

TUSB2046B Errata

1 Parts Affected

- TUSB2046B [SLLS413B](#), TUSB2077A [SLLS414A](#), and TUSB2036 [SLLS372B](#)

1.1 Symptom

- TI has found that the TUSB2046B (also TUSB2077A and TUSB2036) has a slight violation in the manner that it determines the intended speed of an attached downstream device.

1.2 Description

By the intent of the USB specification (shown in Figure 7-19), the speed should be determined by sampling the DP or DM line following a 100ms debounce interval after either signal (DP or DM) first crosses the V_{IH} threshold. The TUSB2046B (TUSB2077A, TUSB2036) actually samples the speed at the first V_{IH} crossing and latches this value. This issue has only been observed recently with newer devices that either drive DM high or show excessive ringing during the initial connection, hence causing the speed detection to be seen as low speed by the TUSB2046B (TUSB2077A, TUSB2036). Note that this device is used extensively in the USB1.1 Goldtree suite, and this issue was never revealed, further pointing to the fact that some newer devices have less control on DM than previous devices, although this is allowed by the USB specification. TI has no planned fix in the pipeline, but wants users to be aware of this issue, which can easily be avoided by guaranteeing that DP be asserted high before DM. In the event that a false low speed detection is observed, the situation can be resolved by performing a `CLEAR_PORT_FEATURE(PORT_ENABLE)` followed by a `RESET_PORT` in the software driver, assuming both DP and DM are now stable.

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