

# i.MX35 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\_MX35\_SDK\_0912\_DOCKIT.zip

The following documents are included in this documentation package:

- i.MX35 Windows Embedded CE 6.0 Release Notes
- i.MX35 Windows Embedded CE 6.0 Demo Image Readme
- i.MX35 Windows Embedded CE 6.0 Hello World Application Note
- i.MX35 Windows Embedded CE 6.0 User's Guide
- i.MX35 Windows Embedded CE 6.0 Reference Manual
- Windows Embedded CE 6.0 Fundamentals

## 1.2 BSP Package

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

WCE600\_09.12.00\_SDK.msi

Refer to installation instructions in the *i.MX35 Windows Embedded CE 6.0 User's Guide*.

# 2 System Requirements

## 2.1 Windows Embedded CE 6.0

The following must be installed in order to create a Windows Embedded CE 6.0 development environment for i.MX35 3-Stack WinCE 6.0 BSP:

- Visual Studio 2005
- [Visual Studio 2005 Service Pack 1](#)
- [Visual Studio 2005 Service Pack 1 Update for Windows 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](#)

## NOTE

Windows Embedded CE 6.0 R3 installs all updates released up through August 31st, 2009. Do not install updates currently available for Windows Embedded CE 6.0 R2. Once Windows Embedded CE 6.0 R3 release is installed, please install [Windows Embedded CE 6.0 R3 Update Rollup](#).

## 2.2 ATK Tool

ATK Tool v1.6.9 or later (Must use ATK Tool v1.6.9 or later for the NAND K9LBG08U0D-PCB).

## 2.3 i.MX35 3-Stack Kit Components

This kit contains the following items.

Table 2.1 Kit Components

Hardware Modules	Revision
iMX35 3-Stack CPU board	REV A
iMX35 3-Stack Personality board	REV A
iMX35 3-Stack Debug board	REV C
CHUNGHWA WVGA panel	
Audio daughter card (SPDIF)	
Audio daughter card (ESAI)	
ATAPI daughter card	
Power supply (5V)	
Ethernet cable	
Serial cable	

## 3 What's New

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

### 3.1 New Features

The following table describes the new features, supports and enhancements since the last release.

Identifier	Description
ENGR00118839	GPU integration to RC9, add G70104 fix.
ENGR00118704	Add 256MB SDRAM memory support from CSD1, use environment variable "IMGRAM256" to enable this feature. Default is still 128MB SDRAM memory.

Identifier	Description
ENGR00118272	Support full-duplex work for ESAI.
ENGR00118116	Add WinCE 6.0 R3 support for Touch Gesture, Silverlight, IE and silverlightclock demo.
ENGR00118566	Default NAND to be K9LBG08U0D-PCB (Must use ATK Tool v1.6.9 or later for the NAND K9LBG08U0D-PCB and change boot mode settings).

## 3.2 Defect Fixes

The following table describes the defect and issue fixes available in the release.

Identifier	Description
ENGR00078008	CETK Camera and DirectShow Integration Test case #508 fails on Camera driver.
ENGR00108790	Camera: CETK DirectShow Integration Test hangs. Run a single 305, and it will pass.
ENGR00114327	Camera: CETK Performance Test Failed.
ENGR00115144	TVIN: The CETK Camera and DirectShow Integration Test stops at case #803/804 if run all test cases together.

## 4 BSP Supported Features

The following table describes the features that are supported in this BSP.

Feature	Supported?	Comments
<b>Tools</b>		
-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
<b>OEM Adaptation Layer (OAL)</b>		
X-Loader (NAND)	Y	Initial program loaded when booting from NAND flash memory. Supports boot from MLC NAND module. SLC NAND is not tested.
X-Loader (SDMMC)	Y	Initial program loaded when booting from SD/MMC card. File system on same card is also supported.
Bootloader (Ethernet)	Y	Support image download over Ethernet (LAN9217 or FEC). The Ethernet bootloader can run from NOR Flash or MLC NAND or SD/MMC cards connected to SD Slot 1. See User's Guide for configuration options.
Bootloader (USB)	Y	Support image download over USB (USB RNDIS). See Reference Manual for

Feature	Supported?	Comments
		configuration options.
OS image Boot	Y	The OS image can run from MLC NAND or SD/MMC cards connected to SD Slot 1. See User's Guide for configuration options. OS image run from NOR flash module is not tested.
KITL (Ethernet)	Y	Kernel Independent Transport Layer (KITL) supported via Ethernet (LAN9217 or FEC) between Platform Builder and the target.
KITL (USB)	Y	Kernel Independent Transport Layer (KITL) supported via USB (USB RNDIS) between Platform Builder and the target.
PQOAL	Y	Conforms to Production Quality OAL (PQOAL) coding standards.
Serial Debug Port	Y	Debug message support provided via internal UART1.
Kernel Profiler	Y	Supported using GPT.
RTC	Y	PQOAL time-of-day support with MX35 RTC. Now BSP use the OnChip RTC, does not use the PMIC RTC and the MCU RTC.
EPIT1	Y	PQOAL system timer support.
AVIC	Y	PQOAL interrupt controller support.
WDOG	Y	PQOAL watchdog supports system reset.
L2 Cache	Y	Option to use Write-back, Write-through or disable.
<b>Drivers</b>		
ASRC	Y	Support P2P SDMA.
ATA	Y	Support P-ATA HDD.
ATAPI	Beta	Support ATAPI CD-ROM with PIO mode only.
Audio	Y	Support both playback and recording via SGT5000 Codec.
Backlight	Y	Support backlight control via IPU.
Camera	Y	Support camera sensor OV2640 via IPU CSI.
CAN	Y	Low level driver of CAN controller.
CSPDDK	Y	SDMA, GPIO, IOMUX, and CCM are supported as CSPDDK.
CSPI	Y	SPI bus support via CSPI1.
Display	Y	CHUNGHWA CLAA070VC01 800x480 support via IPU SDC.
DVFC	Beta	DVFC driver support via MC13892. DVFS support only with limited performance.
Ethernet	Y	Supported via FEC.
eSDHC	Y	SD/MMC/SDIO support.
ESAI	Y	5.1 Audio playback and record support.
FM	Y	Supported via Si4702.
GPS	Y	BroadCom BCM4750 Single Chip Assisted-GPS(A-GPS).
GPT	Y	Provides profiling support or can be supported via the BSP GPT driver.
GPU	Beta	IP wrapper for Z160 2D hardware acceleration with software release version: July 17, 2009.
I2C	Y	I2C bus support via I2C1.
MCU	Y	Driver for MCU MC9S08DZ60 access and control. Removed MCU RTC support.
MLB	Y	Low level driver of MLB device.
NAND	Y	Support MLC NAND Flash. SLC NAND is not tested.
MC13892 Power Management IC (PMIC)	Y	Support PMIC features, including regulators, ADC, and touch controller. Removed PMIC RTC support.
Serial	Y	UART1 is used as debug port. UART3 is used for GPS.
S/PDIF	Y	Support both TX and RX.
TVIN	Y	Support of TVIN device ADV7180 via IPU CSI.
USB OTG	Y	Both device and host functions are supported.
USB HOST	Y	High speed HOST support.
<b>Applications – End User</b>		
AudioRouting	Y	Demonstrate the audio routing among multiple audio devices.
CamApp	Y	Demonstrate the capability and function of Camera driver.

Feature	Supported?	Comments
TvinApp	Y	Demonstrate DVD playback via TVIN device ADV7180.
FMRadioApp	Y	Demonstrate the capability and function of FM driver.
Rotate	Y	Switch display between Landscape and Portrait mode.
Etcha	Y	Free drawing on touch screen.
Tcal	Y	Console application to display system time information.
SwitchUSB2MSC.exe	Y	Switch to USB Mass Storage function.
SwitchUSB2RNDIS.exe	Y	Switch to USB RNDIS function.
SwitchUSB2SERIAL.exe	Y	Switch to USB Serial function.
<b>Core OS Services</b>		
Power Manager	Y	
<b>Graphics and Multimedia Technologies</b>		
Windows Media Player	Y	WMA and WMV playback
DirectDraw	Y	IPU hardware support for page flipping, overlays, color keying, color space conversion, rotation, and scaling.
<b>Shell and User Interface</b>		
Soft Input Panel	Y	Small soft input panel.
Touch Screen (Stylus)	Y	Support MC13892 touch controller.

## 5 Known Problems

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

### 5.1 Known Defects

The following table describes the known defects for this release and available workarounds. The defects are categorized as follows:

- BSP – Defects related to the i.MX35 3-Stack BSP
- 3DS – Defects related to the i.MX35 3-Stack hardware
- PB/CETK – Defects related to Windows Embedded CE 6.0 Platform Builder or the Microsoft Windows CE Test Kit (CETK)

Identifier	Category	Description	Workaround
ENGR77356	PB/ Display	Case #218 of CETK Graphics Device Interface (GDI) Test fails.	This issue is introduced by either MSFT Sept 2008 QFE or the Cumulative Product Rollup Package for 2008. Please refer to <a href="http://support.microsoft.com/kb/973650">http://support.microsoft.com/kb/973650</a> for the details.

Identifier	Category	Description	Workaround
ENGR77580	CETK/ FEC	CETK Winsock Performance Test fails on FEC driver.	WinCE 6.0 CETK test case issue.
ENGR69476	CETK/ Touch	Touch driver will stop working after the CETK Touch Panel Test.	Test requests to reboot the device after completing the touch CETK tests.
ENGR76843	CETK/ Audio	CETK Waveform Audio Driver Test case #6000 fails on the default playback mixing thread number 9.	MSFT confirmed this is a bug of wavetest. Please get the detailed bug information on <a href="http://objectmix.com/software-testing/151809-bug-bug-wavetest-case-6000-a.html">http://objectmix.com/software-testing/151809-bug-bug-wavetest-case-6000-a.html</a> . Reduce the thread number by setting the command line parameters "-t".
ENGR101399	BSP/ GPU	GPU does not pass all conformance tests.	Related to third party.
ENGR119408	BSP/ USB	USB MSC: After suspend/resume during R/W, USB client MSC with MMC/SD will not enter into suspend/resume until transfer is finished.	Remove -DASYNC_TRANSFER from CDEFINES from WINCE600\PLATFORM\COMMON\SRC\SOC\COMMON_FSL_V2\MS\USBFN\CLASS\STORAGE\EMULATION\SCSI2\BLOCK\sources and WINCE600\PLATFORM\COMMON\SRC\SOC\COMMON_FSL_V2\MS\USBFN\CLASS\STORAGE\TRANSPORT\BOT\sources.
ENGR119409	BSP/ USB	USB MSC: After suspend/resume during R/W, USB client MSC with U-Disk in HOST port will not recognize U-DISK as MSC on PC side.	Remove -DASYNC_TRANSFER from CDEFINES from WINCE600\PLATFORM\COMMON\SRC\SOC\COMMON_FSL_V2\MS\USBFN\CLASS\STORAGE\EMULATION\SCSI2\BLOCK\sources and WINCE600\PLATFORM\COMMON\SRC\SOC\COMMON_FSL_V2\MS\USBFN\CLASS\STORAGE\TRANSPORT\BOT\sources.
ENGR112405	BSP/ ATAPI	The ATA hard disk drive still can work on ATAPI image.	The ATA driver only used for ATA hard disk, the ATAPI driver only used for ATAPI CD ROM.

## 5.2 BSP Limitations/Issues

The following table describes the known issues/limitations and available workarounds for the BSP.

Limitation/Issue	Workaround
Stereo audio driver will stop working during the running of either TVIN or FM application.	No workaround is available.
Because both TVIN and FM applications use audio codec loopback mode to output audio through headphone jack, these two applications do not work at the same time.	No workaround is available.
The TVIN display will distort for a very short period during DVD output mode switching between NTSC and PAL.	No workaround is available.



## 5.3 Platform Builder Limitations/Issues

The following table describes the known issues/limitations and workarounds for the Platform Builder tool.

Limitation/Issue	Workaround
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.	Refer to the Microsoft Windows CE 6.0 Release Notes for information on how to configure the CETK disconnect timeout using a registry setting.
Connection to Platform Builder Remote Tools may fail.	<p>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.</p> <p>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. Please refer to the Windows Embedded CE 6.0 Release Notes under the heading "Known issues with the new shell" for more information.</p>
The KITL thread priority may need to be raised if connection to development platform is dropped excessively.	<p>The KITL connection 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</p> <p>WINCE600\PLATFORM\iMX35-DS\SRC\KITL\kitl.c, change the existing KITL_THREAD_HIGH_PRIORITY macro definition from the default value of 131 to 97.</p>
Kernel debugger supports the display of data in linearly addressed memory. Using the kernel debugger to display contents of peripheral registers may result in system hang.	No workaround is available.
When KITL connection with the run-time image is being overloaded, audio playback application will be impacted.	Disable KITL connection or avoid the heavy traffic on it when playing with audio application.

## 5.4 i.MX35 3-Stack Hardware Limitations/Issues

The following table describes the known issues/limitations and workarounds.

Limitation/Issue	Workaround
NOR Flash does not have burst operation support. The image XIP on NOR gets bad performance and stability.	Copy image from NOR to RAM and run image in RAM.
Audio independent volume control gets some crosstalk issue on headphone output. The muted channel still receives some reduced sound duplication of another channel.	No workaround is available.
ESAI playback gets noises with 44.1K sample rate on most audio daughter cards, while it works well with 32K and 48K.	No workaround is available.

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##### Japan:

Freescale Semiconductor Japan Ltd.  
Headquarters  
ARCO Tower 15F  
1-8-1, Shimo-Meguro, Meguro-ku,  
Tokyo 153-0064, Japan  
0120 191014 or +81 3 5437 9125  
[support.japan@freescale.com](mailto:support.japan@freescale.com)

##### Asia/Pacific:

Freescale Semiconductor China Ltd.  
Exchange Building 23F  
No. 118 Jianguo Road  
Chaoyang District  
Beijing 100022  
China  
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