



# USB251XB/XBI

## USB251xB/xBi Family Silicon Errata

The USB251xB/xBi family devices that you have received conform functionally to the current Device Data Sheet (DS00001692A), except for the anomalies described in this document.

The silicon issues discussed in the following pages are for silicon revisions with the Device and Revision IDs listed in [Table 1](#). The silicon issues are summarized in [Table 2](#).

**Note:** This document summarizes all silicon errata issues of silicon revision in [Table 2](#) apply to the current silicon revision (**A2**).

The Engineering Device ID values for USB251xB/xBi silicon revision A2 is shown in [Table 1](#).

**TABLE 1: SILICON DEVREV VALUES**

Part Number	Engineer Device ID of A2
USB2514B-AEZG	A2P10
USB2513B-AEZC	A2P10
USB2512B-AEZC	A2P10
USB2514Bi-AEZG	A2P10
USB2513Bi-AEZC	A2P10
USB2512Bi-AEZC	A2P10

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**TABLE 2: SILICON ISSUE SUMMARY**

Item Number	Issue Summary	Affected Revisions
		A2
1.	bcdDevice field (DID) has invalid characters	X
2.	Selective Suspend command is ignored by the hub	X
3.	Glitch on DP (and SDA/SCL) during power-up	X

## 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 EEPROM via SMBus or I2C interface. Also, a Microsoft Contingency number 323 can be used to waive five mentioned tests above in the Windows Hardware Certification test suite.

### 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 disable 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.

## Module 3: Glitch on DP (and SD/SCL) during power-up

### Description of Issue:

When the Hub is powering up, the DP pin is asserted before other internal logic has started. When the internal logic does start, it can cause a low pulse on the SMBus and DP pins.

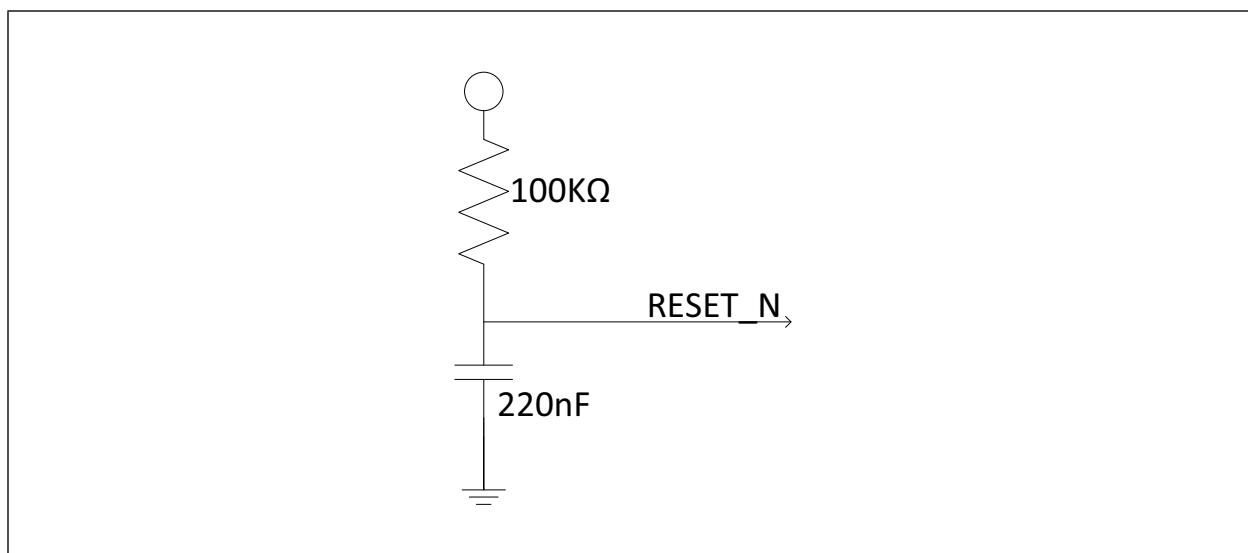
### End User Impacts:

The USB protocol can handle a glitch on DP, so no user impact on the USB lines. The SMBus glitch can impact the state machine of the SMBus Controller.

### Solution:

Keep the RESET\_N pin low during POR to remove this glitch. Control RESET\_N through a digital controller or an RC circuit by connecting a 100K $\Omega$  pull-up resistor to 3.3V and a 220nF capacitor to ground. See RC circuit diagram below.

**FIGURE 1: RC CIRCUIT DIAGRAM**



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## APPENDIX A: DOCUMENT REVISION HISTORY

TABLE A-1: REVISION HISTORY

Revision Level & Date	Section/Figure/Entry	Correction
DS80000627B, 11/7/2014		Initial release.

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ISBN: 978-1-63276-757-8

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