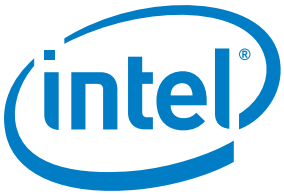

# Intel® Vision Accelerator Design with Intel® Movidius™ Myriad™ VPU

## Errata

*September 2019*

# Contents



## Tables

# Revision History

| Date | Revision | Description |
|---|---|---|
| September 2019 | 0.5 | Initial release. |

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# 1.0 Errata List

HDDL Errata that list out all known issues and limitations with symptoms and work-arounds

Table 1. USB device read descriptor failure Errata

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|---|---|
| Name | USB device read descriptor failure. |
| Hardware add-on Card | HDDL-L, HDDL-R cards from any vendors. |
| Hardware Host system | Any host system with Core, Atom or Xeon CPU. |
| Software | Windows, Linux, OpenVino 2019'R1 and later. |
| Symptoms | BIOS ROM stage takes significantly more time ( 1-2 minutes more to the regular time without HDDL card installed) to move to OS boot.<br>When OS booted,<br>In Linux:<br>• when lsusb command invoked there were no Myriad X devices ( ID 03e7:2485) enumerated in the list.<br>• dmesg log has multiple error lines for " usb X-Y: device descriptor read/64, error -110".<br>In Windows:<br>• In Device Manager there will be 8 unknown USB devices in the list with "USB descriptor request failed". |
| Description | The USB specification states that the String Descriptor about language supported by the USB device should be retrievable from the USB device by the software in 2- or 4- bytes formats. But, the current Myriad™ X ROM firmware only supports the 4-bytes format, which can cause a USB babble error if the software expects only a 2-bytes return value.<br>The fix was implemented in Intel BIOS reference code, but it integration into System BIOS for a particular system depends on BIOS vendor. |
| Workaround solution | BIOS:<br>Modify the UEFI BIOS code and send the request command to get the first FOUR bytes (bLength, bDescriptorType and wLANGID[0]), instead |

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| | of the first TWO bytes. With the change, the USB babble error does not occur and the first 4-bytes data can be returned successfully.<br>Software:<br>• Call PCI reset for PCI root device on HDDL card use bsl_reset tool before run hddl service. |
| Reference | **Intel UEFI Workaround**<br><br>Modify the Intel reference UEFI code and send the request command to get the first FOUR bytes (bLength, bDescriptorType and wLANGID[0]), instead of the first TWO bytes. With the change, the USB babble error does not occur and the first 4-bytes data can be returned successfully.<br><br>File name and path of the Intel UEFI source code to be modified:<br><br>***PlatformName*Pkg\Override\MdeModulePkg\Bus\Usb\UsbBusDxe\UsbDesc.c**<br>Before:<br>`EFI_USB_STRING_DESCRIPTOR *`<br>`UsbGetOneString (`<br>`  IN  USB_DEVICE  *UsbDev,`<br>`  IN  UINT8  Index,`<br>`  IN  UINT16  LangId`<br>`  )`<br>`{`<br>`  EFI_USB_STRING_DESCRIPTOR Desc;`<br>`  EFI_STATUS  Status;`<br>`  UINT8  *Buf;`<br><br>`  //`<br>`  // First get two bytes which contains the string length.`<br>`  //`<br>`  Status = UsbCtrlGetDesc (UsbDev, USB_DESC_TYPE_STRING, Index, LangId, &Desc, 2);`<br><br>`  if (EFI_ERROR (Status)) {`<br>`  return NULL;`<br>`  }`<br><br>`  Buf = AllocateZeroPool (Desc.Length);` |

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| | After:<br>611 EFI_USB_STRING_DESCRIPTOR *<br>612 UsbGetOneString (<br>613 IN USB_DEVICE *UsbDev,<br>614 IN UINT8 Index,<br>615 IN UINT16 LangId<br>616 )<br>617 {<br>618 EFI_USB_STRING_DESCRIPTOR Desc;<br>619 EFI_STATUS Status;<br>620 UINT8 *Buf;<br>621<br>622 //<br>623 // First get four bytes which contains the string length.<br>624 //<br>625 Status = UsbCtrlGetDesc (UsbDev, USB_DESC_TYPE_STRING, Index, LangId, &Desc, sizeof (EFI_USB<br>626<br>627 if (EFI_ERROR (Status)) {<br>628 return NULL;<br>629 }<br>630<br>631 Buf = AllocateZeroPool (Desc.Length); |

Table 2. Interrupt of autoboot.exe caused failure to enumerate Myriad X nodes Errata

| | |
|---|---|
| Name | Interrupt of autoboot.exe caused failure to enumerate Myriad X nodes. |
| Hardware add-on Card | HDDL-L and HDDL-R from any vendor. |
| Hardware Host system | Any Windows based system host. |
| Software | Windows, OpenVino R1'2019 and later releases. |
| Symptoms | Autoboot.exe service cannot enumerate Myriad X devices. |
| Description | When hddldaemon.exe starts it will invoke autoboot.exe. If autoboot.exe is interrupted by Ctrl-C, the service will be restarted automatically but in this case will not be able to enumerate Myriad X USB devices. |
| Workaround solution | Do not use Ctrl-C to close autoboot.exe console app or interrupt autoboot process and wait autoboot finished by defined timeout. In case it happened, stop and restart hddldaemon service again. |
| Reference | |

Table 3. Host system with installed HDDL-R card reboot occasionally Errata

| | |
|---|---|
| Name | Host system with installed HDDL-R card reboot occasionally. |
| Hardware add-on Card | HDDL-L and HDDL-R from any vendor, when configured use I2C IO expander to reset Myriad X node. |
| Hardware Host system | Any Windows or Linux host system with SMBUS supported on Pci-E slot. |
| Software | Linux, Windows, OpenVino R1'2019 and later releases. |
| Symptoms | Occasional host system restart. |
| Description | Issue might cause by a conflict of I2C expander address on SMBUS. |
| Workaround solution | Detect if there is any I2C device on SMBUS with 0x20-0x27 addresses, if yes, change the DIP switch on the PCIE card to avoid the address conflict on SMBUS. |
| Reference | |

Table 4. HDDL-R card USB devices are not found after system boot up Errata

| | |
|---|---|
| Name | HDDL-R card USB devices are not found after system boot up. |
| Hardware add-on Card | HDDL-R with Pericom G608 PCIe switch. |
| Hardware Host system | Any Windows or Linux host system. |
| Software | Linux, Windows, OpenVino R1'2019 and later. |
| Symptoms | Myriad X on HDDL-R card USB devices (Eight MA2485 and four USB hubs) are not enumerated after OS boot. |
| Description | This is caused by the Pericom G608 PCIe switch, which occurs when the motherboard's UEFI BIOS or OS program enables the ACS P2P Request Redirect the PCIe switch function. |
| Workaround solution | Disable ACS P2P Request Redirect in BIOS<br>Implement workaround at OS level, following Pericom switch manufacturer's recommendation. |

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| Reference | ## Executing the Workaround on Ubuntu* OS<br><br>This script is used to resolve the issue on the Ubuntu* OS.<br><br>### Script Path<br><br>${HDDL_INSTALL_DIR}/hddl-bsl/src/setup_tools/pericom_g608_linux/install.sh<br><br>HDDL_INSTALL_DIR environment variable is set when OpenVINO™ is installed.<br><br>### Installation<br><br>The i**nstall.sh** script needs to be executed manually after the OpenVINO™ installation. Once this script is executed, the workaround will take effect automatically after each OS boot.<br><br>### Notice<br><br>This script disables the **ACS P2P Request Redirec**t Registers (CFG Offset 224h, bit18) of the four downstream ports on all of the Pericom G608 PCIe switches existing on the system. The script also does not check whether the PCIe switch is embedded in the Intel® Vision Accelerator Design with Intel® Movidius™ VPUs board.<br><br>## Executing the Workaround on Windows* OS<br><br>### Script Path<br><br>${HDDL_INSTALL_DIR}/hddl-bsl/src/setup_tools/pericom_g608_win/install.ps1<br><br>HDDL_INSTALL_DIR environment variable is set when install OpenVINO.<br><br>### Installation<br><br>Right click on the **install.ps1** script, and select Run with PowerShell. Once installed, the workaround will take effect automatically after each OS boot. |

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| | **Notice**<br><br>This script disables the **ACS P2P Request Redirect** Registers by invoking the application provided by the Pericom.<br><br>The patch can be downloaded from the following link: https://www.diodes.com/products/connectivity-and-timing/pcie-packet-switchbridges/pcie-switch/#tab-finder<br><br>• PCIe 2.1 Packet Switch Selector Guide<br>• Register Programming PCIEdit (3MB Zip File)<br>• Patch Program to Disable ACS P2P Request Redirect Function (Windows 32-bit Fil<br>• **Perspective Blog:**<br>In-Car Connectivity is Changing the Driving Experience for the Better |

Table 5. Multiple reset requests during HDDL-R card operation might cause blocking SMBUS transaction Errata.

| | |
|---|---|
| Name | Multiple resets requests during HDDL-R card operation might cause blocking SMBUS transaction. |
| Hardware add-on Card | HDDL-R with I2C IO expander. |
| Hardware Host system | Host systems with SMBUS enabled on PCI-E slot. |
| Software | Linux, OpenVino R1'2019 and later when configured using I2C IO expander to reset Myriad X nodes. |
| Symptoms | When the HDDL card is configured using IO expander to handle Myriad X devices' reset on the card and multiple resets (30 or more) of Myriad X devices occurred over the HDDL card operation time. The I2C transaction could be blocked on SMBUS. In result of this multiple error messages will appear in the hddldaemon log and one or more Myriad X node on HDDL card will not be available to take inference payload. If hddldaemon service being restarted, it will fail to find reset devise and messages will appeared in the log [BSL] No device found<br>ERROR[AutoBoot.cpp:470] Error: HDDL hardware initialization failed, exits now. |

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| Description | |
| Workaround solution | To bring system in normal operation the cold system reset is required.<br>Reconfigure system use USB reset path through USB device on HDDL-R card.<br>Please refer to HDDL-R card manufacture |
| Reference | |
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