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Intel(R) Boot Loader Development Kit (Intel(R) BLDK) Core 2.3.9.7
[Based on the UEFI Development Kit 2010 (UDK2010)]
CedarRock Source Release Notes
July 12, 2012
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1. OVERVIEW
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This Intel(R) Boot Loader Development Kit (Intel(R) BLDK) is specifically
produced for the CedarRock platform. The components that make up the kit are:

- The Intel(R) BLDK Development Application.
- The CedarRock platform code base.
- The Intel(R) UEFI Development Kit Debugger Tool.
- Documentation including the Getting Started Guide and the User's Guide.

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2. RELEASE INFORMATION
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This is the 2.3.9.7 release of the software for the CedarRock platform. It is
based on the Intel UEFI Development Kit (UDK) 2010 Update3 (UP3) which is open
source posted on TianoCore.org plus platform specific code which has been added

to this release package. All required product features have been implemented; however, optimization for boot time performance is left to customer's porting efforts.

EDKII documentation can be downloaded from http://sourceforge.net/projects/edk2/files/.
General Documentation: EDKII User Manual and EDK II Module Writer's Guide.
Specifications: EDKII Build, FDF, INF, DSC, DEC and VFR Specification.

3. SUPPORTED FEATURES

The following features are supported and have been validated.

- CPU, Memory, Basic I/O Initialization
- Boot from SATA, USB
- Feature configuration through the Intel(R) BLDK Development Application
- Windows* Tool Chain (Windows Source Package)
- GCC Tool Chain (Linux* Source Package)
- UEFI Specification 2.3
- ACPI 3.0
- Intel(R) UDK Debugger Tool
- SPI Flash Update
- HD Audio
- Enhanced Intel SpeedStep(R) Technology
- Intel(R) Hyper-Threading Technology

4. HARDWARE CONFIGURATION

This release has booted to the operating systems listed in Section 8 on a Cedar Rock customer reference board using the following configuration:

- PS/2 keyboard and mouse
- Serial console
- Graphic mode
- SATA hard disk
- USB mouse and keyboard
- USB thumb drive

5. BUILD ENVIRONMENT OPERATING SYSTEM

All validation of the Intel(R) Boot Loader Development Kit was done on Windows XP 32-Bit with Microsoft Visual Studio 2005, Windows 7 64-Bit with Microsoft* Visual Studio 2008 and Fedora Core 14 with Linux GCC (4.5.1) ToolChain.
These are the only supported combinations for Intel(R) BLDK.

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6. BUILD TOOLS REQUIRED on HOST MACHINE
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A. Windows Environment

a. Microsoft Visual Studio 2005 or 2008.
b. Intel ACPI Source Language (iASL) Compiler, version 20070508
Note: Download "iasl-win-20070508.zip" from
"http://www.acpica.org/downloads/Version_20070508.php"
and extract file "iasl.exe" to C:\ASL
c. Windows Driver Development Kit (WinDDK), version 3790.1830
Note: Download WinDDK.3790.1830 from:
"http://download.microsoft.com/download/9/0/f/
90f019ac-8243-48d3-91cf-81fc4093ecfd/1830_usa_ddk.iso"
Extract the DDK under "C:\1830_usa_ddk".
Run "C:\1830_usa_ddk\x86\KitSetup.exe".
This will install WinDDK.3790.1830 under "C:\WINDDK\3790.1830"
d. Intel(R) BLDK Development Application, version 2.0.1
Note: Download from "http://edc.intel.com/Software/
Intel-Boot-Loader-Development-Kit/"
Double-click on the .exe file to install.

B. Linux Environment (Fedora Core 14)

a. GCC Tool Chain, version 4.5.1 20100924
Note: Type "yum groupinstall development-tools" in Terminal with
root user.
b. Intel ACPI Source Language (iASL) Compiler, version 20100528
Note: Type "yum install iasl libuuid-devel" in Terminal with root user.
c. Intel(R) BLDK Development Application, version 2.0.0
Note: Download from "http://edc.intel.com/Software/
Intel-Boot-Loader-Development-Kit/"
Run the installation script as follows to install:
-$ chmod u+x install.sh
-$ ./install.sh

Refer to the Getting Started Guide and the User's Guide for further details.
Intel UEFI Development Kit Debugger Tool can be downloaded at
"http://www.intel.com/technology/efi/sw-debug.htm"

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7. FLASH IMAGE BUILD STEPS
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A. Windows Environment

a. Double click the CR-EDKII-Gold-2.3.9.7_Source.exe file and then
type in the destination directory.
b. Open Intel(R) BLDK 2.0.1 Development Application tool.
c. Create a new project. Refer to section 4.1 in the Getting Started Guide.

d. In the Development Application, add a debug build to the build options.
   - File > Preferences > Build Tools.
   - Add a "New Item" and name it "Build &Debug"
   - In the Application text box, enter "nmake"
   - In the Parameters text box, enter "debugbuild"
   - Click Save
e. Under the Build menu, you will see "Build", "Build Debug", "Rebuild", "Clean" and "Clean All" options.
   - To generate a release build, click "Build".
   - To generate a debug build, click "Build Debug".
   - Click "Clean" to remove previous builds.
   - Click "Rebuild" to clean and generate a release build.
f. After a successful build, CEDARROCK.FD is the filename of flash image which is located under the build directory.

B. Linux Environment (Fedora Core 14)

a. Copy the CedarRock release package to a workspace and extract the release package at the worskspace by command:
   - tar xzvf ../CR-EDKII-Gold-2.3.9.7_Source.tar.gz
b. Use either "-$ bldk" or "-$ /opt/intel/bldk/bin/bldk" command to open the Intel(R) BLDK 2.0.0 Development Application tool.
c. Create a new project. Refer to section 4.1 in the Getting Started Guide.
d. In the Development Application, add a debug build to the build options.
   - File > Preferences > Build Tools.
   - Add a "New Item" and name it "Build &Debug"
   - In the Application text box, enter "make"
   - In the Parameters text box, enter "debugbuild"
   - Click Save
e. Under the Build menu, you will see "Build", "Build Debug", "Rebuild", "Clean" and "Clean All" options.
   - To generate a release build, click "Build".
   - To generate a debug build, click "Build Debug".
   - Click "Clean" to remove previous builds.
   - Click "Rebuild" to clean and generate a release build.
f. After a successful build, CEDARROCK.FD is the filename of flash imagewhich is located under the build directory.

Refer to the Getting Started Guide and the User's Guide for further details.

Note: Review the size of the CedarRock SPI Part, 2MB (0x0000000 - 0x01FFFFF).
For that, you have to adjust the starting address of the flash image:
- Debug image: Address (Hex): 0x0000000 - 0x01FFFFF
- Release image: Address (Hex): 0x0100000 - 0x01FFFFF

8. OPERATING SYSTEMS BOOT SUPPORT

Only "UEFI aware" target operating systems will boot using this version of BLDK. This means that operating systems and boot loaders that require BIOS INT calls will not boot. To boot with this version of BLDK, a modified version of elilo or grub2 will be required for Fedora Core 14 and Yocto Linux to boot.

For detailed instructions on making the required modifications and on getting supported operating systems to boot, refer to the white paper titled "Setting up OS environments using EDK-II based Intel(R) BLDK" available from EDC at the link below.

Booting Fedora Core 14, Yocto Linux and WEC7 on the following media have been validated:

- SATA hard drive
- SATA solid state drive
- USB drive

Link to download:

- Yocto Linux: "http://www.yoctoproject.org/"
- White paper "Setting up OS environments using EDK-II based Intel(R) BLDK": "http://www.intel.com/p/en_US/embedded/hwsw/software/bldk#download"

9. LIMITATIONS

- Only "UEFI aware" operating systems will boot using this version of BLDK. Refer to Section 8.
- When release package is extracted to a folder, the folder name is restricted to contain characters (a-zA-Z0-9_-.) only. Build failure will occur if other characters are used.
- Tool for Source Level Debug is not supported for Linux build.
- Support for EFI Shell 2.0 compatible application only. EFI application that consumes old Shell interfaces won't be supported by EFI Shell 2.0. Workaround: Launch EFI Shell 1.0 image .efi on top of Shell 2.0 environment.
- TPM MOR and PP features are not enabled for certain platforms with SPI flash parts.
- Sometimes OEM Boot option are not available for altering the default OEM boot path using Western Digital SATA HDD.

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10. KNOWN ISSUES
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Title: USB Keyboard does not detect after execute <ShutdownApp.exe> on WEC7.
Description: USB Keyboard will be undetectable in EFI Shell after shutdown
from WEC7 using the <shutdownApp.exe>. The issue is reproducible
on HP USB keyboard (M/N: SK-2885).

Implication:
Resolution: None.
Workaround:
Affected O/S: EFI Shell

Title: S4 is not supported by PVR Driver.
Description: Hibernation failure to restore at OS installed with PVR gfx driver.
This affects on both POR OS: Fedora14 (3.0.0) and Yocto Linux-3.0.24.
In the PVR driver release notes, Hibernation (S4) was not included
in the "supported feature".

Implication:
Resolution: Pending for PVR Gfx Driver to add S4 feature in their next release.
Workaround:
Affected O/S: Fedora14, Yocto Linux

Title: Yocto's distorted splash screen during booting up.
Description: Yocto Linux has a distorted splash screen whenever it is boot up
from BLDK. Pending from Yocto team to fix the corrupted boot
message upon their next OS release.

Implication:
Resolution: Pending for next Yocto release to fix the issue.
Workaround: Add ¡°psplash=false¡± on boot parameters to disable Yocto splash screen.
Affected O/S: Yocto Linux

Title: Yocto Linux cannot be booted with Elilo from USB Mass Storage.
Description: Fail to boot to Yocto Linux OS with elilo loader. The system reboot
itself to efi shell. This happened only on USB boot.

Implication:
Resolution: Pending for new Yocto Linux to fix the issue.
Workaround:
Affected O/S: Yocto Linux

Title: There will be no display for LVDS after Yocto Linux is boot up.
Description: Yocto Linux is able to boot up to OS with LVDS when it is installed into HDD (regardless ELILO or GRUB2). However, there will be no display for LVDS if the Yocto Linux is successfully boot up using USB drive.

Implication:
Resolution: Pending for new Yocto Linux to fix the issue.
Workaround:
Affected O/S: Yocto Linux

Title: IDE tool will automatically exit under Linux.
Description: If we change the value of "Connector Number" and "Number of Devices", the IDE tool will be corrupted and closed under Linux.

Implication:
Resolution: Pending for new IDE tool to fix the issue.
Workaround:
Affected O/S: Linux

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11. FIXED ISSUES
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Title: Enable the PCIe Slot PM SCI issue.
Description: Cannot enable the PCIe Slot PM SCI by PCD.

Implication:
Resolution: Add this PCD support.
Workaround:
Affected O/S: None

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12. IMPLEMENTATION NOTES
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- This release does not prohibit a flash update, nor verify that the image to be programmed is valid. Intel(R) BLDK 2.0.1 Development Application tool can be used to change the contents of the image, which if used improperly may introduce security issues. Hence, customers are responsible for implementing security safeguards prior to productizing the Intel(R) Boot Loader Development Kit.

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13. CHANGE LOG & FEATURES ADDED
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Release 2.3.9.7 Gold release (July 12, 2012)

- Add CedarRock board support.
- Add Linux Build Environment support.
- Base Tools in this release is SVN revision 11698 which can be downloaded from
  "https://edk2.svn.sourceforge.net/svnroot/edk2/branches/UDK2010/BaseTools"
- EDKII version in this release is UDK2010.UP3.P1 which can be downloaded from
  "http://sourceforge.net/apps/mediawiki/tianocore/index.php?title=UDK2010"