



USB2640/USB2641/USB2649

Silicon and Firmware Errata

This document details the known silicon and firmware anomalies for the USB2640/USB2641/USB2649 with Firmware Revision 2.03. The USB2640/USB2641/USB2649 conforms functionally to the current Device Data Sheet, except for the anomalies described in this document.

The Functional Revision and Mask ROM ID values for the USB2640/USB2641/USB2649 are shown in [Table 1](#). The silicon and firmware issues are summarized in [Table 2](#) and [Table 3](#), respectively.

TABLE 1: AFFECTED SILICON/FIRMWARE REVISIONS

| Part Number | Functional Revision | Mask ROM ID |
|-------------|---------------------|-------------|
| USB2640 | B | 225 |
| USB2641 | B | 225 |
| USB2649 | B | 225 |

TABLE 2: SILICON ISSUE SUMMARY

| Item Number | Silicon Issue Summary | Functional Revision B |
|-------------|---|-----------------------|
| 1. | bcdDevice field (DID) has invalid characters | X |
| 2. | Selective Suspend command is ignored by the hub | X |

TABLE 3: FIRMWARE ISSUE SUMMARY

| Item Number | Firmware Issue Summary | Firmware Revision |
|-------------|--|-------------------|
| 3. | Firmware errantly enters simulation mode | 176 |
| 4. | Cannot pass "SCSI Compliance Test" in WHQL | 176 |

USB2640/USB2641/USB2649

Silicon Errata Issues

Module 1: bcdDevice field (DID) has invalid characters

Description of Issue:

According to the USB2.0 specification, the bcdDevice field is specified to be binary-coded-decimal, which means only decimal characters are allowed. The hexadecimal digits A-F are not allowed.

End User Impacts:

The presence of non-BCD characters will cause failures in some Command Verifier (CV) and Windows Hardware Certification tests, such as:

- USB (USBDEX) Verifier Test
- USB Device Connection S3 + S4
- USB Driver Level Re-Enumeration Test
- USB Enumeration Stress
- USB Serial Number

No end user functional impact.

Solution:

This will not be addressed in a future version of the device. This bcdDevice field can be changed through the configuration options by programming the EEPROM via the SMBus or I²C interface. Also, a Microsoft Contingency number 323 can be used to waive the five Windows Hardware Certification tests mentioned above.

Module 2: Selective Suspend command is ignored by the hub

Description of Issue:

If a SET_FEATURE (PORT_SUSPEND) command is sent right after the SOF command (microframe 0), the hub will not disabled the port.

End User Impacts:

The port will not suspend when a command is sent by the host. This will cause more current draw than if the port was suspended (~10mA).

Solution:

This will not be addressed in a future version of the device. It is recommended to use the Global Suspend function to put the entire hub into suspend to conserve power.

Firmware Errata Issues

Module 3: Firmware errantly enters simulation mode

Description of Issue:

During media initialization, the device firmware checks for “0xBEEF” in the XDATA space addresses 0x4000-0x4001, which enables simulation mode. In this mode, firmware sets the timer for any responds from 100ms to 1ms.

End User Impacts:

During initialization, “0xBEEF” is randomly locked into addresses 0x4000-0x4001, causing some slow SD cards to remain uninitialized and non-functional.

Solution:

No external firmware is available.

Module 4: Cannot pass “SCSI Compliance Test” in WHQL

Description of Issue:

This issue appears whenever the Windows Hardware Certification SCSI Compliance test evaluates the inquiry command with the EVDP bit set to 0 and the page code set to a non-zero value. In this case, the device sends back data when it should have failed the command.

End User Impacts:

This issue only affects WHQL testing. Microsoft has provided a contingency number 1107 to waive the failure.

Solution:

No external firmware is available.

USB2640/USB2641/USB2649

APPENDIX A: DOCUMENT REVISION HISTORY

| Revision Level & Date | Section/Figure/Entry | Correction |
|------------------------|----------------------|------------|
| DS80000644A (02-19-15) | Initial release | |

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USB2640/USB2641/USB2649

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