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Ref Doc:

Reply to: Bob Snively

To: T10 Membership

From: Bob Snively

Subject: FCP-2 Initial Changes

There have finally been enough minor changes and corrections proposed for FCP that it is time to collect them together and begin the editing work for FCP-2. This document collects references to the known FCP-2 modifications and is intended to become an exhaustive list of the initial changes to be made in the document, including major editorial changes and technical changes.

## 1.0 Editorial Changes

### 1.1 Obtain ANSI edits

The ANSI editor has provided numerous updates to references and small editorial modifications which must be obtained for inclusion as part of FCP-2.

### 1.2 Provide complete mapping of service interfaces.

Provide a clause similar to clause 11.8 in SPI-2 (T10/1142D revision 15) to identify the mapping between the services defined by SAM (or SAM-2 if applicable) and FCP. These definitions may replace one or more paragraphs scattered through the document.

### 1.3 Remove Annex A

The contents of Annex A are now documented by one of the FC standards. After appropriate review for completeness, the annex will be removed and the proper FC documents referenced.

### 1.4 Correct bit definition

The last sentence on page 41 of revision 12 should refer to bit 13, not bit 14. (Chan, July 24, 95)

### 1.5 Correct PRLI Accept Response code

Page 19 specifies that the PRLI Accept Response code of 1000 is Invalid Service Parameters for page. However, the FC documents have a different value. This should be corrected. (Snively/Binford, Sept 18, 95.)

## **1.6 Clarify FCP\_RSP formats for task management**

There is some lack of clarity about how task management responses are implemented. The text should be improved. (Frazier, 7 Feb 96)

## **1.7 Clarify FCP ABTS when no exchange exists yet**

Charles Monia (5 Aug, 96) notes that the ABTS responses do not correctly address the case where the ABTS may precede the arrival of the exchange to be aborted. He provides a recommended clarification which will be reviewed.

## **1.8 Definition of Data Overlay**

Ed Gardner (30 Aug, 96) notes that data overlay is not defined in the present FCP document. A correct definition will be provided. A series of mails in September of 1997 also address this issue.

## **1.9 Definitions that should be included**

George Penokie (19 Sept, 1997) has requested the following clarifications:

- 1) Many of the acronyms are not defined or defined in places where the definition is difficult to find. Examples include: OX\_ID, RX\_ID, OOA, ROA, PLOGI and perhaps others.
- 2) "Process association" should be defined.

## **1.10 Removal of levels of indirection**

George Penokie (19 Sept, 1997) suggests that the document would be clearer if tables describing IUs were integrated, instead of providing a hierarchy that must be interpreted. He mentions the FCP\_CMND field and the FCP\_CNTL field as examples. Where appropriate his suggestion will be followed.

## **1.11 Clarify usage of XFER\_RDY during read**

Gen-Hwa Chiang (29 Oct 97) asks about the proper operation of multiple sequence reads when XFER\_RDY is not used. I will examine the document to see if this is clearly stated and clarify this if not.

# **2.0 Technical Changes**

## **2.1 95-348r1, FCP usage of Disconnect Reconnect Page**

This proposal has a number of technical additions proposed for FCP. I will review the proposals, the minutes of the appropriate meetings, and the actual implementations and provide proposed text. It may be that, after later review, some of the proposals should be left out of FCP. Several of these functions are also required by PLDA.

Items considered by this document include:

1) Use of disconnect reconnect page parameters

- Buffer full and empty ratios
- Bus inactivity limit field
- Disconnect time limit
- Connect time limit
- Maximum burst size field
- Enable Modify Data Pointers
- Access fairness control bits
- Disconnect Immediate bit
- Data transfer disconnect control field
- First burst size field

## 2.2 96-195r4, FCP control page parameters

This proposal describes a number of technical additions proposed for FCP. I will review the proposals, the minutes of the appropriate meetings, and the actual implementations and provide proposed text. It may be that, after later review, some of the proposals should be left out of FCP. These functions are also mentioned by PLDA. Mail from John Nutter (2 May, 1997) further places clarification requirements on the text to be inserted.

Items considered by this document include:

- 1) Fibre Channel Control page, including
- Disable Target Originated Loop Initialization
  - Disable Target Initiated Port Enable
  - Allow Login Without Loop Initialization
  - Disable Soft Address
  - Disable Loop Master
  - Disable Discovery

## 2.3 Add ABORT LOGICAL UNIT task management function

This has now been defined in SAM-2 and will be added to FCP-2.

# 3.0 Technical changes not discussed or approved yet

## 3.1 Flag bit usage

A Spaldin (14 June 96) has requested clarification of the flag bit in FCP linked commands. At present, there is no definition in SCSI as to the mandatory nature of the flag bit. Since no host adapter actually uses either linking or the flag bit, I would like to start phasing it out of SCSI, starting with FCP.

### **3.2 Serial link usage of RESERVE/RELEASE(6)**

The present RESERVE(6)/RELEASE(6) only has 3 bits of identifier for third-party functions. I would prefer to make those commands obsolete for FCP devices and allow the use of RESERVE(10)/RELEASE(10) and PERSISTENT RESERVE IN/OUT instead.

### **3.3 RR\_TOV timer**

Jim Coomes references a PLDA annex (Annex D) that will contain a parameter for the Fibre Channel control mode page (page code 19h) allowing the definition of a resource recovery timer in a mail of Feb 25, 1997. At present this is not planned for inclusion.

### **3.4 Clearing of mode pages**

PLDA specifies a number of actions in table 16 that are forced by Fibre Channel operations with respect to initialization states, mode pages, tasks, and task sets. These will be reviewed to see if any need to be included in FCP-2.

### **3.5 Definition of mode page parameters for FCP**

PLDA specifies in table 18 a selection of interpretations for mode sense/select information. These will be reviewed to see if any need to be included in FCP-2.

### **3.6 Use of mode page settings to control initialization**

PLDA specifies in section E.5.1 the possibility of controlling initialization using mode pages. This will be identified and reviewed to see if any need to be included in FCP-2.

### **3.7 TERMINATE TASK removal**

At present, the TERMINATE TASK function is still included in FCP. With its probable promotion to obsolete in SPI-2, it will also be made obsolete or removed in FCP-2.

### **3.8 Clarification of FCP\_CDB content**

George Penokie (19 Sept, 1997) indicates that the statement in section 7.1.3, "The FCP\_CDB is not valid and is ignored if any task management flag is set to 1" is not correct. He believes that Clear ACA should be allowed along with a valid CDB. While this may be true in parallel SCSI, it is not a requirement of SAM and there does not appear to be a need for it in FCP.

### **3.9 Resolution of the "Tape problem"**

At present, neither the class-2 alternatives presented by Doug Hagerman nor the class-3 alternatives presented by Neil Wanamaker require any change to FCP. That makes them generally usable for a large class of state sensitive ULPs.

Dave Peterson (29 Oct 1996) has discussed the possibility of using an FCP\_CONFIRM IU to provide acknowledgment of proper delivery of FCP\_CMND, FCP\_RSP, and perhaps some other IUs. I am concerned about this approach because it locks FCP concepts into a link-level recovery mechanism. My first impression is that the other two proposals are more appropriate architecturally.

### **3.10 Clarification of ABORT TASK function**

At present, all task management functions except ABORT TASK are marked as complete by an FCP\_RSP IU. ABORT TASK in SAM-2 has the interesting property of being acknowledged by the device server, but removing the acknowledgment that would normally have been presented by the aborted task. FCP has always been a bit unclear about distinguishing between the ABORT TASK function and the Recovery Abort function. This needs to be clarified and perhaps corrected. Gen-Hwa Chiang's mail of 5 Nov 1996 pointed out this lack of clarity.

## **4.0 Other suggestions, not planned for inclusion**

### **4.1 First Burst Parameter**

In e-mail dated Jan 3, 1996, Giles Frazier suggested that the first-burst parameter of the Disconnect-reconnect mode page be used to allow a different length limit for the first write data to be transmitted when the XFER\_RDY function is not used. At present this function is not defined by FCP or used by any devices. I propose that it be excluded from FCP-2.

### **4.2 Parameter associated with initiator**

Charles Monia (Apr 24, 1996) among others has asked how initiators are identified for reservations. At present, the initiator ID and Process Associator (if any) are the proper values. If those are re-assigned by LIP actions, then reconfiguration is necessary. Persistent reservation and software conventions should adequately manage this case, and FCP can't do much about it anyway.

### **4.3 8-byte LUN structuring**

Ron Gould (12 June, 1996) among others has asked for a clarified LUN structuring. I believe that has now been properly covered by the documents George Penokie is bringing into the SAM-2 document.

### **4.4 Timing of Target Reset recovery**

Guru Pangal (Feb 4, 1996) points out that there is no defined time for recovery after an FCP Target Reset has been completed and acknowledged. He indicates that some devices take significant time to complete recovery and have an ill-defined behavior during this period. At present, FCP says nothing about this, implying that the time is expected to be short and the device is expected to continue normal behavior, which may include busy conditions. This was explained by Charles Monia in a response to Guru.

### **4.5 Concept of confirmation**

The concept of using FCP IUs as confirmation, thus enabling the early re-use of SEQ\_IDs within the same exchange is described as an implementation option (but not a requirement) in PLDA. I see that as an implementation alternative tutorial which should not be included in the FCP-2 document.

#### **4.6 Clarification of FCP\_CDB content**

George Penokie (19 Sept, 1997) indicates that the statement in section 7.1.3, "The FCP\_CDB is not valid and is ignored if any task management flag is set to 1" is not correct. He believes that Clear ACA should be allowed along with a valid CDB. While this may be true in parallel SCSI, it is not a requirement of SAM and there does not appear to be a need for it in FCP.

#### **4.7 Removal of FCP\_DL**

George Penokie (19 Sept, 1997) indicates that the FCP\_DL should be removed. I disagree. We find it a handy construct to simplify data delivery in the host adapter. No change will be made. Note that some people have misinterpreted PLDA to believe that the FCP\_DL is not a PLDA requirement. It is a PLDA requirement.

Sincerely,

Robert Snively

Phone:(415) 786-6694

Email: bob.snively@sun.com