
— Bport/Accelerations Task Group

Agenda

- Fast packet format
- FIFO operation for beta ports
- Training time spec. - removal from bport chapter
- c-code review - accels. & port
- error handling - which events do we report?
- bport chapter update - changes since last mtg.
-

— Fast Packet format

i.e. S800 and above, section 10.4.1.3.1.5:

The packet format for S800, S1600 and S3200 packets forwarded on any beta mode port shall be:

```
.....[speed signal][padded data | data prefix symbols]
      [packet end symbols].....
```

When packet speed = port speed, speed signal is only one 10 bit character. If errored, request types preceding packet cannot be distinguished from data within packet.

Proposed change adds another prefix character:

```
.....[speed signal][N*data prefix][padded data |
      data prefix symbols][packet end symbols].....
```

where $N = \text{port speed} / \text{packet speed}$

Also applies to short format slow packets (section 10.4.1.3.1.4)

— All packet formats:

- Current packet ending is:

[n DATA_END | n DATA_END_ERR]

where n is equal to the ratio of the port operating speed and the packet speed.

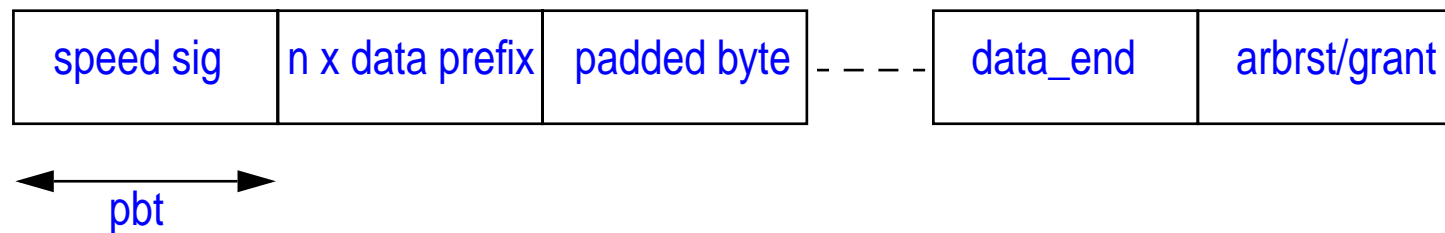
Should include ARBRST, ARBRST_GRANT or GRANT symbol i.e.

[n DATA_END | n DATA_END_ERR]..
..[n arbrst | n ARBRST_GRANT | n GRANT | n DATA_END]

- Note, if no ARBRST or GRANT, second pattern of DATA_END is sent. Guarantees there are always two control characters at end of any packet even when n=1.

FIFO operation - beta receiving

- Beta packet format is designed such that all signals (data prefix, speed, data bytes) occur in chunks of 'packet byte time' (pbt).



- This structure was introduced so that the duration of each signal is correct for the lowest port that the packet passes through.
- To maintain the structure as packets pass through a node, all of these signals must pass through the resync. FIFO.

i.e. speed signal and subsequent data prefix, bytes, data end and {ARBRST, ARBRST_GRANT, GRANT} are all buffered in the receiving port FIFO.

- This is quite different from 1394a, and requires changes to draft c-code.

— Synchronization timeout

- section 10.3.9.1 currently reads:

A receiver shall be capable of achieving bit and character synchronization while receiving a valid training request or operation request signal from a transmitter, within TBD(time) of the first bit of the sequence being received from the PMD.

- Propose that this spec. is removed from bport chapter as connection management chapter will include a timeout for bport synchronization.

— Port/Arbitration interface

```
speedCode{S100,S200,S400,S800,S1600,S3200,NULL};  
betaCtrl{DATA_PREFIX,DATA_END,DATA_END_ERR,  
RESET,ARBRST_GRANT,ARBRST,GRANT};  
betaReqType{NONE,NEXT_SLOW,NEXT_FAST,CURR_SLOW,  
CURR_FAST,LEGACY,CYCLE_START};  
bportTag{DATA,CTRL,SPEED,  
REQUEST,LEGACY_REQUEST};  
legacyReqType{REQGNT,CHILD_NOTIFY,PARENT_NOTIFY,  
DISABLE_NOTIFY,SUSPEND,IDLE,TRAINING,OPERATION};
```

```
bportSymbol { tag; value } bportT, bportR;
```

If tag==REQUEST, then value is continuously updated by process_requests().

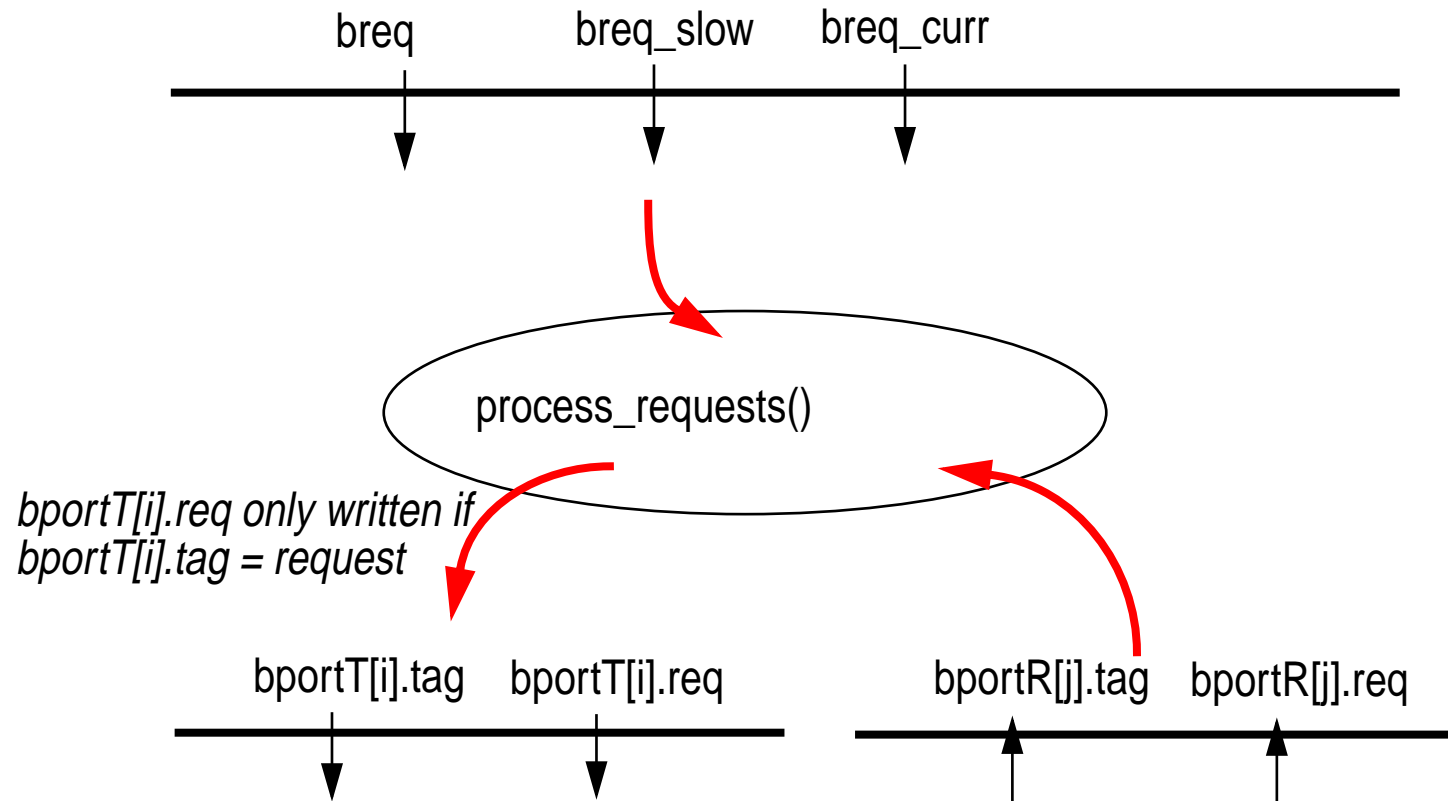
LINK <-> PHY signals

```
enum breqtype {NO_REQ, IMMED_REQ, CYC_START_REQ, ASYNCH_REQ,  
ISOCH_REQ} breq;
```

```
boolean breq_slow; // TRUE if breq is for a <=S400 packet
```

```
boolean breq_curr; // TRUE if breq is for current interval  
or period
```

Link / PHY / bport request signals



— Error handling

- Possible error events that could be detected by port:

(already in c-code):

- invalid 10 bit character
- disparity error
- incorrect padding format (data in wrong place or missing)

(not in current c-code - what action should be taken?):

- invalid speed signal
- incorrect packet prefix/end format