Quick Start Guide

**SABRE Board for Smart Devices
Based on the i.MX 6 Series**

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i.MX

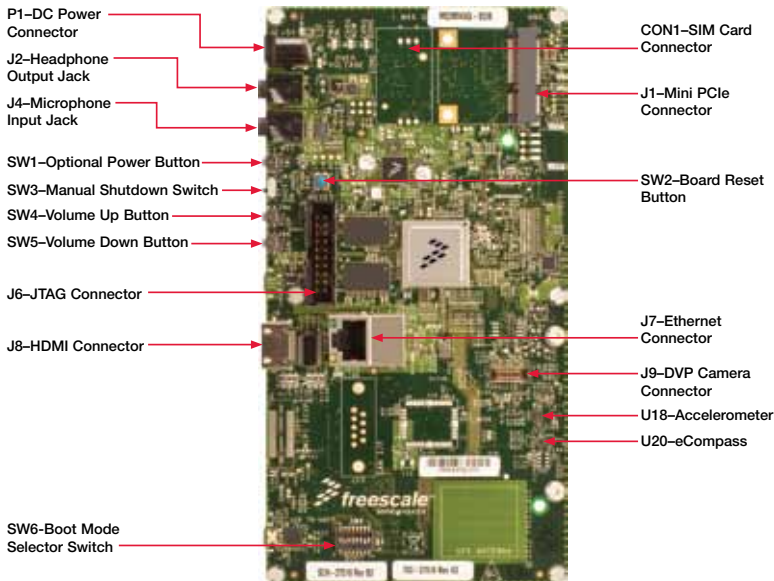# About the SABRE Board for Smart Devices Based on the i.MX 6 Series

The Smart Application Blueprint for Rapid Engineering (SABRE) board for smart devices introduces developers to the i.MX 6 series of applications processors. Designed for ultimate scalability, this entry level development system ships with the i.MX 6Quad application processor but is schematically compatible with i.MX 6Dual, i.MX 6DualLite and i.MX 6Solo applications processors. This helps to reduce time to market by providing a foundational product design and serves as a launching point for more complex designs. Included with the design are links to the hardware design files, tools and board support packages (BSP) for Linux® and Android™ along with a bootable Android image on an SD card to get you up and running quickly.

The following features are available with the SABRE board for smart devices:

- i.MX 6Quad processor 1 GHz
- 1 GB DDR3, 533MHz
- 8 GB eMMC iNAND
- Two SD card slots
- SATA 22-pin connector
- HDMI connector
- Two LVDS connectors
- LCD expansion port connector
- Serial camera connector

- Two 3.5 mm audio ports (stereo HP and microphone)
- USB OTG connector
- Debug out via USB µAB device connector
- Gigabit Ethernet connector
- JTAG 20-pin connector
- mPCIe connector
- Sensor package including:
  - 3-axis accelerometer
  - Digital compass

Get to Know the SABRE Board for Smart Devices Based on the i.MX 6 Series

P1–DC Power Connector

J2–Headphone Output Jack

J4–Microphone Input Jack

SW1–Optional Power Button

SW3–Manual Shutdown Switch

SW4–Volume Up Button

SW5–Volume Down Button

J6–JTAG Connector

J8–HDMI Connector

SW6-Boot Mode Selector Switch

CON1–SIM Card Connector

J1–Mini PCIe Connector

SW2–Board Reset Button

J7–Ethernet Connector

J9–DVP Camera Connector

U18–Accelerometer

U20–eCompass

*Board also includes Bluetooth Connecter J13

J500–SD2 AUX
SDIO Socket

J502–LVDS1
Connector

J504–LCD Expansion Port
Connector

J506–22-Pin SATA
Connector

BT500–Lithium
Coin Cell Connector

CON500–External
Speaker Connector

J503–LVDS0
Connector

J505–Micro USB
Connector

J507–SD3
Card Socket

J509–Serial-To-USB
Debug Port

Getting Started

This section describes how to use the SABRE board for smart devices and the components in the kit. This section also describes the PC requirements to develop applications using the SABRE board for smart devices.

1 Unpacking the Kit

The SABRE board for smart devices is shipped with the items listed in Table 1. Ensure the items listed in Table 1 are available in the i.MX 6 series development kit. Remove the board from the antistatic bag and perform a visual inspection.

Table 1: SABRE Board for Smart Devices Based on i.MX 6 Series Development Kit Contents

Item	Description
Board	i.MX 6 SABRE board for smart devices
Cable	USB cable (micro-B to standard-A)
Power supply	5 V/5 A universal power supply
Documentation	Quick start guide (this document)
8 GB SD card	Bootable demonstration code for smart device platform

2 Download Software and Tools

Download installation software and documentation under
"Jump Start Your Design" at **freescale.com/SABRESDB**.
Table 2 lists the documents available on the kit website.

Table 2: "Jump Start Your Design" Contents

Item	Description
SABRE board for smart devices documentation	• Schematics, layout and Gerber files • SABRE board for smart devices quick start guide (this document)
Software development tools	Android and Linux BSPs
SABRE board for smart devices demo images	Copy of the Android image provided on the SD card

Setting up the System

1 **Insert SD Card**

Insert the supplied SD card into socket SD3.

2 **Connect USB Debug Cable (Optional)**

Connect the micro-B end of the supplied USB cable into debug port J509. Connect the other end of the cable to a PC acting as a host terminal. If needed, the Serial-to-USB drivers can be found at **ftdichip.com/FTDrivers.htm**.

Terminal window configuration: 115.2 kbaud, 8 data bits, 1 stop bit, no parity

3 **Connect HDMI Cable**

Connect an HDMI cable to the HDMI connector J8. Connect the other end to the HDMI cable to an HDMI capable monitor.

4 **Connect User Interface Devices**

To interact with the Android operating system displayed on the monitor it may be desirable to attach a keyboard and/or a mouse. Attach a USB hub to USB jack J505 and connect the keyboard and mouse to the hub. If only one device is used, it can be plugged directly into the USB jack. A micro B male to A female adapter cable may be needed.

5 **Connect Ethernet Cable (Optional)**

Connect an Ethernet cable to the Ethernet jack J7.

6 **Connect Power Supply**

Connect the 5 V power supply cable to the 5 V DC power jack P1. When power is connected to the smart device, it will automatically begin the boot sequence.

Boot Process for Android Image

1 Boot Process

- During the boot process, there will be operating system status information scrolling on the terminal window of the PC (if connected). The Linux penguin images will initially appear in the upper left corner of the display, one for each operating ARM core.

- When the boot process is complete, the Android operating system will be displayed.

- To work from the terminal window on the host PC, press enter at the terminal window to get the command prompt.

DIP Switch Configuration

Table 3 shows the jumper configuration to boot the smart device from SD card slot SD3.

Table 3: SABRE Board for Smart Devices DIP Switch Configuration (SW6)

D1	D2	D3	D4	D5	D6	D7	D8
Off	On	Off	Off	Off	Off	On	Off

Switch Functions

Table 4 shows the functions of the five push button switches on the board.

Table 4: SABRE Board for Smart Devices Button Operations

Item	Description
POWER SW1	SABRE board POWER button • Momentary depress of button will place the system in standby. • Long press of the button will display a software drive shutdown option menu. • Prolonged depress (> 5 sec) will force an immediate hardware shutdown. • If board is in the OFF state, momentary depress of button will restart (boot) the system. • If board is in the STANDBY state, momentary depress of the button will bring the system out of standby (resume operations, no boot)
RESET SW2	SABRE board RESET button • Momentary depress of button will reset the system and begin a boot sequence.
SHUTDOWN SW3	SABRE board shutdown switch • Sliding the switch to the On position connects the 5V power supply to the SABRE board main power system. • Sliding the shutdown switch immediately removes all power to the board.
Volume up SW4	Volume +
Volume down SW5	Volume -

Get Started

Download installation software and documentation under **"Jump Start Your Design"** at **freescale.com/SABRESDB**.

Support

Visit the i.MX community at **imxcommunity.org**.

Warranty

Visit **freescale.com/warranty** for complete warranty information.

For more information, visit
freescale.com/imxSABRE

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