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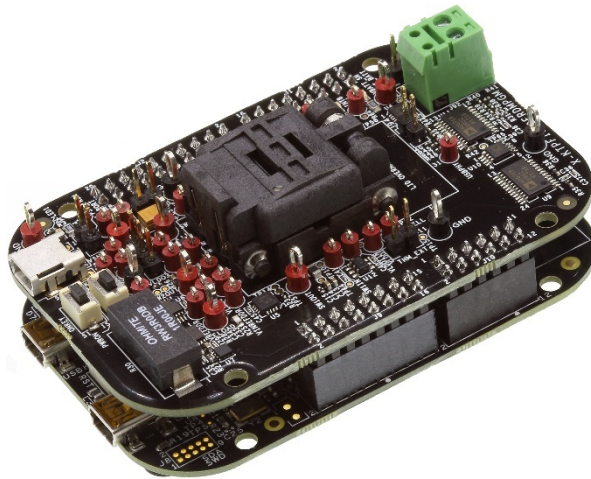
PF1550 programming socket board
Rev. 1.0 — 13 May 2019

1 KITPF1550FRDMPGM

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3   Overview of the PF1550 PMIC development environment

NXP offers the KITPF1550FRDMPGM socket board that supports the one time programmable (OTP) programming of the PF1550 power management integrated circuit (PMIC).

The kit comes with a FRDM-KL25Z already mounted and loaded with compatible microcode. The primary function of the FRDM-KL25Z is to control communication between the socket board and a PC.

4   Getting started

The NXP analog product development boards provide an easy-to-use platform for evaluating NXP products. The boards support a range of analog, mixed-signal and power solutions. They incorporate monolithic integrated circuits and system-in-package devices that use proven high-volume technology. NXP products offer longer battery life, a smaller form factor, reduced component counts, lower cost and improved performance in powering state-of-the-art systems.

The tool summary page for KITPF1550FRDMPGM is located at http://www.nxp.com/KITPF1550FRDMPGM. The overview tab provides an overview of the device, product features, a description of the kit contents, a list of (and links to) supported devices, list of (and links to) any related products and a **Get Started** section.

The **Get Started** section provides links to everything needed to start using the device and contains the most relevant, current information applicable to the KITPF1550FRDMPGM.

- Go to http://www.nxp.com/KITPF1550FRDMPGM.
- On the **Overview** tab, locate the **Jump To** navigation feature on the left side of the window.
- Select the **Get Started** link.
- Review each entry in the **Get Started** section and download an entry by clicking on the title.
- After reviewing the **Overview** tab, visit the other product related tabs for additional information:
  - **Documentation**: download current documentation
  - **Software & Tools**: download current hardware and software tools
  - **Buy/Parametrics**: purchase the product and view the product parametrics

After downloading files, review each file, including the user guide which includes setup instructions. If applicable, the bill of materials (BOM) and supporting schematics are also available for download in the **Get Started** section of the **Overview** tab.

4.1 Kit contents/packing list

The kit contents include:

- Assembled and tested KITPF1550FRDMPGM socket board in an anti-static bag
- Cable, USB type A male/type mini B male 3 ft
- Quick start guide

4.2 Required equipment

To use this kit, you need:

- KITPF1550GUI installed on a Windows PC

4.3 System requirements

The kit requires the following:

- USB enabled computer running Windows XP, Vista, 7, 8, or 10 (32-bit or 64-bit)

5   Getting to know the hardware

5.1 Board overview

The KITPF1550FRDMPGM board is an easy-to-use circuit board, allowing the user to program PF1550 power management IC.

The FRDM-KL25Z is mounted to the EVB as an integral component and serves as an interface between the KITPF1550GUI and the PF1550 PMIC.

5.2 Board description

5.2.1 Jumper and switch definitions

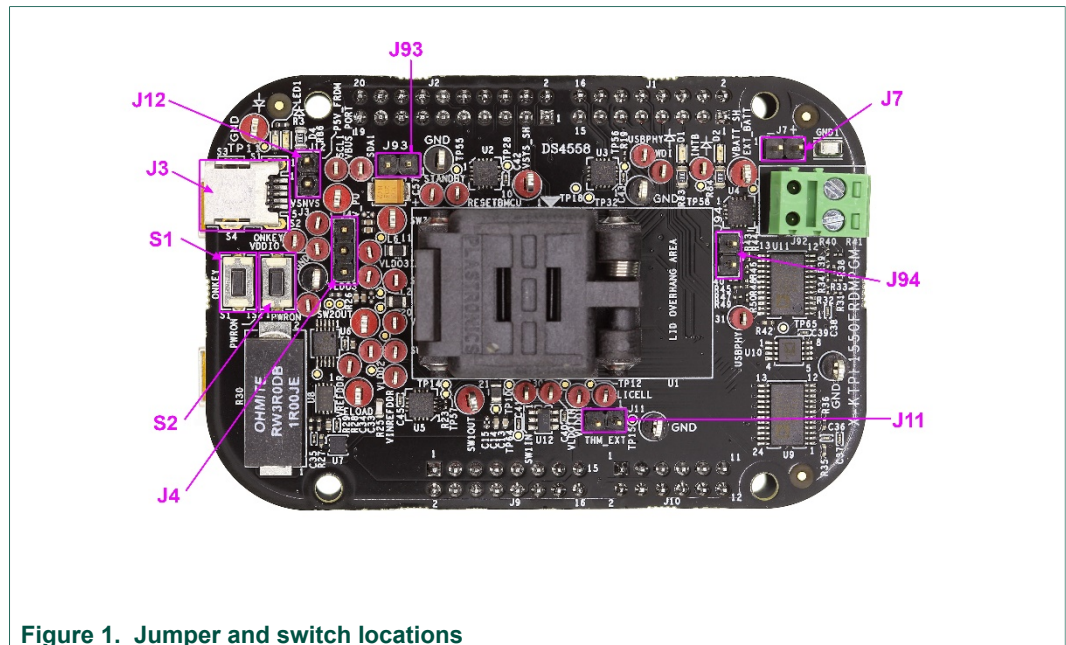Figure 1 shows the location of jumpers and switches on the socket board.

Figure 1. Jumper and switch locations

Table 1 describes the function and settings for each jumper and switch.

Table 1. Jumper and switch definitions

Jumper/switch	Description	Setting	Connection/result
S1	ONKEY	open	connects ONKEY pin to GND when pressed; if configured properly, it causes wake-up event
S2	PWRON	open	connects PWRON pin to GND when pressed; resets the PMIC device
J3	5.0 V USB	-	power supply for the board (J12 shall be opened if J3 is connected)
J4	pullup configuration	[1-2]	pullup to VSNVS
		[2-3]	pullup to VDDIO which is supplied by P3V3 coming from the FRDM-KL25Z board
J7	battery connection; do not short together	pin 1	negative pole of battery
		pin 2	positive pole of battery
J11	thermistor connection	open	connect NTC thermistor (10 kΩ at 25 °C; example, NXRT15XH103FA1B040)
J12	5 V power supply	open	5 V from the J3 (USB) is used
		[1-2]	5.0 V is used from the FRDM-KL25Z board (current is limited)
J93	standby pin configuration	open	standby pin input is HIGH
J94	jumper for external 3.3 V LDO input	open	external 3.3 V LDO is not used

UM11223

Product user manual **Rev. 1.0 — 13 May 2019**

5 / 12

5.2.2 LED display

The board contains the following LEDs:
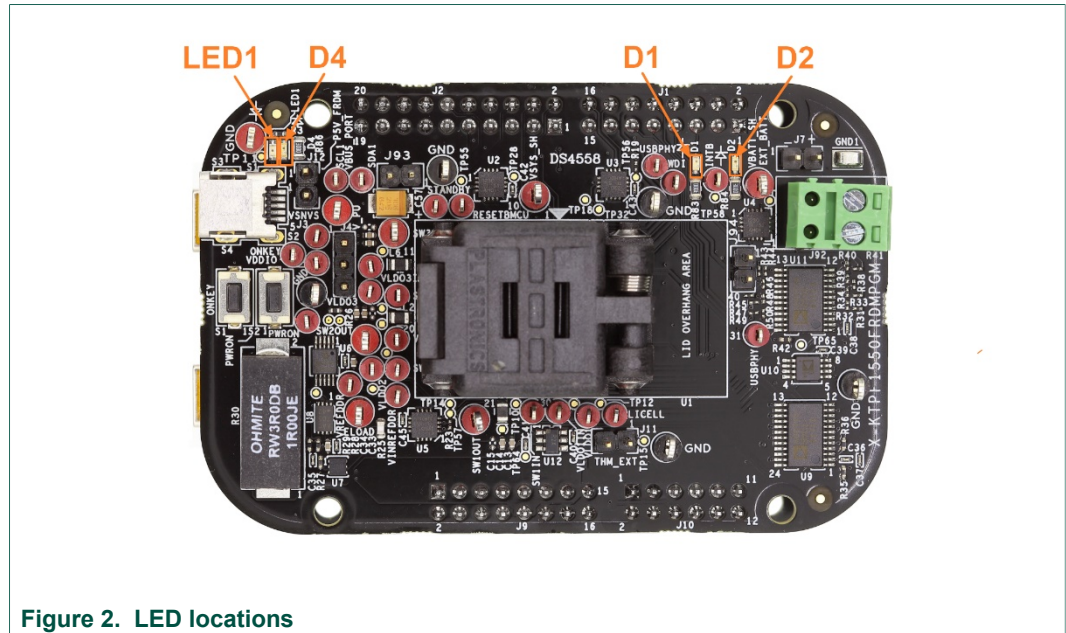
Figure 2. LED locations

Table 2. LED locations

| LED ID	Description
LED1	red LED, charge state indicator – behavior of the LED (duty cycle of blinking) is programmable
D1	green LED, KITPF1550FRDMPGM and KITPF1550GUI communication indicator • ON shows communication is normal • OFF shows communication is abnormal
D2	red LED, PF1550 OTP programming indicator • ON shows OTP programming is in process • OFF shows OTP programming is complete
D4	red LED, VSYS power indicator

6 Installing the software

1. Download KITPF1550GUI.zip from http://www.nxp.com/KITPF1550FRDMPGM. Choose the 32 or 64 bit version with respect to the system installed on your PC.
2. Extract all the files to any desired folder on your PC and install.
3. PF1550 icon can be found in the START menu in Windows after the install completes, click it to start KITPF1550GUI.
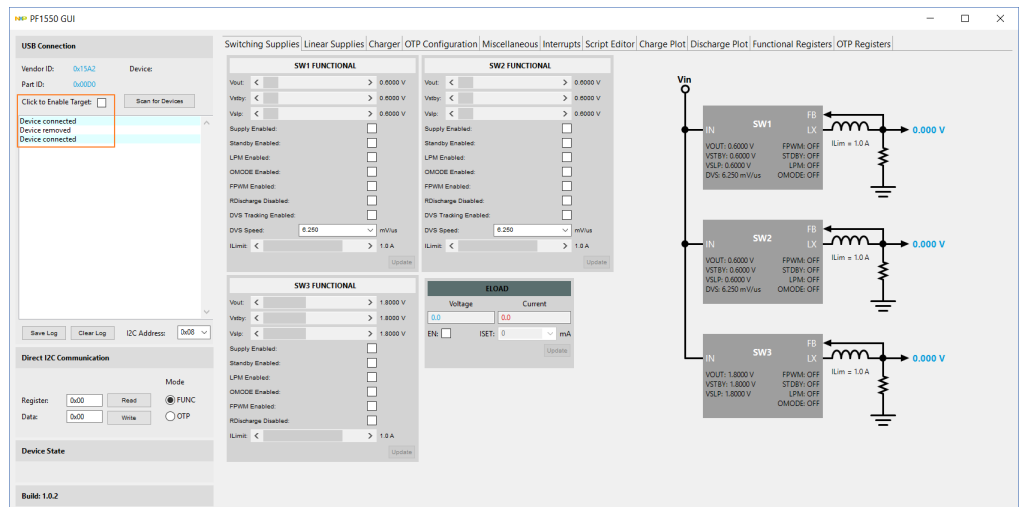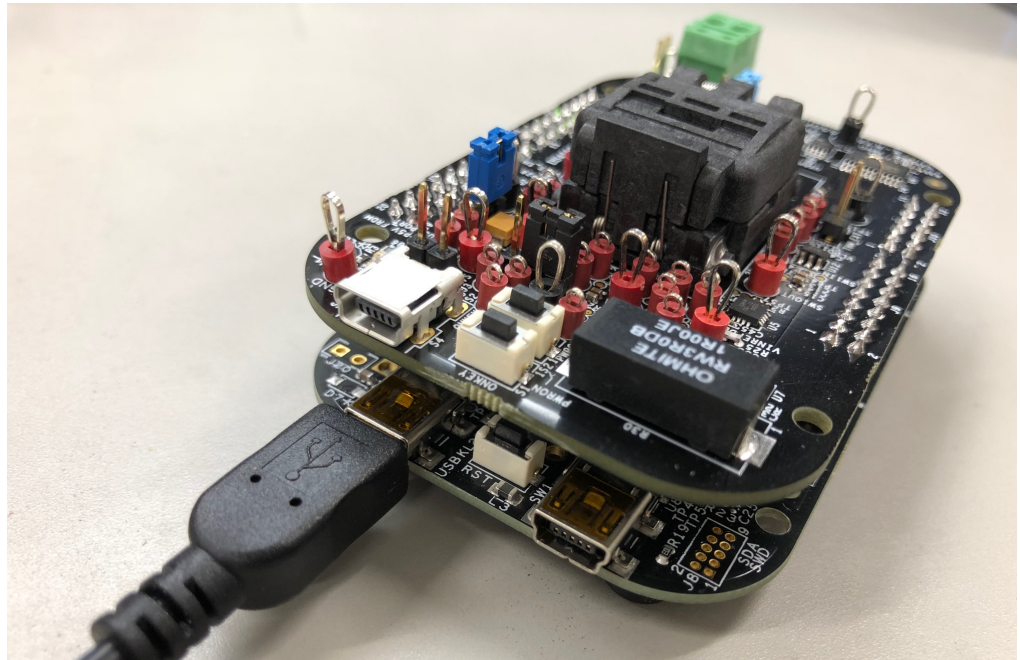
7 PF1550 OTP programming steps

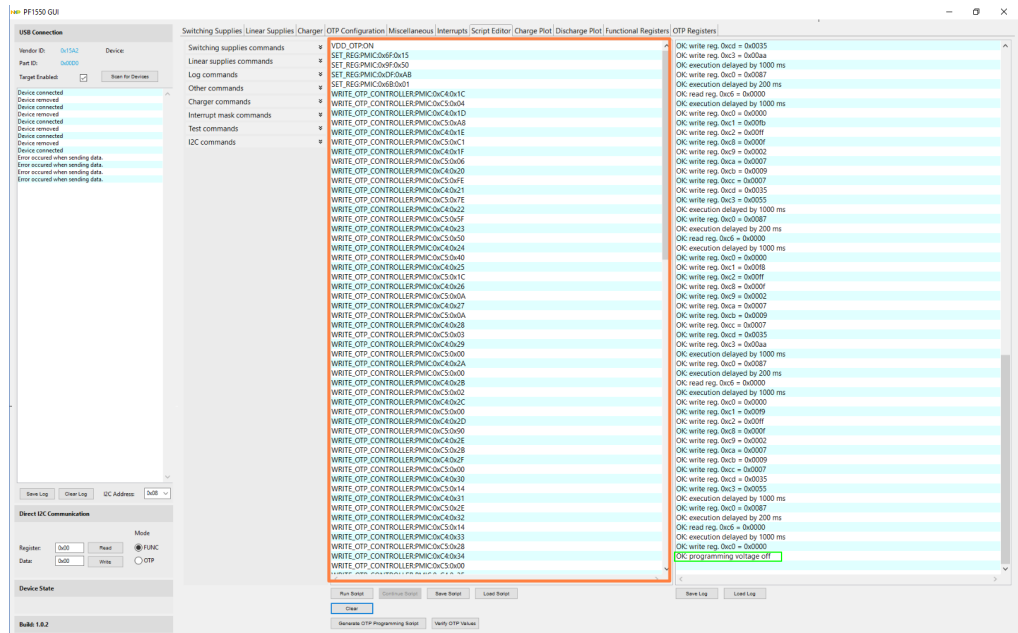The following are the PF1550 OTP programming steps:

1. Keep the jumper J12 connected on the KITPF1550FRDMPGM socket board.
2. Place a blank PF1550 part in the socket, and pay attention to the chip #1 pin be matched with the socket marked corner.
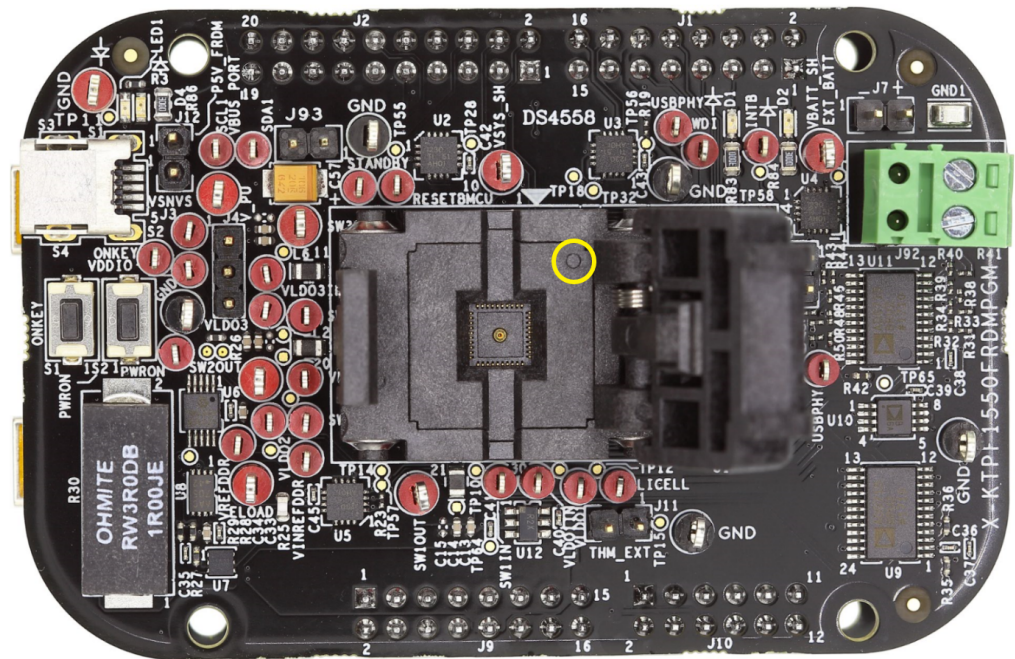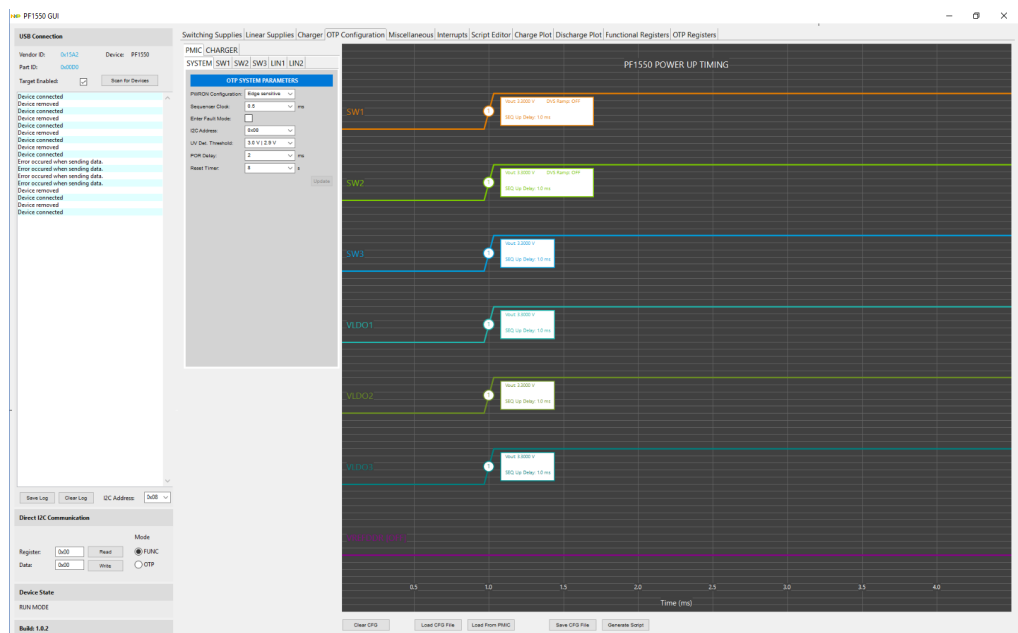

3. Connect mini-USB cable between KITPF1550FRDMPGM socket board and PC, as below is shown, then "Device connected" prompt in KITPF1550GUI shows good connection. Afterwards, the box "Click to Enable Target:" in GUI is valid, tick it to continue.

4. Copy script generated in PF1550 OTP Programming Request Form to the GUI "Script Editor" tab window, as below orange frame is highlighted, then click "Save Script" button to save to txt file for future loading.

UM11223

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Product user manual

Rev. 1.0 — 13 May 2019

8 / 12

5. Click "Run Script" button to run the OTP programming until the final row "OK: programming voltage off" displays, the red LED D2 ON indicates the programming is in process.

6. The "Verify OTP Values" button in GUI can be clicked to view the OTP register values of the programmed part.

7. If need to check the start-up sequence of the programmed part, please remove and reconnect jumper J12, then switch to "OTP Configuration" tab in GUI to view the PF1550 programmed part start-up sequence.

UM11223

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Product user manual

Rev. 1.0 — 13 May 2019

9 / 12

8. Unplug the mini-USB cable to continue OTP programming for next new blank part start from step 2.

8 Schematics, board layout and bill of materials

The board schematics, board layout and bill of materials are available at http://www.nxp.com/KITPF1550FRDMPGM on the Overview tab under Get Started.

9 References

[1] Tool summary page
http://www.nxp.com/KITPF1550FRDMPGM

[2] Product summary page
http://www.nxp.com/PF1550

[3] Freedom development platform
http://www.nxp.com/FRDM-KL25Z

10 Revision history

Revision	Date	Description
1	20190513	initial version

11 Legal information

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Contents