

i.MX31 PDK 1.5 Windows® Embedded CE 6.0

Release Notes

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

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1 Release Contents

This release provides a documentation package and a software package.

1.1 SDK Documentation Package

Table 1 identifies the documentation provided with this release.

Table 1. Documentation

3-Stack Kit Component	Description
pdk15_imx31_WinCE60_RN.pdf	Release Notes
pdk15_imx31_WinCE60_UG.pdf	User's Guide
pdk15_imx31_WinCE60_RM.pdf	Reference Manual

1.2 SDK Software Package

The Software Development Kit (SDK) source code and support files provided with this release are packaged in the following file.

Table 2. Source Code and Files

Software Package	Description
WCE600_MX31SDK1-5_ER.msi	BSP source code and support files

For installation instructions, see the *i.MX31 PDK 1.5 Windows Embedded CE 6.0 User's Guide*.

1.3 SDK 3-Stack Hardware Kit

Table 3 identifies the components of the 3-Stack hardware kit.

Table 3. Kit Components

3-Stack Kit Component	Description
3-Stack CPU board	MX31 2.0.1 Rev C
3-Stack Debug board	Rev C
3-Stack Personality board	Rev C
3-Stack power supply	5V
Ethernet cable	
NULL modem serial cable	
USB OTG cable	
Jack to RCA Video/Audio cable	

2 SDK System Requirements

This package is intended for use with Microsoft® Windows Embedded CE™ 6.0. For additional requirements, see the Windows Embedded CE 6.0 release notes.

1. Review the following site for a complete list of updates:
<http://msdn2.microsoft.com/en-us/embedded/aa731256.aspx>
2. Install the following updates for Windows Embedded CE 6.0 for use with this release:

Visual Studio Service Pack 1

<http://www.microsoft.com/downloads/details.aspx?familyid=BB4A75AB-E2D4-4C96-B39D-37BAF6B5B1DC&displaylang=en>

Windows Embedded CE 6.0 Platform Builder Service Pack 1

<http://www.microsoft.com/downloads/details.aspx?familyid=BF0DC0E3-8575-4860-A8E3-290ADF242678&displaylang=en>

Windows Embedded CE 6.0 R2

<http://www.microsoft.com/downloads/details.aspx?FamilyID=f41fc7c1-f0f4-4fd6-9366-b61e0ab59565&displaylang=en>

Windows Embedded CE 6.0 Cumulative Product Update Rollup 12/31/2007

<http://www.microsoft.com/downloads/details.aspx?FamilyID=247033b2-f475-445a-9cd0-d80cdae0fa75&DisplayLang=en>

Windows Embedded CE 6.0 Monthly Update (January 2008)

<http://www.microsoft.com/downloads/details.aspx?FamilyID=A83124D5-7C8E-4ABE-87FD-69654561BE40&displaylang=en>

Windows Embedded CE 6.0 Monthly Update (February 2008)

<http://www.microsoft.com/downloads/details.aspx?FamilyID=4c10f841-9536-47a7-9410-1f9398c68797&DisplayLang=en>

Windows Embedded CE 6.0 Monthly Update (March 2008)

<http://www.microsoft.com/downloads/details.aspx?FamilyID=79298cab-1ffe-43a6-81e8-2890939deb1b&DisplayLang=en>

Windows Embedded CE 6.0 Monthly Update (April 2008)

<http://www.microsoft.com/downloads/details.aspx?FamilyID=9fcc4541-ab5a-4119-8e4b-70077cf1d56e&DisplayLang=en>

Windows Embedded CE 6.0 Monthly Update (May 2008)

<http://www.microsoft.com/downloads/details.aspx?FamilyID=c71fea6a-613e-4ed7-9f11-04aa582a7b74&DisplayLang=en>

Windows Embedded CE 6.0 Monthly Update (June 2008)

<http://www.microsoft.com/downloads/details.aspx?FamilyID=ef595f00-fae0-4537-a074-1de3c2c01ef1&DisplayLang=en>

Windows Embedded CE 6.0 Monthly Update (July 2008)

<http://www.microsoft.com/downloads/details.aspx?FamilyID=991a6ef3-7035-4d71-b424-1fb393af8a26&DisplayLang=en>

Windows Embedded CE 6.0 Monthly Update (August 2008)

<http://www.microsoft.com/downloads/details.aspx?FamilyID=03fc9ea0-21c9-49e0-9cb8-1fa03900ee32&DisplayLang=en>

Windows Embedded CE 6.0 Monthly Update (September 2008)

<http://www.microsoft.com/downloads/details.aspx?FamilyID=d192ea1f-e968-4d57-835e-ddf248ba3fc2&DisplayLang=en>

Windows Embedded CE 6.0 Monthly Update (October 2008)

<http://www.microsoft.com/downloads/details.aspx?FamilyID=62fd4f00-7c1d-4883-868a-3a95e720c134&DisplayLang=en>

Windows Embedded CE 6.0 Monthly Update (November 2008)

<http://www.microsoft.com/downloads/details.aspx?FamilyID=4fcc2e54-55fe-4ba7-9676-e925582316b8&DisplayLang=en>

3 Supported Features

Table 4 describes the features supported by this Board Support Package (BSP) .

Table 4. Supported Features

Feature	Comments
Tools	
-W4 Compiler Setting	All BSP code compiles cleanly with –W4 compiler warning level. –W4 is default warning level
OEM Adaptation Layer (OAL)	
EPIT1	PQOAL system timer support
KITL	Kernel Independent Transport Layer (KITL) supported via Ethernet connection between Platform Builder and the target. KITL provides debug messages over Ethernet, kernel debugger connectivity, and Windows Embedded CE 6.0 Test Kit connectivity.
L2 Cache	Option to use Write-back, Write-through, or disable
MX31 RTC	PQOAL time-of-day support with i.MX31 RTC
MC13783 RTC	PQOAL time-of-day support with MC13783 RTC
NAND Boot	Supports large block NAND device

Feature	Comments
PQOAL	Conforms to Production Quality OAL (PQOAL) coding standards
Serial Debug Port	Debug message support provided via internal UART1
USB Boot/KITL	
Drivers	
Accelerometer	Supports Freescale MMA7450L
ATA	ATA
Audio DAC	Playback using MC13783 codec/DAC
Backlight	Supported via IPU PWM control
Battery Driver	
Bluetooth®	CSR Bluetooth module in APM6628
Clock Control (CCM)	Supported as component of CSPDDK (DDK_CLK)
CSPI 2	Interface for MC13783 PMIC
EMI – NANDFC (File system)	Support for NAND FMD
EPIT2	Used for touch panel sampling
Ethernet	Supports LAN9217 chip
FM driver	
GPIO	Supported as component of CSPDDK (DDK_GPIO)
GPS	
GPT	
Hantro codec	
I2C	I2C
IPU Image Sensor (Camera)	Supports OV2640 Support resolutions, selection, flipping, rotation Does not support zoom function
IPU SDC	Epson® L4F00242T03 640x480 support
IOMUX	Supported as component of CSPDDK (DDK_IOMUX)
Keypad	Conforms to MSFT keyboard layout manager interface Supports multiple simultaneous key pressing Supports power management mode full ON / full OFF
MBX Direct 3D Mobile/OpenGLES	IP wrapper for 2D/3D hardware acceleration
MC13783 Power Management IC (PMIC)	Supports PMIC features, including regulators, ADC, and touch controller
SD/SDIO	SD/SDIO
SDMA	Supported as a component of CSPDDK (DDK_SDMA)
Serial	Serial port
TV-Out	Supports Chronitel™ CH7024B
Touch Screen (Stylus)	Supported via MC13783 touch controller
USB OTG/HOST	Supports USB OTG high-speed slave/host
Wi-Fi®	Supports APM6628 Wi-Fi module
Applications	
ACCTest	Accelerometer test application
Camera Application	Supports resolution change Supports image rotation, vertical, and horizontal flip Supports image capture, save as JPEG/BMP Shows real framerate of camera
FM radio	
TV-Out	Application <i>tvout.exe</i> enables you to switch between LCD and TV-Out modes
Rotate	Switches the PDK between portrait and landscape orientation
Power Management Services	

Feature	Comments
DVFS	
Power suspend mode	
Power audio playback mode	
Power video playback mode	
File Systems and Data Store	
Hive-based Registry	Supports Hive for ATA / SD Memory / NAND Flash
Graphics and Multimedia Technologies	
DirectDraw	IPU hardware support for page flipping, overlays, color keying, color space conversion, rotation, and scaling.
Windows Media Player	WMV playback
Shell and User Interface	
Soft Input Panel	
VGA Resources – Portrait Mode	

4 Known Issues

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

4.1 Known Defects

Table 5 describes the defects, which are categorized as follows:

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

Table 5. Known Defects

Identifier	Category	Description	Workaround
ENGR43607	BSP	Test cases for CETK OAL Interrupt-loctls-Kernal_Mode fail. The CETK test cases that are failing (4000, 4100, 4200, 5000, 5100, and 5200) are all associated with testing the support for multiple IRQs, which all map to a single SYSINTR.	No workaround is available. The BSP currently does not implement support for more than one IRQ per SYSINTR.
ENGR71162	BSP	Touch: CETK Touch Panel Test #8009 Failed	MS CETK test files issue. Should use modified test dll.
ENGR45860	HW	The OAL real time clock CETK test 1260 fails.	No workaround is available. The test requires the RTC to support a 100-year time span. The MC13783 is limited to approximately 88 years.

Identifier	Category	Description	Workaround
ENGR57554	PB	After rotating the screen (TV-Out is rotating), playing a movie clip with CEPlayer will cause data abort. Other DDRAW applications using overlay, such as mosquito.exe, work well.	No workaround is available. Suspect that there are problems in the Microsoft CEPlayer code.
ENGR58432	BSP	The captured video is slow-moving if there is an open camera application on the TV screen.	No workaround is available.
ENGR71203	BSP	SDHC: No error dialogue popup to identify the copying error when the SD card is removed while copying.	No workaround is available.
ENGR71224	BSP	HIVE_SD: After running flushreg and suspend/resume, could not copy/move/read files in system.	No workaround is available.
ENGR71579	HW	LAN9217: CETK Winsock performance test failed.	No workaround is available.
ENGR85717	BSP	MBX_TVOUT: There are 9 failed cases for Direct Draw CETK test for both PAL and NTSC mode.	No workaround is available.
ENGR85891	BSP	MBX: CETK Direct3D Mobile Driver Comparison Test case #211 aborted and case #1993 failed.	No workaround is available.
ENGR86001	BSP	MBX: The display of 3D images on TV(PAL&NTSC) is upside down if the demo application is run before switching the signal to TV.	No workaround is available.
ENGR88050	BSP	TVOUT: The image displayed on SDTV doesn't match the SDTV screen	No workaround is available.
ENGR88054	BSP	Speaker: Sometimes the speaker is still playing sound after the headphone is inserted. 20%	No workaround is available.
ENGR95647	BSP	MX31_BSP] USB: PC failed to detect the disk of NAND Mass Storage via Disk Management.	No workaround is available.
ENGR99414	BSP	[MX31_BSP]WIFI: Cannot connect with laptop via WEP encryption Ad hoc mode	No workaround is available.
ENGR99641	BSP	[MX31_BSP]WIFI: Connects AP with incorrect WEP index	No workaround is available
ENGR100768	BSP	[MX31_BSP]MBX: FSL video codec conflicts with MBX driver.	No workaround is available.
ENGR103573	BSP	[MX31_BSP]TVOUT: The bottom of the LCD panel display is blank upon suspending and resuming the system when the a directory is opened.	Refresh the screen.
ENGR103603	PB	[MX31_BSP]Display: CETK Graphics Device Interface Test #218 StretchBlit failed. 100%	MSFT known issue
ENGR103641	BSP	[MX31_BSP]MBX: Image build issue of EGL 1.1 initialized Duplicate Handle overlay failed. 50%	Clean build the whole image
ENGR103642	BSP	[MX31_BSP]MBX: There is "Data Abort" issue to run OpenGL ES performance test when a directory is opened. 100%	Run the app in start menu

Identifier	Category	Description	Workaround
ENGR103760	BSP	[MX31_BSP]USBOTG: Cold boot of USB-Mouse/Keyboard in USB OTG port failed, and system hung when the USB cable was unplugged.	Fix in the next ER release
ENGR103778	BSP	MX31_BSP]USBMSC: Failed to recognize SDHC 16G in card reader as USB MSC via USB OTG/Host port.	No workaround is available
ENGR103880	BSP	MX31_BSP] USB: Failed to connect ActiveSync if USB cable got connected in suspend mode	Fix in the next ER release
ENGR104285	BSP	[MX31_BSP]CEStressTool: Launch CE Stress Tool failed; no modules were successfully queued	No workaround is available

4.2 BSP Limitations and Issues

Table 6 describes the known issues/limitations and available workarounds for the BSP.

Table 6. BSP Limitations and Workarounds

Limitation/Issue	Workaround
Polled KITL mode may increase connection reliability.	To force polled KITL mode, define the KITL_USE_POLLING_MODE macro at the beginning of the PLATFORM\iMX313DS\SRC\KITL\kitl.c source file.
[ENGR56363] Camera application has a conflict with CEPlayer.	Do not run the camera application and CEPlayer at the same time.

4.3 Platform Builder Limitations/Issues

Table 7 describes the known issues/limitations and workarounds for the Platform Builder tool.

Table 7. Platform Builder Limitations and Issues

Limitation/Issue	Workaround
Windows Embedded CE 6.0 Test Kit server occasionally drops the KITL connection. This appears to occur more frequently with long CETK tests such as the Display Driver Test.	Refer to the Microsoft Windows Embedded CE 6.0 Release Notes for instructions on configuring the CETK disconnect timeout using a registry setting.
Connection to Platform Builder Remote Tools may fail.	<p>The network configuration for the PC workstation may have the MTU (Maximum Transmit Size) size set to less than 1500, which is not compatible with the KITL MTU size. Refer to http://logicpd.com/support/faq/faq.php?faq_id=104 for more details.</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. See the topic "Known issues with the new shell" in the Windows Embedded CE 6.0 Release Notes.</p>
The KITL thread priority may need to be raised if the connection to the development platform is dropped excessively.	The 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\iMX31ADS\SRC\KITL\kitl.c</code> , change the existing <code>KITL_THREAD_HIGH_PRIORITY</code> macro definition from the default value of 131 to 97.
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.

4.4 Hardware Limitations and Issues

Table 8 describes the known issues/limitations and workarounds.

Table 8. Hardware Limitations and Issues

Limitation/Issue	Workaround
3-Stack board power-on reset can cause HyperTerminal or other terminal emulation applications to stop.	Close and restart the terminal emulation application after power-on reset.
The navigation stick or the keypad on some 3-Stack boards does not work well.	No workaround is available.
The SDHC does not have a write protect pin connection.	No workaround is available.
MMC cards are not supported.	Modifications to the 3-Stack board are necessary to support MMC cards.
USB host cannot drive mini HDD over USB if the peak current > 800mA	Replace the RT9702 chip with RT9702A to support 1.1 amps and 1.5 amps peak current.
When debugging with KITL, trying to view any of the contents of the IPU registers between ADC_DISP0_RDM and DI_DISP_LLA_CONF results in the system crashing.	Some IPU registers are time critical so that no break point can be set. Suggest using some debug messages to print register values.
[ENGR46575] USB_OTG: Pin detection failed between two 3-Stack boards with Host mode and MSC mode.	The problem was caused by the large tolerance of R65 on CPU board. It should be changed to a 12K ohm resistor with 1% precision.
[ENGR61181] Battery_HW: Cannot detect USB storage through USB-Host port when provided the power by battery.	No workaround is available.
USB OTG: Device may not be detected by Windows OS when using ActiveSync or USB KITL. Windows OS will reset the USB and disable the USB port.	Use a USB hub to connect the 3-Stack board to the PC USB port.

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