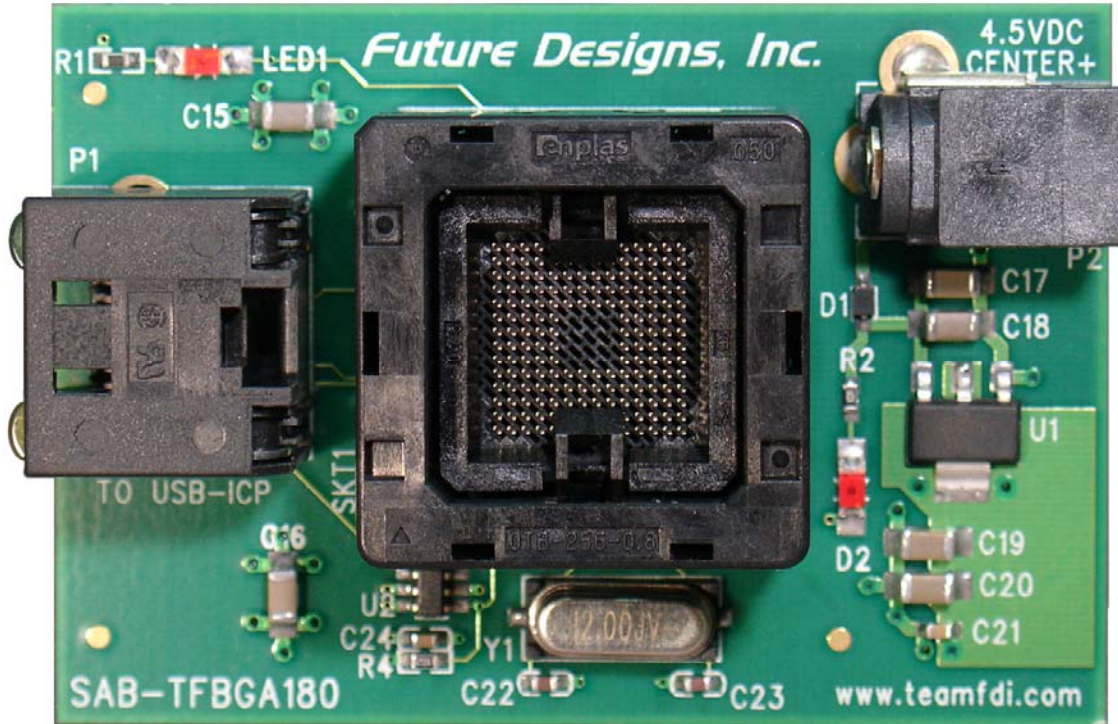

Figure 1: SAB-TFGBA180

The SAB-TFBGAxxx is a Socket Adapter Board (SAB) for use with Future Designs USB In-Circuit Programmer for NXP Semiconductors LPC2K devices. The SAB-TFBGAxxx allows the user to program and test NXP microcontrollers in TFBGA packages.

| SAB-TFBGAxxx Products and Supported Devices	
Part Number	Supports
SAB-TFBGA100	LPC2364, LPC2368
SAB-TFBGA180	LPC2458
SAB-TFBGA208	LPC2468, LPC2478

Items Required

- The correct SAB-TFBGAxxx for use with your target microcontroller
- 4.5V Power Adapter (Included with SAB)
- 1' Standard Cat 5e Ethernet Patch Cable (Included with SAB)
- Future Designs USB In-Circuit Programmer P/N: USB-ICP-LPC2K (Sold Separately)
- Blink.hex test program (available from www.teamfdi.com/usb-icp)

Please observe anti-static precautions when working with semiconductor devices.

Rev 1.0

Procedure

1. If you have not already done so, install the software and configure USB-ICP-LPC2K using the instructions supplied with that product.

2. Place the SAB-TFBGAxxx on a flat work surface and take note of the PIN A1 indicators.
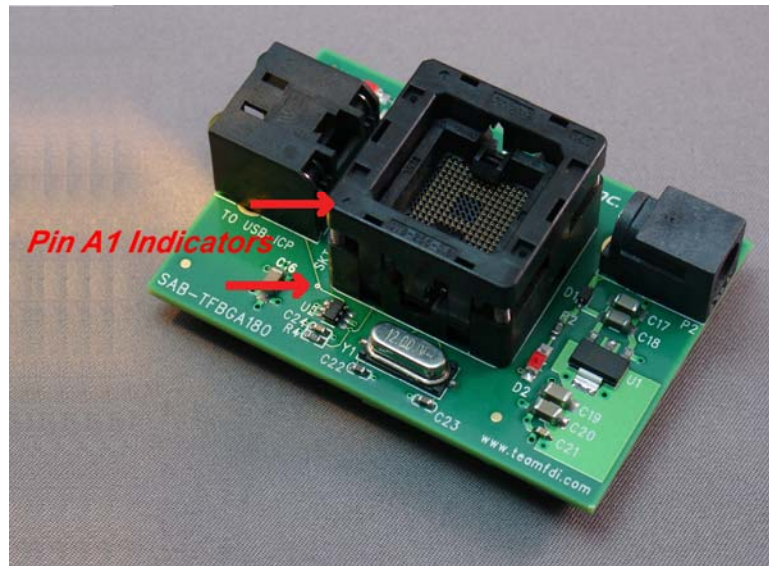

3. Using your thumb and index finger press straight down on the outer rim of the BGA socket. Carefully drop the target microcontroller into the slot in the top of the socket. Make sure you have pin A1 on the microcontroller aligned properly with the indicators.
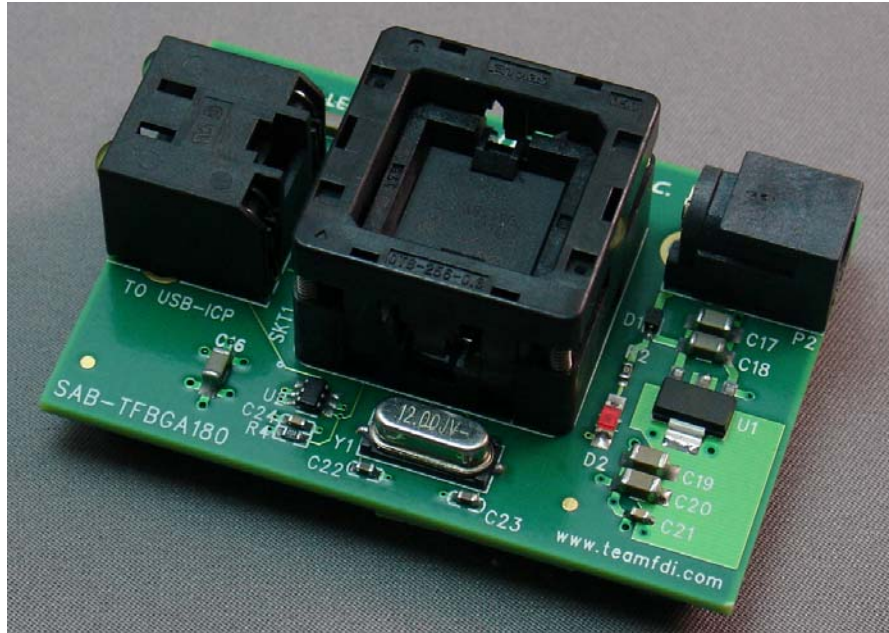
Rev 1.0
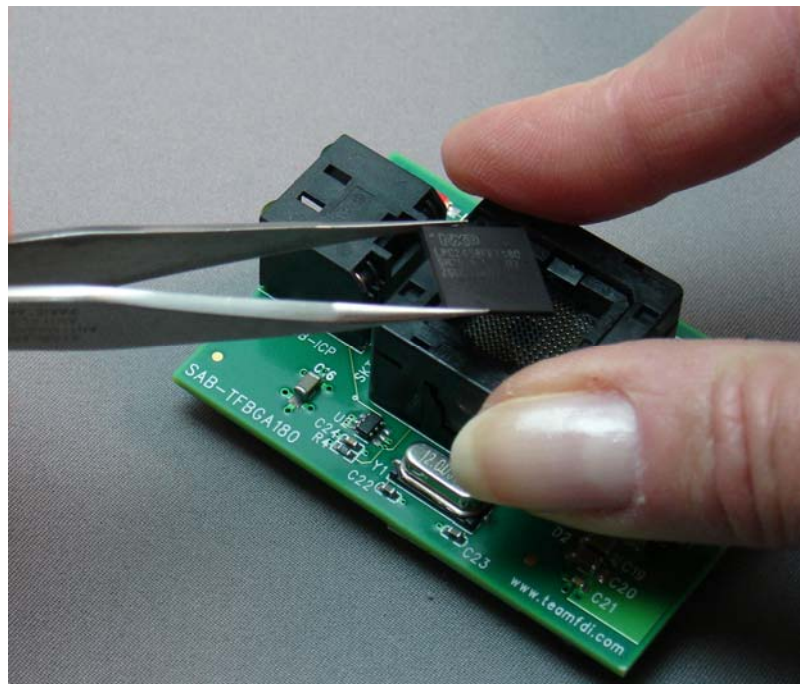
4. Now gently apply a small amount of pressure on the top of the microcontroller with a free finger or a nonconductive tool.
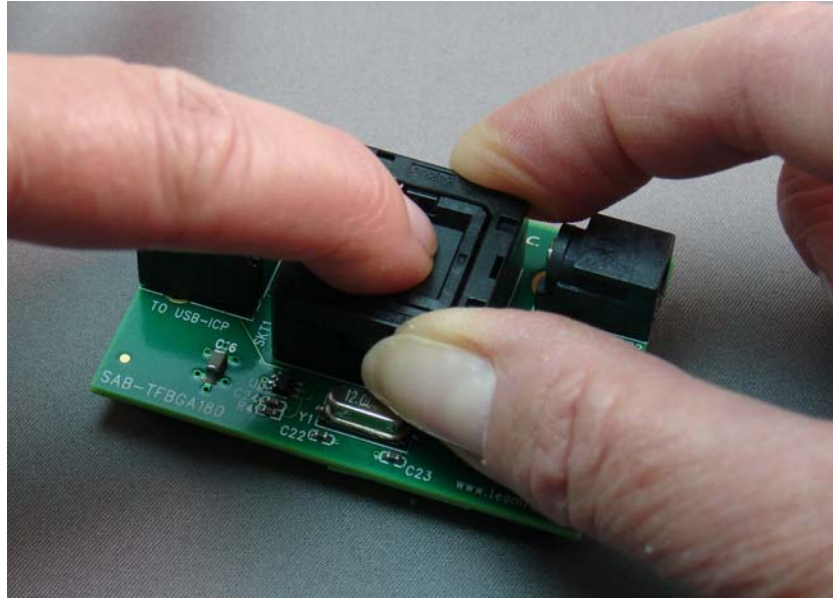
5. Release the BGA socket while continuing to hold pressure on the microcontroller.
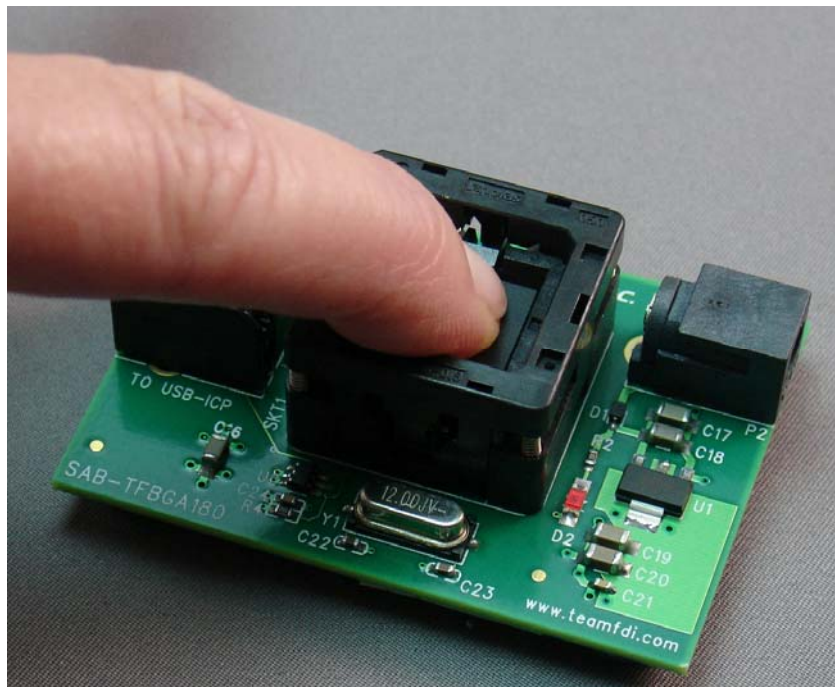
6. Remove pressure from the microcontroller.

7. Using the supplied Ethernet Patch Cable, connect your USB-ICP to the SAB-TFBGAxxx

8. Connect USB-ICP to an available USB port on your computer.
9. Connect the supplied 4.5V power supply to the SAB-TFBGAxxx. D2 will light up to indicate power has been applied.
10. Start the Flash Magic software. Configure the settings as shown below:
    a. Section 1
        i. COM Port: Select the COM used by USB-ICP
        ii. Baud Rate: Ignore this setting. It will default to 9600 when you select USB-ICP as your interface (Item iv below)
        iii. Device: Choose your target device (LPC2458 in our example)
        iv. Interface: Choose FDI USB-ICP
        v. Oscillator Freq. (MHz): Ignore this one too. Flash Magic does not use this value when you have selected USB-ICP.
    b. Section 2
        i. Click "Erase all Flash + Code Rd Prot".
    c. Section 3
        i. Click **Browse** and select the "Blink.hex" file you downloaded earlier.

Rev 1.0

d. Section 4
   i. Make sure all checkboxes in the "Options" section are NOT checked.
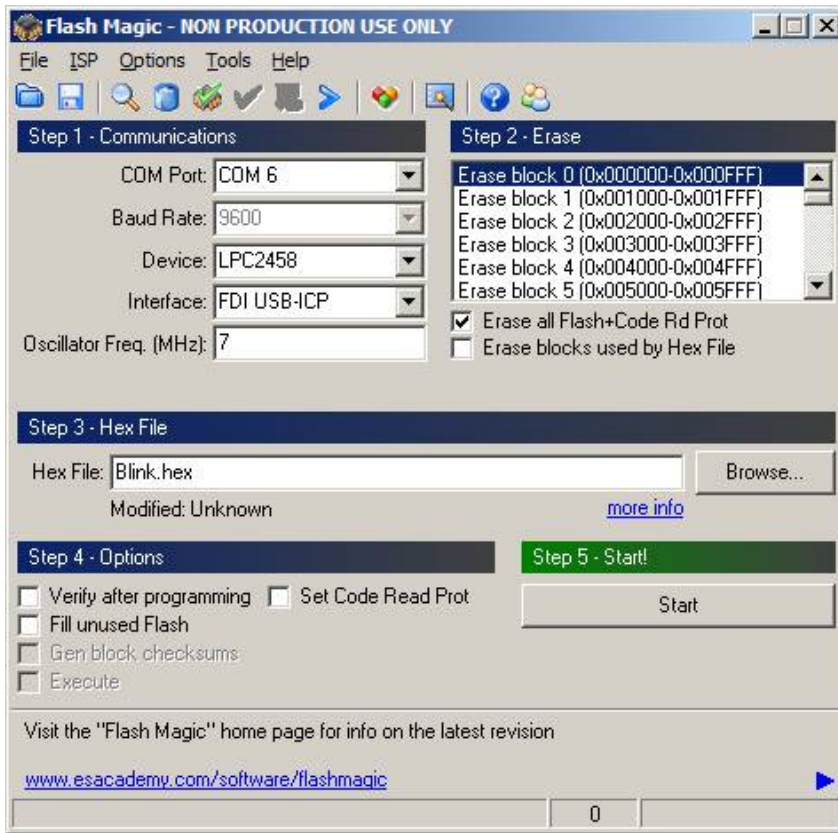
11. Before attempting to Flash your part, it is recommended that you verify that everything is connected and working properly. The easiest way to do this is to read the device ID. Click ISP and then select Read Device Signature. If everything is working, you should see the dialog box below with the correct Device ID for your part (LPC2458 in our example). If you get an "Operation Failed" error or the device ID reads all F's you have a problem somewhere.

12. If the Device ID reads correctly, Click Start!
13. Reset the processor by cycling power. LED1 should begin to blink.

General Troubleshooting

- Make sure the COM port you have selected in Flash Magic is really the one in use by USB-ICP. See the related question below or look at the USB-ICP Quick Start for more on how to check your COM port.
- Make sure you are connecting USB-ICP directly to the USB port on your computer. USB Hubs are not supported with USB-ICP.

Frequently Asked Questions

For more frequently asked questions regarding the USB-ICP and the SAB-TFBGAxxx please visit:
www.teamfdi.com/usb-icp

1. Q: Read Device Signature returned "Operation Failed" or all F's. What now?
    A: Verify the following:
    a. The pin A1 dot on the microcontroller lines up correctly with the pin A1 indicators on the SAB-TFBGAxxx.
    b. USB-ICP is connected to the SAB board using the supplied cable
    c. You have a suitable power supply connected to the SAB
    d. If the above items didn't solve the problem, try removing the microcontroller from the socket and inserting it again. If you don't apply pressure to the top of the part when you release the socket, the part may not seat correctly. You can check this by holding the SAB-TFBGAxxx up to your ear and shaking it. If you can hear the microcontroller rattling in the socket, it's not loaded in the socket correctly. Try loading the part again using the instructions above.

2. Q: I got an error message that says "Unable to communicate. (in use) Ensure no other applications are using the COM Port. Try raising or lowering the baud rate."
    A: Make sure that the COM Port you have selected is the one in use by USB-ICP. One of the questions below will tell you where to look to see which port to use.

3. Q: Can I use a different cable than the one supplied with my SAB-TFBGAxxx?
    A: Yes, any good quality standard Ethernet patch cable should work. In general, we do not support the use of cables longer than 1 foot. However, we recognize that cables of that size can be difficult to find. Cables up to 1 meter in length should work just fine. If you start experiencing communications problems, go back to a shorter cable.

4. Q: Do I have to use a 4.5V power supply with SAB-TFBGAxxx
    A: No. SAB-TFBGAxxx has an on board voltage regulator. You can use any DC power source from a minimum of 4V to a maximum of 20V. The power jack is a standard 2.1 mm, center positive.

5. Q: I don't know which COM port to use with Flash Magic.
    A: Look in under ports in the device manager. You're looking for a "USB Serial Port". This procedure is covered in greater detail in the quick start guide for USB-ICP. You can find it at www.teamfdi.com/usb-icp

6. Q: I don't have a USB-ICP-LPC2K. Where can I get one?
   A: You can buy one from our online store at www.teamfdi.com. You can also find them at Digi-Key.
   The Digi-Key part number is 622-1005-ND.

If you have a problem or question that is not addressed here or on our website, please contact support@teamfdi.com