

i.MX28 EVK Windows Embedded CE 6.0

Release Notes

This document contains important information about the package contents, supported features, and known issues/limitations for this release.

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1 Release Contents

1.1 Documentation Package

The documentation provided with this release is packaged in the following ZIP file:

WCE600_MX28_SDK_1008_DOCKIT.zip

The following documents are included in the documentation package:

- i.MX28 EVK Windows Embedded CE 6.0 Release Notes
- i.MX28 EVK Windows Embedded CE 6.0 User's Guide
- i.MX28 EVK Windows Embedded CE 6.0 Reference Manual
- Windows Embedded CE 6.0 Fundamentals

1.2 BSP Package

The BSP source code and support files are packaged in the following Microsoft Windows Installer file:

WCE600_10.08.01_SDK.msi

See the *i.MX28 EVK Windows Embedded CE 6.0 User's Guide* for installation instructions.

1.3 Demo Image Package

The demo image provided with this release is package in the following ZIP file:

WCE600_MX28_SDK_1008_Image.zip

The demo image contains the following items.

Table 1. i.MX28 EVK Kit Components

File	Description
EBOOT.bin	Boot loader Image in bin format
EBOOT.nb0	Boot loader Image in nb0 format
eboot_ivt.msb	Boot loader Image with bootlets for HAB enable chip in msb format
eboot_ivt.sb	Boot loader Image with bootlets for HAB enable chip in sb format
XLDR.bin	X loader for NAND boot in bin format
XLDR.nb0	X loader for NAND boot in nb0 format
NK.bin	NK image in bin format
NK.nb0	NK image in nb0 format
nk_ivt.sb	NK Image with bootlets for HAB enable chip in sb format

2 System Requirements

2.1 Windows Embedded CE 6.0

The following must be installed to create a Windows Embedded CE 6.0 development environment for i.MX28 EVK WinCE 6.0 BSP:

- Visual Studio 2005
- [Visual Studio 2005 SP1](#)
- [Visual Studio 2005 SP1 Update for Vista](#) (if applicable)
- Windows Embedded CE 6.0 Platform Builder
- [Windows Embedded CE 6.0 SP1](#) (required if PB 6.0 Tools have been installed)
- [Windows Embedded CE 6.0 R2](#)
- [Windows Embedded CE 6.0 R3](#)
- [Windows Embedded CE 6.0 Cumulative Product Update Rollup Package \(through 12/31/2009\)](#)
- [Windows Embedded CE 6.0 Monthly Update January 2010](#)
- [Windows Embedded CE 6.0 Monthly Update February 2010](#)
- [Windows Embedded CE 6.0 Monthly Update March 2010](#)
- [Windows Embedded CE 6.0 Monthly Update April 2010](#)
- [Windows Embedded CE 6.0 Monthly Update May 2010](#)
- [Windows Embedded CE 6.0 Monthly Update June 2010](#)
- [Windows Embedded CE 6.0 Monthly Update July 2010](#)

2.2 i.MX28 EVK Kit Components

The i.MX28 EVK kit contains the following items.

Table 2. i.MX28 EVK Kit Components

Hardware Modules	Comments
iMX28 EVK (Rev C) Main board with HAB enable	
iMX28 EVK WVGA LCD Panel	
MMC/SD card	
Power Supply (5V)	
USB Cable	

3 What's New

The chapter describes the new changes in this release, including new features and defect fixes.

3.1 New Features

The [Table 3](#) describes the new features, supports and enhancements since the last release.

Table 3. New Features

Identifier	Description
ENGR123788	KITL: Support KITL power management
ENGR124500	WiFi: Consolidate SDIO WiFi binaries to be the common driver
ENGR125387	System: Support Rev. C board
ENGR125509	DVFC: Update CPU working setpoints
ENGR125607	MMC: Support eMMC4.4 cards
ENGR125949	UUT: Support use Store Name to recognize store device
ENGR126412	BOOT: Support boot image with IVT header
ENGR126871	DVFC: Update DVFC driver according New Clock Frequency Tables
ENGR126922	Power: Update DDR pad setting to save power in suspend

3.2 Defect Fixes

The [Table 4](#) describes the defect and issue fixes available in this release.

Table 4. Defect and Issue Fixes

Identifier	Description
ENGR123661	Splash: The refresh frequency for splash screen is slow, so the screen looks flashing.
ENGR123748	USB: CV test failed to run chapter 9 testing for clients: MSC/PHDC.
ENGR123781	LCD: Resume will cause LCDIF reset 2 times.
ENGR123799	ENET: Power consumption is much higher if ENET driver built in.
ENGR123800	WDOG: Watchdog should be disabled during suspend.
ENGR125951	EBOOT: It fails to build eboot.msb.
ENGR125965	MMC: It fails to recognize the full capacity of eMMC4.4 card.
ENGR126023	ENET: ENET driver can't be loaded normally after a cold reboot with an unformatted U-Disk attached on OTG.
ENGR126028	Keypad: Some keys are not functional sometimes.
ENGR126039	USB: It fails to copy files to SD cards when SD mounted as Mass Storage.
ENGR126066	SD: Some SD/MMC cards cannot be recognized on MX28 REVC board.
ENGR126077	BOOT: There is error with SD/MMC redundant boot.
ENGR126232	DVFC: System will be unstable and report error if suspend/resume after DVFC enter low setpoint.
ENGR126272	Switch: Switch application cannot be built.
ENGR126276	DVFC: Suspend/resume with 5V several times, DVFC setpoints will be disordered.

4 BSP Supported Features

The [Table 5](#) describes the features supported in this BSP.

Table 5. Defect and Issue Fixes

Feature	Supported?	Comments
Tools		
-W4 Compiler Setting	Y	All BSP code compiles cleanly with –W4 compiler warning level. –W4 is default warning level.
Prefast	Y	Prefast for drivers, version 8. Freescale defined filter.
OEM Adaptation Layer (OAL)		
Bootloader (Ethernet)	Y	Using on-chip ENET controller.
Bootloader (USB)	Y	Using on-chip OTG device.
Bootloader (SD)	Y	Bootloader resident in SD Card.
Bootloader (NAND)	Y	Bootloader resident in NAND Flash.
Bootloader (NOR)	Y	Bootloader resident in SPI NOR Flash.
Interrupt Controller	Y	PQOAL interrupt controller support.
Kernel Profiler	Y	Supported using TIMER1.
KITL (Ethernet)	Y	Kernel Independent Transport Layer (KITL) supported through Ethernet.
KITL (USB)	Y	Using on-chip OTG device.
PQOAL (Production Quality OAL)	Y	Conforms to Production Quality OAL coding Standards.
RTC	Y	PQOAL time-of-day support.
Serial Debug Port	Y	Using on-chip DUART controller.
Timer	Y	PQOAL system timer support.
Unique Serial Number	Y	Stored in boot storage (SD/MMC card or NAND flash).
WDOG	Y	PQOAL watchdog supports system reset.
Drivers		
Audio	Y	Supports both playback and recording through SAIF interface and SGTL5000 codec.
Backlight	Y	Uses PWM channel 2.
Battery	Y	Supports battery charging, temperature monitoring.
CAN	Y	Supports CAN protocol.
Clock Control	Y	Supported as component of CSPDDK (DDK_CLK).
Display	Y	Seiko 4.3" panel 43WVF1G.
DMA	Y	Supported as component of CSPDDK (DDK_SDMA)
DVFC	Y	Supports 3 setpoints: High, Medium, and Low.
GPIO	Y	Supported as component of CSPDDK (DDK_GPIO).
I2C	Y	Supports bus driver for I2C bus.
IOMUX	Y	Supported as component of CSPDDK (DDK_IOMUX).
LRADC	Y	Used by Battery, Keypad, and Touch drivers.
MMC/SD/SDIO	Y	Supports memory cards. (SDIO is not supported yet.)
PMU	Y	Supports PMU driver.
NAND	Y	Supports NAND Flash K9LBG08U0D.
Notification LED	Y	Supports NLED driver though LED3 on the board.
Serial	Y	Supports both AUART and DUART.
S/PDIF	Y	Supports S/PDIF OUT.
SPI	Y	Supports SPI bus driver through SSP interface.
USB	Y	Supports USB OTG and HOST drivers. Supports devices class, Serial, RNDIS, MSC, and PHDC.
WiFi	Y	Supports Atheros SDIO WiFi cards.
Ethernet		
ENET	Y	Supports dual ENET drivers.
IEEE 1588	Y	Supports IEEE 1588 function in ENET driver.

Feature	Supported?	Comments
Switch	Y	Supports 3-port programmable Ethernet switch.
Applications – End User		
Etcha	Y	Free drawing on touch screen.
Core OS Services		
Hive Registry	Y	Hive sample implementation on NAND.
Splash Screen	Y	Displays Freescale logo in EBOOT.
Power Manager	Y	Supports D0/D4 driver power states, DVFC, USB current limit. USB current limit may have problem with the current HW revision.
Redundant Boot	Y	Supports SD and NAND devices.
MfgTool Firmware	Y	MfgTool support for SD and NAND devices.
Graphics and Multimedia Technologies		
DirectDraw	Y	Hardware support for overlays, color keying, alpha blending, color space conversion, scaling, and cropping.
Windows Media Player	Y	WMV playback with software codec.
Shell and User Interface		
Keypad	Y	Supported through LRADC interface.
Touch Screen	Y	Supported through LRADC interface.

5 Known Problems

This chapter describes the known defects and workarounds, and the limitations or issues with the BSP release.

5.1 Known Defects

The [Table 6](#) describes the known BSP defects for this release and available workarounds.

Table 6. Known BSP Defects

Features	Description	Workaround
Ethernet	The MAC addresses are not correctly read from the SOC fuses. And the MAC addresses used by the boot loader and the OS are the ones set in the boot loader.	Apply the patch WCE600_10.08.02_SDK_patch.zip

5.2 BSP Limitations/Issues

The [Table 7](#) describes the known issues/limitations and available workarounds for the BSP.

Table 7. BSP Known Issues/Limitations

Limitation/Issue	Workaround
If NAND Flash was programmed by other OS or program, WinCE BSP may have problem read/write NAND as normal.	Perform a low-level NAND format in EBOOT.
System can not suspend when VDD5V presents.	Put S16 on “USB 5V” and S3 on “OFF” before trying to suspend system.
It is slow to update SB image for SD/MMC with application UpdateSB, due to the large card space reserved for the possible big image. (ENGR123694)	No workaround is available.
The DVFC driver can get system into Low setpoint if ENET driver is built in, since ENET clock cannot be shut down due to HW limitation. (ENGR123798)	No workaround is available.
PHDC USB CV test passes on CV tool version 1.3.2 but fails on version 1.4.2.3. (ENGR126454)	No workaround is available.

5.3 Platform Builder Limitations/Issues

The [Table 8](#) describes the known issues/limitations and workarounds for the Platform Builder tool.

Table 8. Platform Builder Limitations/Issues

Limitation/Issue	Workaround
Windows Embedded CE 6.0 Platform Builder locks the run-time image downloaded by USB Serial connection until the process CESVCH~1.EXE is manually killed.	When image download is finished, manually kill the process CESVCH~1.EXE by Windows Task Manager to get the image unlocked by Platform Builder.
Windows CE 6.0 Test Kit server occasionally drops KITL connection. This appears to occur more frequently with long CETK tests such as the Display Driver Test.	See the <i>Microsoft Windows CE 6.0 Release Notes</i> for information on how to configure the CETK disconnect timeout using a registry setting.
Connection to Platform Builder Remote Tools may fail.	Network configuration for PC workstation may have MTU (Maximum Transmit Size) size set to less than 1500, which is not compatible with the KITL MTU size. There is also a known issue regarding the use of more than one of the Remote Tools using the current version of the Windows CE 6.0 shell. See the section, "Known issues with the new shell", in the <i>Windows Embedded CE 6.0 Release Notes</i> for more information.
The KITL thread priority may need to be raised if connection to development platform is dropped excessively.	Ethernet KITL support is not tolerant of dropped packets and retransmissions. Raising the KITL thread priority can improve the reliability of the KITL interface. In the source file <code>\WINCE600\PLATFORM\iMX28-EVK\SRC\KITL\kitl.c</code> , change the existing <code>KITL_THREAD_HIGH_PRIORITY</code> macro definition from the default value of 131 to 97.
The default PDA workspace created by Platform Builder Wizard fails in build sysgen phase, even with example BSP shipped with Platform Builder. (ENGR123567)	No workaround is available.
The Platform Builder has problem to connect CE Stress test suite and finish the test. (ENGR123524)	No workaround is available.

5.4 i.MX28 EVK Hardware Limitations/Issues

Apply all necessary hardware rework on the EVK board.

The [Table 9](#) describes the known issues/limitations of the i.MX28 EVK hardware and available workarounds.

Table 9. i.MX28 EVK Hardware Limitations/Issues

Limitation/Issue	Workaround
Multiple-key input is not supported.	No workaround is available.
USB Host function only works when VDD5V presents.	No workaround is available.

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