



## Quick Start Guide Evaluation Kit

Based on i.MX 6UltraLite Applications Processor



# GET TO KNOW THE EVALUATION KIT BASED ON i.MX 6ULTRALITE APPLICATIONS PROCESSOR

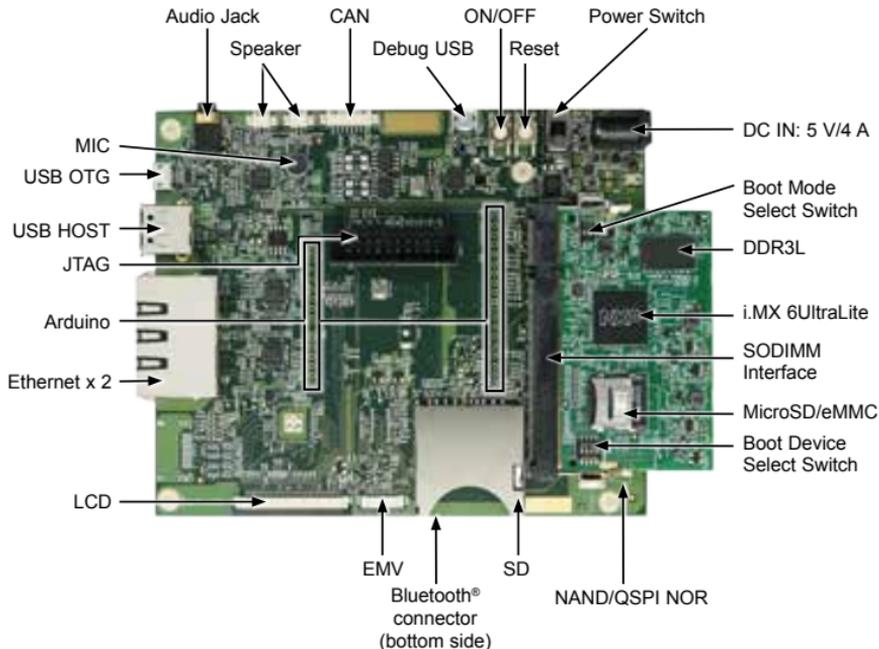


Figure 1: Main interfaces of i.MX 6UltraLite EVK

## ABOUT THE EVALUATION KIT BASED ON i.MX 6ULTRALITE

The Evaluation Kit (EVK) based on i.MX 6UltraLite introduces developers to the i.MX 6UltraLite applications processor. To speed up development, hardware design files, tools and board support packages (BSPs) for Linux® are available at [www.nxp.com/iMX6ULEVK](http://www.nxp.com/iMX6ULEVK).

There are some peripheral boards that work with the i.MX 6UltraLite EVK to provide additional capabilities such as resistive touch display, EMV and Bluetooth/Wi-Fi® connectivity. Refer to [www.nxp.com/iMX6ULEVK](http://www.nxp.com/iMX6ULEVK) for further information.

### FEATURES

The following features are available with the EVK based on i.MX 6UltraLite applications processor:

- i.MX 6UltraLite applications processor with a 696 MHz ARM® Cortex®-A7 core
- 4 GB DDR3L SDRAM, 400 MHz
- 256 MB QSPI NOR Flash
- eMMC (unpopulated)
- NAND flash (unpopulated)
- MicroSD® connector
- SD connector
- LCD expansion port connector
- USB OTG connector
- USB Host connector
- 3.5 mm audio stereo headphone jack
- Board-mounted microphone
- L/R speaker connectors
- Two 10/100 Mbit/s Ethernet connectors
- CAN bus connector
- Sensors including:
  - three-axis accelerometer
  - Digital compass
  - Gyroscope (unpopulated)
- JTAG 20-pin 2.54 mm connector
- Debug port for ARM Cortex-A7 core via USB micro-B connector
- Bluetooth connector

## GETTING STARTED

This section describes how to use the evaluation kit and the required accessories to develop applications using the evaluation kit.

### 1 Unpacking the Kit

The evaluation kit is shipped with the items listed in Table 1. Ensure the items are available in the i.MX 6UltraLite Evaluation Kit.

ITEM	DESCRIPTION
CPU board	CPU board with i.MX 6UltraLite applications processor, memory, discrete powers and MicroSD card slot
Base Board	Peripherals and connectivity board
Documentation	Quick Start Guide
Power Supply	Output: 5 V/4 A, Plug: 2.1 mm x 5.5 mm
USB Cable	USB cable (micro-B to standard-A)
Micro-SD card	Bootable Linux image

Table 1: Contents of the i.MX 6UltraLite Evaluation Kit

## 2 Prepare Accessories

The following items in Table 2 are required to run the i.MX 6UltraLite Evaluation Kit.

ITEM	DESCRIPTION
LCD Module (optional)	LCD8000-43T is the validated module, which has a 4.3 inch resistive touch screen and supports a resolution of up to 480x3(RGB)x272.

Note: An LCD module is not a standard part of the evaluation kit.

Table 2: Optional Equipment

### 3 Download Software and Tools



Download installation software and documentation under **“Jump Start Your Design”** at [www.nxp.com/iMX6ULEVK](http://www.nxp.com/iMX6ULEVK). Table 3 lists the documents available on the website.

ITEM	DESCRIPTION
Documentation	<ul style="list-style-type: none"> <li>• Schematics, layout and Gerber files</li> <li>• Quick Start Guide</li> </ul>
Software development tools	Linux BSPs
Demo images	Copy of the latest Linux BSP images that are available to program on to the MicroSD card

Table 3: Download Software and Tools Contents

### SETTING UP THE SYSTEM

#### 1 Insert MicroSD Card

Insert the MicroSD card into socket J301 on the CPU board (700-28617).

#### 2 Connect USB Debug Cable

Connect the micro-B end of the supplied USB cable into debug port J1901 on the base board (700-28616). 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 [www.silabs.com/products/mcu/Pages/USBtoUARTBridgeVCPDrivers.aspx](http://www.silabs.com/products/mcu/Pages/USBtoUARTBridgeVCPDrivers.aspx)

Open the terminal window (i.e., Hyper Terminal or TeraTerm) and apply the following configuration:

- Baud rate: 115200
- Data bits: 8
- Stop bit: 1
- Parity: None
- Flow control: None

#### 3 Connect LCD Module (optional)

Connect the FPC cable of LCD Module (LCD8000-43T) to the LCD connector J901 on base board (700-28616), which is bottom contact.

Note: The LCD Module is not included in the kit. It is sold separately at [www.nxp.com/IMX6ULEVK](http://www.nxp.com/IMX6ULEVK).

#### 4 Connect Ethernet Cable (Optional)

Connect an Ethernet cable to the right port of the Ethernet Jack J1501.

#### 5 Connect Power Supply

Connect the plug of the 5 V power supply to the DC power jack J2001 on base board (700-28616) and slide power switch SW2001 to ON. When power is connected to the EVK, it will automatically begin the boot sequence.

## BOOT PROCESS FOR LINUX IMAGE

### Boot Process

- Change SW602 to D1:ON,D2:OFF (Refer to Table 4) to enter internal boot mode, and then switch SW601 to D1:OFF, D2:OFF, D3:ON, D4:OFF (Refer to Table 5) to boot from the MicroSD card, as shown in Figure 2 and Figure 3. After the board images are programmed and the boot switches are correctly configured, the system is ready to run.
- Power on the EVK board.
- 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 LCD screen.
- When the boot process is complete, the Linux operating system (Yocto Project) will be displayed on the LCD screen.
- To work from the terminal window on the host PC, press 'Enter' at the terminal window to get the command prompt. Account name: root, password none.

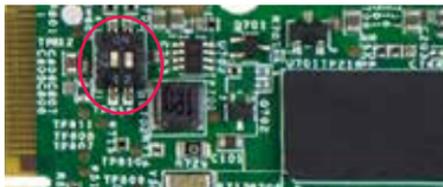


Figure 2. SW602 setting for internal boot mode



Figure 3. SW601 setting for internal boot mode

### DIP SWITCH CONFIGURATION

Table 4 shows the switch configuration of boot mode for i.MX 6UltraLite EVK. Internal boot is chosen as default.

Table 5 shows the switch configuration of boot device for i.MX 6UltraLite EVK. MicroSD is chosen as default.

D1/MODE1	D2/MODE0	BOOT MODE
OFF	OFF	Boot From Fuses
OFF	ON	Serial Downloader
<b>ON</b>	<b>OFF</b>	<b>Internal Boot</b>
ON	ON	Reserved

Table 4: i.MX 6UltraLite EVK DIP switch configuration (SW602)

D1	D2	D3	D4	BOOT DEVICE
<b>OFF</b>	<b>OFF</b>	<b>ON</b>	<b>OFF</b>	<b>MicroSD</b>
OFF	OFF	OFF	OFF	QSPI
OFF	ON	ON	OFF	EMMC
ON	ON	OFF	ON	NAND

Table 5: i.MX 6UltraLite EVK DIP switch configuration (SW601)

## Button Functions

Table 6 shows the functions of the push buttons and switches on the board.

ITEM	DESCRIPTION
SW2101	Evaluation kit ON/OFF button <ul style="list-style-type: none"> <li>• In Yocto Project, short press and long press will only generate an interrupt, the usage could be defined by upper software.</li> <li>• Prolonged depress (&gt;5 sec) will force an immediate hardware shutdown.</li> <li>• If board is in the SHUTDOWN state, short press of the button will restart (boot) the system.</li> <li>• If board is in the STANDBY state, short press of the button will bring the system out of standby (resume operations, no boot).</li> </ul>
SW2102	Evaluation kit RESET button <ul style="list-style-type: none"> <li>• Press of the button will reset the system and begin a boot sequence.</li> </ul>
SW2001	Evaluation kit switch <ul style="list-style-type: none"> <li>• Sliding the switch to the ON position connects the 5 V power supply to the Evaluation Kit main power system.</li> <li>• Sliding the switch to the OFF position immediately removes all power from the board.</li> </ul>

Table 6: EVK board button operations

## SUPPORT

Visit the i.MX community at  
[www.imxcommunity.org](http://www.imxcommunity.org).

## WARRANTY

Visit [www.nxp.com/warranty](http://www.nxp.com/warranty) for  
complete warranty information.



## Get Started

Download installation  
software and documentation  
under “**Jump Start Your Design**”  
at [www.nxp.com/iMX6ULEVK](http://www.nxp.com/iMX6ULEVK).

[www.nxp.com/iMX6ULEVK](http://www.nxp.com/iMX6ULEVK)

NXP and the NXP logo are trademarks of NXP B.V. All other product or service names are the property of their respective owners. ARM and Cortex are registered trademarks of ARM Limited (or its subsidiaries) in the EU and/or elsewhere. All rights reserved. © 2012, 2014–2017 NXP B.V.

Doc Number: IMX6ULTRALITEQSG REV 4

Agile Number: 926-29013 REV B