

To: Protocol Extensions Working Group
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Subject: Packet Protocol Extensions Illustrations
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There are two sets of illustrations that follow. The first set shows the packet definitions; second set shows the streaming concepts.

The packet definitions are on three pages:

Page 1 shows the current SPI-3 rev 2 packet definitions for single and multiple block transfers and byte transfers.

Page 2 shows the CRC Interval packet definitions for the same packets as page 1.

Page 3 shows some interesting packet layouts for byte count transfers. These possibilities are most likely of interest to the multi-media folks.

The streaming concepts are on two pages:

Page 1 shows both write and read streaming for block devices.

Page 2 shows both write and read streaming for byte oriented devices (e.g., tape)

Current Data Information Unit - Transfer Length = one 512-byte block

L_Q=04h DL=512 <i>Interval=0</i> Padbytes=0 CIPad=0	512 Bytes User Data	4 crc
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Current Data Information Unit - Transfer Length = two 512-byte blocks

L_Q=04h DL=1024 <i>Interval=0</i> Padbytes=0 CIPad=0	1024 Bytes User Data	4 crc
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Current Data Information Unit - Transfer Length = one 514-byte block

L_Q=04h DL=516 <i>Interval=0</i> Padbytes=2 CIPad=0	514 Bytes User Data	2 pad	4 crc
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Current Data Information Unit - Transfer Length = two 514-byte blocks

L_Q=04h DL=1028 <i>Interval=0</i> Padbytes=0 CIPad=0	1028 Bytes User Data	4 crc
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Current Data Information Unit - Transfer Length =600 bytes

L_Q=04h DL=600 <i>Interval=0</i> Padbytes=0 CIPad=0	600 Bytes User Data	4 crc
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Current Data Information Unit - Transfer Length =601 bytes

L_Q=04h DL=604 <i>Interval=0</i> Padbytes=3 CIPad=0	601 Bytes User Data	3 pad	4 crc
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Notes:

- 1) The Interval and CIPad fields are not defined for Type 04h in revision 2.
- 2) The DL= is the full byte count not the actual value to insert in the L_Q information unit in the Data Length field.
- 3) The Interval= is the full byte count not the actual value to insert in the Interval CRC Interval field.
- 4) The CIPad= is the pad bit for the CRC Interval. If set to 1, two pad bytes are transferred with each CRC Interval, if set to zero then no pad bytes are sent.

Interval Data Information Unit - Transfer Length = one 512-byte block

L_Q=04h DL=512 Interval=0 Padbytes=0 CIPad=0	512 Bytes User Data	4 crc
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Interval Data Information Unit - Transfer Length = two 512-byte blocks

L_Q=xxh DL=1024 Interval=512 Padbytes=0 CIPad=0	512 Bytes User Data	4 crc	512 Bytes User Data	4 crc
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Interval Data Information Unit - Transfer Length = one 514-byte block

L_Q=04h DL=516 Interval=0 Padbytes=2 CIPad=0	514 Bytes User Data	2 pad	4 crc
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Interval Data Information Unit - Transfer Length = two 514-byte blocks

L_Q=xxh DL=1032 Interval=516 Padbytes=2 CIPad=1	514 Bytes User Data	2 pad	4 crc	514 Bytes User Data	2 pad	4 crc
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Interval Data Information Unit - Transfer Length =600 bytes

L_Q=04h DL=600 Interval=0 Padbytes=0 CIPad=0	600 Bytes User Data	4 crc
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The assumption is that for block devices the interval count would not be used for byte transfers.

Interval Data Information Unit - Transfer Length =601 bytes

L_Q=04h DL=604 Interval=0 Padbytes=3 CIPad=0	601 Bytes User Data	3 pad	4 crc
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Interval Data Information Unit - Transfer Length = 512 bytes

L_Q=xxh DL=512 Interval=400 Padbytes=0 CIPad=0	400 Bytes User Data	4 crc	112 Bytes User Data	4 crc

Interval Data Information Unit - Transfer Length = 1024 bytes

L_Q=xxh DL=1024 Interval=400 Padbytes=0 CIPad=0	400 Bytes User Data	4 crc	400 Bytes User Data	4 crc	224 Bytes User Data	4 crc

Interval Data Information Unit - Transfer Length = 1025 bytes

L_Q=xxh DL=1028 Interval=400 Padbytes=3 CIPad=0	400Bytes User Data	4 crc	400 Bytes User Data	4 crc	225 Bytes User Data	3 pad	4 crc

Interval Data Information Unit - Transfer Length = 512 bytes

L_Q=xxh DL=516 Interval=400 Padbytes=2 CIPad=1	398 Bytes User Data	2 pad	4 crc	114 Bytes User Data	2 pad	4 crc

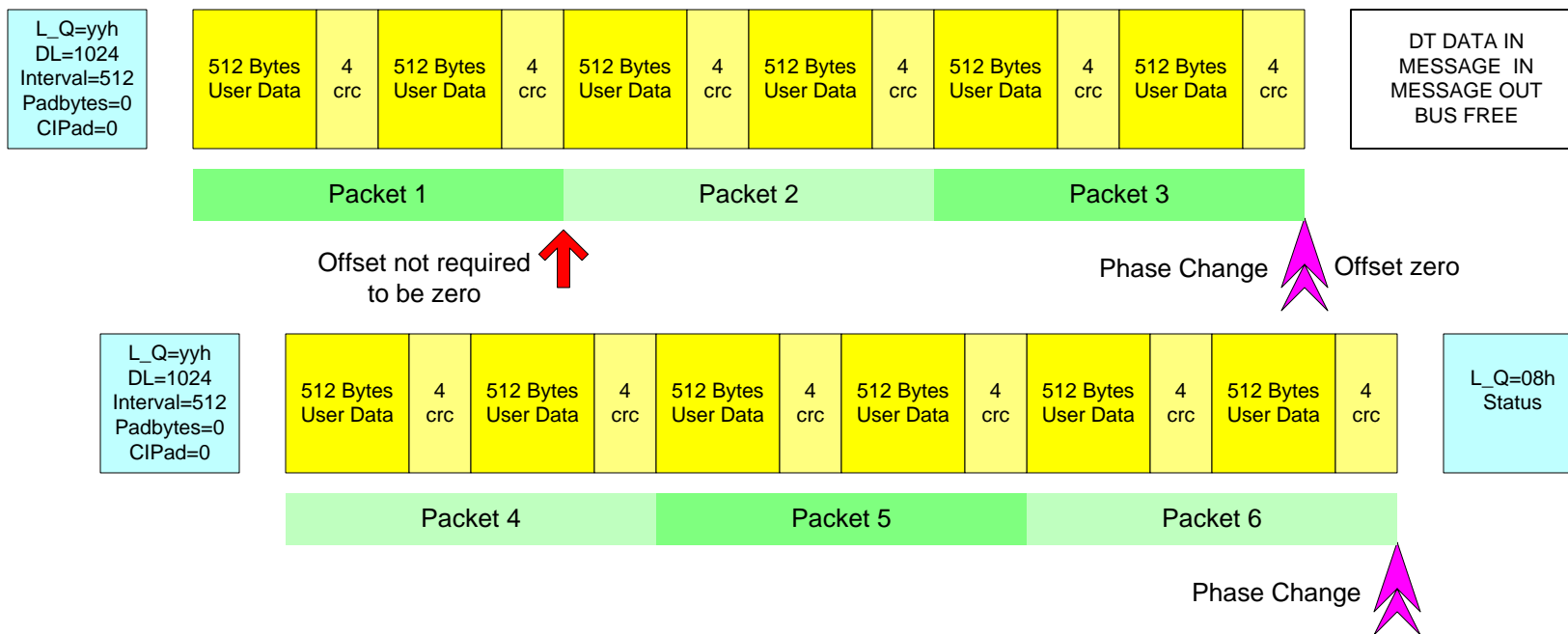
Interval Data Information Unit - Transfer Length = 1024 bytes

L_Q=xxh DL=1030 Interval=400 Padbytes=0 CIPad=1	398 Bytes User Data	2 pad	4 crc	398 Bytes User Data	2 pad	4 crc	228 Bytes User Data	4 crc

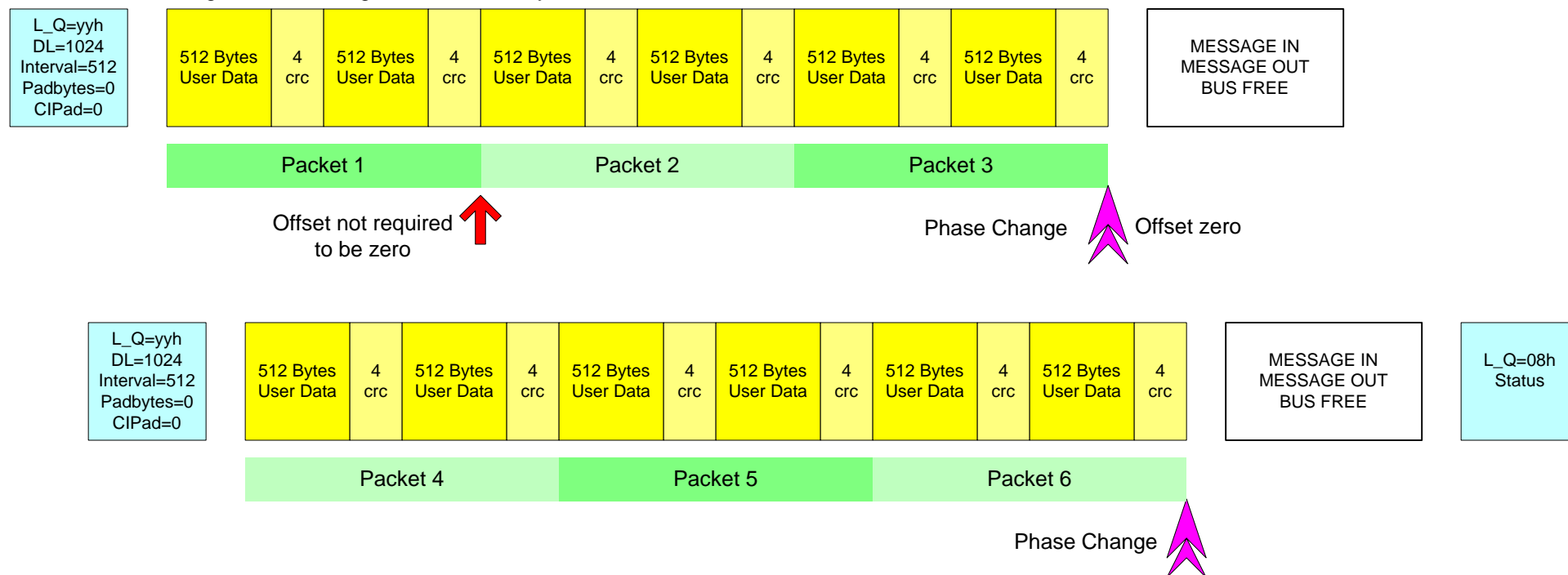
Interval Data Information Unit - Transfer Length = 1025 bytes

L_Q=xxh DL=1032 Interval=400 Padbytes=3 CIPad=1	398 Bytes User Data	2 pad	4 crc	398 Bytes User Data	2 pad	4 crc	229 Bytes User Data	3 pad	4 crc

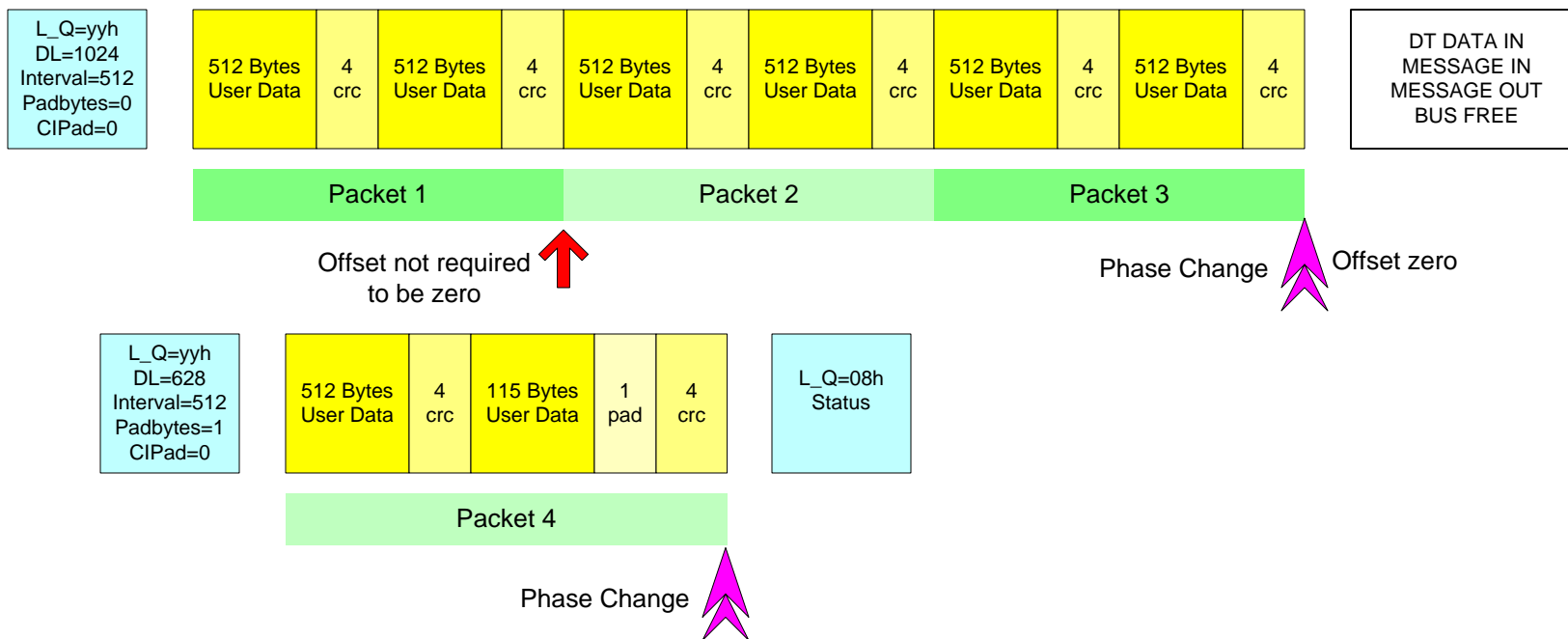
Write Data Streaming - Transfer Length = twelve 512-byte blocks in two streams



Read Data Streaming - Transfer Length = twelve 512-byte blocks in two streams

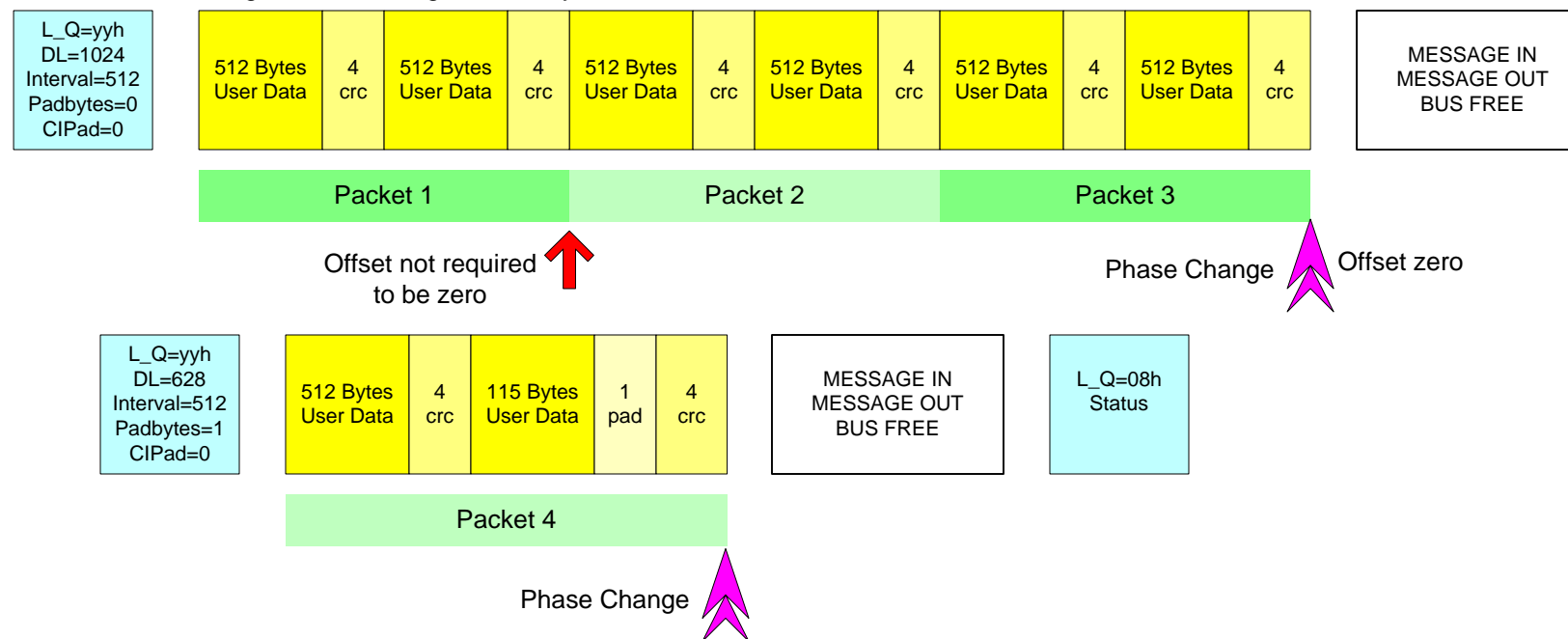


Write Data Streaming - Transfer Length = 3699 bytes in two streams



DT DATA IN
 MESSAGE IN
 MESSAGE OUT
 BUS FREE

Read Data Streaming - Transfer Length = 3699 bytes in two streams



MESSAGE IN
 MESSAGE OUT
 BUS FREE

MESSAGE IN
 MESSAGE OUT
 BUS FREE