To: **T10 Membership**
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Subject: **Flow Control & Read Streaming**
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With the advent of PCI-X there is a need to better manage the write operations on the SCSI bus. Multi-media and video editing require the most efficient movement of data. Write streaming is already supported, this proposal adds support for read streaming.

It is proposed that the target drive P(0) during information unit transfers [Packetized mode] to support flow control and read streaming.

Flow Control (Write Operations)

The P(0) signal is asserted by the target to indicate that the data transfer for the current ITLQ nexus stops at the end of the packet during which it is asserted. This applies only during information unit transfers.   A target supporting flow control assists the host pre-fetch operation over the PCI-X bus by allowing it to more efficiently use its buffers.

The earlier in the packet that the P(0) signal is asserted the more efficient the data transfer is. The P(0) signal shall be asserted at least four valid data transfers prior to the end of a packet; the packet transfer may also terminate with a BUS FREE phase or a phase change.

Once P0 is asserted, it shall remain asserted until the negation of ACK for the last CRC word of the packet. This applies only during information unit transfers.

The use of flow control should be transparent and requires no change to the PPR message.

Flow Control (Read Operations)

The P(0) signal is asserted by the target to indicate that the data transfer for the current ITLQ nexus will stop at the end of the packet during which it is asserted. The P(0) signal shall be asserted at least four valid data transfers prior to the end of a packet ; the packet transfer may also terminate with a BUS FREE phase or a phase change.

Once P0 is asserted, it shall remain asserted until the negation of ACK for the last CRC word of the packet. This applies only during information unit transfers.

Following the last packet transferred a SPI L_Q Information Unit, a MESSAGE OUT phase, a MESSAGE IN phase, or a bus free phase occurs.

PPR Additions

A bit needs to be added to the PPR message to negotiate Read Data Flow Control (RDF) bit. An RDF bit of one indicates that read operations shall use streaming mode transfers. An RDF bit of zero prohibits the use of read streaming mode transfers.

A bit needs to be added to the PPR message to negotiate Write Data Flow Control (WDF) bit. An WDF bit of one indicates that write operations shall use flow control streaming mode transfers.

Both flow control transfers require the use of LQ type 5 streaming transfers.