

To: T10 Technical Committee
From: Keith Holt, LSI Logic (keith.holt@lsil.com)
Date: March 6, 2001
Subject: SRP Transfer Length Proposal

Revision History

Revision 0 – March 5, 2001 - first revision

Related Documents

SRP revision 03

01-073 Minutes of the SRP WG – February 20-21, 2001 – Denver, Colorado

Overview

In SRP revision 03, the SRP command structure does not specify a total data length when indirect lists are used. An SRP target bridging storage protocols between InfiniBand™ and Fibre Channel SANs would be required to sum up the data lengths specified in the individual scatter/gather elements to obtain the total transfer length needed for the FCP_DL field in the FCP command. This makes resource management problematic for the SRP target since it must obtain the entire indirect scatter/gather list from host memory prior to this calculation via an RDMA operation.

This issue was discussed at the February 20 SRP WG meeting. As documented in the minutes, there was general agreement to add a total data length field when indirect lists are used. Characteristics of the agreement are in the following section.

Proposed Changes

General description of proposed change:

1. Total length will be a 4-byte field specifying the maximum transfer length in bytes
 - Matches size of FCP_DL field
2. The field will be included only when indirect data buffer lists are used
 - Initiator not required to specify length twice when using a direct data buffer
 - SRP_CMD_16 IU will remain at 64 bytes maximum when using a direct data buffer
3. The SRP target will not be required to check the total length field against either the sum of the scatter/gather element data lengths or the transfer length specified in the CDB
4. The total length will be contained in the SRP command information unit
 - SRP target can access total length prior to RDMA operation to obtain indirect list
5. Data In Buffer Descriptors and Data Out Buffer Descriptors will have separate total lengths
6. The total length field will be placed in the command immediately after each Indirect Memory Descriptor, but before any cached data Memory Descriptors associated with the indirect list.

The following figures illustrate the proposed change to command information units and associated data buffer descriptors. The change is shown only for SRP_CMD_16, but would apply to all command information units. Some details of the command information units are eliminated for brevity.

SRP_CMD_16 information unit

Byte	Bit	7	6	5	4	3	2	1	0
0		Header							
...									
31									
32		CDB							
...									
47									
48		Data Out Buffer Descriptor							
...									
$47+16*mo+4$									
$48+16*mo+4$		Data In Buffer Descriptor							
...									
$47+16*(mo+mi)+8$									

Indirect Data Out/In Buffer Descriptor

Byte	Bit	7	6	5	4	3	2	1	0
0		Indirect Memory Descriptor							
...									
15									
<u>16</u>		<u>Total Transfer Length</u>							
<u>...</u>									
<u>19</u>									
<u>1620</u>		Cached MD 1							
...									
...									
...		...							
...									
...									
$4+16*(mo mi)-15$		Cached MD n							
...									
$4+16*(mo mi)-1$									