

USB 3.1 ENGINEERING CHANGE NOTICE

Title: SSP ping.LFPS tRepeat Requirement
Applied to: USB_3_1r1.0_07_31_2013

Brief description of the functional changes:

Clarify the Superspeed Plus ping.LFPS tRepeat requirement.
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Benefits as a result of the changes:

Eliminate any potential confusion for Gen 2 operation.
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For SuperSpeed, the tRepeat requirement for ping.LFPS is explicitly defined. It is not explicitly defined for SuperSpeed Plus, leading to questions from spec adopters.

An assessment of the impact to the existing revision and systems that currently conform to the USB specification:
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No impact to Gen 2 operation, it clarifies the intent of the specification.

An analysis of the hardware implications:
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No hardware implications for Gen 2.

An analysis of the software implications:
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None

An analysis of the compliance testing implications:
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No compliance testing implications. This feature was never used for compliance testing.

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Actual Change

(a). From, in section 6.9.1, table 6-29, page 6-45

Table 6-1. LFPS Transmitter Timing for SuperSpeed Designs¹

	tBurst				tRepeat		
	Min	Typ	Max	Minimum Number of LFPS Cycles ²	Min	Typ	Max
Polling.LFPS	0.6 μ s	1.0 μ s	1.4 μ s		6 μ s	10 μ s	14 μ s
Ping.LFPS ⁶	40 ns		200 ns	2	160 ms	200 ms	240 ms
Ping.LFPS for SuperSpeedPlus ⁹	40 ns		160ns	2			
tReset ³	80 ms	100 ms	120 ms				
U1 Exit ^{4,5}	600 ns ⁷		2 ms				
U2 / Loopback Exit ^{4,5}	80 μ s ⁷		2 ms				
U3 Wakeup ^{4,5}	80 μ s ⁷		10 ms				

(a). To, in section 6.9.1, table 6-29, page 6-45

Table 6-2. LFPS Transmitter Timing for SuperSpeed Designs¹

	tBurst				tRepeat		
	Min	Typ	Max	Minimum Number of LFPS Cycles ²	Min	Typ	Max
Polling.LFPS	0.6 μ s	1.0 μ s	1.4 μ s		6 μ s	10 μ s	14 μ s
Ping.LFPS ⁶	40 ns		200 ns	2	160 ms	200 ms	240 ms
Ping.LFPS for SuperSpeedPlus ⁹	40 ns		160ns	2	160 ms	200 ms	240 ms
tReset ³	80 ms	100 ms	120 ms				
U1 Exit ^{4,5}	600 ns ⁷		2 ms				
U2 / Loopback Exit ^{4,5}	80 μ s ⁷		2 ms				
U3 Wakeup ^{4,5}	80 μ s ⁷		10 ms				