

# Enhanced Serial Peripheral Interface (eSPI) ECN

## Engineering Change Notice

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<b>TITLE</b>	Clarify OOB packet payload
<b>DATE</b>	10 January 2014
<b>AFFECTED DOCUMENT</b>	eSPI Base Specification Rev 0.75
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## *ECN Motivation*

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eSPI Base Specification 0.75 defines the transaction packet format for the Out-of-Band (OOB) Message channel.

Feedback has been received on the spec clarification related to payload definition for the Out-of-Band (OOB) Message transactions.

This ECN is to clarify the packet length field, the SMBus Byte Count field and the effect of the Maximum Payload Size (MPS) for the OOB transaction packets.

The ECN provides clarity for the MCTP and the generic SMBus block write packets on the eSPI OOB Message channel.



## ECN Description

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eSPI Base Specification 0.75 is clarified with the following:

### 5.1.3 Length

For Flash Write and OOB message with data, data payload size must not exceed the Maximum Payload Size of the respective channel with no alignment requirement. The data payload of the OOB message affected by the Maximum Payload Size is the actual payload of the **protocol embedded in the** message itself. Refer to Section 5.2.3 for the OOB message payload.

### 5.2.3 OOB (Tunneled SMBus) Message Channel

The SMBus packets can be tunneled through eSPI as Out-Of-Band (OOB) messages. The whole SMBus packet is embedded inside the eSPI OOB message as data.

Only SMBus block writes are tunneled through the eSPI OOB message. **These include the SMBus Management Component Transport Protocol (MCTP) packets which are based on the SMBus block write protocol.**

The SMBus Slave Address, SMBus Command Opcode, SMBus Byte Count, ~~and~~ SMBus Data fields **and the optional PEC byte** are sent as data within the eSPI OOB message packet.

The SMBus Byte Count field does not include the PEC byte. It comprehends the actual payload of the **SMBus block write packet** ~~message~~ itself ~~(up to the Maximum Payload Size)~~, excluding the **3 SMBus** header bytes ~~of the SMBus Command Opcode~~.

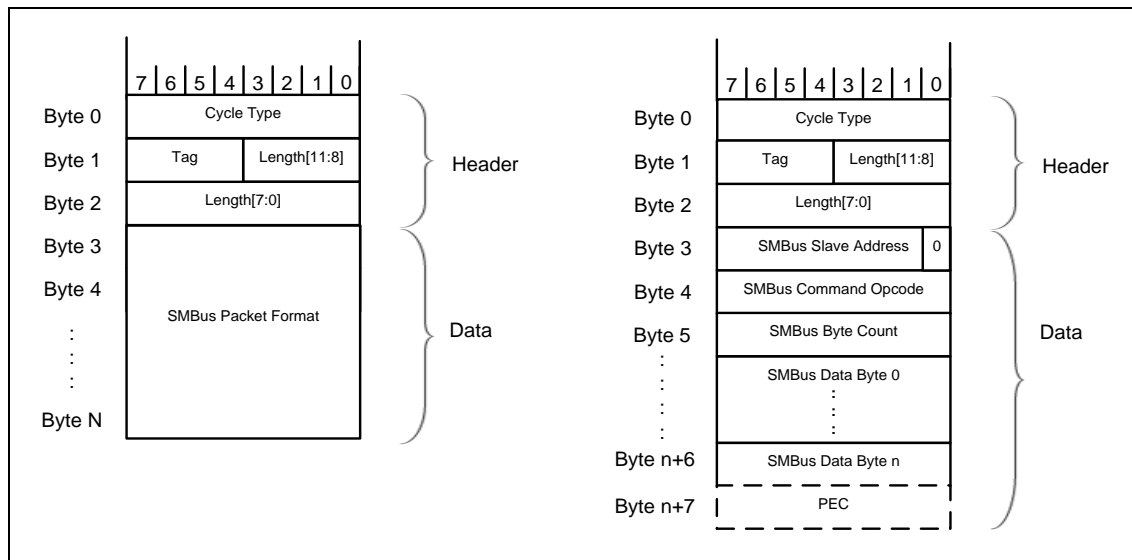
The Length field of the OOB message comprehends the count by the SMBus Byte Count field, in addition to the 3 header bytes (i.e. SMBus Slave Address, SMBus Command Opcode and SMBus Byte Count) and an optional PEC byte.

The presence of SMBus PEC is determined through a simple arithmetic operation between the eSPI **OOB** header length field and the SMBus Byte Count.

**The Maximum Payload Size (MPS) for OOB Message channel applies to the actual payload of the protocol embedded in the packet that tunneled through the channel, such as but not limited to the MCTP and the generic SMBus block writes.**



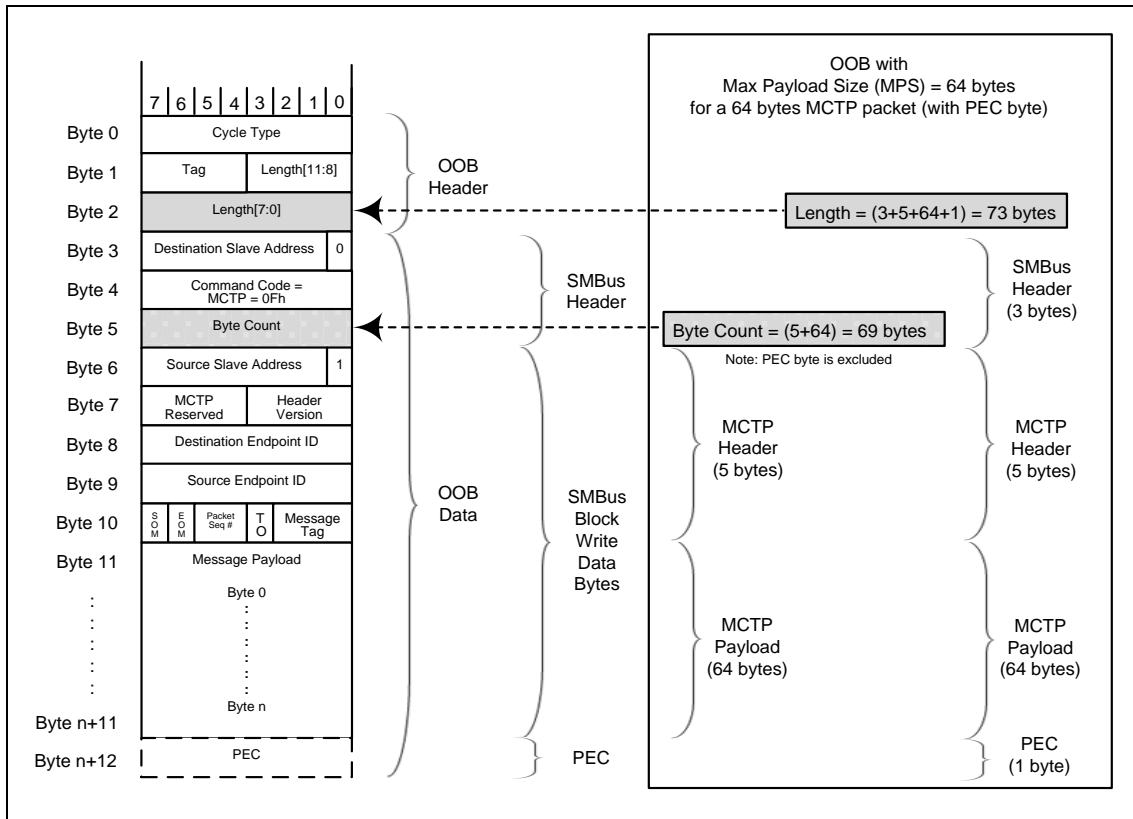
**Figure 45(a): OOB (Tunneled SMBus) Message Packet Format**



MCTP over SMBus is a specific form of the SMBus block write packet with the SMBus Command Opcode of 0Fh (i.e. MCTP). The MCTP header and MCTP payload are embedded as the SMBus block write data bytes. For eSPI OOB MCTP packet, the Maximum Payload Size (MPS) applies to the MCTP payload itself excluding the MCTP header and the optional PEC byte. For example, MPS of 64 bytes allows the transfer of a MCTP packet with up to 64 bytes MCTP payload over the OOB Message channel. In the case of 64 bytes MCTP payload with the optional PEC byte, the SMBus byte count field and the OOB header length field are 69 bytes and 73 bytes respectively.



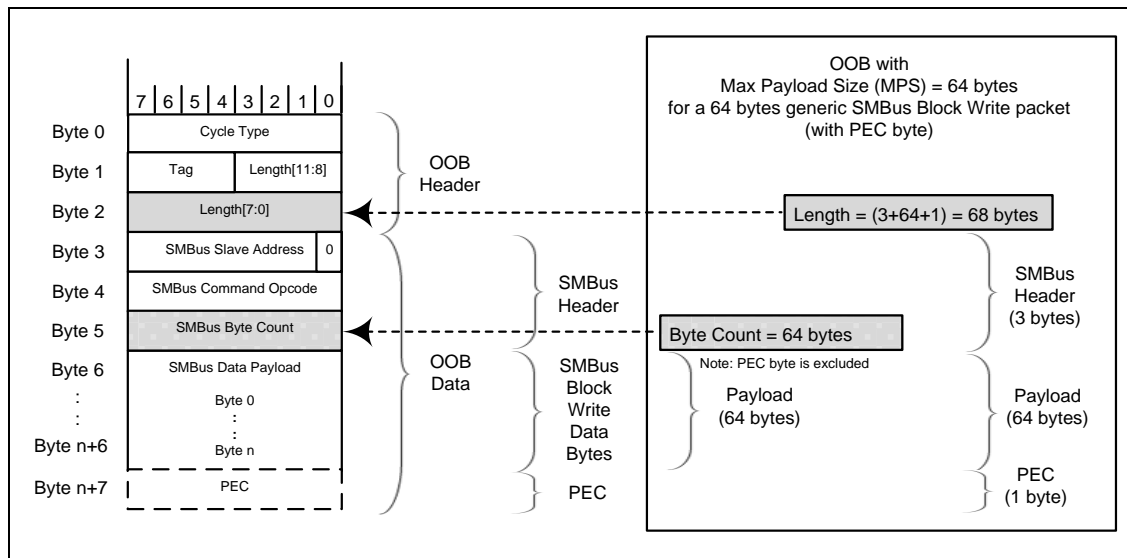
Figure 45(b): OOB MCTP Packet



For eSPI OOB generic SMBus block write packet, the Maximum Payload Size (MPS) applies to the number of SMBus block write data bytes allowed in a packet excluding the optional PEC byte. For example, MPS of 64 bytes allows the transfer of a generic SMBus block write packet with up to 64 bytes data payload over the OOB Message channel. In the case of 64 bytes data payload with the optional PEC byte, the SMBus byte count field and the OOB header length field are 64 bytes and 68 bytes respectively.



Figure 45(c): OOB Generic SMBus Block Write Packet



### 7.2.1.6 Offset 30h: Channel 2 Capabilities and Configurations

Bit	Type	Default	Description
10:8	RW	001b	<p><b>OOB Message Channel Maximum Payload Size Selected:</b> eSPI master sets the Maximum Payload Size (<b>MPS</b>) for the OOB Message channel.</p> <p>The value set by the eSPI master must never be more than the value advertised in the Max Payload Size Supported field.</p> <p><b>The MPS applies to the actual payload of the protocol embedded in the OOB packet.</b> Refer to Section 5.2.3 for the detail of the OOB message payload.</p> <p>000b: Reserved.            001b: 64 bytes max payload size.            010b: 128 bytes max payload size.            011b: 256 bytes max payload size.            100b – 111b: Reserved.</p>



6:4	RO	HwInit	<p><b>OOB Message Channel Maximum Payload Size Supported:</b> This field advertises the Maximum Payload Size (<b>MPS</b>) supported by the slave.</p> <p>The MPS applies to the actual payload of the protocol embedded in the OOB packet. Refer to Section 5.2.3 for the detail of the OOB message payload.</p> <p>000b: Reserved. 001b: 64 bytes max payload size. 010b: 128 bytes max payload size. 011b: 256 bytes max payload size. 100b – 111b: Reserved.</p>
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