i.MX28 EVK
Multimedia and connectivity

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About the i.MX28 Board

This section provides information about the i.MX28 Kit Evaluation (EVK) board and the location of the connectors and switches.
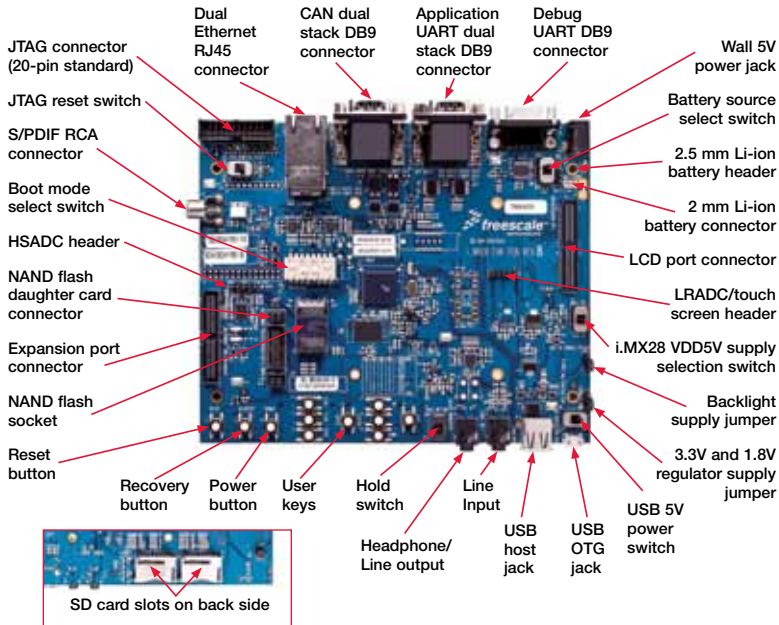
The i.MX28 EVK is designed for multimedia and connectivity applications. These applications use the i.MX28 series ARM9™ applications processor. The i.MX28 EVK can be used as a hardware and software development platform. This decreases time to market and provides a near-to-final product design. The board support package (BSP) for the i.MX28 EVK contains drivers optimized for multimedia operations using the i.MX28.

The following features are available in the i.MX28 EVK board:

- i.MX28 processor
- Double Data Rate2 (DDR2) DRAM memory
- Dual USB connections
- Two 10/100 Ethernet connections
- Two Secure Digital (SD)/multimedia card (MMC) connections
- Two application universal asynchronous receiver/transmitters (UARTs)
- One console UART
- Two controller area networks (CANs)
- Audio I/O jacks

Get to Know the i.MX28 Board

JTAG connector (20-pin standard)

JTAG reset switch

S/PDIF RCA connector

Boot mode select switch

HSADC header

NAND flash daughter card connector

Expansion port connector

NAND flash socket

Reset button

Dual Ethernet RJ45 connector

CAN dual stack DB9 connector

Application UART dual stack DB9 connector

Debug UART DB9 connector

Wall 5V power jack

Battery source select switch

2.5 mm Li-ion battery header

2 mm Li-ion battery connector

LCD port connector

LRADC/touch screen header

i.MX28 VDD5V supply selection switch

Backlight supply jumper

3.3V and 1.8V regulator supply jumper

USB 5V power switch

Recovery button

Power button

User keys

Hold switch

Line Input

Headphone/ Line output

USB host jack

USB OTG jack

SD card slots on back side

Top view of the i.MX28 EVK board without the LCD module.

Getting Started

This section describes how to use the i.MX28 Kit EVK and the components in the EVK. This section also describes the PC requirements to develop applications using the i.MX28 EVK.

STEP 1 **Unpacking the Kit**

The i.MX28 EVK is shipped with the items listed in **Table 1**.

Ensure the items listed in **Table 1** are available in the i.MX28 development kit. Remove the EVK board from the antistatic bag and perform a visual inspection.

Note: The LCD Module is an optional add-on module and is ordered separately, MCIMX28LCD.

STEP 2 **Web-Based Contents**

Refer to **freescale.com/imx28evk** for the latest i.MX28 EVK documents and software.

Table 2 lists the documents available on the Freescale web site.

| i.MX28 EVK Development Kit Contents	
Item	Description
Board	i.MX28 EVK board
SD Cards	• Windows® Embedded CE SD card • Linux® SD card
Cables	• Ethernet straight cable • USB cable (micro-B to standard-A)
Power Supply	5.0V/3.8A universal power supply
Documentation	• End-user license agreement • Quick Start Guide • Warranty card • Freescale support card
DVD	Getting started video tutorials and useful web links

Table 1

Web Site Contents	
Type	Requirement
EVK Documentation	• Schematics, layout, and gerber files for EVK and LCD board • i.MX28 EVK Hardware User's Guide • i.MX28 Windows CE Demo Image Readme • i.MX28 Windows CE Quick Start Guide (this document) • i.MX28 Windows CE Release Notes • i.MX28 Windows CE User's Guide • i.MX28 Windows CE Reference Manual • i.MX28 Windows CE Hello World Application Note • i.MX28 Linux Demo Image Readme • i.MX28 Linux Quick Start Guide (this document) • i.MX28 Linux Release Notes • i.MX28 Linux User's Guide • i.MX28 Linux Reference Manual • i.MX28 Linux Hello World Application Note
Software Development Tools	• Windows CE SDK Installation File • Linux SDK Installation File
i.MX28 EVK Demo Images	Copy of the OS image provided on the SD card— Linux demo image and Windows demo image

Table 2

LCD Board Assembly

Connecting the LCD board to the i.MX28 EVK board

The i.MX28 EVK board is connected to the add-on LCD board using 120-pin surface mount connectors. The connectors are keyed to avoid incorrect connection. Therefore, there is only one way to connect the boards. The LCD board is connected to the J78 connector. The J78 connector is located on the top of the i.MX28 EVK board as shown.
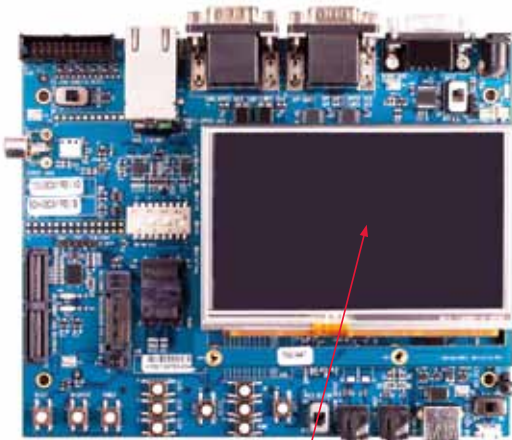
NOTE:
The 4.3" widescreen video graphics array (WVGA) LCD board is an optional card for the i.MX28 EVK board and it is sold separately from the i.MX28 EVK board.

J78 connector for LCD. i.MX28 EVK board shown without LCD

Setting Up the Board

STEP 1 **Check Jumpers**

Ensure the jumpers and switches are in their default positions by comparing them to the jumper and switch settings table in this Quick Start Guide.

STEP 2 **Insert SD Card**

Insert the appropriate Windows Embedded CE or Linux SD card into SD card socket 0 (on the bottom side of the board).

STEP 3 **Connect Ethernet Cable**

Connect the Ethernet cable to the lower port of the Ethernet jack.

STEP 4 **Connect RS232 Cable**

Connect the RS232 cable to the debug UART port (optional).

Serial port configuration: 115.2 kbaud, 8 data bits, 1 stop bit, no parity.

STEP 5 **Connect Power Supply**

Connect the 5V power supply cable to the 5V DC power jack (J84).

STEP 6 **Power On**

Press the POWER button (S5).

For WinCE:

1. During the boot process, there will be operating system status information scrolling on the terminal window of the PC and the Freescale logo will be shown on the 4.3" WVGA display daughtercard.

2. After the boot process completes, calibrate the touch screen by pressing the cross-hair targets.

3. The Windows CE GUI will be now be displayed.

4. Connect to the Internet via Internet Explorer or your default browser.

For Linux:

1. During the boot process, there will be operating system status information scrolling on the terminal window of the PC and a penguin image in the upper left corner of the 4.3" WVGA display daughter card.

2. After the boot process completes, the Freescale login prompt will be displayed on the terminal window and the Linux GUI will be shown on the 4.3" WVGA display daughter card.

i.MX28 EVK Board Jumper and Switch Options

The following is a list of all the jumper options. The ***default*** jumper and switch settings are shown in **bold** with asterisks.

Reference Designator	Name	Setting				Description
S1	Battery source select switch	BATT				The battery source is a real Li-ion battery connected to either J85 or J86.
		REG				The battery source is the EVK on-board 4.2V regulator.
S2	Boot mode select switch	***B3***	***B2***	***B1***	***B0***	
		1	***0***	***0***	***1***	The i.MX28 processor will boot from the i.MX28 SSP0 port, which is SD card Socket 0.
		-	-	-	-	For other boot mode switch settings, refer to the silkscreen table on the EVK board.
S3	USB 5V power switch	ON				USB 5V power from the USB micro AB jack is connected to the EVK board.
		OFF				USB 5V power from the USB micro AB jack is disconnected from the EVK board.
S7	Hold switch	ON				The user keys are locked.
		OFF				The user keys are unlocked.

(continued from previous page)

Reference Designator	Name	Setting	Description
S16	i.MX28 VDD5V pin supply selection switch	Wall 5V	The i.MX28 VDD5V pin is supplied by the 5V DC wall adapter.
		USB 5V	The i.MX28 VDD5V pin is supplied by the USB micro AB jack.
S17	JTAG reset switch	RESET ENABLED	The JTAG tool nSRST (system RESET) signal line is connected to the i.MX28 PSWITCH pin.
		RESET DISABLED	The JTAG tool nSRST (system RESET) signal line is disconnected from the i.MX28 PSWITCH pin.
J94	3.3V and 1.8V EVK regulator power source jumper	BATT	Pins 2–3 are shorted (upper position) and the battery is used to supply the power.
		VDD5V	Pins 1–2 are shorted (lower position) and the 5V DC wall adapter is used to supply the power.
J95	LCD backlight power source jumper	Wall 5V	Pins 1–2 are shorted (upper position). The 5V DC wall adapter supplies power to the LCD backlight.
		VDD4P2	Pins 2–3 are shorted (lower position). The i.MX28 VDD4P2 output supplies power to the LCD backlight.

For more information, visit **freescale.com/iMX28EVK**.

Join the online i.MX community at **imxcommunity.org.**

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