

**Proposed
Draft**

**Serial ATA
International Organization**

**Version 3
October 17, 2019**

**Serial ATA Revision 3.4 Technical Proposal # 086
D220**

Title: Digital: Fast Fail

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Author Information

Author Name	Company	Email address
Jim Hatfield	Seagate Technology	james.c.hatfield@seagate.com

Workgroup Chair Information

Workgroup (Phy, Digital, etc...)	Chairperson Name	Email address
Digital	James C. Hatfield	james.c.hatfield@seagate.com

Document History

Version	Date	Comments
0	March 21, 2019	Initial version.
1	May 10, 2019	Renamed the feature, fields to be more aligned with T13 changes: command limits (not 'fast fail', not forever only for read)
2	October 17, 2019	Sync with T13/f18162r9, which T13 ratified on 10/16/2019 - See ACS-5 instead of putting behavior details here - Added WRITE FPDMA QUEUED
3	October 17, 2019	Better wording suggested by Ralph Weber

Introduction (Not part of any proposed text)

This proposal for addition to SATA Revision 3.4 defines a new command behavior for the READ FPDMA QUEUED command to standardize the method outlined by the Open Compute Platform (OCP) organization in a paper, Cloud Fast Fail Read Specification, outlining a method to separately track and control the amount of time that a device is actively servicing a read command versus the amount of time that the device is waiting to service that command.

This proposal adds to the Command Duration Limits feature as described in the T13 proposal: f18162 ACS-5 Command Duration Limits feature set

1 Technical Specification Changes

1.1 <Title of section being changed>

[editor note: Existing text is black.

New text is marked as underlined in blue color or underlined in steal blue color.

Material to be deleted ~~is red with strikethrough markings.~~

<<.. indicates editorial text ..>>]

Indicates that reference or code value may change when integrated

13.6.4 READ FPDMA QUEUED command

13.6.4.1 READ FPDMA QUEUED command definition

Queued native read commands use this command. The command supports LBA mode only and uses 48 bit addressing only. The format of the command is defined in Figure 337.

Field	7	6	5	4	3	2	1	0
FEATURES(7:0)	SECTOR COUNT(7:0)							
FEATURES(15:8)	SECTOR COUNT(15:8)							
COUNT(7:0)	TAG(4:0)					Reserved	RARC	
COUNT(15:8)	PRIO(1:0)		GROUP ID (5:0)					
LBA(7:0)	LBA(7:0)							
LBA(15:8)	LBA(15:8)							
LBA(23:16)	LBA(23:16)							
LBA(31:24)	LBA(31:24)							
LBA(39:32)	LBA(39:32)							
LBA(47:40)	LBA(47:40)							
ICC(7:0)	ICC(7:0)							
AUXILIARY(7:0)	Reserved					Reserved COMMAND DURATION LIMITS INDEX		
AUXILIARY(15:8)	Reserved							
AUXILIARY(23:16)	HYBRID INFORMATION(7:0)							
AUXILIARY(31:24)	Reserved							
DEVICE(7:0)	FUA	1	Res	0	Reserved			
COMMAND(7:0)	60h							

Figure 337 – READ FPDMA QUEUED command definition

Field Definitions

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[COMMAND DURATION LIMITS INDEX](#)

usage defined by the Command Duration Limits feature set (see ACS-5)

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<<Ed. Note: there are no other changes to READ FPDMA QUEUED>>

13.6.5 WRITE FPDMA QUEUED command

13.6.5.1 WRITE FPDMA QUEUED command definition

Queued native write commands use this command. The command supports LBA mode only and uses 48 bit addressing only. The format of the command is defined in Figure 342.

Field	7	6	5	4	3	2	1	0
FEATURES(7:0)	SECTOR COUNT(7:0)							
FEATURES(15:8)	SECTOR COUNT(15:8)							
COUNT(7:0)	TAG(4:0)					Reserved		
COUNT(15:8)	PRIO(1:0)		GROUP ID (5:0)					
LBA(7:0)	LBA(7:0)							
LBA(15:8)	LBA(15:8)							
LBA(23:16)	LBA(23:16)							
LBA(31:24)	LBA(31:24)							
LBA(39:32)	LBA(39:32)							
LBA(47:40)	LBA(47:40)							
ICC(7:0)	ICC(7:0)							
AUXILIARY(7:0)	Reserved					Reserved COMMAND DURATION LIMITS INDEX		
AUXILIARY(15:8)	Reserved							
AUXILIARY(23:16)	HYBRID INFORMATION(7:0)							
AUXILIARY(31:24)	Reserved							
DEVICE(7:0)	FUA	1	Res	0	Reserved			
COMMAND(7:0)	60h							

Figure 342 – WRITE FPDMA QUEUED command definition

Field Definitions

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[COMMAND DURATION LIMITS INDEX](#)

usage defined by the Command Duration Limits feature set (see ACS-5)

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<<Ed. Note: there are no other changes to WRITE FPDMA QUEUED>>