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Compute Express Link™ (CXL™)

Engineering Change Notice to the Specification 2.0

September 2021

Compliance DOE return value

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CXL ENGINEERING CHANGE NOTICE

TITLE:	Compliance DOE return value
DATE:	Introduced date (03/03/2021) Updated date (04/09/2021)
AFFECTED DOCUMENT:	CXL 2.0 Specification
SPONSOR:	Nathan White (Intel) Ravi Karanam (Nvidia)

Part I

1. Summary of Functional Changes

Compliance DOE provides a “request” to query the supported DOE capabilities. This returns a bitmask of which requests, by ID, are supported. Some of the DOE requests such as a Test Algorithm setup have a complex set of available options. This extends the return value of the Compliance Mode DOE request 1 “Query Capabilities” to return additional information regarding test algorithm write semantics and establishes a pattern to provide similar information to future capabilities.

2. Benefits as a Result of the Changes

Compliance software will be able to query the supported compliance capabilities of the device

3. Assessment of the Impact

Device software will need to be extended to provide this value.

4. Analysis of the Hardware Implications

No hardware changes expected

5. Analysis of the Software Implications

Software will need to extend the size of the “Query Capabilities” DOE return value to accommodate the additional information.

6. Analysis of the Compliance and Test Implications

Compliance will be able to better determine the test algorithm capacities of the device.

Part II

Detailed Description of the change

In section 14.16.4.1 make the Add the following entry at the end of Table 278

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1Ch	8	Compliance Capabilities options (See table xxx for Compliance Option value descriptions)
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In section 14.16.4.1 Add a table following Table 278. This table contains the bit field description of the Compliance Capabilities options

Table xxx: Compliance Options Value Descriptions

Description of the Compliance option bit fields

Bits	Description
15:0	<p>Write Semantics supported. Bitmask with the corresponding values</p> <p>0 Set to 1 if Device supports CXL.cache and ItoMWr opcodes as requester</p> <p>1 Set to 1 if Device supports CXL.cache and MemWr opcodes as requester</p> <p>2 Set to 1 if Device supports CXL.cache and DirtyEvict opcodes as requester</p> <p>3 Set to 1 if Device supports CXL.cache and WOWrInv opcodes as requester</p> <p>4 Set to 1 if Device supports CXL.cache and WOWrInvF opcodes as requester</p> <p>5 Set to 1 if Device supports CXL.cache and WrInv opcodes as requester</p> <p>6 Set to 1 if Device supports CXL.cache and CLFlush opcodes as requester</p> <p>7 Set to 1 if Device supports CXL.cache and CleanEvict opcodes as requester</p> <p>8 Set to 1 if Device supports CXL.cache and CleanEvictNoData opcodes as requester</p> <p>Bits 15:9 Reserved</p>
31:16	<p>Read Semantics supported. Bitmask with the corresponding values</p> <p>16 Set to 1 if Device supports CXL.cache and RdCurr opcodes as requester</p> <p>17 Set to 1 if Device supports CXL.cache and RdOwn opcodes as requester</p> <p>18 Set to 1 if Device supports CXL.cache and RdShared opcodes as requester</p> <p>19 Set to 1 if Device supports CXL.cache and RdAny opcodes as requester</p> <p>20 Set to 1 if Device supports CXL.cache and RdOwnNoData opcodes as requester</p> <p>Bits 31:21 Reserved</p>
47:32	<p>32 Set to 1 if Device supports CXL.cache and CacheFlushed opcodes as requester</p>

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	Bits 47:33 Reserved
63:48	Reserved