

USB4 2.0 ENGINEERING CHANGE NOTICE FORM

Title: USB3 Gen T Port State and LTSSM Update
Applied to: USB4 Specification Version 2.0

Brief description of the functional changes:

Defines the Port Reset state, DISCONNECT.EXIT and U3.RECEIVED_U3Resume in the USB3 Gen T Adapter PLS field. Update the LTSSM to reflect the changes.
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Benefits as a result of the changes:

Represents the added states in the USB3 Gen T Adapter CS and corrects the LTSSM.
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An assessment of the impact to the existing revision and systems that currently conform to the USB specification:
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None

An analysis of the hardware implications:
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None

An analysis of the software implications:
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None

An analysis of the compliance testing implications:
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None

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Actual Change

(a). Table 8-15 USB3 Gen T Adapter Configuration Capability Fields

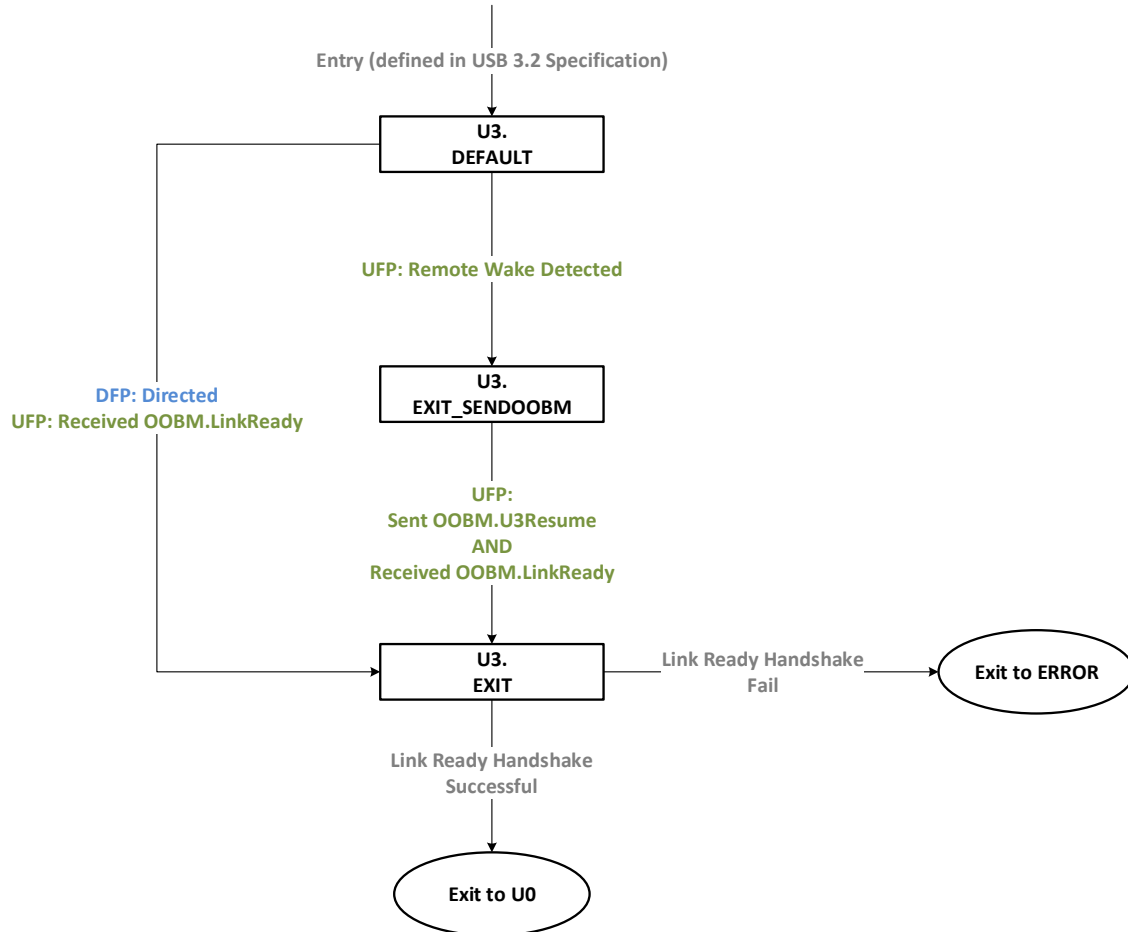
Table 8-15 USB3 Gen T Adapter Configuration Capability Fields

DW	Register Name	Bit(s)	Field Name and Description	Type	Default Value
2+2n	ADP_USB3_GT_PORT_CS_0	3:0	Port Link State (PLS) This field shall indicate the port link state of the USB3 Gen T Port connected to the USB3 Gen T Adapter 0h: U0 state 1h: Reserved 2h: U2 state 3h: U3 DEFAULT state 4h: Disabled state 5h: Disconnect state <u>DISCONNECT.ENTRY</u> 6h: Error State <u>7h: DISCONNECT.EXIT</u> <u>8h: Reserved</u> <u>79h: Port Reset state</u> <u>78Ah-Eh: Reserved-</u> Fh: Reserved <u>DFP Only: U3.RECEIVED_U3Resume</u>	RO	5

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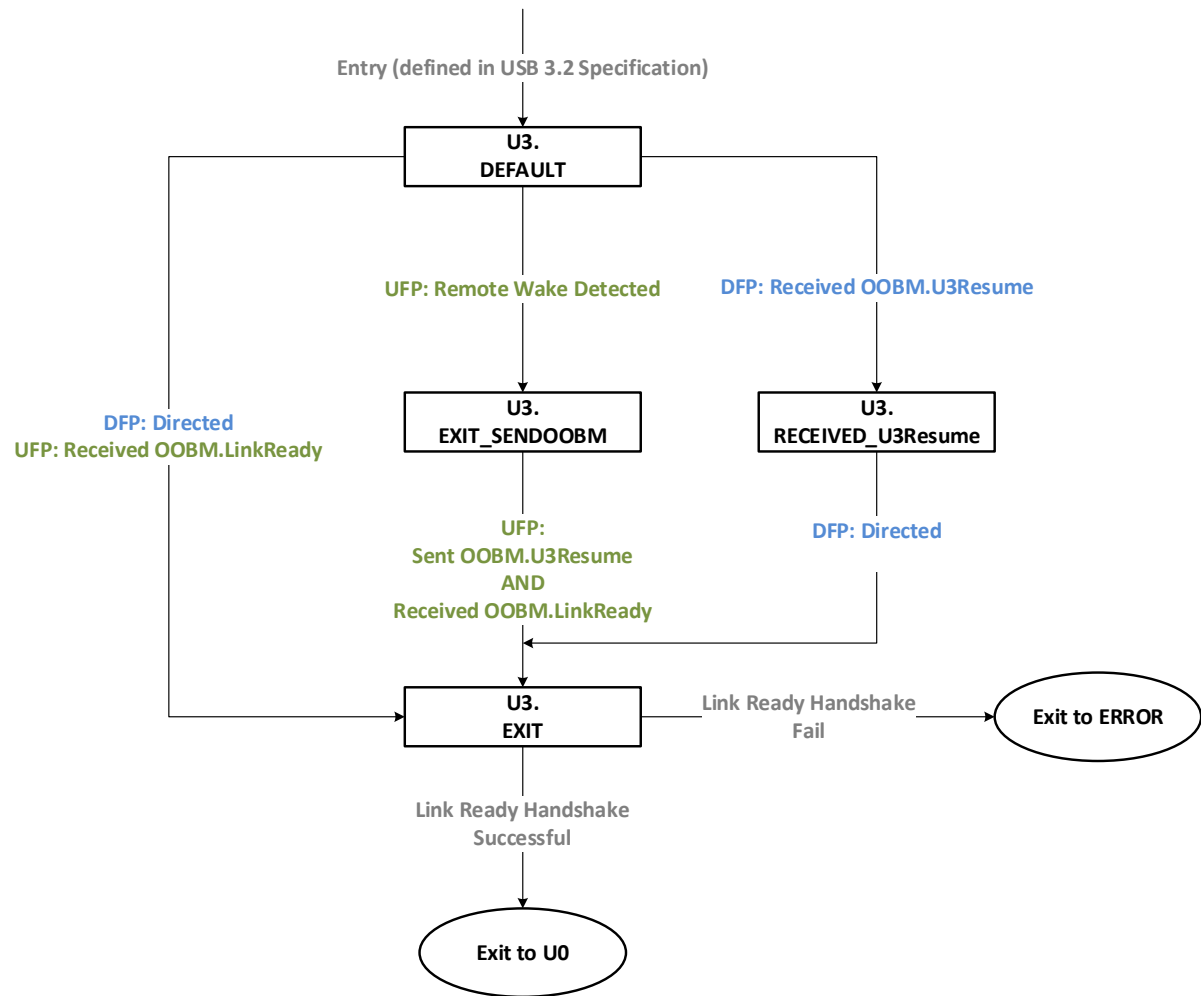
(b). Figure 9 22. Example U3 Substate Machine

From:



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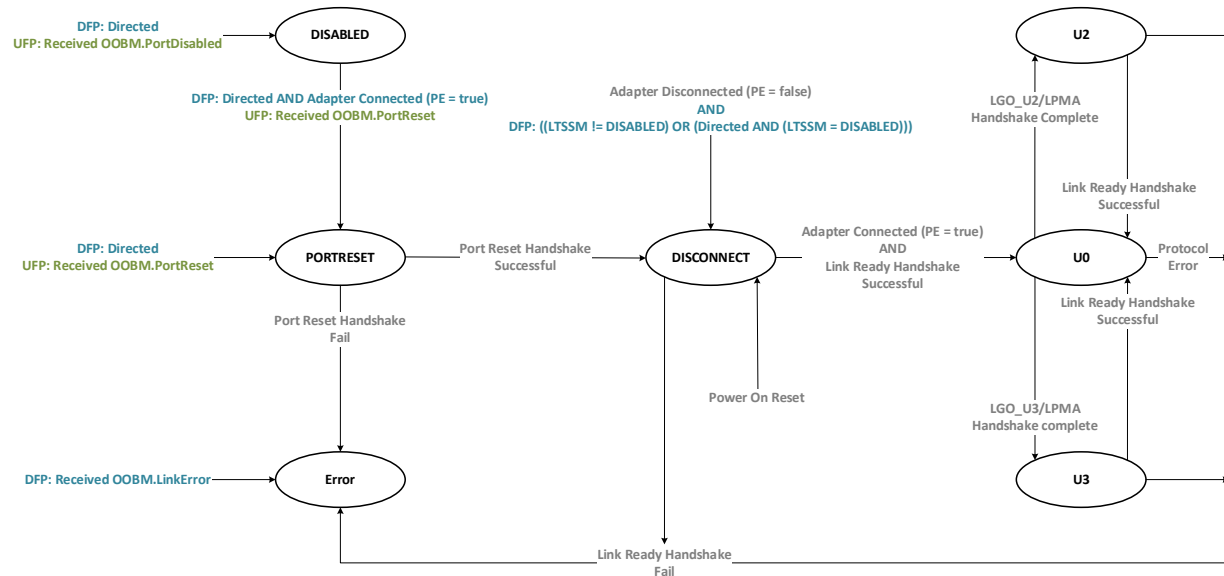
To:



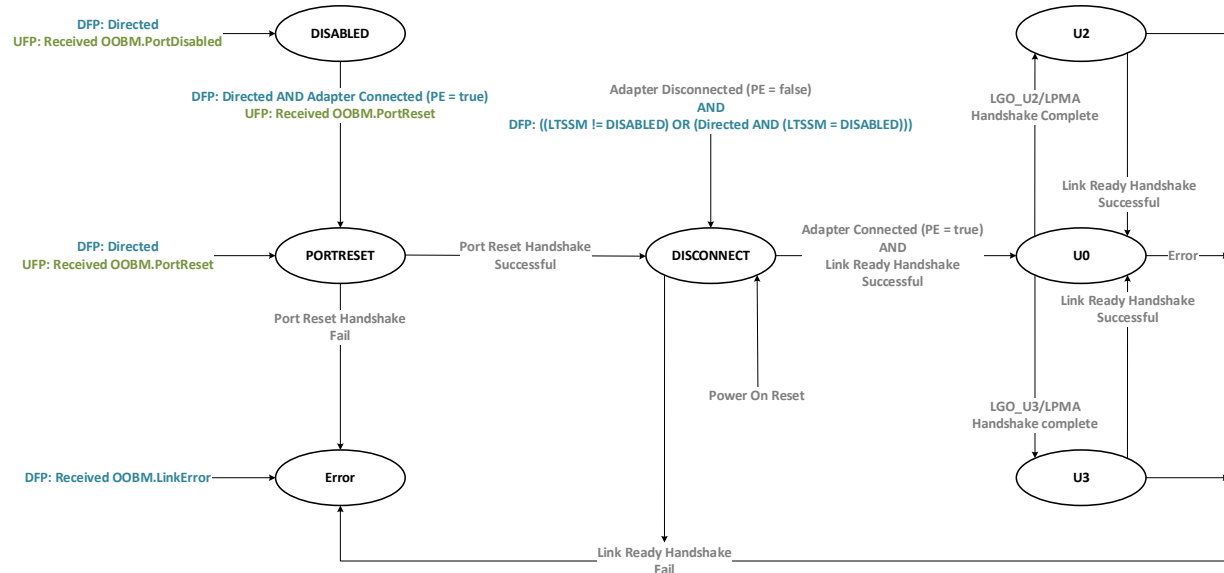
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(c). Figure 9-19. USB3 Gen T LTSSM

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To:



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(d). Section 9.4.1.6.2. LTSSM.U0

From:

After the Link Ready Handshake completes, a USB3 Gen T Port shall transition into the U0 state and shall set its Type 1 and Type 2 Rx Header Buffer Credit Count to 63. The USB3 Gen T Port shall not advertise the starting Header Sequence Number and shall not advertise the Rx Header Buffer Credit Number.

When a USB3 Gen T Port enters LTSSM.U0 from LTSSM.U2, LTSSM.U3, LTSSM.DISCONNECT, LTSSM.PORTRESET or LTSSM.DISABLED, the Header Sequence Number shall be set to zero, and the Rx Header Buffer Credit Number shall be set to 1.

To:

After the Link Ready Handshake completes, a USB3 Gen T Port shall transition into the U0 state and it shall:

- Set the Type 1 and Type 2 Rx Header Buffer Credit Count to 63
- Set the Header Sequence Number to zero
- Set the Rx Header Buffer Credit Number to 1

The USB3 Gen T Port shall not advertise the starting Header Sequence Number and shall not advertise the Rx Header Buffer Credit Number.

Note that when a USB3 Gen T Port enters LTSSM.U0 from LTSSM.PORTRESET or LTSSM.DISABLED, it shall transition through LTSSM.DISCONNECT.