

Title:

Abstract:

Marketing No.:

Revision Date:

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defined.

Document No.:

Detailed Revision History

Revision	Revision Date	Prepared By	Details of Change
5	August 2017	Alex Cochran Disha Bhardwaj	<ul style="list-style-type: none">- Added "Table 22 Reference and Power Filtering Pin Description" to the pin description section. Refer to the hardware design guide for components and connections required for the power filtering pins.- Internal Updated "Table 84 Normal Operating Voltages" with complete list of pins for the AVD_0V8, A-VD_1V8, and VDDO_1V8 power domains.- Added bootstrap option pins BEN, BST[1:0], CBT[2:0], MSE, MSM, MSR, NEN to "Table 3 DIGI-G5 Device Interface Pin Description".- Changed software API names to reflect development 1.0.0 release of the DIGI-G5 Device Family Software Development Kit (SDK).- Added test point receive and transmit pins to "Table 3 DIGI-G5 Device Interface Pin Description".
4	August 2017	Alex Cochran Disha Bhardwaj	<ul style="list-style-type: none">- Added "Table 22 Reference and Power Filtering Pin Description" to the pin description section. Refer to the hardware design guide for components and connections required for the power filtering pins.- Internal Updated "Table 84 Normal Operating Voltages" with complete list of pins for the AVD_0V8, A-VD_1V8, and VDDO_1V8 power domains.- Added bootstrap option pins BEN, BST[1:0], CBT[2:0], MSE, MSM, MSR, NEN to "Table 3 DIGI-G5 Device Interface Pin Description".- Changed software API names to reflect development 1.0.0 release of the DIGI-G5 Device Family Software Development Kit (SDK).- Added test point receive and transmit pins to "Table 3 DIGI-G5 Device Interface Pin Description".
3	February 2017	Alex Cochran	<ul style="list-style-type: none">- Increased number of SERDES on Bank C from 20 to 24.- Indicated lane order reversal of SERDES Bank A on Device PCB Floor Planning Diagram.- Added ODUjk mux 100G Capacity Resource tables for 600G and 500G modes of operation.- Updated text and diagrams to show support for 24x10GE.
2	January 2017	Alex Cochran	<ul style="list-style-type: none">- Removed references to PM6012 and PM6013.- Removed support for SSPRQ, JP03A and JP03B SerDes patterns to align with standards.
1	November 2016	Alex Cochran	First release.



Notice Test

The RCP (Ring Control Port) interface has two separate RCPs:

- Remote Information RCP (RI_RCP)
- Defect Information RCP (DI_RCP)

The *receive and transmit RI_RCP* carries BDI/BEI/BIAE bits from the sink framers and the APS/PCC bytes. The *DI_RCP* transmits defects and alarms. RI_RCP is standard XFI running at 10.3125 Gbps and DI_RCP is standard SGMII (Serial Gigabit Media Independent Interfaces) running at 1.25 Gbps. See [ODU Ring Control Port Block \(ODU_RCP\)](#)

SERDES P/N signals can be swapped on a per lane basis. Independent configuration for P/N swap in the Tx and Rx direction is supported.

The frame format is described in [ODU Ring Control Port Block \(ODU_RCP\)](#) for both RI_RCP and DI_RCP.

The signals use M10 family SERDES from the Multimode SERDES at 10Gbps cell set. For details, see [1](#). Note also that the M10 SERDES are synchronous to the PCIE_REFCLK reference clock.

Note that the M10 SERDES does not provide the register configurability to swap the polarity of the Transmit P/N data and Receive P/N data signals. The Tx PCS for this interface does not have the ability to change the polarity of P/N, however the Rx PCS does have the capability to swap the polarity of P/N.

Table 1 • DIGI-G5 OTN Ring Control Port Interface Pin Description

Pin Name	Type	Function
RI_RCP_RXI_P/N	Input	Remote Information Ring Control Port Slice XFI Receive M10 SERDES, XFI mode
RI_RCP_TXO_P/N	Output	Remote Information Ring Control Port Slice XFI Transmit M10 SERDES, XFI mode
DI_RCP_RXI_P/N	Input	Defect Information Ring Control Port Slice SGMII Receive M10 SERDES, SGMII mode
DI_RCP_TXO_P/N	Output	Defect Information Ring Control Port Slice SGMII Transmit M10 SERDES, SGMII mode

Preface Test

The RCP (Ring Control Port) interface has two separate RCPs:

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Table 2 • DIGI-G5 OTN Ring Control Port Interface Pin Description

Pin Name	Type	Function
RI_RCP_RXI_P/N	Input	Remote Information Ring Control Port Slice XFI Receive M10 SERDES, XFI mode
RI_RCP_TXO_P/N	Output	Remote Information Ring Control Port Slice XFI Transmit M10 SERDES, XFI mode
DI_RCP_RXI_P/N	Input	Defect Information Ring Control Port Slice SGMII Receive M10 SERDES, SGMII mode
DI_RCP_TXO_P/N	Output	Defect Information Ring Control Port Slice SGMII Transmit M10 SERDES, SGMII mode

Preface Test

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Table 3 • DIGI-G5 OTN Ring Control Port Interface Pin Description

Pin Name	Type	Function
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RI_RCP_TXO_P/N	Output	Remote Information Ring Control Port Slice XFI Transmit M10 SERDES, XFI mode
DI_RCP_RXI_P/N	Input	Defect Information Ring Control Port Slice SGMII Receive M10 SERDES, SGMII mode
DI_RCP_TXO_P/N	Output	Defect Information Ring Control Port Slice SGMII Transmit M10 SERDES, SGMII mode

Table of Contents

Preface Test.....	iii
Preface Test.....	iii
Glossary.....	10
1 Introduction.....	1
1.1 Revision History.....	2
2 Figure List.....	4
3 Table List.....	5
4 Titles.....	6
4.1 Index Entries in Titles	6
4.2 Diffed Text New Delete	6
5 Tables.....	7
5.1 Table Specializations.....	7
5.2 Vertical Table Cells, Color Table Cells.....	9
5.3 This is a topic with no content.....	9
5.4 Hyphenate Table Entries.....	9
5.5 Table Notes.....	9
5.6 Vertical Table Cells, Color Table Cells.....	10
5.7 ChoiceTable.....	10
5.8 This a topic with comments.....	10
6 Lists.....	11
6.1 Nested Lists.....	11
6.2 Figures for generating the Figure List.....	12
7 Xrefs.....	13
7.1 Xrefs.....	13
8 Numbering Issues to Note.....	14
9 Global.....	15
9.1 PageBreak.....	15
9.2 Global Issues.....	15
9.3 Nested Chapter 1.....	15
9.3.1 Nested Topic 1.....	15
9.4 Nested Chapter 2.....	15
10 Inline.....	16
10.1 Color Text.....	16
11 Diffing.....	17
11.1 This should show up as added.....	17
12 Topic Types.....	18
12.1 General Task.....	18
12.2 This is a strict task.....	18
13 This one.....	19

13.1 Filter Test.....	20
Appendix A This is an appendix.....	21
A.1 Multi Topic Topic.....	21
FlashAddrFormat.....	21
FlashChannelConfigUpdate.....	21
FlashEccContextInfoUpdate.....	26
EccContextData.....	27
FlashTimingParamUpdate.....	27
FlashPowerCreditUpdate.....	29
FlashDynamicUpdate.....	30
Appendix B This is an appendix.....	33
B.1 Multi Topic Topic.....	33
FlashAddrFormat.....	33
FlashChannelConfigUpdate.....	33
FlashEccContextInfoUpdate.....	38
EccContextData.....	39
FlashTimingParamUpdate.....	39
FlashPowerCreditUpdate.....	41
FlashDynamicUpdate.....	42

Figures

Figure 4-1 • A codeblock within a figure.....	6
Figure 6-2 • Figure 1 New Delete	12
Figure 6-3 • Figure 2.....	12
Figure 6-4 • Figure 3.....	12
Figure 6-5 • Figure 4.....	12
Figure 6-6 • Figure 5.....	12

Tables

Table 1 • DIGI-G5 OTN Ring Control Port Interface Pin Description.....	ii
Table 2 • DIGI-G5 OTN Ring Control Port Interface Pin Description.....	iii
Table 3 • DIGI-G5 OTN Ring Control Port Interface Pin Description.....	iv
Table 1-4 • Features Tested.....	1
Table 4-5 • Diffed Table TextNewDelete.....	6
Table 5-6 •	7
Table 5-7 • Message Dword Table - MSG-DESCRIPTION.....	7
Table 5-8 • Includes.....	7
Table 5-9 • REGISTER-NAME - REGISTER-DESCRIPTION.....	7
Table 5-10 • Device Table.....	7
Table 5-11 • Testnameshort - Testnamelong.....	7
Table 5-12 • -	8
Table 5-13 •	9
Table 5-14 • This is the title of the hyphenation table.....	9
Table 5-15 • This is the title of the notable table.....	9
Table 5-16 •	10
Table A-24 • FlashAddrFormat.....	33
Table A-25 • FlashChannelConfigUpdate.....	33
Table A-26 • FlashEccContextInfoUpdate.....	38
Table A-27 • EccContextData.....	39
Table A-28 • FlashTimingParamUpdate.....	39
Table A-29 • FlashPowerCreditUpdate.....	41
Table A-30 • FlashDynamicUpdate.....	42
Table B-24 • FlashAddrFormat.....	33
Table B-25 • FlashChannelConfigUpdate.....	33
Table B-26 • FlashEccContextInfoUpdate.....	38
Table B-27 • EccContextData.....	39
Table B-28 • FlashTimingParamUpdate.....	39
Table B-29 • FlashPowerCreditUpdate.....	41
Table B-30 • FlashDynamicUpdate.....	42

Index

T

Term [v](#)

Another Term [v](#)

Glossary

This is a term
This is a definition.

1 Introduction

This document is simply a collection of publishing scenarios to test the publishing of the external DITA-OT

Table 1-4 • Features Tested

Category	Feature	Pass/Fail PDF	Pass/Fail HTML	Pass/Fail Java-help
Titles	Filtering index entries from titles	pass	pass	pass
	Adding/Deleted Text in generated titles	pass	pass	
Tables	Vertical table cells	pass	fail	fail
	Color table cells	pass	pass	pass
	Register Description Tables	pass	pass	
	Message Dword Tables	pass	pass	
	Software Register Table	pass	pass	
	Software Address Table	pass	pass	
	Test Plan Table	pass	pass	
	Test Matrix Table	pass	pass	
	Revision History	pass	pass	
	Revision History in Sections rather than Table			
	Hyphenate Table entries	pass	n/a	
	Notes within tables (tablenotes)	pass	pass	
	Choicetable formatting	pass	pass	
	Table of comments	pass		
	Table of changes	pass		
	Multiple Table Formats	pass		
Lists	Includes Lists		pass	
	Different bullets for different list levels	pass	pass	
	Different number formats for different list levels.	pass	pass	
	Figure List	pass	pass	
	Table List	pass	pass	
Xrefs	User-defined Xref Text	pass	pass	

Category	Feature	Pass/Fail PDF	Pass/Fail HTML	Pass/Fail Java-help
	Xref Templates			
Numbering	Define-able topic numbering levels			
	Preface/Notice/Chapter/Appendix numbering TOC	pass	n/a	
	Preface/Notice/Chapter/Appendix numbering Body	pass	n/a	
	Roman numbering in frontmatter	pass	n/a	
	Start Page Numbering from Body	pass	n/a	
	Prevent revision tables from showing up in the table count	pass	n/a	
Global	Watermark			
	PDF Password		n/a	
	Label Localization			
	Page breaks			
	Showcomments	pass		
	Path to Source			
	PDF properties			
	Nested Ditamaps	pass	pass	pass
Topic	Legal to the back page	pass	n/a?	
	Preface Topics	pass	pass	
	Multiple Topics in a single topic	pass	pass	
Inline	Color phrases	pass	pass	
Diffing	Driving map-level diffing down to the topic level	pass		

1.1 Revision History

Revision 4

Revision 4 was published in August 2017. The following is a summary of the changes in revision 4 of this document.

- Added "Table 22 Reference and Power Filtering Pin Description" to the pin description section. Refer to the hardware design guide for components and connections required for the power filtering pins.
- Added bootstrap option pins BEN, BST[1:0], CBT[2:0], MSE, MSM, MSR, NEN to "Table 3 DIGI-G5 Device Interface Pin Description".

- Changed software API names to reflect development 1.0.0 release of the DIGI-G5 Device Family Software Development Kit (SDK).
- Added test point receive and transmit pins to "Table 3 DIGI-G5 Device Interface Pin Description".

Revision 3

Revision 3 was published in February 2017. The following is a summary of the changes in revision 3 of this document.

- Increased number of SERDES on Bank C from 20 to 24.
- Indicated lane order reversal of SERDES Bank A on Device PCB Floor Planning Diagram.
- Added ODUjk mux 100G Capacity Resource tables for 600G and 500G modes of operation.
- Updated text and diagrams to show support for 24x10GE.

Revision 2

Revision 2 was published in January 2017. The following is a summary of the changes in revision 2 of this document.

- Removed references to PM6012 and PM6013.
- Removed support for SSPRQ, JP03A and JP03B SerDes patterns to align with standards.

Revision 1

Revision 1 was published in November 2016. The following is a summary of the changes in revision 1 of this document.

First release.

2 Figure List

Web

Web

3 Table List

Web

Web

4 Titles

4.1 Index Entries in Titles

These need to be eliminated going forward, but the scripts have to be able to deal with existing ones gracefully.

4.2 Diffed TextNewDelete

The Non-Transparent Endpoint (NT EP) offers access to Switchtec's Non-Transparent Bridge (NTB) through mapping windows in the NT EP's Memory Space. It is presented to the RC as function 0 of the upstream port when the USP port mode is NT EP only, or as function 1 in the upstream port when the USP port mode supports transparent switching, as well. The following sections outline the details of the non-transparent endpoint.

Table 4-5 • Diffed Table TextNewDelete

Figure 4-1 • A codeblock within a figure.

```
This is a codeblock
This is a codeblock
This is a codeblock
This is a codeblock
```

5 Tables

5.1 Table Specializations

[Table 7 • Message Dword Table - MSG-DESCRIPTION](#) on page 7

Table 5-6 •

Address	Size	Name	Details
0x2000	4	Name	Table 7 • Message Dword Table - MSG-DESCRIPTION

Table 5-7 • Message Dword Table - MSG-DESCRIPTION

Dword	Position	Name	Description
1		Name	Title VALUE [NAME] Definition.
2	4	Name2	Description

Table 5-8 • Includes

Name	Description
stdtypes.h	Type definitions required for auto header generation.

Table 5-9 • REGISTER-NAME - REGISTER-DESCRIPTION

Bit Field	Field Name	Type	Default Value	Description
31: 1	FieldName	RW1C STICKY	0x12	Title VALUE [NAME] Definition.
0	FieldName2	RW1C STICKY	0x0	

Table 5-10 • Device Table

Offset Address	Mnemonic/Prefix	Register/Device Description
0x2000	Table 9 • REGISTER-NAME - REGISTER-DESCRIPTION	This is the description
0x2000	Prefix: Table 9 • REGISTER-NAME - REGISTER-DESCRIPTION	This is the description

Table 5-11 • Testnameshort - Testnamelong

Category	Content
Owner	Owner

Category	Content
Priority	Priority
Description	Description
Procedure	Procedure
Expected Results	Expected Results
Schedule Estimate	Schedule Estimate
Schedule Actual	Schedule Actual
Result	Result
Firmware	Firmware
Hardware	Hardware
Notes	Notes
Requirements	Requirements
Misc.	Misc.

Table 5-12 • -

this/that	that	that	that	that	that
this					
this					
this					
this					
this					
this					

5.2 Vertical Table Cells, Color Table Cells

Table 5-13 •

This is another paragraph.	Vertical		
Red Cell			
Orange Row	Vertical Cell		

5.3 This is a topic with no content

5.4 Hyphenate Table Entries

Table 5-14 • This is the title of the hyphenation table

Hyphenate	Heading	Heading
THIS_IS_1 234_HARD	Cell	Cell
THISISALO- NGER_PN- AME	Cell	Cell Note: This is a note in a table. This makes this a notable table indeed.

5.5 Table Notes

Table 5-15 • This is the title of the notable table

Heading	Heading
Cell	Cell
Cell	Cell

Heading	Heading
	Note: This is a note in a table. This makes this a notable table indeed.

5.6 Vertical Table Cells, Color Table Cells

Table 5-16 •

Vertical This is another paragraph.	Vertical
Red Cell	
Orange Row	Vertical Cell

5.7 ChoiceTable

1. This is a step.

Option

Description

Option 1

Description of the option

Option 2

Description of the option

Option 3

Description of the option

2. This is another step.

5.8 This a topic with comments

6 Lists

6.1 Nested Lists

- This is a bullet.
 - This is another bullet.
 - This is yet another bullet.
1. This is a numbered item.
 - a. This is another numbered item.
 - i. This is yet another item.
- This is a bullet.
 - This is another bullet.
 - This is yet another bullet.
1. This is a numbered item.
 - This is a bullet.
 - This is another bullet.
 - This is yet another bullet.
- a. This is another numbered item.
 - This is a bullet.
 - This is another bullet.
 - This is yet another bullet.
- i. This is yet another item.
- b. This is another numbered item.
 - This is a bullet.
 - This is another bullet.
 - This is yet another bullet.
- i. This is another numbered item.
 - This is a bullet.
 - This is another bullet.
 - This is yet another bullet.
- A. This is yet another item.
- ii. This is another numbered item.
 - This is a bullet.
 - This is another bullet.
 - This is yet another bullet.
- A. This is yet another item.

- i. This is yet another item.

6.2 Figures for generating the Figure List

Figure 6-2 • Figure 1 New~~Delete~~



Figure 6-3 • Figure 2



Figure 6-4 • Figure 3



Figure 6-5 • Figure 4



Figure 6-6 • Figure 5



7 Xrefs

7.1 Xrefs

This is nothing here yet. *is this a term?*

Link with a user supplied value: [Global Issues](#).

Link without a user supplied value (pagebreak): [PageBreak](#) on page 15

8 Numbering Issues to Note

1. Prefaces should be unnumbered in the body and the TOC.
2. Topic Level Numbering should be define-able.
3. Appendix numbering is it letters
4. Page numbering should restart at the beginning of the first chapter.
5. Frontmatter numbering is in Roman numerals.
6. Revision tables should not show up in the list of tables or the total count of tables.

9 Global

9.1 PageBreak

This topic should start on a new page.

9.2 Global Issues

Things to check for:

1. Watermark
2. Password
3. Page Break
4. Showcomments
5. Embedded PDF properties

9.3 Nested Chapter 1

9.3.1 Nested Topic 1

The ditamap publishing should throw a warning when the Format attribute is not set.

9.4 Nested Chapter 2

10 Inline

10.1 Color Text

This is a color text.

11 Diffing

11.1 This should show up as added

This should show up as added.

This should show up as added.

12 Topic Types

12.1 General Task

This is context.

This is a prereq.

This is an imformal step

This is another paragraph.

This is the result

12.2 This is a strict task

1. This is a step

2. This is another step

3. This is another step.

Option

choice 1

choice 2

choice 3

Description

Description

Description

13 This one.

audience

MSCCInternal

ROWROW**ROW**

media

PDFpdf**PDF**

Webweb**Web**

pmc_package

HiPorthiport**HiPort**

LoPortlowport**LoPort**

pmc_phy

Phy24phy24**Phy24**

Phy48phy48**Phy48**

Phy80phy80**Phy80**

Phy32py32**Phy32**

Phy64phy64**Phy64**

Phy96phy96**Phy96**

pmc_switch

advanced

encl-mgmt-d

fanout-d

Encl_mgmtencl-mgmt**Encl_mgmt**

Fanoutfanout**Fanout**

Component

sEncryption

HBA_MODE

PCIE_Switch

Green_Backup

OSSP_FCM

ddr-width

DDR_40b

DDR_72b

pcie-drive-ports

DRIVE_x16

DRIVE_x32

DRIVE_x4

DRIVE_x8

Package

MCM

pcie-host-ports

HOST_x16

HOST_x4

HOST_x8

pcie-lanes

x16

x32

raid-support

RAID_all

RAID_limited

SAS_x16

sas-ports

SAS_x32

SAS_x4

SAS_x8

13.1 Filter Test

ROW AllCust End_mgmt Fanout HiPort LoPort Phy24 Phy32 Phy48 Phy Web PDF Phy96 Phy80 Phy64 Phy48 Phy32 Phy24 LoPort HiPort Fanout End_mgmt AllCust ROW

A This is an appendix

A.1 Multi Topic Topic

The following sections describe the format of the IPC messages used to communicate with flash interface.0flash_interface_messages

FlashAddrFormat

Format of flash address used in flash interface IPC messages is not fixed and varies with flash geometry. The following table describes the flash address format.

Table A-17 • FlashAddrFormat

DWord	Position	Name	Description
0	6: 0	pageNum	Page Number Based on number of pages in a flash block, number of bits allocated for page number will change.
0	19: 7	blockNum	Block Number Based on number of blocks in a flash LUN, number of bits allocated for block number will change.
0	23: 20	lunNum	Lun Number Based on number of LUNs in a flash target, number of bits allocated for LUN number will change.
0	31: 24	reserved	Reserved

FlashChannelConfigUpdate

This message is sent to update flash channel configuration information.

Table A-18 • FlashChannelConfigUpdate

DWord	Position	Name	Description
0	7: 0	msgType	Message type This field encodes the request message type. The value of this field is microcode specific. <ul style="list-style-type: none"> 1 (Read) Flash Read 2 (Write) Flash Write 3 (Erase) Flash Block Erase 4 (Continue) Flash Continuous Request 5 (FlashConfig) Flash Configuration update 6 (ReadParamPg) Flash Read Parameter Page 7 (ReadId) Flash Read Id 8 (SetFeature) Flash Set Feature 9 (GetFeature) Flash Get Feature
0	11: 8	cntxt	Flash Channel Queue This field encodes the Flash channel queue associated with this message request.
0	16: 12	chan	Flash Channel This field encodes the Flash channel associated with this message request.

DWord	Position	Name	Description
0	31: 17	reserved	Reserved
1	1: 0	reserved	Reserved
1	18: 2	chMsgNodeAddr	Chained Message Node Address This field contains the node address of the next request message in the message chain. A value of zero in this field indicates that this is the last message of a message chain.
1	19	chain	Chained Message When this bit is set, the request message is part of a chained message and is not the last message in the message chain. The address of the next request message in the message chain is specified by the chMsgNodeAddr field.
1	23: 20	reserved	Reserved
1	27: 24	outMsgQ	Outbound Message Queue This field specifies the index of Flash completion outbound message queue to be used by this message.
1	31: 28	reserved	Reserved
3:2	31: 0	tag	Tag This field contains opaque data that is passed from the request to the corresponding completion.
4	3: 0	subMsgType	Sub Message type This field encodes the request sub message type. The value of this field is microcode specific. <ul style="list-style-type: none"> • 1 (ChannelConfig) Flash Channel Configuration update • 2 (ECCContextInfo) Flash ECC Context information update • 3 (TimerParam) Flash Timing Parameter update • 4 (PowerCredit) Flash Power Credit update • 5 (Dynamic) Flash Dynamic Parameters update
4	8: 4	numContext	Number of contexts Number of contexts per flash channel. The flash channel processor support 16 contexts allowing up to 16 flash logical units to perform read/program/erase operations in parallel.
4	12: 9	numLun	Number of LUNs Number of LUNs per CE.
4	18: 13	lunBitPosition	LUN Bit Position LUN bit position in flash address.
4	31: 19	reserved	Reserved
5	15: 0	pageSize	Page Size Flash page size including the spares in DWords
5	31: 16	reserved	Reserved
6	3: 0	_1stContext	First Context Number First context number in flash channel controller.

DWord	Position	Name	Description
6	7: 4	_1stContextCE	First Context CE Number Chip enable mapped to the first context
6	11: 8	_1stContextLun	First Context LUN Number First Context LUN number within first context CE
6	15: 12	reserved	Reserved.
6	19: 16	_2ndContext	Second Context Number Second Context number in flash channel controller.
6	23: 20	_2ndContextCE	Second Context CE Number Chip enable mapped to the second context
6	27: 24	_2ndContextLun	Second Context LUN Number Second Context LUN number within second context CE
6	31: 28	reserved	Reserved.
7	3: 0	_3rdContext	Third Context Number Third Context in flash channel controller.
7	7: 4	_3rdContextCE	Third Context CE Number Chip enable mapped to the third context
7	11: 8	_3rdContextLun	Third Context LUN Number Third Context LUN number within third context CE
7	15: 12	reserved	Reserved.
7	19: 16	_4thContext	Fourth Context Number Fourth Context in flash channel controller.
7	23: 20	_4thContextCE	Fourth Context CE Number Chip enable mapped to the first context
7	27: 24	_4thContextLun	Fourth Context LUN Number Fourth Context LUN number within fourth context CE
7	31: 28	reserved	Reserved.
8	3: 0	_5thContext	Fifth Context Number Fifth Context in flash channel controller.
8	7: 4	_5thContextCE	Fifth Context CE Number Chip enable mapped to the first context
8	11: 8	_5thContextLun	Fifth Context LUN Number Fifth Context LUN number within fifth context CE
8	15: 12	reserved	Reserved.
8	19: 16	_6thContext	Sixth Context Number Sixth Context in flash channel controller.

DWord	Position	Name	Description
8	23: 20	_6thContextCE	Sixth Context CE Number Chip enable mapped to the sixth context
8	27: 24	_6thContextLun	Sixth Context LUN Number Sixth Context LUN number within sixth context CE
8	31: 28	reserved	Reserved.
9	3: 0	_7thContext	Seventh Context Number Seventh Context in flash channel controller.
9	7: 4	_7thContextCE	Seventh Context CE Number Chip enable mapped to the seventh context
9	11: 8	_7thContextLun	Seventh Context LUN Number Seventh Context LUN number within seventh context CE
9	15: 12	reserved	Reserved.
9	19: 16	_8thContext	Eighth Context Number Eighth Context in flash channel controller.
9	23: 20	_8thContextCE	Eighth Context CE Number Chip enable mapped to the eighth context
9	27: 24	_8thContextLun	Eighth Context LUN Number Eighth Context LUN number within eighth context CE
9	31: 28	reserved	Reserved.
10	3: 0	_9thContext	Ninth Context Number Ninth Context in flash channel controller.
10	7: 4	_9thContextCE	Ninth Context CE Number Chip enable mapped to the ninth context
10	11: 8	_9thContextLun	Ninth Context LUN Number Ninth Context LUN number within ninth context CE
10	15: 12	reserved	Reserved.
10	19: 16	_10thContext	Tenth Context Number Tenth Context in flash channel controller.
10	23: 20	_10thContextCE	Tenth Context CE Number Chip enable mapped to the tenth context
10	27: 24	_10thContextLun	Tenth Context LUN Number Tenth Context LUN number within tenth context CE
10	31: 28	reserved	Reserved.
11	3: 0	_11thContext	Eleventh Context Number Eleventh Context in flash channel controller.

DWord	Position	Name	Description
11	7: 4	_11thContextCE	Eleventh Context CE Number Chip enable mapped to the eleventh context
11	11: 8	_11thContextLun	Eleventh Context LUN Number Eleventh Context LUN number within eleventh context CE
11	15: 12	reserved	Reserved.
11	19: 16	_12thContext	Twelfth Context Number Twelfth Context in flash channel controller.
11	23: 20	_12thContextCE	Twelfth Context CE Number Chip enable mapped to the twelfth context
11	27: 24	_12thContextLun	Twelfth Context LUN Number Twelfth Context LUN number within twelfth context CE
11	31: 28	reserved	Reserved.
12	3: 0	_13thContext	Thirteenth Context Number Thirteenth Context in flash channel controller.
12	7: 4	_13thContextCE	Thirteenth Context CE Number Chip enable mapped to the thirteenth context
12	11: 8	_13thContextLun	Thirteenth Context LUN Number Thirteenth Context LUN number within thirteenth context CE
12	15: 12	reserved	Reserved.
12	19: 16	_14thContext	Fourteenth Context Number Fourteenth Context in flash channel controller.
12	23: 20	_14thContextCE	Fourteenth Context CE Number Chip enable mapped to the fourteenth context
12	27: 24	_14thContextLun	Fourteenth Context LUN Number Fourteenth Context LUN number within fourteenth context CE
12	31: 28	reserved	Reserved.
13	3: 0	_15thContext	Fifteenth Context Number Fifteenth Context in flash channel controller.
13	7: 4	_15thContextCE	Fifteenth Context CE Number Chip enable mapped to the fifteenth context
13	11: 8	_15thContextLun	Fifteenth Context LUN Number Fifteenth Context LUN number within fifteenth context CE
13	15: 12	reserved	Reserved.
13	19: 16	_16thContext	Sixteenth Context Number Sixteenth Context number in flash channel controller.

DWord	Position	Name	Description
13	23: 20	_16thContextCE	Sixteenth Context CE Number Chip enable mapped to the sixteenth context
13	27: 24	_16thContextLun	Sixteenth Context LUN Number Sixteenth Context LUN number within sixteenth context CE
13	31: 28	reserved	Reserved.
15:14	31: 0	reserved	Reserved

FlashEccContextInfoUpdate

This message is sent to update flash ECC context information such as ECC chunk size and protected data size. This message will be repeated until ECC context data is provided for all ECC contexts.

Table A-19 • FlashEccContextInfoUpdate

DWord	Position	Name	Description
0	7: 0	msgType	Message type This field encodes the request message type. The value of this field is microcode specific. <ul style="list-style-type: none"> • 1 (Read) Flash Read • 2 (Write) Flash Write • 3 (Erase) Flash Block Erase • 4 (Continue) Flash Continuous Request • 5 (FlashConfig) Flash Configuration update • 6 (ReadParamPg) Flash Read Parameter Page • 7 (ReadId) Flash Read Id • 8 (SetFeature) Flash Set Feature • 9 (GetFeature) Flash Get Feature
0	11: 8	cntxt	Flash Channel Queue This field encodes the Flash channel queue associated with this message request.
0	16: 12	chan	Flash Channel This field encodes the Flash channel associated with this message request.
0	31: 17	reserved	Reserved
1	1: 0	reserved	Reserved
1	18: 2	chMsgNodeAddr	Chained Message Node Address This field contains the node address of the next request message in the message chain. A value of zero in this field indicates that this is the last message of a message chain.
1	19	chain	Chained Message When this bit is set, the request message is part of a chained message and is not the last message in the message chain. The address of the next request message in the message chain is specified by the chMsgNodeAddr field.
1	23: 20	reserved	Reserved
1	27: 24	outMsgQ	Outbound Message Queue

DWord	Position	Name	Description
			This field specifies the index of Flash completion outbound message queue to be used by this message.
1	31: 28	reserved	Reserved
3:2	31: 0	tag	Tag This field contains opaque data that is passed from the request to the corresponding completion.
4	3: 0	subMsgType	Sub Message type This field encodes the request sub message type. The value of this field is microcode specific. <ul style="list-style-type: none"> 1 (ChannelConfig) Flash Channel Configuration update 2 (ECCContextInfo) Flash ECC Context information update 3 (TimerParam) Flash Timing Parameter update 4 (PowerCredit) Flash Power Credit update 5 (Dynamic) Flash Dynamic Parameters update
4	7: 4	numEntries	Number of ECC Context Data entries. This field indicates number of ECC context data entries are valid.
4	31: 8	reserved	Reserved
15:5	31: 0	eccContextData	ECC Context Data This field contain ECC context data such as context number, protected data size, and ECC chunk size.

EccContextData

Format of ECC context data used in FlashECCContextInfoUpdate message.

Table A-20 • EccContextData

DWord	Position	Name	Description
0	3: 0	eccContextNum	ECC Context Number
0	17: 4	eccChunkSize	ECC Chunk Size This field contains ECC chunk size in DWords for given ECC context number
0	31: 18	protectedDataSize	Protected Data Size. This field contains protected data size in DWords for given ECC context number.

FlashTimingParamUpdate

This message is sent to update flash timing parameters.

Table A-21 • FlashTimingParamUpdate

DWord	Position	Name	Description
0	7: 0	msgType	Message type This field encodes the request message type. The value of this field is microcode specific. <ul style="list-style-type: none"> 1 (Read) Flash Read

DWord	Position	Name	Description
			<ul style="list-style-type: none"> • 2 (Write) Flash Write • 3 (Erase) Flash Block Erase • 4 (Continue) Flash Continuous Request • 5 (FlashConfig) Flash Configuration update • 6 (ReadParamPg) Flash Read Parameter Page • 7 (ReadId) Flash Read Id • 8 (SetFeature) Flash Set Feature • 9 (GetFeature) Flash Get Feature
0	11: 8	cntxt	Flash Channel Queue This field encodes the Flash channel queue associated with this message request.
0	16: 12	chan	Flash Channel This field encodes the Flash channel associated with this message request.
0	31: 17	reserved	Reserved
1	1: 0	reserved	Reserved
1	18: 2	chMsgNodeAddr	Chained Message Node Address This field contains the node address of the next request message in the message chain. A value of zero in this field indicates that this is the last message of a message chain.
1	19	chain	Chained Message When this bit is set, the request message is part of a chained message and is not the last message in the message chain. The address of the next request message in the message chain is specified by the chMsgNodeAddr field.
1	23: 20	reserved	Reserved
1	27: 24	outMsgQ	Outbound Message Queue This field specifies the index of Flash completion outbound message queue to be used by this message.
1	31: 28	reserved	Reserved
3:2	31: 0	tag	Tag This field contains opaque data that is passed from the request to the corresponding completion.
4	3: 0	subMsgType	Sub Message type This field encodes the request sub message type. The value of this field is microcode specific. <ul style="list-style-type: none"> • 1 (ChannelConfig) Flash Channel Configuration update • 2 (ECCContextInfo) Flash ECC Context information update • 3 (TimerParam) Flash Timing Parameter update • 4 (PowerCredit) Flash Power Credit update • 5 (Dynamic) Flash Dynamic Parameters update
4	4	timeSel	Timing Select This field selects the Flash Timing (FT) register used for the Flash operations. <ul style="list-style-type: none"> • 0 Timing mode 0 selects FT0xxx timing mode register values • 1 Timing mode 1 selects FT1xxx timing mode register values
4	31: 5	reserved	Reserved

DWord	Position	Name	Description
5	15: 0	dummyBusyTime	Dummy Busy Time This field specifies the dummy busy time (tDBSY) in units of Flash I/O clock cycles.
5	31: 16	clkHigh2RBLowTime	Clock High to R/B Low Time This field specifies the CLK high to R/B low (tWB) in units of Flash I/O clock cycles
6	31: 0	resetTime	Device Reset Time This field specifies the reset time (tRST) in units of Flash I/O clock cycles
7	31: 0	powerOnRstTime	Power on Reset Time This field specifies the Power on reset time (tPOR) in units of Flash I/O clock cycles
8	31: 0	interfaceChangeTime	Interface Change Time This field specifies the busy time to change interface (tITC) in units of Flash I/O clock cycles
15:9	31: 0	reserved	Reserved

FlashPowerCreditUpdate

This message is sent to update flash power credit for different commands. The current power credits are allocated based on the maximum power required for a particular command, in future this can be broken down to smaller granular if needed based on the flash state.

Table A-22 • FlashPowerCreditUpdate

DWord	Position	Name	Description
0	7: 0	msgType	Message type This field encodes the request message type. The value of this field is microcode specific. <ul style="list-style-type: none"> 1 (Read) Flash Read 2 (Write) Flash Write 3 (Erase) Flash Block Erase 4 (Continue) Flash Continuous Request 5 (FlashConfig) Flash Configuration update 6 (ReadParamPg) Flash Read Parameter Page 7 (ReadId) Flash Read Id 8 (SetFeature) Flash Set Feature 9 (GetFeature) Flash Get Feature
0	11: 8	cntxt	Flash Channel Queue This field encodes the Flash channel queue associated with this message request.
0	16: 12	chan	Flash Channel This field encodes the Flash channel associated with this message request.
0	31: 17	reserved	Reserved
1	1: 0	reserved	Reserved
1	18: 2	chMsgNodeAddr	Chained Message Node Address This field contains the node address of the next request message in the message chain. A value of zero in this field indicates that this is the last message of a message chain.

DWord	Position	Name	Description
1	19	chain	Chained Message When this bit is set, the request message is part of a chained message and is not the last message in the message chain. The address of the next request message in the message chain is specified by the chMsgNodeAddr field.
1	23: 20	reserved	Reserved
1	27: 24	outMsgQ	Outbound Message Queue This field specifies the index of Flash completion outbound message queue to be used by this message.
1	31: 28	reserved	Reserved
3:2	31: 0	tag	Tag This field contains opaque data that is passed from the request to the corresponding completion.
4	3: 0	subMsgType	Sub Message type This field encodes the request sub message type. The value of this field is microcode specific. <ul style="list-style-type: none"> • 1 (ChannelConfig) Flash Channel Configuration update • 2 (ECCContextInfo) Flash ECC Context information update • 3 (TimerParam) Flash Timing Parameter update • 4 (PowerCredit) Flash Power Credit update • 5 (Dynamic) Flash Dynamic Parameters update
4	31: 4	reserved	Reserved
5	15: 0	readPowerCredit	Read Power Credit This field specifies the Power units for the Read command, which includes the flash array read power and I/O burst read power.
5	31: 16	programPowerCredit	Program Power Credit This field specifies the Power units for the Program command, which includes the flash array program power and I/O burst read power.
6	15: 0	erasePowerCredit	Erase Power Credit This field specifies the Power units for the Erase command.
6	31: 16	miscPowerCredit	Miscellaneous Power Credit This specifies the maximum power used by any other commands like Read Status, Set feature, Get feature, etc
15:7	31: 0	reserved	Reserved

FlashDynamicUpdate

This message is sent to update flash parameters that can be changed at run time.

Table A-23 • FlashDynamicUpdate

DWord	Position	Name	Description
0	7: 0	msgType	Message type This field encodes the request message type. The value of this field is microcode specific.

DWord	Position	Name	Description
			<ul style="list-style-type: none"> 1 (Read) Flash Read 2 (Write) Flash Write 3 (Erase) Flash Block Erase 4 (Continue) Flash Continuous Request 5 (FlashConfig) Flash Configuration update 6 (ReadParamPg) Flash Read Parameter Page 7 (ReadId) Flash Read Id 8 (SetFeature) Flash Set Feature 9 (GetFeature) Flash Get Feature
0	11: 8	cntxt	Flash Channel Queue This field encodes the Flash channel queue associated with this message request.
0	16: 12	chan	Flash Channel This field encodes the Flash channel associated with this message request.
0	31: 17	reserved	Reserved
1	1: 0	reserved	Reserved
1	18: 2	chMsgNodeAddr	Chained Message Node Address This field contains the node address of the next request message in the message chain. A value of zero in this field indicates that this is the last message of a message chain.
1	19	chain	Chained Message When this bit is set, the request message is part of a chained message and is not the last message in the message chain. The address of the next request message in the message chain is specified by the chMsgNodeAddr field.
1	23: 20	reserved	Reserved
1	27: 24	outMsgQ	Outbound Message Queue This field specifies the index of Flash completion outbound message queue to be used by this message.
1	31: 28	reserved	Reserved
3:2	31: 0	tag	Tag This field contains opaque data that is passed from the request to the corresponding completion.
4	3: 0	subMsgType	Sub Message type This field encodes the request sub message type. The value of this field is microcode specific. <ul style="list-style-type: none"> 1 (ChannelConfig) Flash Channel Configuration update 2 (ECCContextInfo) Flash ECC Context information update 3 (TimerParam) Flash Timing Parameter update 4 (PowerCredit) Flash Power Credit update 5 (Dynamic) Flash Dynamic Parameters update
4	31: 4	reserved	Reserved
5	15: 0	highPriorPollLimit	High Priority Poll Limit This field specifies the poll limit for the high priority message processing.
5	31: 16	reserved	Reserved

DWord	Position	Name	Description
15:6	31: 0	reserved	Reserved

B This is an appendix

B.1 Multi Topic Topic

The following sections describe the format of the IPC messages used to communicate with flash interface.0flash_interface_messages

FlashAddrFormat

Format of flash address used in flash interface IPC messages is not fixed and varies with flash geometry. The following table describes the flash address format.

Table B-24 • FlashAddrFormat

DWord	Position	Name	Description
0	6: 0	pageNum	Page Number Based on number of pages in a flash block, number of bits allocated for page number will change.
0	19: 7	blockNum	Block Number Based on number of blocks in a flash LUN, number of bits allocated for block number will change.
0	23: 20	lunNum	Lun Number Based on number of LUNs in a flash target, number of bits allocated for LUN number will change.
0	31: 24	reserved	Reserved

FlashChannelConfigUpdate

This message is sent to update flash channel configuration information.

Table B-25 • FlashChannelConfigUpdate

DWord	Position	Name	Description
0	7: 0	msgType	Message type This field encodes the request message type. The value of this field is microcode specific. <ul style="list-style-type: none"> 1 (Read) Flash Read 2 (Write) Flash Write 3 (Erase) Flash Block Erase 4 (Continue) Flash Continuous Request 5 (FlashConfig) Flash Configuration update 6 (ReadParamPg) Flash Read Parameter Page 7 (ReadId) Flash Read Id 8 (SetFeature) Flash Set Feature 9 (GetFeature) Flash Get Feature
0	11: 8	cntxt	Flash Channel Queue This field encodes the Flash channel queue associated with this message request.
0	16: 12	chan	Flash Channel This field encodes the Flash channel associated with this message request.

DWord	Position	Name	Description
0	31: 17	reserved	Reserved
1	1: 0	reserved	Reserved
1	18: 2	chMsgNodeAddr	Chained Message Node Address This field contains the node address of the next request message in the message chain. A value of zero in this field indicates that this is the last message of a message chain.
1	19	chain	Chained Message When this bit is set, the request message is part of a chained message and is not the last message in the message chain. The address of the next request message in the message chain is specified by the chMsgNodeAddr field.
1	23: 20	reserved	Reserved
1	27: 24	outMsgQ	Outbound Message Queue This field specifies the index of Flash completion outbound message queue to be used by this message.
1	31: 28	reserved	Reserved
3:2	31: 0	tag	Tag This field contains opaque data that is passed from the request to the corresponding completion.
4	3: 0	subMsgType	Sub Message type This field encodes the request sub message type. The value of this field is microcode specific. <ul style="list-style-type: none"> • 1 (ChannelConfig) Flash Channel Configuration update • 2 (ECCContextInfo) Flash ECC Context information update • 3 (TimerParam) Flash Timing Parameter update • 4 (PowerCredit) Flash Power Credit update • 5 (Dynamic) Flash Dynamic Parameters update
4	8: 4	numContext	Number of contexts Number of contexts per flash channel. The flash channel processor support 16 contexts allowing up to 16 flash logical units to perform read/program/erase operations in parallel.
4	12: 9	numLun	Number of LUNs Number of LUNs per CE.
4	18: 13	lunBitPosition	LUN Bit Position LUN bit position in flash address.
4	31: 19	reserved	Reserved
5	15: 0	pageSize	Page Size Flash page size including the spares in DWords
5	31: 16	reserved	Reserved
6	3: 0	_1stContext	First Context Number First context number in flash channel controller.

DWord	Position	Name	Description
6	7: 4	_1stContextCE	First Context CE Number Chip enable mapped to the first context
6	11: 8	_1stContextLun	First Context LUN Number First Context LUN number within first context CE
6	15: 12	reserved	Reserved.
6	19: 16	_2ndContext	Second Context Number Second Context number in flash channel controller.
6	23: 20	_2ndContextCE	Second Context CE Number Chip enable mapped to the second context
6	27: 24	_2ndContextLun	Second Context LUN Number Second Context LUN number within second context CE
6	31: 28	reserved	Reserved.
7	3: 0	_3rdContext	Third Context Number Third Context in flash channel controller.
7	7: 4	_3rdContextCE	Third Context CE Number Chip enable mapped to the third context
7	11: 8	_3rdContextLun	Third Context LUN Number Third Context LUN number within third context CE
7	15: 12	reserved	Reserved.
7	19: 16	_4thContext	Fourth Context Number Fourth Context in flash channel controller.
7	23: 20	_4thContextCE	Fourth Context CE Number Chip enable mapped to the first context
7	27: 24	_4thContextLun	Fourth Context LUN Number Fourth Context LUN number within fourth context CE
7	31: 28	reserved	Reserved.
8	3: 0	_5thContext	Fifth Context Number Fifth Context in flash channel controller.
8	7: 4	_5thContextCE	Fifth Context CE Number Chip enable mapped to the first context
8	11: 8	_5thContextLun	Fifth Context LUN Number Fifth Context LUN number within fifth context CE
8	15: 12	reserved	Reserved.
8	19: 16	_6thContext	Sixth Context Number Sixth Context in flash channel controller.

DWord	Position	Name	Description
8	23: 20	_6thContextCE	Sixth Context CE Number Chip enable mapped to the sixth context
8	27: 24	_6thContextLun	Sixth Context LUN Number Sixth Context LUN number within sixth context CE
8	31: 28	reserved	Reserved.
9	3: 0	_7thContext	Seventh Context Number Seventh Context in flash channel controller.
9	7: 4	_7thContextCE	Seventh Context CE Number Chip enable mapped to the seventh context
9	11: 8	_7thContextLun	Seventh Context LUN Number Seventh Context LUN number within seventh context CE
9	15: 12	reserved	Reserved.
9	19: 16	_8thContext	Eighth Context Number Eighth Context in flash channel controller.
9	23: 20	_8thContextCE	Eighth Context CE Number Chip enable mapped to the eighth context
9	27: 24	_8thContextLun	Eighth Context LUN Number Eighth Context LUN number within eighth context CE
9	31: 28	reserved	Reserved.
10	3: 0	_9thContext	Ninth Context Number Ninth Context in flash channel controller.
10	7: 4	_9thContextCE	Ninth Context CE Number Chip enable mapped to the ninth context
10	11: 8	_9thContextLun	Ninth Context LUN Number Ninth Context LUN number within ninth context CE
10	15: 12	reserved	Reserved.
10	19: 16	_10thContext	Tenth Context Number Tenth Context in flash channel controller.
10	23: 20	_10thContextCE	Tenth Context CE Number Chip enable mapped to the tenth context
10	27: 24	_10thContextLun	Tenth Context LUN Number Tenth Context LUN number within tenth context CE
10	31: 28	reserved	Reserved.
11	3: 0	_11thContext	Eleventh Context Number Eleventh Context in flash channel controller.

DWord	Position	Name	Description
11	7: 4	_11thContextCE	Eleventh Context CE Number Chip enable mapped to the eleventh context
11	11: 8	_11thContextLun	Eleventh Context LUN Number Eleventh Context LUN number within eleventh context CE
11	15: 12	reserved	Reserved.
11	19: 16	_12thContext	Twelfth Context Number Twelfth Context in flash channel controller.
11	23: 20	_12thContextCE	Twelfth Context CE Number Chip enable mapped to the twelfth context
11	27: 24	_12thContextLun	Twelfth Context LUN Number Twelfth Context LUN number within twelfth context CE
11	31: 28	reserved	Reserved.
12	3: 0	_13thContext	Thirteenth Context Number Thirteenth Context in flash channel controller.
12	7: 4	_13thContextCE	Thirteenth Context CE Number Chip enable mapped to the thirteenth context
12	11: 8	_13thContextLun	Thirteenth Context LUN Number Thirteenth Context LUN number within thirteenth context CE
12	15: 12	reserved	Reserved.
12	19: 16	_14thContext	Fourteenth Context Number Fourteenth Context in flash channel controller.
12	23: 20	_14thContextCE	Fourteenth Context CE Number Chip enable mapped to the fourteenth context
12	27: 24	_14thContextLun	Fourteenth Context LUN Number Fourteenth Context LUN number within fourteenth context CE
12	31: 28	reserved	Reserved.
13	3: 0	_15thContext	Fifteenth Context Number Fifteenth Context in flash channel controller.
13	7: 4	_15thContextCE	Fifteenth Context CE Number Chip enable mapped to the fifteenth context
13	11: 8	_15thContextLun	Fifteenth Context LUN Number Fifteenth Context LUN number within fifteenth context CE
13	15: 12	reserved	Reserved.
13	19: 16	_16thContext	Sixteenth Context Number Sixteenth Context number in flash channel controller.

DWord	Position	Name	Description
13	23: 20	_16thContextCE	Sixteenth Context CE Number Chip enable mapped to the sixteenth context
13	27: 24	_16thContextLun	Sixteenth Context LUN Number Sixteenth Context LUN number within sixteenth context CE
13	31: 28	reserved	Reserved.
15:14	31: 0	reserved	Reserved

FlashEccContextInfoUpdate

This message is sent to update flash ECC context information such as ECC chunk size and protected data size. This message will be repeated until ECC context data is provided for all ECC contexts.

Table B-26 • FlashEccContextInfoUpdate

DWord	Position	Name	Description
0	7: 0	msgType	Message type This field encodes the request message type. The value of this field is microcode specific. <ul style="list-style-type: none"> • 1 (Read) Flash Read • 2 (Write) Flash Write • 3 (Erase) Flash Block Erase • 4 (Continue) Flash Continuous Request • 5 (FlashConfig) Flash Configuration update • 6 (ReadParamPg) Flash Read Parameter Page • 7 (ReadId) Flash Read Id • 8 (SetFeature) Flash Set Feature • 9 (GetFeature) Flash Get Feature
0	11: 8	cntxt	Flash Channel Queue This field encodes the Flash channel queue associated with this message request.
0	16: 12	chan	Flash Channel This field encodes the Flash channel associated with this message request.
0	31: 17	reserved	Reserved
1	1: 0	reserved	Reserved
1	18: 2	chMsgNodeAddr	Chained Message Node Address This field contains the node address of the next request message in the message chain. A value of zero in this field indicates that this is the last message of a message chain.
1	19	chain	Chained Message When this bit is set, the request message is part of a chained message and is not the last message in the message chain. The address of the next request message in the message chain is specified by the chMsgNodeAddr field.
1	23: 20	reserved	Reserved
1	27: 24	outMsgQ	Outbound Message Queue

DWord	Position	Name	Description
			This field specifies the index of Flash completion outbound message queue to be used by this message.
1	31: 28	reserved	Reserved
3:2	31: 0	tag	Tag This field contains opaque data that is passed from the request to the corresponding completion.
4	3: 0	subMsgType	Sub Message type This field encodes the request sub message type. The value of this field is microcode specific. <ul style="list-style-type: none"> 1 (ChannelConfig) Flash Channel Configuration update 2 (ECCContextInfo) Flash ECC Context information update 3 (TimerParam) Flash Timing Parameter update 4 (PowerCredit) Flash Power Credit update 5 (Dynamic) Flash Dynamic Parameters update
4	7: 4	numEntries	Number of ECC Context Data entries. This field indicates number of ECC context data entries are valid.
4	31: 8	reserved	Reserved
15:5	31: 0	eccContextData	ECC Context Data This field contain ECC context data such as context number, protected data size, and ECC chunk size.

EccContextData

Format of ECC context data used in FlashECCContextInfoUpdate message.

Table B-27 • EccContextData

DWord	Position	Name	Description
0	3: 0	eccContextNum	ECC Context Number
0	17: 4	eccChunkSize	ECC Chunk Size This field contains ECC chunk size in DWords for given ECC context number
0	31: 18	protectedDataSize	Protected Data Size. This field contains protected data size in DWords for given ECC context number.

FlashTimingParamUpdate

This message is sent to update flash timing parameters.

Table B-28 • FlashTimingParamUpdate

DWord	Position	Name	Description
0	7: 0	msgType	Message type This field encodes the request message type. The value of this field is microcode specific. <ul style="list-style-type: none"> 1 (Read) Flash Read

DWord	Position	Name	Description
			<ul style="list-style-type: none"> • 2 (Write) Flash Write • 3 (Erase) Flash Block Erase • 4 (Continue) Flash Continuous Request • 5 (FlashConfig) Flash Configuration update • 6 (ReadParamPg) Flash Read Parameter Page • 7 (ReadId) Flash Read Id • 8 (SetFeature) Flash Set Feature • 9 (GetFeature) Flash Get Feature
0	11: 8	cntxt	Flash Channel Queue This field encodes the Flash channel queue associated with this message request.
0	16: 12	chan	Flash Channel This field encodes the Flash channel associated with this message request.
0	31: 17	reserved	Reserved
1	1: 0	reserved	Reserved
1	18: 2	chMsgNodeAddr	Chained Message Node Address This field contains the node address of the next request message in the message chain. A value of zero in this field indicates that this is the last message of a message chain.
1	19	chain	Chained Message When this bit is set, the request message is part of a chained message and is not the last message in the message chain. The address of the next request message in the message chain is specified by the chMsgNodeAddr field.
1	23: 20	reserved	Reserved
1	27: 24	outMsgQ	Outbound Message Queue This field specifies the index of Flash completion outbound message queue to be used by this message.
1	31: 28	reserved	Reserved
3:2	31: 0	tag	Tag This field contains opaque data that is passed from the request to the corresponding completion.
4	3: 0	subMsgType	Sub Message type This field encodes the request sub message type. The value of this field is microcode specific. <ul style="list-style-type: none"> • 1 (ChannelConfig) Flash Channel Configuration update • 2 (ECCContextInfo) Flash ECC Context information update • 3 (TimerParam) Flash Timing Parameter update • 4 (PowerCredit) Flash Power Credit update • 5 (Dynamic) Flash Dynamic Parameters update
4	4	timeSel	Timing Select This field selects the Flash Timing (FT) register used for the Flash operations. <ul style="list-style-type: none"> • 0 Timing mode 0 selects FT0xxx timing mode register values • 1 Timing mode 1 selects FT1xxx timing mode register values
4	31: 5	reserved	Reserved

DWord	Position	Name	Description
5	15: 0	dummyBusyTime	Dummy Busy Time This field specifies the dummy busy time (tDBSY) in units of Flash I/O clock cycles.
5	31: 16	clkHigh2RBLowTime	Clock High to R/B Low Time This field specifies the CLK high to R/B low (tWB) in units of Flash I/O clock cycles
6	31: 0	resetTime	Device Reset Time This field specifies the reset time (tRST) in units of Flash I/O clock cycles
7	31: 0	powerOnRstTime	Power on Reset Time This field specifies the Power on reset time (tPOR) in units of Flash I/O clock cycles
8	31: 0	interfaceChangeTime	Interface Change Time This field specifies the busy time to change interface (tITC) in units of Flash I/O clock cycles
15:9	31: 0	reserved	Reserved

FlashPowerCreditUpdate

This message is sent to update flash power credit for different commands. The current power credits are allocated based on the maximum power required for a particular command, in future this can be broken down to smaller granular if needed based on the flash state.

Table B-29 • FlashPowerCreditUpdate

DWord	Position	Name	Description
0	7: 0	msgType	Message type This field encodes the request message type. The value of this field is microcode specific. <ul style="list-style-type: none"> 1 (Read) Flash Read 2 (Write) Flash Write 3 (Erase) Flash Block Erase 4 (Continue) Flash Continuous Request 5 (FlashConfig) Flash Configuration update 6 (ReadParamPg) Flash Read Parameter Page 7 (ReadId) Flash Read Id 8 (SetFeature) Flash Set Feature 9 (GetFeature) Flash Get Feature
0	11: 8	cntxt	Flash Channel Queue This field encodes the Flash channel queue associated with this message request.
0	16: 12	chan	Flash Channel This field encodes the Flash channel associated with this message request.
0	31: 17	reserved	Reserved
1	1: 0	reserved	Reserved
1	18: 2	chMsgNodeAddr	Chained Message Node Address This field contains the node address of the next request message in the message chain. A value of zero in this field indicates that this is the last message of a message chain.

DWord	Position	Name	Description
1	19	chain	Chained Message When this bit is set, the request message is part of a chained message and is not the last message in the message chain. The address of the next request message in the message chain is specified by the chMsgNodeAddr field.
1	23: 20	reserved	Reserved
1	27: 24	outMsgQ	Outbound Message Queue This field specifies the index of Flash completion outbound message queue to be used by this message.
1	31: 28	reserved	Reserved
3:2	31: 0	tag	Tag This field contains opaque data that is passed from the request to the corresponding completion.
4	3: 0	subMsgType	Sub Message type This field encodes the request sub message type. The value of this field is microcode specific. <ul style="list-style-type: none"> • 1 (ChannelConfig) Flash Channel Configuration update • 2 (ECCContextInfo) Flash ECC Context information update • 3 (TimerParam) Flash Timing Parameter update • 4 (PowerCredit) Flash Power Credit update • 5 (Dynamic) Flash Dynamic Parameters update
4	31: 4	reserved	Reserved
5	15: 0	readPowerCredit	Read Power Credit This field specifies the Power units for the Read command, which includes the flash array read power and I/O burst read power.
5	31: 16	programPowerCredit	Program Power Credit This field specifies the Power units for the Program command, which includes the flash array program power and I/O burst read power.
6	15: 0	erasePowerCredit	Erase Power Credit This field specifies the Power units for the Erase command.
6	31: 16	miscPowerCredit	Miscellaneous Power Credit This specifies the maximum power used by any other commands like Read Status, Set feature, Get feature, etc
15:7	31: 0	reserved	Reserved

FlashDynamicUpdate

This message is sent to update flash parameters that can be changed at run time.

Table B-30 • FlashDynamicUpdate

DWord	Position	Name	Description
0	7: 0	msgType	Message type This field encodes the request message type. The value of this field is microcode specific.

DWord	Position	Name	Description
			<ul style="list-style-type: none"> 1 (Read) Flash Read 2 (Write) Flash Write 3 (Erase) Flash Block Erase 4 (Continue) Flash Continuous Request 5 (FlashConfig) Flash Configuration update 6 (ReadParamPg) Flash Read Parameter Page 7 (ReadId) Flash Read Id 8 (SetFeature) Flash Set Feature 9 (GetFeature) Flash Get Feature
0	11: 8	cntxt	Flash Channel Queue This field encodes the Flash channel queue associated with this message request.
0	16: 12	chan	Flash Channel This field encodes the Flash channel associated with this message request.
0	31: 17	reserved	Reserved
1	1: 0	reserved	Reserved
1	18: 2	chMsgNodeAddr	Chained Message Node Address This field contains the node address of the next request message in the message chain. A value of zero in this field indicates that this is the last message of a message chain.
1	19	chain	Chained Message When this bit is set, the request message is part of a chained message and is not the last message in the message chain. The address of the next request message in the message chain is specified by the chMsgNodeAddr field.
1	23: 20	reserved	Reserved
1	27: 24	outMsgQ	Outbound Message Queue This field specifies the index of Flash completion outbound message queue to be used by this message.
1	31: 28	reserved	Reserved
3:2	31: 0	tag	Tag This field contains opaque data that is passed from the request to the corresponding completion.
4	3: 0	subMsgType	Sub Message type This field encodes the request sub message type. The value of this field is microcode specific. <ul style="list-style-type: none"> 1 (ChannelConfig) Flash Channel Configuration update 2 (ECCContextInfo) Flash ECC Context information update 3 (TimerParam) Flash Timing Parameter update 4 (PowerCredit) Flash Power Credit update 5 (Dynamic) Flash Dynamic Parameters update
4	31: 4	reserved	Reserved
5	15: 0	highPriorPollLimit	High Priority Poll Limit This field specifies the poll limit for the high priority message processing.
5	31: 16	reserved	Reserved

DWord	Position	Name	Description
15:6	31: 0	reserved	Reserved