

USB4 1.0 ENGINEERING CHANGE NOTICE FORM

Title: Protocol Adapter Path CS Registers
Applied to: USB4 Specification Version 1.0

Brief description of the functional changes:

Changes some fields in the Protocol Adapter Path CS register to be Vendor Defined.

Benefits as a result of the changes:

The current definition is wrong, that fields are Read/Write and Adapter needs to ignore it.

An assessment of the impact to the existing revision and systems that currently conform to the USB specification:

None

An analysis of the hardware implications:

None.

An analysis of the software implications:

None

An analysis of the compliance testing implications:

None

USB4 1.0 ENGINEERING CHANGE NOTICE FORM

Actual Change

(a). Table 8-20

DW	Register Name	Bit(s)	Field Name and Description	Type	Default Value
0	PATH_CS_0	10:0	Output HopID A Connection Manager uses this field to set the Egress HopID for the Path.	R/W	000h
		16:11	Output Adapter A Connection Manager uses this field to set the Adapter number of the Egress Adapter for the Path.	R/W	00h
		23:17	Path Credits Allocated An Adapter shall ignore this field. It is recommended that a Router set field to 0b	R/W V/D	0 Vendor Defined
		30:24	Reserved	Rsvd	0
0	PATH_CS_0	31	Valid A Connection Manager uses this field to enable or disable the Path. 1b: Path is enabled and can send/receive packets 0b: Path is disabled and cannot send/receive packets	R/W	0b
1	PATH_CS_1	7:0	Weight A Connection Manager uses this field to set the WRR scheduler weight for the Path.	R/W	00h
		10:8	Priority A Connection Manager uses this field to set the Priority Group for the Path.	R/W	0h
		11	Reserved	Rsvd	0b
		22:12	Counter ID A Connection Manager uses this field to set the ID number of the counter set that is used to collect statistics for the Path. The Counter ID shall be less than the <i>Max Counter Sets</i> field for the Adapter. This field is valid only when the <i>Counter Enable (CE)</i> bit is set to 1b.	R/W	0
		23	Counter Enable (CE) A Connection Manager uses this bit to enable the counters in Counter Configuration Space for the Path. 1b: Counter set for Path is enabled 0b: Counter set for Path is disabled When this bit is 1b, the Adapter shall increment the counter set for the Path as defined in Table 8-21.	R/W	0
		24	Ingress Flow Control (IFC) Flag An Adapter shall ignore this field. It is recommended that a Router set field to 0b	R/W V/D	0 Vendor Defined
		25	Egress Flow Control Flag (EFC) Flag A Connection Manager uses this bit in combination with the ESE Flag to configure the Egress Flow Control scheme. See Table 5-10.	R/W	0b

USB4 1.0 ENGINEERING CHANGE NOTICE FORM

		26	Ingress Shared Buffering Enable (ISE) Flag An Adapter shall ignore this field. <u>It is recommended that a Router set field to 0b</u>	R <u>AW</u> VD	0b <u>Vendor</u> <u>Defined</u>
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(b). Section 8.2.3.3

Host Interface Adapter shall support Paths from HopID 1 to Max Input HopID (Inclusive).
USB3/PCIe/DP Adapter shall support Paths from HopID 8 to Max Input HopID (Inclusive). Each entry shall be formatted as shown in Figure 8-17. Table 8-20 defines the fields for a Path entry.

~~The following Path fields shall be ignored by a Router:~~

- ~~• Path Credits Allocated.~~
- ~~• Ingress Flow Control Flag.~~
- ~~• Ingress Shared Buffering Enable Flag.~~

(c). Section 8.2.3.3



CONNECTION MANAGER NOTE

When writing to the Path Configuration Space of a Lane Adapter or Protocol Adapter, a Connection Manager needs to abide by the following rules:

- The Connection Manager needs to read a Path Configuration Space register before writing to it. The Connection Manager shall not change the value of any fields that are defined as RsvdZ or VD. See Section 8-1 for more information.
- The Weight field for a Path cannot be 0 if the Valid bit is 1b.
- The Priority field for a Path needs to be set to a value between 1 and 7 (inclusive).