USB Power Delivery ENGINEERING CHANGE NOTICE

Title: Add Connector Type to ID Header VDO
Applied to: USB Power Delivery Specification Revision 3.0 Version 2.0

Brief description of the functional changes proposed:
Add a field to the ID Header VDO to indicate whether the connector is a USB-C receptacle or a USB-C plug. SOP products (UFP or DFP) may choose either USB Type-C Receptacle or USB Type-C Plug options depending on implementation. SOP' and SOP" will always return USB Type-C plug in this new field.

Benefits as a result of the proposed changes:
If UFPs and DFPs advertise the type of connector present via the ID Header VDO, 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 is 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 a non-eMarked 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:
Systems that conform to existing versions of the USB PD specification will ignore the additional field as the bits were defined as Reserved bits.

An analysis of the hardware implications:
None

An analysis of the software implications:
Existing software that complies with older PD specifications will ignore the new field since previous versions Reserve these two bits. New PD software will be given more information about the system when interacting with new devices, 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 ID Header VDO's new Connector Type field matches what is expected as submitted by vendor in VIF for all classes of products, from cables to UFPs, DFPs, PSDs, AMAs, etc.

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Actual Change Requested

(a). Section 6.4.4.3.1.1, Page 141, Table 6-29 ID Header VDO

From Text:

Table Error! No text of specified style in document.**-1 ID Header VDO**

Bit(s)	Description	Reference
B31	USB Communications Capable as USB Host: • **Error! Reference source not found.** be set to one if the product is capable of enumerating USB Devices. • **Error! Reference source not found.** be set to zero otherwise	Section **Error! Reference source not found.**
B30	USB Communications Capable as a USB Device: • **Error! Reference source not found.** be set to one if the product is capable of being enumerated as a USB Device. • **Error! Reference source not found.** be set to zero otherwise	Section **Error! Reference source not found.**
B29…27	Product Type (UFP): • 000b – Undefined • 001b – PDUSB Hub • 010b – PDUSB Peripheral • 011b – PSD • 100b – **Error! Reference source not found.**, *Error! Reference source not found.* be used. • 101b – Alternate Mode Adapter (AMA) • 110b – VCONN-Powered USB Device (VPD) • 111b – **Error! Reference source not found.**, *Error! Reference source not found.* be used. Product Type (Cable Plug): • 000b – Undefined • 001b…010b – **Error! Reference source not found.**, *Error! Reference source not found.* be used. • 011b – Passive Cable • 100b – Active Cable • 101b…111b – **Error! Reference source not found.**, *Error! Reference source not found.* be used.	Section **Error! Reference source not found.**
B26	Modal Operation Supported: • **Error! Reference source not found.** be set to one if the product supports Modal Operation. • **Error! Reference source not found.** be set to zero otherwise	Section **Error! Reference source not found.**
B25…23	Product Type (DFP): • 000b – Undefined • 001b – PDUSB Hub • 010b – PDUSB Host • 011b – Power Brick • 100b - Alternate Mode Controller (AMC) • 101b…111b – **Error! Reference source not found.**, *Error! Reference source not found.* be used.	
B22…16	**Error! Reference source not found.**. **Error! Reference source not found.** be set to zero.	

Bit(s)	Description	Reference
B15…0	16-bit unsigned integer. USB Vendor ID	**Error! Reference source not found./Error! Reference source not found.*/[USB4]***

To Text:

Table Error! No text of specified style in document.**-2 ID Header VDO**

Bit(s)	Description	Reference
B31	USB Communications Capable as USB Host: • **Error! Reference source not found.** be set to one if the product is capable of enumerating USB Devices. • **Error! Reference source not found.** be set to zero otherwise	Section **Error! Reference source not found.**
B30	USB Communications Capable as a USB Device: • **Error! Reference source not found.** be set to one if the product is capable of being enumerated as a USB Device. • **Error! Reference source not found.** be set to zero otherwise	Section **Error! Reference source not found.**
B29…27	Product Type (UFP): • 000b – Undefined • 001b – PDUSB Hub • 010b – PDUSB Peripheral • 011b – PSD • 100b – **Error! Reference source not found.**, *Error! Reference source not found.* be used. • 101b – Alternate Mode Adapter (AMA) • 110b – VCONN-Powered USB Device (VPD) • 111b – **Error! Reference source not found.**, *Error! Reference source not found.* be used. Product Type (Cable Plug): • 000b – Undefined • 001b…010b – **Error! Reference source not found.**, *Error! Reference source not found.* be used. • 011b – Passive Cable • 100b – Active Cable • 101b…111b – **Error! Reference source not found.**, *Error! Reference source not found.* be used.	Section **Error! Reference source not found.**
B26	Modal Operation Supported: • **Error! Reference source not found.** be set to one if the product supports Modal Operation. • **Error! Reference source not found.** be set to zero otherwise	Section **Error! Reference source not found.**
B25…23	Product Type (DFP): • 000b – Undefined • 001b – PDUSB Hub • 010b – PDUSB Host	

Bit(s)	Description	Reference
	• 011b – Power Brick • 100b - Alternate Mode Controller (AMC) • 101b…111b – **Error! Reference source not found.**, *Error! Reference source not found.* be used.	
B22…21	Connector Type: • 00b – **Error! Reference source not found.**, for compatibility with legacy systems. • 01b – ***Reserved, Shall Not*** be used. • 10b – USB Type-C Receptacle • 11b – USB Type-C Plug	Section 6.4.4.3.1.1.7
B20…16	**Error! Reference source not found.**. **Error! Reference source not found.** be set to zero.	
B15…0	16-bit unsigned integer. USB Vendor ID	**Error! Reference source not found./Error! Reference source not found.*/[USB4]***

(b). Insert new Section 6.4.4.3.1.1.7, Page 143

New Text:

Connector Type Field

The Connector Type field (B22…21) ***Shall*** contain a value identifying it as either a USB Type-C receptacle or a USB Type-C plug.