

TO: T10 Membership  
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SUBJECT: ADC Mode Parameters (T10/02-234r0)

## 1. General

This document proposes possible mode parameters outlined by Rod Wideman in 02-228r0. Discussion points are include in *italics*. This is Fibre Channel-centric and needs to be generalized to other transports, different numbers of ports, etc.

Many of these behaviors could be subject to change if the drive detects that it is not installed in a library. For example, it may be desirable for primary interface ports to be enabled in this case.

## 2. Physical Control mode parameters

This section addresses the Physical Behavior category in section 3 of 02-228r0.

### 2.1 Automatic Load Control

See SPC-3, Control mode page (0Ah), Autoload Mode field for behavior upon medium insertion. Existing modes are:

Value	Definition
000b	Medium shall be loaded for full access
001b	Medium shall be loaded for medium auxiliary memory access only
010b	Medium shall not be loaded
011b – 111b	Reserved

A new mode should be considered:

- Medium shall not be loaded. After loading, change Autoload Mode to 000b. *Alternatively, this could be done by adding a bit to the LOAD UNLOAD command.*

### 2.2 Automatic Unload Control

There seem to be three options here:

Value	Definition
000b	Medium shall be loaded for full access
001b	Medium shall be unthreaded, with MAM accessible
010b	Medium shall be unloaded
011b – 111b	Reserved

*“Unthreaded” is admittedly imprecise, given the variety of technologies.*

These modes can be chosen separately for the following events:

- Power cycle with medium in drive
- Loading of an incompatible medium (may include expired cleaning cartridge)
- Firmware download with medium in drive
- Completion of cleaning
- UNLOAD command from primary interface

*We need to decide how many of these events can be grouped together.*

*We may wish to take this to the CAP working group for inclusion in the Control mode page (0Ah).*

### 3. Port Control mode parameters

This section addresses the Logical Behavior category in section 4 of 02-228r0.

*Should these fields be added to the Fibre Channel Port Control mode page (19h)? If so, then we'd have to create a Protocol Specific Port mode page for Parallel SCSI, etc.*

Bit Byte	7	6	5	4	3	2	1	0
0	Port A Disable	Port B Disable	Port A Require Hard Address	Port B Require Hard Address	Port A Power On Disabled	Port B Power On Disabled	Change WWN	Disable In-Band Interface Control
1	Reserved							
2	Port A Hard Assigned Loop Identifier / SCSI ID							
3	Port B Hard Assigned Loop Identifier / SCSI ID							
4	MSB							
...	Node World Wide Name							
11	LSB							
12	MSB							
...	Port A World Wide Name							
19	LSB							
20	MSB							
...	Port B World Wide Name							
27	LSB							

If the drive is single port then the Port B fields shall be Reserved.

*Should this be reorganized to allow for more than two ports? E.g., a separate parameter for each port containing ID, port name, and control bits?*

**Port A Disable** and **Port B Disable** – When set to zero this enables the specified port. A value of one disables the port.

**Port A Require Hard Address** and **Port B Require Hard Address** – When set to 1, the referenced Port will require use of the hard assigned loop identifier. Behavior is as defined for the Require Hard Address (RHA) field in the Fibre Channel Port Control mode page (19h), as defined in FCP-2. If this field is set to 1 and the port's Hard Assigned Loop Identifier is set to an invalid value, then the port will not participate in LIP.

*Is it useful to specify RHA separately per port, or do we just want one bit here?*

*How will these interact with the single RHA bit in the Fibre Channel Port Control mode page (19h).*

**Port A Power On Disabled** and **Port B Power On Disabled** – A value of 1 in this field indicates that at power up, the port will be disabled. If the library port cable is not attached, then these fields are ignored and both ports will be enabled at powerup.

**Change WWN** – When set to 1, the drive shall use the node and port WWNs specified by Node World Wide Name, Port A World Wide Name, and Port B World Wide Name fields. When set to 0, the drive shall use the WWNs native to the drive. This field controls the behavior of both ports.

If this value is changed while a port is enabled, then the change shall take effect upon the next transition from disabled to enabled.

*This assumes that the drive will remember the node and port names assigned in manufacturing. Using a bit to determine whether to use the original names or those set by this command avoids ambiguities that would arise*

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*from using reserved values (e.g., 0000000000000000h) to indicate that the original names should be used. In particular, it prevents having one of the names presenting an original value and another presenting a changed value.*

**Disable In-Band Interface Control** – When set to 1, the MODE SELECT command cannot be used over the primary (Parallel SCSI or Fibre Channel) interface to change the Autoload Mode field in the Control mode page (0Ah) or any fields in the Interface Control (22h) and Primary Port Control (TBD) mode pages. This prevents other initiators from modifying drive parameters set by the library. If the library port cable is not attached, then this field is ignored and in-band control is enabled.

**Port A Hard Assigned Loop Identifier and Port B Hard Assigned Loop Identifier / SCSI ID** – This field is used to report the current Loop ID ( not an AL\_PA address) for the specified port. If the value is invalid (7Eh or 7Fh), then the port shall not participate in the LIHA phase of LIP. If the port's Require Hard Address bit is also set, then the drive shall not participate in LIP.

For Parallel SCSI devices, this is the SCSI ID and the valid values are [0 .. 15].

**Node World Wide Name** – This 8 byte field is used to set the World Wide Node Name of the drive. This value shall be reported if and only if the Change WWN field is one.

**Port A World Wide Name and Port B World Wide Name** – These 8 byte fields are used to set the World Wide Name for the specified Port. These values shall be reported if and only if the Change WWN field is one.

*By allowing the library to set the port names completely generally, we avoid specifying a rule for deriving port B's name from Port A's. Any such rule is bound not to be acceptable to everyone.*

*Need text prohibiting setting the names to a range reserved by the device vendor.*