



PCI-SIG ENGINEERING CHANGE NOTICE

TITLE:	Extended Tag Enable Default
DATE:	September 5, 2008
AFFECTED DOCUMENT:	PCIe 2.0 Base Specification
SPONSOR:	Intel Corporation

Part I

1. Summary of the Functional Changes

The change allows a Function to use Extended Tag fields (256 unique tag values) by default; this is done by allowing the Extended Tag Enable control field to be set by default.

2. Benefits as a Result of the Changes

The obligatory 32 tags provided by PCIe per Function are not sufficient to meet the throughput and requirements of emerging applications. Extended tags allow up to 256 concurrent requests, but such capability is not enabled by default in PCIe.

This change is applicable to those Functions that support Extended Tag Field. This change allows a Function to enable Extended Tag support by default.

3. Assessment of the Impact

This change is applicable to those Functions that support Extended Tag Field. A Function can be enabled by default to use Extended Tag field support. All PCIe Receivers are expected to support the use of Extended Tag field and therefore enabling this support by default is not expected to create interoperability issues. PCIe to PCI-X bridges are required to handle non-posted requests with a non-zero value on Tag[7:5] field.

4. Analysis of the Hardware Implications

The initial value of Extended Tag Enable Control field value is implementation specific, Functions that want the extended tag support to be enabled by default are permitted to set the initial value of the control field. The Extended Tag Enable Control field continues to be valid and software may choose to clear the control bit to disable Extended Tag usage.

5. Analysis of the Software Implications

With this change the extended tag support may be enabled by default for some Functions, software can disable the extended tag field usage by clearing the Extended Tag Enable control field.

Part II

Detailed Description of the change

Modify section 2.2.6.2 as follows

- Tag[7:0] is a 8-bit field generated by each Requestor, and it must be unique for all outstanding Requests that require a Completion for that Requester
- ~~By default~~ If the Extended Tag Field Enable bit (see Section 7.8.4) is clear, the maximum number of outstanding Requests per Function shall be limited to 32, and only the lower 5 bits of the Tag field are used with the remaining upper 3 bits required to be 000b
- If the Extended Tag Field Enable bit (see Section 7.8.4) is set, the maximum is increased to 256, and the entire Tag field is used
- The initial value of Extended Tag Field Enable bit (see Section 7.8.4) is implementation specific

Modify section 7.8.4 as follows

Table 7-12: Device Control Register

Bit Location	Register Description	Attributes
8	Extended Tag Field Enable – When Set, this bit enables a Function to use an 8-bit Tag field as a Requester. If the bit is Clear, the Function is restricted to a 5-bit Tag field (see Section 2.2.6.2 for a description of Tag extensions). Functions that do not implement this capability hardwire this bit to 0b. Default value of this bit is <u>implementation specific 0b</u> .	RW