USB Power Delivery ENGINEERING CHANGE NOTICE

Title: Add Connector Type to UFP VDO 1 and DFP VDO
Applied to: USB Power Delivery Specification Revision 3.0 Version 2.0

Brief description of the functional changes proposed:
Add a field to UFP VDO 1 and DFP VDO to indicate whether the UFP or DFP is a USB-C receptacle or a USB-C captive cable or fixed plug.

Benefits as a result of the proposed changes:
If UFPs and DFPs advertise the type of connector present via these VDOs, the port partner is able to determine the kind of USB-C cable present. For example, if both UFP and DFP in a port pair are receptacles, then a detachable USB-C to USB-C cable must be present, and the absence of a cable marker will indicate that a USB 2.0 cable is present. This information can be used by the Operating System to alert the user when reduced functionality may be expected.
In the case the UFP has a captive cable, the DFP port partner can ignore the condition where the cable marker is absent, as the non-marked captive cable can be assumed to contain the wires necessary for the UFP to function.

An assessment of the impact to the existing revision and systems that currently conform to the USB specification:
The VDO version field of UFP VDO 1 and DFP VDO has been incremented to 1.1, so existing systems that conform to VDO version 1.0 will ignore the extra field as reserved.

An analysis of the hardware implications:
None

An analysis of the software implications:
Existing software that complies with VDO version 1.0 will ignore the new field. New PD software will be given more information about the system, which may be useful for cable identification and notification purposes.

An analysis of the compliance testing implications:
Will require an additional test to be added to the CTS for PD and Type-C to make sure the UFP and DFP VDOs match what is expected as submitted by vendor in VIF.

USB Power Delivery ENGINEERING CHANGE NOTICE

Actual Change Requested

(a). Section 6.4.4.3.1.4, Page 144, Table 6-35 UFP VDO 1

From Text:

Table 6-35 UFP VDO 1

Bit(s)	Field	Description
B31...29	UFP VDO Version	Version Number of the VDO (not this specification Version): • Version 1.0 = 000b Values 001b...111b are **Reserved** and **Shall Not** be used
B28	**Reserved**	**Shall** be set to zero.
B27...24	Device Capability	<table><tr><th>Bit</th><th>Description</th></tr><tr><td>0</td><td>*[USB2]* Device Capable</td></tr><tr><td>1</td><td>*[USB2]* Device Capable (Billboard only)</td></tr><tr><td>2</td><td>*[USB3.2]* Device Capable</td></tr><tr><td>3</td><td>*[USB4]* Device Capable</td></tr></table>
B23...6	**Reserved**	**Shall** be set to zero.

To Text:

Table 6-35 UFP VDO 1

Bit(s)	Field	Description
B31...29	UFP VDO Version	Version Number of the VDO (not this specification Version): • Version 1.1 = 001b Values 010b...111b are **Reserved** and **Shall Not** be used
B28	**Reserved**	**Shall** be set to zero.
B27...24	Device Capability	<table><tr><th>Bit</th><th>Description</th></tr><tr><td>0</td><td>*[USB2]* Device Capable</td></tr><tr><td>1</td><td>*[USB2]* Device Capable (Billboard only)</td></tr><tr><td>2</td><td>*[USB3.2]* Device Capable</td></tr><tr><td>3</td><td>*[USB4]* Device Capable</td></tr></table>
B23...22	Connector Type	00b = **Reserved**, **Shall Not** be used 01b = **Reserved**, **Shall Not** be used 10b = USB Type-C Receptacle 11b = USB Type-C Captive Plug
B21...6	**Reserved**	**Shall** be set to zero.

(b). Insert new Section 6.4.4.3.1.4.3, Page 144

To Text:

Connector Type Field

The Connector Type field (B23…22) **Shall** contain a value corresponding to the connector type of the UFP, identifying it as either a USB Type-C receptacle or a hard-wired captive USB Type-C plug.

USB Power Delivery ENGINEERING CHANGE NOTICE

(c). Section 6.4.4.3.1.5, Page 145, Table 6-35 DFP VDO

From Text:

Table 6-37 DFP VDO

Bit(s)	Field	Description
B31...29	DFP VDO Version	Version Number of the VDO (not this specification Version): • Version 1.0 = 000b Values 001b...111b are ***Reserved*** and ***Shall Not*** be used
B28...27	***Reserved***	***Shall*** be set to zero.
B26...24	Host Capability	<table><tr><td>Bit</td><td>Description</td></tr><tr><td>0</td><td>*[USB2]* Host Capable</td></tr><tr><td>1</td><td>*[USB3.2]* Host Capable</td></tr><tr><td>2</td><td>*[USB4]* Host Capable</td></tr></table>
B23...5	***Reserved***	***Shall*** be set to zero.

To Text:

Table 6-37 DFP VDO

Bit(s)	Field	Description
B31...29	DFP VDO Version	Version Number of the VDO (not this specification Version): • Version 1.1 = 001b Values 010b...111b are ***Reserved*** and ***Shall Not*** be used
B28...27	***Reserved***	***Shall*** be set to zero.
B26...24	Host Capability	<table><tr><td>Bit</td><td>Description</td></tr><tr><td>0</td><td>*[USB2]* Host Capable</td></tr><tr><td>1</td><td>*[USB3.2]* Host Capable</td></tr><tr><td>2</td><td>*[USB4]* Host Capable</td></tr></table>
B23...22	Connector Type	00b = ***Reserved***, ***Shall Not*** be used 01b = ***Reserved***, ***Shall Not*** be used 10b = USB Type-C Receptacle 11b = USB Type-C Captive Plug
B21...5	***Reserved***	***Shall*** be set to zero.

(d). Insert new Section 6.4.4.3.1.5.3, Page 146

To Text:

Connector Type Field

The Connector Type field (B23…22) ***Shall*** contain a value corresponding to the connector type of the DFP, identifying it as either a USB Type-C receptacle or a hard-wired captive USB Type-C plug.