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

Posted by [Walter F.J. Müller](#) on Wed, 15 Sep 2004 16:15:10 GMT

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David Slogsnat wrote on Wed, 15 September 2004 16:40....

Every single routing byte is parity checked at each hop (parity check is only a very small overhead). If there is an error, the packet is retransmitted on link level.

That means, in ATOLL there is protection against single bit errors, not less, not more.

AS uses the PCIe physical link layer, which is serial with 8b/10b coding. The consequence is, that a single bit error on the medium will give in many cases an invalid code word, and will thus be detected, but in other cases, gives a different code word leading to multiple data bit errors. For example for the later case is that a single bit error in bit e can turn D0.1- into D9.1-, which when decoded gives a two bit error (two 0 are turned into 1). Since two bits are flipped, this isn't detected with a parity bit.

From this I'd conclude, that the ATOLL protection method actually doesn't protect against all single bit errors on the medium when a serial link with 8b/10b is used, thus a parity bit doesn't seem to be the perfect solution either.
