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Subject: Re: PCIe-AS - Tutorial -- Is there a CRC for the address header ?

Posted by [David Slognat](#) on Wed, 15 Sep 2004 12:59:02 GMT

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Walter F.J. Müller wrote on Tue, 14 September 2004 09:54: During the 2nd FutureDAQ workshop (all talks in document management) some questions came up during E. Denes's talk on PCIe-AS. On the Intel PCIe website is a very good and comprehensive tutorial talk given at the PCI SIG Developers Conference 2004, see

[ftp://download.intel.com/netcomms/as/devcon\\_as\\_overview.pdf](ftp://download.intel.com/netcomms/as/devcon_as_overview.pdf)

On 116 slides, many aspects of the protocol are described in quite some detail.

Now to a specific question raised during the talk:

Q: Is there a CRC protection for the address header ?

A: Yes, see on page 14 of the tutorial. The AS header is 64 bits, which include  
7 bit header CRC  
5 bit turn pointer  
7 bit PI number  
31 bit turn pool  
1 bit direction (forward/backward routing)

This is true. However, things get more complicated when looking at the ASI specification:

- The Turn Pointer is not included in the header CRC.
- The final receiver of an AS Packet has to check the CRC. The intermediate switches may check it, but they don't have to.

One thing you can observe from this is that a packet may reach a wrong receiver due to a bit error in the Turn Pointer. The sender cannot be notified of this failed message transfer, since the Turn Pool in reverse direction does not lead to it.

Also, I wonder how the wrong receiver finds out that the packet was intended for another destination, since the header CRC check will not show an error!!!