

USB 3.1 ENGINEERING CHANGE NOTICE FORM

Title: Polling LPFSPlus

Applied to: USB Specification Version 3.1

Brief description of the functional changes:
To extend SCD2 detection of a SSP port from 16 consecutive Polling.LFPS bursts to 64 before falling back to SS operation.

Benefits as a result of the changes:
Allow extended time for a SSP port to perform SCD2 detection and handshake with more tolerance to SCD2 errors and no impact to legacy fall back operation.

An assessment of the impact to the existing revision and systems that currently conform to the USB specification:
No change necessary.

An analysis of the hardware implications:
Only new USB 3.1 implementation will adopt this change

An analysis of the software implications:
None

An analysis of the compliance testing implications:
Compliance program will adjust the timing of SSP→SS fall back operation, a very unlikely scenarios

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Actual Change

(a). From Text (and location): Section 7.5.4.4.1

7.5.4.4.1 Polling.LFPSPlus Requirements

- The port in SuperSpeedPlus operation shall transmit SCD2 defined in Table 6-32. If SCD2 cannot be found in sixteen consecutive Polling.LFPS received, it shall transmit Polling.LFPS instead of SCD2.

Note: This is an extreme case where a port in SuperSpeed operation transmits Polling.LFPS coinciding with SCD1 and remains in Polling.LFPS.

- The operation of the 360-ms timer (tPollingLFPSTimeout) shall continue without reset upon entry to this substate from Polling.LFPS.
- A port in SuperSpeedPlus operation shall be ready for SuperSpeed operation if it has detected that its link partner operates at SuperSpeed.
- A port in SuperSpeedPlus operation shall implement a 60-us timer (tPollingSCDLFPSTimeout) to monitor the absence of LFPS signal after the completion of SuperSpeed Polling.LFPS handshake.

(a). To Text (and location): Section 7.5.4.4.1

7.5.4.4.1 Polling.LFPSPlus Requirements

- The port in SuperSpeedPlus operation shall transmit SCD2 defined in Table 6-32. If SCD2 cannot be found in 64 consecutive Polling.LFPS received, it shall transmit Polling.LFPS instead of SCD2.

Note: This is an extreme case where a port in SuperSpeed operation transmits Polling.LFPS coinciding with SCD1 and remains in Polling.LFPS.

- The operation of the 360-ms timer (tPollingLFPSTimeout) shall continue without reset upon entry to this substate from Polling.LFPS.
- A port in SuperSpeedPlus operation shall be ready for SuperSpeed operation if it has detected that its link partner operates at SuperSpeed.
- A port in SuperSpeedPlus operation shall implement a 60-us timer (tPollingSCDLFPSTimeout) to monitor the absence of LFPS signal after the completion of SuperSpeed Polling.LFPS handshake.