
Bport task group:

Error handling discussion

February 9th, 1998

PHY detectable packet errors

- These fall into three categories:
 - A code violation: immediately detected.
 - A padding format violation: immediately detected.
 - A disparity error: may be detected immediately, may not be detected until end of packet, when a disparity check is made on DATA_END.
- Possible actions when error is detected during the packet:
 - overwrite remainder of packet with data prefix.
 - if disparity error, but valid code, do nothing.
 - if invalid code, forward zeros for that byte.
- These actions are not possible when the error is detected at the end of the packet.

— Proposed action for errors detected during packet

```
if (invalid_codeword | padding_format_error)
  {packet_err_flag = 1;
  data = [0000 0000];
  }

else if (disparity_error)
  {data = [decoded_data];
  packet_err_flag = 1;
  }

else {data = [decoded_data];}
```

Phy detected end of packet error: bPHY - aLINK

- 1394B PHY is capable of detecting some errors *at the end* of packets that will not necessarily be detected by the LINK.
- This is due to the 8B10B disparity rules.
- We do not have a good proposal for forwarding this information to a DS port or to a 1394a PHY.
- If we are satisfied that the probability of such an error is low enough, then we can ignore the information when forwarding the packet to a 1394a DS port or 1394a LINK.

Phy detected end of packet error: bPHY-bLINK or bPHY-bPHY

- When a bPHY detects an error at the end of a packet and is forwarding the packet to another beta mode port, it can indicate the error by appending a DATA_END_ERR symbol in place of the DATA_END symbol.
 - subsequent bPHY detected the error by decoding DATA_END_ERR.
- When passing the packet to a 1394b LINK, what does the PHY do to indicate the error ?

— Proposed action for end of packet errors

```
wait(end_of_packet);  
  
if (DATA_END_ERR | end_disparity_check_error)  
    {packet_err_flag = 1;  
    }  
  
if (packet_err_flag)  
    {for (i=0; i<NPORT; i++)  
        {if (port_mode(i) == beta)  
            BPORT_CONTROL.request(DATA_END_ERR);  
            else if (port_mode(i) == DS)  
                DS_PORT.request(DATA_END);  
        }  
    }  
}
```