

Intel[®] USB 3.0 eXtensible Host Controller Driver

Release Notes (4.0.0.36)

June 2015

Revision 1.00

Intel Confidential



INFORMATION IN THIS DOCUMENT IS PROVIDED IN CONNECTION WITH INTEL PRODUCTS. NO LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE, TO ANY INTELLECTUAL PROPERTY RIGHTS IS GRANTED BY THIS DOCUMENT. EXCEPT AS PROVIDED IN INTEL'S TERMS AND CONDITIONS OF SALE FOR SUCH PRODUCTS, INTEL ASSUMES NO LIABILITY WHATSOEVER AND INTEL DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY, RELATING TO SALE AND/OR USE OF INTEL PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.

A "Mission Critical Application" is any application in which failure of the Intel Product could result, directly or indirectly, in personal injury or death. SHOULD YOU PURCHASE OR USE INTEL'S PRODUCTS FOR ANY SUCH MISSION CRITICAL APPLICATION, YOU SHALL INDEMNIFY AND HOLD INTEL AND ITS SUBSIDIARIES, SUBCONTRACTORS AND AFFILIATES, AND THE DIRECTORS, OFFICERS, AND EMPLOYEES OF EACH, HARMLESS AGAINST ALL CLAIMS COSTS, DAMAGES, AND EXPENSES AND REASONABLE ATTORNEYS' FEES ARISING OUT OF, DIRECTLY OR INDIRECTLY, ANY CLAIM OF PRODUCT LIABILITY, PERSONAL INJURY, OR DEATH ARISING IN ANY WAY OUT OF SUCH MISSION CRITICAL APPLICATION, WHETHER OR NOT INTEL OR ITS SUBCONTRACTOR WAS NEGLIGENT IN THE DESIGN, MANUFACTURE, OR WARNING OF THE INTEL PRODUCT OR ANY OF ITS PARTS.

Intel may make changes to specifications and product descriptions at any time, without notice. Designers must not rely on the absence or characteristics of any features or instructions marked "reserved" or "undefined". Intel reserves these for future definition and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to them. The information here is subject to change without notice. Do not finalize a design with this information.

The products described in this document may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are available on request.

Contact your local Intel sales office or your distributor to obtain the latest specifications and before placing your product order.

Copies of documents which have an order number and are referenced in this document, or other Intel literature, may be obtained by calling 1-800-548-4725, or go to: <http://www.intel.com/design/literature.htm%20>

All products, computer systems, dates, and figures specified are preliminary based on current expectations, and are subject to change without notice.

This document contains information on products in the design phase of development. Do not finalize a design with this information. Revised information will be published when the product is available. Verify with your local sales office that you have the latest datasheet before finalizing a design.

Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See www.intel.com/products/processor_number for details.

Code names featured are used internally within Intel to identify products that are in development and not yet publicly announced for release. Customers, licensees and other third parties are not authorized by Intel to use code names in advertising, promotion or marketing of any product or services and any such use of Intel's internal code names is at the sole risk of the user.

Intel and the Intel logo are trademarks of Intel Corporation in the U.S. and/or other countries.

*Other names and brands may be claimed as the property of others.

Copyright © 2015, Intel Corporation. All rights reserved.



Contents

1	Introduction	5
	1.1 Scope of Document	5
	1.2 System Requirements	5
	1.3 Acronyms and Terminology	6
2	Release Kit Summary	8
	2.1 Release Kit Details	8
	2.2 Kit Contents	8
3	Important Notes	9
	3.1 USB 3.0 Collaterals	9
	3.2 Platform Best Known Configuration	9
	3.3 New Root Certificate Signing	9
	3.4 EHCI controller removal from Skylake PCH	9
	3.5 Upgrading/downgrading with a Non-PV (WHQL) Driver	10
4	Closed Issues	11
5	Known Issues	13

Figures

FIGURE 1. WINDOWS SECURITY	10
----------------------------------	----



Revision History

Revision Number	Description	Revision Date
0.7	Initial Release.	September 2014
0.8	Alpha Release.	October 2014
0.85	Alpha2 Release.	December 2104
0.90	Beta Release	February 2015
1.00	PV Release	June 2015

§



1 Introduction

1.1 Scope of Document

This document provides release information about the Intel® USB 3.0 eXtensible Host Controller Driver. It covers Release Kit summary, Important Notes, Resolved Issues and Known Issues. This document is intended for OEMs and ODMs that are validating the Intel® USB 3.0 eXtensible Host Controller Driver on their platform.

1.2 System Requirements

The Intel® USB 3.0 eXtensible Host Controller Driver contains support for the following Intel Chipsets:

- Intel® 8 Series/C220 Chipset Family
- 4th Generation Intel® Core™ Processors
- Intel® C610 series Chipset Family
- Intel® 9 Series Chipset Family
- Intel® C230 series Chipset Family
- Intel® Pentium® Processor or Intel® Celeron® Processor N- & J- Series
- 5th Generation Intel® Core™ Processors
- Intel® Core™ M Processor
- Skylake Platform
- Braswell Platform

The following Operating Systems are supported based on chipset:

Intel® 8 Series Chipset Family
4th Generation Intel® Core™ Processors
Intel® 9 Series Chipset Family
Intel® Pentium® Processor or Intel® Celeron® Processor N- & J- Series
5th Generation Intel® Core™ Processors
Intel® Core™ M Processor
Skylake Platform
Braswell Platform:

- Windows* 7 Operating System (both 32-bit and 64-bit versions).

Intel® C220 series Chipset Family
Intel® C230 series Chipset Family
Intel® C610 series Chipset Family:

- Windows* 7 Operating System (both 32-bit and 64-bit versions).
- Windows* Server 2008 R2 Operating System.
- Windows* Small Business Server 2008 Operating System.

Note: The Intel® USB 3.0 eXtensible Host Controller Driver is not supported on Windows* XP and Windows Vista*. For these operating systems, ensure your BIOS settings have the xHCI Mode set to "Auto" or "Smart Auto". This will reconfigure the USB 3.0 ports to



function as USB 2.0 ports using the native Windows* EHCI driver. For more information, see the Wildcat Point-LP Platform Controller Hub (PCH) BIOS Specification document.

The Intel® USB 3.0 eXtensible Host Controller Driver Installer and Intel® USB 3.0 Monitor support the following languages:

- Arabic (International)
- Chinese (Simplified)
- Chinese (Traditional)
- Czech
- Danish
- German
- Greek
- English (United States)
- Spanish
- Finnish
- French (International)
- Hebrew
- Hungarian
- Italian
- Japanese
- Korean
- Dutch
- Norwegian
- Polish
- Portuguese (Brazil)
- Portuguese (Portugal)
- Russian
- Slovak
- Slovenian
- Swedish
- Thai
- Turkish

1.3 Acronyms and Terminology

Term	Description
BSOD	Blue Screen of Death (Stop Error)



Term	Description
CRB	Customer Reference Board
EHCI	Enhanced Host Controller Interface
FS	Full-Speed
HID	Human Interface Device (ex: keyboard or mouse)
HS	High-Speed
IBP	Intel Business Portal (https://businessportal.intel.com)
LS	Low-Speed
PCH	Platform Control Hub
PV	Production Version
RMH	Rate Matching Hub
SS	Super-Speed
USB	Universal Serial Bus
xHCI	eXtensible Host Controller Interface
WPP	Windows* software trace Pre-Processor



2 Release Kit Summary

2.1 Release Kit Details

Kit Name: Intel(R) USB 3.0 eXtensible Host Controller Driver

Version: 4.0.0.36

2.2 Kit Contents

The contents of this release kit include:

- Intel® USB 3.0 eXtensible Host Controller Driver Installer

The Intel® USB 3.0 eXtensible Host Controller Driver Installer "Setup.exe" will install the following drivers and application on the system:

- Intel® USB 3.0 eXtensible Host Controller Driver
- Intel® USB 3.0 Root Hub Driver
- Intel® USB 3.0 Host Controller Switch Driver
- Intel® USB 3.0 Monitor

Note: For Skylake/Braswell platform, the Intel® USB 3.0 Host Controller Switch driver will not be installed.

- USB 3.0 Debug Scripts

The "Debug_Scripts" folder provides the scripts to capture USB 3.0 WPP logs for issue debug. For more information, see the readme.txt file located in the same folder.

- Intel® USB 3.0 eXtensible Host Controller Driver – Release Notes
- Intel® USB 3.0 eXtensible Host Controller Driver – Bring Up Guide
- Intel Software License Agreement

Note: It's recommended that USB3.0 driver should only be installed using the setup.exe. Proper device functionality cannot be ensured if INF installation is used.



3 Important Notes

3.1 USB 3.0 Collaterals

Please see the document "Intel(R) USB 3.0 eXtensible Host Controller Driver - Bring Up Guide" for information on driver installation and usage. This document can be found in the Intel® USB 3.0 eXtensible Host Controller Driver release kit.

Another useful document to reference is the "Intel(R) USB 3.0 eXtensible Host Controller Driver - Customer Validation and Debug Guide". This document is available on CDI. Please contact your Intel FAE for access.

3.2 Platform Best Known Configuration

Please refer to "Client Base Platform Best Known Configuration" from Intel Business Portal (IBP) for platform configuration setup that aligns to this milestone releases.

3.3 New Root Certificate Signing

The current driver is signed with 2048 Bit Root certificate. Some Windows* 7 OS image might not contain the correct root certificate to authenticate it. If this is the case, it's required to install Microsoft* KB [931125](#).

For more detail of 2048 Bit root certificate, see Root Certification Guidance - customer communication #549032

3.4 EHCI controller removal from Skylake PCH.

For the Skylake/Braswell PCH generation, the EHCI controllers along with their integrated rate matching hubs (RMH) have been removed from the PCH. Intel continue to provide USB functionality through the xHCI controller for USB 2.0 and USB 3.0 connectivity. The implication of this change is USB functionality will not work on the Windows* 7 based image, since it doesn't support native xHCI controller. To enable USB functionality in the Windows* 7 OS, it's required to manually install the USB3.0 (xHCI) driver.

For more detail of this implication and instruction how to manually add USB3.0 driver to Windows* 7 based image, see EHCI Removal from Skylake Platform Controller Hub (PCH) - Technical White Paper document # 541711.



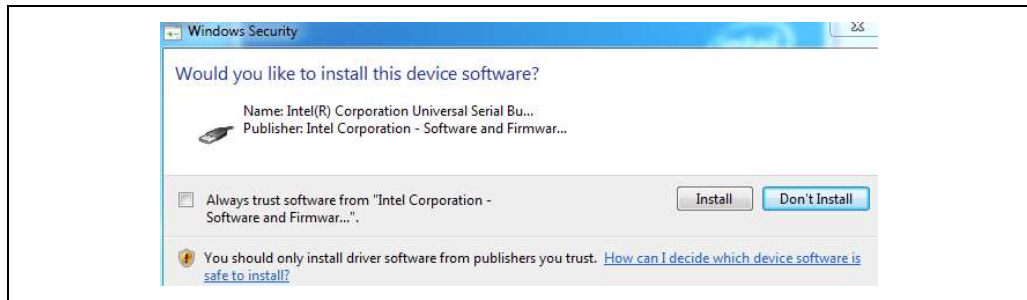
3.5 Upgrading/downgrading with a Non-PV (WHQL) Driver.

When doing an upgrade/downgrade of the USB3.0 driver to a Non-PV version of the USB3.0 driver, you may encounter a "Windows Security" pop up message (Figure 1) requesting approval to trust and allow the installation of the driver. During that moment of the install process, the previous driver is already uninstalled and all the USB ports in the platform will not function. This may cause the installation process to get stuck and cause the installation the USB3.0 driver to fail.

To avoid running into this situation, follow the steps below:

1. When installing the USB3.0 for the first time using setup.exe, select (check) the option "Always trust software from Intel Corporation Software and Firmware..." on the "Windows Security" pop up message (Figure 1) for all three USB3.0 driver components. The next time when doing an upgrade/downgrade of the Non-PV USB3.0 driver, the "Windows Security" message will not pop up requesting for approval.
2. **Pre-Skylake platforms only:** If you have already done installation for the first time using setup.exe and did not check the option "Always trust software from Intel Corporation Software and Firmware..." on the "Windows Security" pop up message, go to control panel to uninstall the driver and reboot the system. Install the driver again but this time check the option "Always trust software from Intel Corporation Software and Firmware..." on the "Windows Security" pop up message.

Figure 1. Windows Security





4 Closed Issues

Issue #	Description	Resolution
N/A	Adding billboard notification for Win7 OS.	Resolved in Release Rev: 4.0.0.36 (PV)
4802763	A USB 3.0 Dock may loses after resume from S3.	Resolved in Release Rev: 4.0.0.36 (PV)
4637861	USB ports have no function under WinPE for Intel X99 platform.	Resolved in Release Rev: 4.0.0.36 (PV)
4772404	BSOD 0xC9 may occurs on iusb3hub.sys driver after connecting DP Dell Monitor to TypeC port.	Resolved in Release Rev: 4.0.0.36 (PV)
4802789	xHCI controller may report yellow bang under WinPE on Intel Broadwell system.	Resolved in Release Rev: 4.0.0.36 (PV)
4802786	BSOD may occur in iusb3xhc.sys when rebooting the guest OS on VMWare.	Resolved in Release Rev: 4.0.0.36 (PV)
4043553	BSOD 0xD1 may occur on iusb3xhc.sys driver during Windows shut down.	Resolved in Release Rev: 4.0.0.36 (PV)
4636313	A Bluetooth device may fails to connect to Bluetooth controller if the Bluetooth controller is turn off and on.	Resolved in Release Rev: 4.0.0.18 (Beta)
4636626	BSOD 0x9F may occurs on Windows 32bit during reboot stress test if specific Bluetooth\WiFi combo device is connected.	Resolved in Release Rev: 4.0.0.18 (Beta)
4636726	If Bluetooth device is disabled through the taskbar icon, it may take 10 seconds for Bluetooth device to get disabled.	Resolved in Release Rev: 4.0.0.18 (Beta)
4994858	USB2.0 mouse may freezes in Windows login screen after resuming from S3 if an USB2.0 keyboard is connected to other USB port.	Resolved in Release Rev: 4.0.0.18 (Beta)
4636579	Frame counter may get reset after Isochronous USB device is plugged/unplugged from the system.	Resolved in Release Rev: 4.0.0.18 (Beta)
4636270	A specific USB2.0 thumb drive may disappear from device manager if a file transfer is initiated after formatting the device.	Resolved in 4.0.0.12 (Alpha2)
4636006	Under certain condition, specific High resolution USB3.0 ISOCH camera may fail to enumerate when connected to xHCI controller.	Resolved in 4.0.0.12 (Alpha2)



Closed Issues

Issue #	Description	Resolution
4768712	USB3.0 Root Hub may disappear after multiples re-plugs of an external USB3.0 hub with 4 devices connected (USB2.0 Mass storage, Webcam, Keyboard, USB3.0 Mass storage)	Resolved in 4.0.0.7 (Alpha)
4802670	Bluetooth device may fail to enter D2 after the xHCI driver is installed	Resolved in 4.0.0.7 (Alpha)
4802675	BSOD 0x50 may occurs on iusb3hub.sys driver if the ACPI enumeration output buffer end is not page aligned	Resolved in 4.0.0.7 (Alpha)
4802660	Bluetooth device may takes longer time to enable after it's disabled and re-enabled through SW in the OS.	Resolved in 4.0.0.7 (Alpha)

§



5 Known Issues

Issue #	Description
	N/A