ENGINEERING CHANGE NOTICE	DATE OF ISSUE Sep. 8, 2007	ECN DF700-286	
		FCB	None
		SN	1/6
Title : Release of new Microcode <DF700 Rev. 0772/D>	EQUIP. TITLE	DISK ARRAY UNIT	
	EQUIP. MODEL No.	DF700-RKM/RKS/RKXS/RKH/ RKHE/RKAJ/RKAJAT/ RKNAS DF600-RKA	

1. Purpose

This ECN is to inform of the release of new Microcode <DF700 Rev. 0772/D (V7.2/D)>.

2. Supported features and functions

2.1 New function

None.

2.2 Improvement

(1) Daylight saving time changes in New Zealand.

New Zealanders will have three weeks more daylight saving from 30 September this year following the decision by the Labour-led Government to extend the period to 27 weeks.
Daylight saving in New Zealand for 2007-2008 will start at 2am on 30 September 2007 and end at 3am on 6 April 2008.

(2) HDU reliability improvement by changing Online Verify process

The microcode changes Online Verify period to activate the IDLE SEEK(self-diagnosis function) of the following HDDs when these HDDs are installed.
FC HDD: HGST HUS151414VLF400 (Model: DF-F700-AGH146(H), Firmware: K0)
HGST HUS151473VLF400 (Model: DF-F700-AGH72(H), Firmware: K0)

2.3 Countermeasure

Please refer to Appendix A.

ENGINEERING CHANGE NOTICE

DATE OF ISSUE Sep. 8, 2007	ECN DF700-286	
	FCB	None
	SN	2/6

Title : Release of new Microcode
<DF700 Rev. 0772/D>

EQUIP. DISK ARRAY UNIT TITLE

EQUIP. MODEL No. DF700-RKM/RKS/RKXS/RKH/RKHE/RKAJ/RKAJAT/RKNAS
DF600-RKA

3. Micro-Program Version List

The new micro-program for DF includes following versions.

No.	Program name				New Version	Previous Version Notified by ECN-273 (Rev.2)
1	Microcode				0772/D (*)	0772/A (*)
2	Main Microcode	DF700H/HE			0772/D-H	0772/A-H
3		DF700M			0772/D-M	0772/A-M
4		DF700S			0772/D-S	0772/A-S
5		DF700XS			0772/D-X	0772/A-X
6	ENC Firmware	DF700H/HE	ENC		04-01-0D	Same as left
7		DF700M/S/RKAJ	ENC		01-02-0B	Same as left
8		DF600RKA (**)	ENC		1D/0C	Same as left
9		RKAJAT	SENC (***)	SR	5.80A	Same as left
10				H8S	02-02-09	Same as left
11		DF700XS	SENC (***)	SR	5.80A	Same as left
12				H8S	03-02-03	Same as left

Note) Hatched indicates the changed items from the previous microcode release.

(*) Microcode for DF700HE, DF700H, DF700M, DF700S, DF700XS and ENC Firmware are integrated into one packaged version to reduce handling complexity.

(**) When DF600-RKA is connected with DF700.

(***) SENC firmware is the following.

SR : FC/SATA conversion firmware

H8S : SATA enclosure monitoring firmware

Old and New program are compatible.

4. Related Program Version

(1) RAID Manager

NO	Product Name	New version	Previous Version
1	RAID Manager for HP-UX	01-19-03/04	Same as left
2	RAID Manager for Windows NT *	01-19-03/04	Same as left
3	RAID Manager for Solaris	01-19-03/04	Same as left
4	RAID Manager for AIX	01-19-03/04	Same as left
5	RAID Manager for Linux	01-19-03/04	Same as left
6	RAID Manager for Digital UNIX	01-19-03/04	Same as left
7	RAID Manager for IRIX	01-19-03/04	Same as left
8	RAID Manager for Solaris/x86	01-19-03/04	Same as left

* Windows2000/2003 is also supported.

(2) RAID Manager Library (RL)

NO	Product Name	New version	Previous Version
1	RL for HP-UX	01-11-03/03	Same as left
2	RL for Windows NT *	01-11-03/04	Same as left
3	RL for Solaris	01-11-03/03	Same as left
4	RL for AIX	01-11-03/03	Same as left
5	RL for Linux	01-11-03/04	Same as left
6	RL for IRIX	01-11-03/03	Same as left
7	RL for Tru64	01-11-03/03	Same as left

* Windows2000/2003 is also supported.

Note) Hatched indicates the changed items from the previous microcode release.

ENGINEERING CHANGE NOTICE	DATE OF ISSUE Sep. 8, 2007	ECN DF700-286	
		FCB	None
		SN	4/6
Title : Release of new Microcode <DF700 Rev. 0772/D>	EQUIP. TITLE	DISK ARRAY UNIT	
	EQUIP. MODEL No.	DF700-RKM/RKS/RKXS/RKH/ RKHE/RKAJ/RKAJAT/ RKNAS DF600-RKA	

(3) Storage Navigator Modular

NO	Program name	New Version	Previous Version
1	Storage Navigator Modular	7.11	Same as left

(4) Failure Analysis tool: Special Tool for CE

NO	Program name	New Version	Previous Version
1	TDCONV3	080F/A	080F

(5) NAS OS(RKNAS)

NO	Product Name	New Version	Previous Version
1	nasos-DataControl	04-03-02	Same as left
2	nasos-FileSharing	04-03-03	Same as left
3	NAS Manager	04-03-02	Same as left
4	NAS Setup Tool*	4.3.0.2	Same as left
5	Backup Restore	04-03-01	Same as left
6	AntiVirus	04-03-02	Same as left
7	SyncImage	04-03-01	Same as left
8	nasos-FileSharing Source Code	04-03-01	Same as left

* NAS Setup Tool is included in Storage Navigator Modular.

(6) Release Notes for NAS OS(RKNAS)

NO	Product Name	New Version	Previous Version
1	NAS Data Control	04-03-02	Same as left
2	NAS File Sharing	04-03-03	Same as left
3	NAS Manager Modular	04-03-02	Same as left
4	NAS Backup Restore Modular	04-03-01	Same as left
5	NAS Anti Virus Agent Modular	04-03-02	Same as left
6	NAS Sync Image Modular	04-02-01	Same as left

Release Notes for NAS OS are unattached.

Note) Hatched indicates the changed items from the previous microcode release.

ENGINEERING CHANGE NOTICE	DATE OF ISSUE Sep. 8, 2007	ECN DF700-286	
		FCB	None
		SN	5/6
Title : Release of new Microcode <DF700 Rev. 0772/D>	EQUIP. DISK ARRAY UNIT TITLE		
	EQUIP. MODEL No.	DF700-RKM/RKS/RKXS/RKH/ RKHE/RKAJ/RKAJAT/ RKNAS DF600-RKA	

(7) SNMP

NO	Product Name	New Version	Previous Version
1	**SNMP MIB File**	**11.0**	**Same as left**
2	**Environment Files**	**1.0**	**Same as left**

Note) Hatched indicates the changed items from the previous microcode release.

ENGINEERING CHANGE NOTICE	DATE OF ISSUE Sep. 8, 2007	ECN DF700-286	
		FCB	None
		SN	6/6
Title : Release of new Microcode <DF700 Rev. 0772/D>	EQUIP. DISK ARRAY UNIT TITLE		
	EQUIP. MODEL No.	DF700-RKM/RKS/RKXS/RKH/ RKHE/RKAJ/RKAJAT/ RKNAS DF600-RKA	

5. Related document

Refer to Appendix-B for the following documentation.
(1) Maintenance Manual
(2) User's Guides

6. Export Regulations

A certain regulation regarding export administration applies to the following items.
(1) Storage Navigator Modular with JRE1.4
- Storage Navigator Modular with JRE1.4 is categorized as 5D992.b.1 Mass Market (for JRE1.4 Note1)

Note1: Authorization for JRE1.4 (CCATS#:G029045) by SUN Microsystems can be applied under the provision of interpretation14 of EAR770.2(n).

(2) NAS OS
- NAS OS is categorized as 5D002/ENC Retail (CCATS#G031630 (10/08/2003)).

(3) NAS Manager Modular User's Guide
- NAS Manager Modular User's Guide is categorized as 5E002.

7. Restrictions and Notes

None

8. Appendix

Appendix-A: Change of Contents
Appendix-B: Related Documentation
Appendix-C: DF700 Enhance/Countermeasure Items

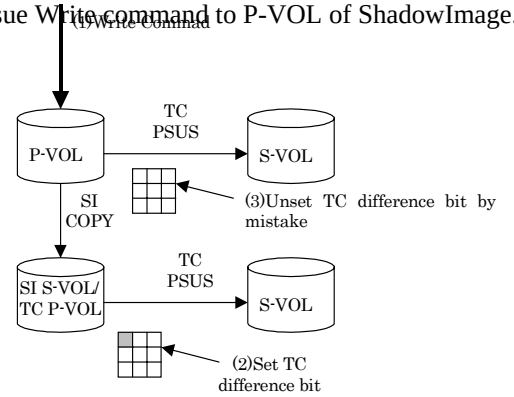
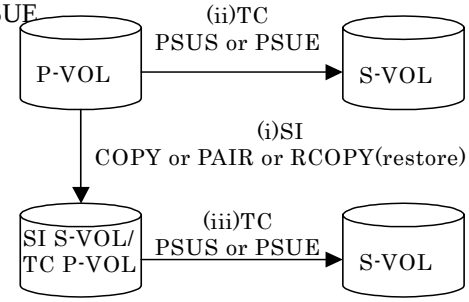
Appendix-A Change of Contents

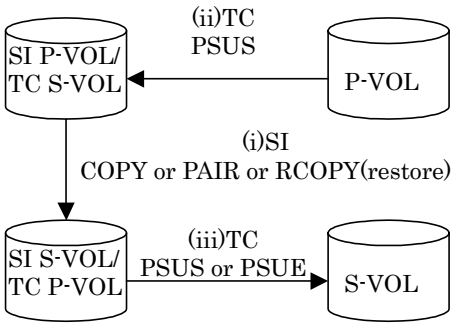
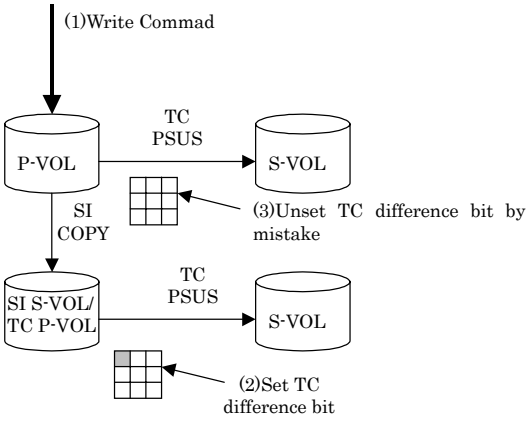
	Title	Controller blockade by "HH7U00 H-IPC PCI ECC error"
<1>	Phenomena	When the iSCSI interface board is installed in the controllers, a controller blockade may occur with the following message. Web message: HH7U00 H-IPC PCI ECC error
<2>	Severity	A: Critical High (Subsystem Outage /Data Disagreement) B: Critical Middle C: Critical Low
<3>	Conditions of Occurrence	When all of the following conditions are met, the phenomenon may occur. (a) iSCSI interface board is installed. (b) Microprogram executes iSCSI ECC correctable error check process. (Microprogram usually executes iSCSI correctable error check process every 5 minites.) (c) iSCSI firmware detects the iSCSI error and accesses the error count registers to count up these counters. (d) The processes of (b), (c) is executed in the same time in the same controller. (e) iSCSI ECC error counter is over the threshold(512).
<4>	Cause	Due to the microcode bug in the count-up process of the iSCSI ECC correctable error check
<5>	Affected Products/Version	Version : 0730/B or later
<6>	Fixed Product/Version	Version : 0772/D
<7>	Special direction to applying the modified code.	
	(1) Restriction of micro-program exchange	None
	(2) others	None
<8>	Category	iSCSI configuration
<9>	Changed Part	MICRO-Disk
<10>	Problem ID	DF700-0204
<11>	Site	Domestic custormer
<12>	ESC/CTSC LOG#	None
<13>	Early Notice#	None

	Title	Warning LED or ALARM LED of DF700-RKNAS falsely lights up after DF700-RKNAS boots up.
<1>	Phenomena	Warning LED or ALARM LED of DF700-RKNAS falsely remain to be lighted up when DF700-RKNAS boots up after some LED of DF700-RKNAS has been lighted up..
<2>	Severity	A: Critical High (Subsystem Outage /Data Disagreement) B: Critical Middle C: Critical Low
<3>	Conditions of Occurrence	When all of the following conditions are met, the phenomenon may occur. (a) Warning LED or ALARM LED of DF700-RKNAS lights up. (b) DF700-RKNAS shutdown is executed in the condition of (1). (c) The AC power in the basic unit of sussystem is on every minite. (d) The overcurrent is supplied to DF700-RKNAS from the basic unit of subsystem via the NAS interface cable. Note) When DF700-RKNAS is booted up after AC power of the basic unit in the
<4>	Cause	Due to the microcode bug in the initialization process in the LED of DF700-RKNAS
<5>	Affected Products/Version	Version : 0726/B or later
<6>	Fixed Product/Version	Version : 0772/D
<7>	Special direction to applying the modified code.	
	(1) Restriction of micro-program exchange	None
	(2) others	None
<8>	Category	NAS configuration
<9>	Changed Part	MICRO-Disk
<10>	Problem ID	DF700-0205
<11>	Site	Domestic Customer
<12>	ESC/CTSC LOG#	None
<13>	Early Notice#	None

	Title	Both controllers blockade by Backend down [NO SES HDU BKD] immediately after an HDU blockade.
<1>	Phenomena	Immediately after an SES_HDU blockades, both controllers may blockade by Backend down [NO SES HDU BKD].
<2>	Severity	A: Critical High (Subsystem Outage /Data Disagreement) B: Critical Middle C: Critical Low
<3>	Conditions of Occurrence	When the following conditions are met, this phenomenon may occur. (a) Micro program version 0755/A, 0760/B, 0770/A or later (b) When HDU#2 of a basic unit or an extended unit blockades by one of following reasons. ・Blockade direction from Storage Navigator Modular ・Preventive blockade direction from Storage Navigator Modular (dynamic sparing directions) ・Blockade by removal ・Blockade by error threshold over ・Blockade by retry over This obstacle is not generated in the blockade by back end I/F diagnosis. Moreover, this obstacle is not generated in a SATA HDU blockade. (c) When the first SES_HDU used by SES access diagnosis (HDU alarm LED lighting processing) is HDU#0
<4>	Cause	Due to the microcode bug in the SES access processing in the HDU blockade
<5>	Affected Products/Version	Version : 0755/A, 0760/B, 0770/A or later
<6>	Fixed Product/Version	Version : 0772/D
<7>	Special direction to applying the modified code.	
	(1) Restriction of micro-program exchange	None
	(2) others	None
<8>	Category	FC HDD configuration in DF600-RKA
<9>	Changed Part	MICRO-Disk
<10>	Problem ID	DF700-0206(same as DF600-0106)
<11>	Site	Domestic customer
<12>	ESC/CTSC LOG#	None
<13>	Early Notice#	DF600-M016

	Title	Subsystem down by the both controllers blockade by Microprogram error[LUC] and Microprogram error[RCH]
<1>	Phenomena	The controller blockade may occur with the following message when the path check process of HDLM is executed. Web message: HJ1Exx Microprogram error[LUC] Then Subsystem down may immediately occur because the other controller blockade will also occur. Web message: HJ11xx Microprogram error[RCH]
<2>	Severity	A: Critical High (Subsystem Outage /Data Disagreement) B: Critical Middle C: Critical Low
<3>	Conditions of Occurrence	When all of the following conditions are met, the phenomenon may occur. (a) I/O is not issued to one controller which has more than 21 LUs and has default ornership for these LUs. And I/O is issued via another controller to LUs for which another controller has default ornership. Therefore, one controller has all of LUs which involves the LUs for which another controller has default ornership. (b) The path check of the application is defined to be issued from the controller which has default ornership for the LUs. (c) 2 read command are issued in another controller of (a) to the LUs whose ornership is in the other controller now. (d) LU ornership change process is executed in the both controllers in the same time.
<4>	Cause	Due to the microcode bug in the exclussion processing in LU ornership change between controllers
<5>	Affected Products/Version	All microcode version
<6>	Fixed Product/Version	Version : 0772/D
<7>	Special direction to applying the modified code.	
	(1) Restriction of micro-program exchange	None
	(2) others	None
<8>	Category	common
<9>	Changed Part	MICRO-Disk
<10>	Problem ID	DF700-0207
<11>	Site	customer
<12>	ESC/CTSC LOG#	DF700-19630
<13>	Early Notice#	None

	Title	System down by the Write Command on ShadowImage and TrueCopy cascade configuration.
<1>	Phenomena	When the host issue Write command to CTL0 of DF , CTL0 is blockaded. When the host issue Write command to CTL1 of DF for retry, CTL1 also is blockaded and system down.
<2>	Severity	A: Critical High (Subsystem Outage /Data Disagreement) B: Critical Middle C: Critical Low
<3>		This phenomenon occurs when all of the following conditions are met: (a) Microcode version is 0772/A or later. (b) There are TrueCopy cascades for both P-VOL and S-VOL of ShadowImage (c) The pair status of ShadowImage and TrueCopy are the following case1 and case2. (d) The host issue Write command to P-VOL of ShadowImage.  This phenomenon occurs when all of the following conditions are met: (i) Pair staus of ShadowImage COPY or PAIR or RCOPY(restore) (ii) Pair staus of TrueCopy (P-VOL side of ShadowImage) PSUS or PSUE (iii) Pair staus of TrueCopy (S-VOL side of ShadowImage) PSUS or PSUE 

		This phenomenon occurs when all of the following conditions are met: (i) Pair staus of ShadowImage COPY or PAIR or RCOPY(restore) (ii) Pair staus of TrueCopy (P-VOL side of ShadowImage) PSUS (iii) Pair staus of TrueCopy (S-VOL side of ShadowImage) PSUS or PSUE 
<4>	Cause	Microprogram 0772/A was supported TrueCopy cascades for both P-VOL and S-VOL of ShadowImage. When Write command to P-VOL of ShadowImage is received, there is a case of unsetting TC difference bit of TrueCopy (P-VOL side of ShadowImage) by mistake. CTL is blockaded, because TrueCopy difference bit unset is detected just before the status transfer of Write command. (Check logic) 

<5>	Affected Products/Version	Version : 0772/A
<6>	Fixed Product/Version	Version : 0772/D
<7>	Special direction to applying the modified code.	
	(1) Restriction of micro-program exchange	None
	(2) others	None
<8>	Category	ShadowImage and TrueCopy cascade configuration
<9>	Changed Part	MICRO-Disk
<10>	Problem ID	DF700-0208
<11>	Site	customer
<12>	ESC/CTSC LOG#	DF700-19750
<13>	Early Notice#	DF700-M034(Rev.0)

	Title	Disk discovery commnand in the setting of HDvM can not be completed.
<1>	Phenomena	Disk discovery commnand of HDvM is rejected by subsystem because user signature(IP address) can not be certificated by subsystem.
<2>	Severity	A: Critical High (Subsystem Outage /Data Disagreement) B: Critical Middle C: Critical Low
<3>	Conditions of Occurrence	When all of the following conditions are met, the phenomenon may occur. (a) Passoword Protection is enable. (b) User login and user authentification has completed successfully in the controller. (c) Network failure is detected. (d) Network access(i.e. Disk discovery command of HDvM) is executed in another controller of (b).
<4>	Cause	Due to the microcode bug in the signature check process in user authetification of Password Protection
<5>	Affected Products/Version	Version : 0732/A or later
<6>	Fixed Product/Version	Version : 0772/D
<7>	Special direction to applying the modified code.	
	(1) Restriction of micro-program exchange	None
	(2) others	None
<8>	Category	Password Protection
<9>	Changed Part	MICRO-Disk
<10>	Problem ID	DF700-0209
<11>	Site	customer
<12>	ESC/CTSC LOG#	DF700/HDVM-52391
<13>	Early Notice#	None

	Title	The nickname of the iSCSI initiator can not be changed to a "blank".
<1>	Phenomena	The nickname of the iSCSI initiator can not be changed to a "blank".
<2>	Severity	A: Critical High (Subsystem Outage /Data Disagreement) B: Critical Middle C: Critical Low
<3>	Conditions of Occurrence	When all of the following conditions are met, the phenomenon may occur. (1) iSCSI Interface board is installed. (2) LUN Manager is enable. (3) Target Security of Access Mode is enable for an iSCSI port. (4) The iSCSI initiator whose nickname is a "blank" already exists in a target in the port of (3). (5) The nickname of another iSCSI initiator is changed to a "blank".
<4>	Cause	Due to the microcode bug in the setting processing in the Nick Name of the iSCSI initiator
<5>	Affected Products/Version	Version : 0730/B or later
<6>	Fixed Product/Version	Version : 0772/D
<7>	Special direction to applying the modified code.	
	(1) Restriction of micro-program exchange	None
	(2) others	None
<8>	Category	iSCSI configuration in the host interface
<9>	Changed Part	MICRO-Disk
<10>	Problem ID	DF700-0210
<11>	Site	RSD
<12>	ESC/CTSC LOG#	None
<13>	Early Notice#	None

Appendix-B Related Documentation

1. Maintenance Manual

Rev. 21 for DF700 Disk Array Subsystem Maintenance Manual
Rev.9 for DF700 NAS SOFTWARE Maintenance Manual

2. User's Guides (source documents)

DF700 User's Guide List

No.	User's Guide Document Name	Rev.
1	Hitachi TagmaStore® Adaptable Modular Storage 1000™ User and Reference Guide	10th edition
2	Hitachi TagmaStore® Adaptable Modular Storage 500™ User and Reference Guide	13th edition
3	Hitachi TagmaStore® Adaptable Modular Storage 200™ User and Reference Guide	14th edition
4	Hitachi TagmaStore® Workgroup Modular Storage 100™ User and Reference Guide	12th edition
5	Hitachi TagmaStore® Adaptable Modular Storage and Workgroup Modular Storage Cache Residency Manager Software User's Guide	Rev.9
6	Hitachi TagmaStore® Adaptable Modular Storage and Workgroup Modular Storage Cache Partition Manager User's Guide	Rev.8
7	Hitachi TagmaStore® Adaptable Modular Storage and Workgroup Modular Storage SNMP Agent Support Function User's Guide	Rev.8
8	Hitachi TagmaStore® Adaptable Modular Storage and Workgroup Modular Storage LUN Expansion User's Guide	Rev.4
9	Hitachi TagmaStore® Adaptable Modular Storage and Workgroup Modular Storage Password Protection User's Guide	Rev.3
10	Hitachi TagmaStore® Adaptable Modular Storage and Workgroup Modular Storage ShadowImage™ In-System Replication Software User's Guide	Rev.11
11	Hitachi TagmaStore® Adaptable Modular Storage and Workgroup Modular Storage TrueCopy™ Synchronous Remote Replication Software User's Guide	Rev.8
12	Hitachi TagmaStore® Adaptable Modular Storage and Workgroup Modular Storage LUN Manager User's Guide	Rev.5
13	Hitachi TagmaStore® Adaptable Modular Storage and Workgroup Modular Storage Copy-on-Write Snapshot Software User's Guide	Rev.12
14	Hitachi TagmaStore® Adaptable Modular Storage and Workgroup Modular Storage Data Retention Utility Software User's Guide	Rev.5
15	Hitachi TagmaStore® Adaptable Modular Storage TrueCopy™ Extended Distance User's Guide	Rev.5
16	Hitachi TagmaStore® Adaptable Modular Storage and Workgroup Modular Storage Performance Monitor Software User's Guide	Rev.5
17	Hitachi TagmaStore® Adaptable Modular Storage and Workgroup Modular Storage Modular Volume Migration User's Guide	Rev.1
18	Hitachi TagmaStore® Adaptable Modular Storage and Workgroup Modular Storage Account Authentication User's Guide	Rev.0
19	Hitachi TagmaStore® Adaptable Modular Storage and Workgroup Modular Storage Audit Log User's Guide	Rev.2
20	Hitachi TagmaStore® Adaptable Modular Storage and Workgroup Modular Storage Power Saving User's Guide	Rev.0
21	Hitachi TagmaStore® Adaptable Modular Storage and Workgroup Modular Storage Command Control Interface (CCI) User and Reference Guide	Rev.12
22	Storage Navigator Modular(for GUI) User's Guide	19th edition
23	Storage Navigator Modular(for CLI) User's Guide	19th edition
24	Storage Navigator Modular(for Web) User's Guide	19th edition
25	Storage Navigator Modular(for MM) User's Guide	19th edition
26	NAS Manager Modular User's Guide	4th edition
27	NAS Backup Restore Modular User's Guide	4th edition
28	NAS Sync Image Modular User's Guide	3rd edition
29	NAS Modular Error Codes	4th edition

No.	User's Guide Document Name	Rev.
30	NAS Manager User's Guide	1st edition
31	NAS Error Codes	1st edition
32	NAS Backup Restore User's Guide	1st edition
33	NAS Sync Image User's Guide	1st edition
34	NAS Manager CLI	1st edition

Appendix

Hitachi Proprietary Information

DF700 Enhance/Countermeasure Items

Class... N:NewFunction/Enhancement, I:Improvement, C:Countermeasure of problem at customer's cite
Level... A:Most important countermeasure for problem, B:Countermeasure for "medium" level issue, C:Countermeasure for "minor level " issue
For Example, A:System down, User Data Lost or Subsystem down, B:CTL blockade or Parts blockade, C:Minor issue

	No.	Class	Level	Case ID	Problem ID	items	description	Official Release		
								Release Date	ECN	FCB
									Note	
						V1.3, 0713/A		6/27/2005	023	-
V1.3 0713/A	1	I				P-Vol I/O support during Snapshot restore	Made improvement to receive I/O to P-Vol during snapshot restore.			
	2	C	A		DF700-0001	Controller failure with a "Microprogram error [RCH]" message by illeagal locked-segments counter operation	Controller failed with a "Microprogram error [RCH]" message after high load heatrun that cause exact 255 locked segments.			
Base System V1.2 0712/A	3	C	B		DF700-0002	DF700S Host connector recovery failure	After inserting the Host connector on the DF700S controller, it failed recovery.This problem cannot be recovered by the power off/on of the subsystem.			
	4	C	B		DF700-0003	Illeagal probation period with a temporary license key	The probation period could be illeagally short for a temporary license key.This problem cannot be recovered by the power off/on of the subsystem.			
	5	C	B		DF700-0004	HDU failure with drive response delay during the "Drive diagnostic function".	HDU failed by drive response delay with a "I6DY00 Drive Response Diag NG(Unit-XX,HDU-YY)" message on the "Drive response diagnostic function". * "Drive diagnostic function" is a function to check out the long response drive.			
						V2.0, 0720/A		7/29/2005	030	-
V2.0 0720/A	1	C	A		DF700-0005	Subsystem down by cache memory failure during LU ownership change.	Subsystem down with "HF0106 Data transfer check error[WSEGLOCK]" message by cache memory failure during LU ownership change.			
	2	C	A		DF700-0006	Subsystem Down by the Communication Bus Error between CTLs	Subsystem down occurs with the Error at the communication bus between CTLs			
System V1.3 0713/A	3	C	B		DF700-0007	Controller failure with a "DUAL I/F DESKEW is not completed" message by PS ON or CTL Recovery	Controller failed with a "DUAL I/F DESKEW is not completed" message by PS ON or CTL Recovery.			
	4	C	B		DF700-0009	Drive recovery halt by response timeout in spare drive	When response timeout in spare drive occurs during drive recovery, drive recovery halt.			
	5	C	B		DF700-0010	CTL failure by Microprogram error because of writing pin data on FC drives	If Media error occurred on FC drives during Pin data was written into the FC drives, CTL failure happened by Microprogram error [DSC] on Reassign transaction.			
	6	C	B		DF700-0011	PS OFF Do Not Finish with SATA Drive Configuration.	In case of the SATA drive configuration, PS OFF would not finish.			

	7	C	B		DF700-0013	CTL Failure occur by write operation after LU Ownership Change	Just LU ownership change, if write operation to the ownership changed LU would be done, CTL failure would occur with Microprogram error[COW].			
	8	C	B		DF700-0014	LA Error Happen by Sequential- Read to the formatting LU	If sequential read to the formatting LU would be done, LA error will occur.			
	9	C	B		DF700-0015	Remote Path Failure by Backend Automatic Diagnostic in the Remote Site of TrueCopy	In the remote site of TrueCopy, backend automatic diagnostic would be started by a backend (Drive/ENC/SENC) error, remote path failure would occur.			
	10	C	C		DF700-0008	CTL recovery failure after cache battery recovery.	When inserting CTL after cache battery recovery, it may cause CTL recovery failure.			
	11	C	C		DF700-0012	Drive failure by Write & Compare Error with Write-Through Operation to SATA Drive	At write-through operation of the host-write with the length of more than 1MB, drive fialure will occur by write & compare			
						V1.3/C, 0713/C		8/5/2005	043	-
V1.3/C 0713/C Base System V1.3 0713/A	1	C	A		DF700-0016	Subsystem down by cache memory failure during LU ownership change. (Same as DF700-0005)	Subsystem down with "HF0106 Data transfer check error[WSEGLOCK]" message by cache memory failure during LU ownership change.			
	2	C	A		DF700-0017	Subsystem Down by the Communication Bus Error between CTLs (Same as DF700-0006)	Subsystem down occurs with the Error at the communication bus between CTLs			
	3	C	B		DF700-0018	Controller failure with a "DUAL I/F DESKEW is not completed" message by PS ON or CTL Recovery (Same as DF700-0007)	Controller failed with a "DUAL I/F DESKEW is not completed" message by PS ON or CTL Recovery.			
	4	C	B		DF700-0019	Drive recovery halt by response timeout in spare drive (Same as DF700-0009)	When response timeout in spare drive occurs during drive recovery, drive recovery halt.			
	5	C	C		DF700-0020	CTL recovery failure after cache battery recovery. (Same as DF700-0008)	When inserting CTL after cache battery recovery, it may cause CTL recovery failure.			
						V2.0/B, 0720/B		8/24/2005	047	-
V2.0/B 0720/B	1	C	B		DF700-0021	Controller failure with a "Data share job time-out" message	The time-out procedure may not work correctly at the data share command(*1) time-out, and the data share command cannot be cleared by the time-out. For this reason, the other host commands or the internal processes that should be executed exclusively wait for a long time to be executed. (*1)Command executed by the request of the other controller that does not have the ownership of the LU.			
	2	C	B		DF700-0022	CTL Failure occurs by Resource release timeout because of Interrupt prohibition problem	When removing ENC during sequential read I/Os, controller failed with a "resource release timeout" message.			

Base System V2.0 0720/A	3	C	B	SD1189902	DF700-0023	Inappropriate SATA HDD blockade	A SATA HDD blockade may occur because the online verify operation increases the medium error counter incorrectly during the recovery process for the SATA timeout error. When the SATA HDD blockade occurs for the above reason, the following Information message, same as the message displayed when the medium error exceeds the threshold value, is displayed. W060AT SATA HDU alarm(Unit-xx, HDU-yy) I41FHH HDU error over(Unit-xx, HDU-yy)[REAOV]			
	V2.0/D, 0720/D							9/22/2005	054	-
V2.0/D 0720/D Base System V2.0 0720/B	1	C	B	EUC489944	DF700-0024	Controller failure on DF700 caused by unsupported LAN protocol access	Controller failure may occur during operations or accesses from StorageNavigatorModular / HiCommand / Hitrack to DF700 connected to LAN network with unsupported LAN protocol. Following two cases have found. 1) Controller failure (controller hang-up) during boot sequence of DF700 2) Controller failure with the message of “Watch Dog Timeout” during READY status of DF700			
	V2.6, 0726/B							10/26/2005	062	-
V2.6 0726/B Base System V2.0/D 0720/D	1	N				DF700NAS support	DF700NAS support			
	2	N				2 port Fibre I/F option support for DF700S/DF700XS	2 port Fibre I/F option support for DF700S/DF700XS			
	3	I				Online management LAN port configuration change support	The Microcode 0726/A supports online management LAN port configuration change. <LAN port configuration> - IP Address - Subnet Mask - Default Gateway			
	4	I				Online “Drive Detach Mode” change support	The Microcode 0726/A supports online “Drive Detach Mode” change.			

	5	C	A		DF700-0025	Controller failure with "Microprogram error [JSD]" or LA error	A controller may fail with "Microprogram error [JSD]" or LA error when the online controller replacement or the online microcode replacement is performed.When this problem occurs before the replaced or rebooted controller becomes ready, a subsystem down occurs. The problem may occur when all the following conditions are met. 1) LU#0 is undefined, OR LU#0 is configured with small cache segments (4KB/8KB) 2) 2GB or more cache memory is installed to the controller 3) Sequential write commands with more than 512 KB/command are issued to an LU configured with RAID5 (4D+1P or 8D+1P) or RAID6 (4D+2P or 8D+2P) 4) During the above sequential writes, the online controller replacement D51or the online microcode replacement is performed During the controller recovery process (by a controller replacement / reboot by a microcode replacement), the data copy operation between cache memory may not be performed correctly due to a microcode bug.	
	6	C	B		DF700-0026	Subsystem Hung-up by Controller Failure during LU Ownership Change by LU	In case that a controller failure occurs during an LU ownershop change by LU, the ramaining controller may hung-up. The problem may occur when all the following conditions are met. 1) LU ownership change by LU is invoked by an operation from SNM or host I/O. (As for host I/O, it is invoked when a read/write command issued to an LU through the non-owner controller of the LU while no read/write commands are issued to the LU through the owner controller for more than one minutes) 2) The default owner controller of the LU is blockaded during the above LU ownership change operation. A microcode bug in the logic to recover the uncompleted operation of the failed controller.	

	7	C	B		DF700-0027	Subsystem Hung-up by large size READ command	The Subsystem may hung up when a host issues a Read command of large size in random. The problem may occur when all the following conditions are met. 1) RAID 6 with 17D+2P to 28D+2P 2) Random Read access from the host 3) Access size is 1MByte or larger When the above conditions are met, the controller may not be able to execute the command because of the lack of the internal control tables.	
	8	C	B		DF700-0028	Performance Degradation with the configuration including RAID1/1+0	In case that random write I/Os are issued to multiple RAID group, the performance of one of the RAID groups drops. The problem may occur when all the following conditions are met. 1) More than or equals to 4 RAID groups are defined. 2) RAID groups with RAID1/1+0 are included. 3) Random Write I/Os are issued to the above multiple RAID groups A microcode bug in the JOB scheduling for deataging the write pending data.	
	9	C	B		DF700-0029	Invalid Sense Data for the dual I/F failure	When a dual I/F (between controllers) failure is detected, the controller may terminate the command with an invalid sense data with unsettled sense key / additional sense code. The problem may occur when all the following conditions are met. 1) Write command from the host 2) Dual I/F failure A microcode bug in the logic to generate a sense data for dual I/F failure	

	10	C	C		DF700-0030	A large amount of System copy message display in power-on sequence	The following Web messages may be repeatedly displayed in power-on of the subsystem. - I140xy System copy started(Unit-x,HDU-y) - I142xy System copy failed(Unit-x,HDU-y) The problem may occur when all the following conditions are met. 1) DF700XS (This problem does not occur on DF700M/S) 2) Power on the Subsystem 3) only a controller(one controller blockade or Single mode) 4) Pull out a System HDD in power-off or System area blockade An opportunity of the System copy is added to recover the system area of SATA HDD in DF700XS. However, this function may be repeatedly invoked in the power-on sequence.	
	11	C	C		DF700-0031	Incorrect WEB Information Message for Controller Failure	Incorrect WEB Information Message "ENC alarm(Unit-00,ENC-x) is displayed for a controller failure while downloading ENC firmware of DF700XS controller. The problem may occur when all the following conditions are met. 1) DF700XS (This problem does not occur on DF700M/S) 2) ENC firmware download starts (automatically or online ENC firmware download) 3) A controller failure occurs during the ENC reboot sequence after downloading the firmware. A microcode bug in the logic to display a controller failure message.	
	12	C	C		DF700-0032	Full Dump for Snapshot cannot be obtained correctly	The file size of the full dump for Snapshot obtained from the WEB is less than expected. The problem may occur when all the following conditions are met. 1) DF700M (This problem does not occur on DF700S/XS) 2) 4GB cache memiory is installed in the controller. 3) The Snapshot is installed in DF700M. 4) Full Dump (Snapshot) is directed from the WEB using Netscape 4X. The content length field used to download the full dump information is too short to transfer all data.	

	V2.6/E, 0726/E							12/7/2005	085 -
V2.6 0726/E Base System V2.6/B 0726/B	1	I				Online LAN port number change support	The Microcode 0726/E supports online LAN port number change. The LAN port number used to communicate with SNM was 2000(fixed). From this microcode, the port number can be changed by the operation from SNM in case of a trouble by the conflict with the other network devices. (Note) In HTM, HDvM, and Hi-Track that uses SNM API, there are influences as well as SNM. It is necessary to update it to new HTM, HDvM, and Hi-Track that uses since SNM API Ver.2.61 to use this function.	
	2	C	B		DF700-0033	Subsystem down during the power-off sequence	Subsystem down may occur in the PIN data destage process during the power-off sequence. The problem may occur when all the following conditions are met. A. PIN data for an FC HDD exists in a cache memory. B. PS is turned off. C. HDD timeout error occurred on a write command to destage the above PIN data. A microcode bug in the logic to process HDD timeout error in the PIN data destage process.	
	3	C	A	SD1203979	DF700-0034	Subsystem Down by pulling HDU	When device ID of SATA Unit is changed or broken , Subsystem down may occur by pulling HDU. When all of the following conditions are met, the phenomenon may occur. A. SENC Microcode 5.77C or older is installed. B. Device ID is changed or broken during subsystem is ready. C. HDU pull out ALPA of HDUs are changed because of SENC firmware bug,	

	4	C	A	SD1123735	DF700-0035	WatchDog Timeout occurs on SENC firmware	After SENC1 alarm occurred, HDU alarm or HDU error occurred on Even HDUs. OR After SENC0 alarm occurred, HDU alarm or HDU error occurred on Odd HDUs. When all of the following conditions are met, the phenomenon may occur. A. SENC Microcode 5.77C or older is installed. B. SENC firmware starvation occurred. C. SENC firmware recovered within 30 seconds SENC detected a failure of the starvated SENC and performed LPFO. However, the starvated SENC recovered after LPFO and incorrectly detected a failure of the other SENC.	
	4	C	C		DF700-0036	Default gateway address 0.0.0.0 cannot be set by WEB maintenance mode	When the microcode 0726/B is installed and the IP address of the maintenance port has not been set, the default gateway address 0.0.0.0 can not be set by WEB maintenance port. When all of the following conditions are met, the phenomenon may occur. A. Microcode Version 0726/B is installed. B. IP address of the maintenance port has not been set. C. Try to set the default gateway address to 0.0.0.0 by Web maintenance mode. The microcode rejects the following combination of the settings in the WEB maintenance mode. - IP address of the maintenance port: 0.0.0.0. - Default gateway address: 0.0.0.0	
	V3.0/A, 0730/A							12/22/2005 091 -
V3.0 0730/A Base System V2.6/E 0726/E	1	N				iSCSI support	The Microcode 0730/A supports iSCSI I/F.	
	2	I				Cache Partition Manager enhancement	(1) Pair Cache Partition Support The Microcode 0730/A supports the function that can specify the destination of cache partition for LU ownership change. (2) Current Cache Partition reference Support The Microcode 0730/A supports the function that can be referred current partition of the LU.	

	3	I				Tuning Parameter enhance	(1) Multi stream mode by LU support The Microcode 0730/A supports the function that can set multi stream mode to each LU. (2) Cache Control mode support The Microcode 0730/A supports cache control mode that can choose FIFO or LRU. (3) Detailed Trace Mode support The Microcode 0730/A supports the mode that can choose the level of detail to collect trace. Default collects detailed trace (ON). Please do not usually make it OFF.	
	4	I				Automatic ENC Firm download for Single CTL support	The Microcode 0730/A supports ENC Firm download for Single CTL. When System Startup Attribute is only Single Mode, ENC firm is automatically downloaded before DF becomes Ready.	
	5	I				RAID1+0 random write performance improvement	The Microcode 0730/A is improved the performance of RAID1+0 random write.	
	6	I		SD1263166		Improvement for the vulnerability for LAN attack	The LAN communication from Web browser to the Subsystem may not access by the LAN attack. The Microcode is modified to improve the vulnerability for the attack from LAN.	
	7	I				Check function reinforcement for "Data transfer check error"	The LBA check function of data transfer from the cache memory to the HDD is improved. When an LBA error is detected by the additional check, the controller displays the following message: WEB message: "HF010E Data transfer check error [DSTPOSERR]"	

	8	C	B	SD1262407	DF700-0037	LAN Connection Failure from HDvM/HTM/SNM	The discovery procedure from HDvM/HTM/SNMfails. The problem may occur when all the following conditions are met. The LAN transfer rate is less than 60KB/second. (Note1) With the combination of the above A and B, the large data (max. 540KB) is transferred by a single command The LAN data transfer rate is so slow in the customer site that the DF700 detects a LAN data transfer timeout in the middle of the data transfer, and the it cannot be recovered by a command retry. The reason of the slow data transfer seems to be the LAN configuration / PC ability of the customer. The microcode was changed to transfer maximum 540KB data by 1 command via LAN though the previous microcode transfers 32KB data per command. As the timeout period of the LAN data transfer is fixed 9 seconds, we think that the slow The microcode is modified to expand the timeout period to 150 seconds.	
	9	C	B		DF700-0038	Wrong unit # message after intermittent AC failure on RKA	Wrong unit # might be displayed on the message of "All HDUs in the Unit missing(Unit-XX)" after an intermitent AC failure on RKA. The problem may occur when all the following conditions are met. A. DF700 B. Intermittent AC failure on RKA A microcode bug in the logic of managing the lost additional boxes of back-end diagnostic.	

	10	C	B		DF700-0039	PS off sequence halt after permanent Drive I/O timeout	PS off sequence halt after permanent Drive I/O timeout on a no redundant RG by HDU alarm When all of the following conditions are met, the phenomenon may occur. A. PS off sequence, or receiving SyncCache command B. Permanent drive I/O timeout on a no redundant RG by HDU alarm A microcode bug in the logic of managing the lost additional boxes of back-end diagnostic.	
	11	C	B		DF700-0040	Controller failure by the "Data share job time-out"	Controller failure by the "Data share job time-out" during sequential read after random write heavy load. When all of the following conditions are met, the phenomenon may occur. A. Almost all the middle destage JOB is in active. B. Prefetch size 256KB. C. Sequential read after random write heavy load A microcode bug in the logic of cache segment queue search.	
	12	C	B		DF700-0041	Taking long time for PS off sequence	It takes long time for PS off sequence (maximum 50 minutes) in case that there are a lot of PIN data. When all of the following conditions are met, the phenomenon may occur. A. PS off sequence, or receiving SyncCache command B. Many PIN (More than 800 PIN per directory, or 640 PIN per partition, or 160 PIN per RG) A microcode bug in the destage sequence which cause big overhead by dispatching unnecessary destaging JOB.	

	13	C	B		DF700-0042	Controller failure with the message of "BRG PCI0 the PCI master reached retry couter limit"	Controller failure occurs with the message of "BRG PCI0 the PCI master reached retry couter limit" after taking dump on a controller which has NAS I/F card with NNC PS OFF or unconnected. When all of the following conditions are met, the phenomenon may occur. A. Microcode Version 0726/B or later is installed. B. Taking full dump C. NAS I/F card is installed on the controller with NNC PS OFF, NNC unconnected, or NNC connected without NAS OS. A microcode bug in the full dump sequence causing PCI error by accessing in-active I/F chipsets on NAS I/F card with NNC PS OFF, NNC unconnected, or NNC connected without NAS OS.	
	14	C	B		DF700-0043	Controller failure with Wachdog timeout after PSUE error during data share write access	Controller failure with Wachdog timeout after PSUE error during data share write access When all of the following conditions are met, the phenomenon may occur. A. PAIR or COPY status on the TrueCopy B. Fence level is "Data" C. Receiving data share write to the P-Vol. D. PSUE occurrs during data transfer A microcode bug in the TrueCopy status change.	
	15	C	B		DF700-0044	Controller failure with the message of "Other controller workQPanic" caused by NNC DC failure	Controller failure with the message of "Other controller workQPanic" caused by NNC DC failure When all of the following conditions are met, the phenomenon may occur. A. Microcode Version 0726/B or later is installed. B. Cache uncorrectable error on NNC C. NNC DC failure A microcode bug in the NNC error handling sequence which is executed recursively.	

	16	C	B		DF700-0045	Hang up during NAS OS installation caused by PS failure on NNC	NAS OS install might be hung up caused by PS failure on NNC without detecting the failure. When all of the following conditions are met, the phenomenon may occur. A. Microcode Version 0726/B or later is installed. B. Installing NAS OS C. PS failure on NNC A microcode bug in the NAS error sequence which unrecognize PS failure on NNC	
	17	C	B		DF700-0046	Improper clear of LU mapping configuration by deleting host groups which is configured on the other blocked controller	LU mapping configuration is inproperly cleared by deleting host groups which is configured on the other blocked controller When all of the following conditions are met, the phenomenon may occur. A. Controller is blocked B. Deleting host groups which is configured on the blocked controller A microcode bug in the sequence of clearing the host group configuration between controllers.	
	18	C	B		DF700-0047	Hang up during SATA drive drive with cache battery faulure	Hang up may occur by write to SATA drive dring cache battery faulure. The problem may occur when all the following conditions are met. A. Cache battery failure occurs (Write thruogh mode) B. Cache partition size is small (100-200MB). C. Write to SATA drive A microcode bug in the logic to process write to SATA drive in the write thruogh mode.	

	19	C	B		DF700-0048	NNC failure with the message of "NNC Command I/O error"	NNC may fail with the message of "NNC Command I/O error" during NAS BIOS mode (taking hibernation dump, or booting) When all of the following conditions are met, the phenomenon may occur. A. Microcode Version 0726/B or later is installed. B. NAS BIOS mode (taking the hibernation dump, or booting) C. Data transfer timeout occurs by some reason D. Operation from SNM A microcode bug in the abort sequence of NAS DMA data transfer.	
	20	C	B		DF700-0049	The power-off sequence is not completed.	The power-off sequence may be not completed, when the double HDD failure occured on the DM-LU. The problem may occur when all the following conditions are met. A. The double HDD failure occurred on the DM-LU. B. Copy function (TrueCopy, ShadowImage, SnapShot) is used. C. PS is turned off. A microcode bug in the logic to process DM-LU data destage with the double HDD failure.	
	21	C	B		DF700-0050	No timeout detection (= hang up) by failure during NAS boot	No timeout detection (= hang up) by failure during NAS boot with the failure of NAS memory test When all of the following conditions are met, the phenomenon may occur. A. Microcode Version 0726/B or later is installed. B. booting NAS C. NNC alarm occurs by the failure during the NAS memory test A microcode bug in the failure sequence of NAS memory test	

	22	C	C		DF700-0051	"Processing unit size" for drive rebuild is cut out improperly after PS OFF / ON	"Processing unit size" for drive rebuild is cut out improperly after PS OFF / ON When all of the following conditions are met, the phenomenon may occur. A. Drive rebuild amout is set with even number B. After PS OFF / ON of the subsystem, or after reboot for Microprogram update. A microcode bug in the cutting out sequence of configuring the "Processing unit size" for drive rebuild.	
	23	C	C		DF700-0052	Inproperly time setting on the NAS-OS with NTP function	Time setting on NAS-OS is different from Time displayed on Web after rebooting NAS subsystem. When all of the following conditions are met, the phenomenon may occur. A. Microcode Version 0726/B or later is installed. B. After rebooting NAS subsystem C. During summer time season A microcode bug in the time setting sequence on NTP function which receive summer time parameter improperly.	
						V3.0/A, 0730/A		12/28/2005 103 -
V3.0/B 0730/B Base System V3.0 0730/A	1	I				Supported connection one or more AMS/WMS iSCSI ports to one IP-SAN	The Microcode 0730/B supports what one IP-SAN can have one or more AMS/WMS iSCSI ports.	
	2	I				Supported RedHat Linux (IA32) and Windows 2003 (IA32) connection with iSCSI	The Microcode 0730/B supports connection RedHat Linux (IA32) and Windows 2003 (IA32) connection with iSCSI.	

V3.0/B 0730/B Base System V3.0 0730/A	3	C	B		DF700- 0053	Controller failure by "Microprogram erorr [SCP]" with iSCSI	Controller failure by "Microprogram erorr [SCP]" with iSCSI after freguent iSCSI failures. When all of the following conditions are met, the phenomenon may occur. A. Microcode Version 0730/A B. iSCSI I/F used C. Freguent iSCSI connection failure A microcode bug in iSCSI command abort sequence.			
						V2.6/F, 0726/F		1/16/2006	111	-
V2.6/F 0726/F Base System V2.6/E 0726/E	1	C	B	SD1316869	DF700- 0054	Unable to put array into maintenance mode	Unable to put array into maintenance mode When the RST SW of both controllers are pushed in order to put both controllers into the maintenance mode, LAN connection failure on the controller, of which the RST SW has been pushed first, may occur at the configuration of DF700S/DF700XS dual controllers system. When all of the following conditions are met, the phenomenon occurs. (a) DF700S or DF700XS (b) Dual controllers configuration (c) 4Gbps Fibre I/F board option (DF-F700-DJ4G2W) is used (d) DF700 microcode: 0726/B or 0726/E (e) Subsystem is ready (f) Put both controllers into Maintenance mode (*1) (*1) This procedure is used for Initial Setup, Offline microcode update, getting full dump of Dual controllers and so on. This problem does not occur at the maintenance operation to get full dump from a failed controller. 4Gbps FC I/F board for DF700S/DF700XS (DF-F700-DJ4G2W) was supported by DF700 Microcode Ver. 0726/B. We found that this phenomenon is caused by a microcode bug in the logic to put both controllers with the 4Gbps FC I/F board option into the maintenance mode, and the hardware error interrupts, caused by a reset of the option board, is not masked correctly.			

	2	C	B	SD1283822	DF700-0055	Network issues (a.k.a. DF700 Ping issue with Cisco 3550 switch)	Network issues (a.k.a. DF700 Ping issue with Cisco 3550 switch) DF700 didn't reply for the Ping with Cisco 3550 switch's IP header modification (Differentiated Service Field enable). The problem may occur when all the following conditions are met. A. DF700 B. Differentiated Service Field in IP packet header is enable C. Ping execute D. Default Gateway is set at DF700 Network driver had a bug on the procedure of route selecting at IP packet transmission. The packet was transmitted to the default gateway when the Differentiated Service Field is enable. Due to the bug DF700 didn't reply for the Ping with Cisco 3550 switch's IP header modification.	

	V2.6/G, 0726/G								1/23/2006	112 -
V2.6/G 0726/G Base System V2.6/F 0726/F	1	C	A		DF700- 0056	System down by Read data transfer deadlock	System down by Read data transfer deadlock System down might occur with READ command from the host to LU that is using the cache partition whose segment size is 4KB or 8KB. When all of the following conditions are met, the phenomenon occurs. (a) DF700 (b) Cache Partition Manager is installed and enabled. (c) This LU is using the cache partition whose segment size is 4KB or 8KB. (*1) (d) RAID level of this LU is RAID0 / RAID5 / RAID6, and - In case of 4KB segment size: More than 8D / 8D+1P / 8D+2P - In case of 8KB segment size: More than 16D / 16D+1P / 16D+2P (e) A Read Command is separated into several internal smaller size data transfers. The phenomenon is easier to occur with the longer Read command. (f) Whole read data is in the same stripe columns and All-Cache-MISS. When DF700 executes a long size host READ command, it might be separated into smaller data transfer several times. In case that 4KB or 8KB cache segment is configured in the partition with the Cache Partition Manager, it is possible that DF700 tries to close the READ command befo (As a result, it is almost the same as system down.)		

	2	C	B		DF700-0057	Controller failure when the system HDD write and host I/O occur simultaneously	Controller failure when the system HDD write and host I/O occur simultaneously Controller failure may occur when the system HDD write(*) and host I/O occur simultaneously. * The system HDD write occur at the following operation from SNM. Starting LU format, LU format completion , LU create, LU ownership change etc... The problem may occur when all the following conditions are met. (a) DF700 (b) When the system HDD write(*) and host I/O occur simultaneously. * The system HDD write occur at the following operation from SNM. Starting LU format, LU format completion , LU create, LU ownership change etc... A microcode bug in cache access sequence when the system HDD write and host I/O occur simultaneously.	

	V3.0/C, 0730/C								1/23/2006	113 -
V3.0/C 0730/C Base System V3.0/B 0730/B	1	C	A		DF700-0058	System down by Read data transfer deadlock	System down by Read data transfer deadlock System down might occur with READ command from the host to LU that is using the cache partition whose segment size is 4KB or 8KB. When all of the following conditions are met, the phenomenon occurs. (a) DF700 (b) Cache Partition Manager is installed and enabled. (c) This LU is using the cache partition whose segment size is 4KB or 8KB. (*1) (d) RAID level of this LU is RAID0 / RAID5 / RAID6, and - In case of 4KB segment size: More than 8D / 8D+1P / 8D+2P - In case of 8KB segment size: More than 16D / 16D+1P / 16D+2P (e) A Read Command is separated into several internal smaller size data transfers. The phenomenon is easier to occur with the longer Read command. (f) Whole read data is in the same stripe columns and All-Cache-MISS. When DF700 executes a long size host READ command, it might be separated into smaller data transfer several times. In case that 4KB or 8KB cache segment is configured in the partition with the Cache Partition Manager, it is possible that DF700 tries to close the READ command befo (As a result, it is almost the same as system down.)		

	2	C	B		DF700-0059	Controller failure during online microcode update	Controller failure during online microcode update (a) Controller #1 failure may occur during online microcode update from 0730/B to other version. (b) Controller #1 failure may occur during online controller #1 replacement when microcode ver. 0730/A or 0730/B is used. When all of the following conditions are met, the phenomenon occurs. (a) DF700S or DF700XS (b) Number of system disk drive: less than 5(*1) (c) DF700 microcode: 0730/A or 0730/B (d) Execute the online microcode update or online controller #1 replacement (*1) The same phenomenon occurs when system disk drive is failed. Failure diagnostic function for the system disk drive obstacle at the boot up process was supported by DF700 Microcode Ver. 0730/A. We found that this phenomenon is caused by a microcode bug in the controller number reference operation during backend loop switching process, and then microcode access the improper memory area. Therefore, microcode referred the controller #0 information though microcode was necessary to refer to the controller #1 area. Then controller #1 doesn't continue the boot up pro

	3	C	B	SD1283822	DF700-0060	Network issues (a.k.a. DF700 Ping issue with Cisco 3550 switch)	Network issues (a.k.a. DF700 Ping issue with Cisco 3550 switch) DF700 didn't reply for the Ping with Cisco 3550 switch's IP header modification (Differentiated Service Field enable). The problem may occur when all the following conditions are met. A. DF700 B. Differentiated Service Field in IP packet header is enable C. Ping execute D. Default Gateway is set at DF700 Network driver had a bug on the procedure of route selecting at IP packet transmission. The packet was transmitted to the default gateway when the Differentiated Service Field is enable. Due to the bug DF700 didn't reply for the Ping with Cisco 3550 switch's IP header modification.
	4	C	B		DF700-0061	CCI command failure by iSCSI port when LUN Manager is used	CCI command failure by iSCSI port when LUN Manager is used CCI command failure by iSCSI port when LUN Manager is used When all of the following conditions are met, the phenomenon occurs. (a) DF700 iSCSI I/F (b) LUN Manager has installed (c) The host is connected to Host group #1 or more (except HG#0) A microcode bug in mapping sequence of CCI command with iSCSI.

	5	C	B		DF700-0062	Controller failure when the system HDD write and host I/O occur simultaneously	Controller failure when the system HDD write and host I/O occur simultaneously Controller failure may occur when the system HDD write(*) and host I/O occur simultaneously. * The system HDD write occur at the following operation from SNM. Starting LU format, LU format completion , LU create, LU ownership change etc... The problem may occur when all the following conditions are met. (a) DF700 (b) When the system HDD write(*) and host I/O occur simultaneously. * The system HDD write occur at the following operation from SNM. Starting LU format, LU format completion , LU create, LU ownership change etc... A microcode bug in cache access sequence when the system HDD write and host I/O occur simultaneously.		
						V3.2, 0732/A		2/10/2006	117	-
	1	N				DF700H support	The Microcode 0732/A supports DF700H. Multiple I/F (FC, iSCSI and NAS) is supported in DF700H.			
	2	N				User LAN port online setting support	The following of user LAN port can be set without reboot. IP address, subnet mask, default gateway			
	3	N				SNMP online setting support	SNMP can be set without reboot.			
	4	I				Cache Partition Manager(CPM)enhancement	- Partition setting and LU setting of CPM can be applied with A single reboot. - Snapshot can be installed when CPM is already used. * Then, CPM configuration will be initialized when Snapshot is installed.			

	5	I				Clearing the port configuration on the change of the interface board	When the type of the installed interface board is changed, all of the following configuration setting for the port will be cleared to eliminate the influence of the previous configuration. - Host Group Information / Target Information - Host Group Option / Target Option - Mapping Information - FC Port Setting Information / NAS connection information / iSCSI port setting information - CHAP security information (iSCSI)
	6	I				Support of displaying NAS OS/BIOS ver. on web	The Microcode 0732/A supports the function that displays NAS OS/BIOS ver. on web.
	7	I				Support of default button of LAN configuration on web	The Microcode 0732/A supports the button in the “equip_set” window of web that can set default configuration of LAN.
	8	I				Checking the same IP address of NNC management port	The Microcode 0732/A supports the function that checks the same IP address of NNC management ports.
	9	I				QLA4010 support	The Microcode 0732/A supports iSCSI HBA “QLA4010”.
	10	I				Support of 128 hosts/port connection of iSCSI	The Microcode 0732/A supports 128 hosts/port connection of iSCSI.

	11	C	A		DF700-0063	Subsystem down for controller recovery during sequential write	Subsystem may be down with the following message for controller recovery during sequential write. (1) Data transfer check error[WRNODTYBK] or (2) Parity generation LA error[DRR] The problem may occur when all the following conditions are met. (a) DF700M (b) Cache memory is more than 2GB/CTL (c) This LU is on the RAID group of FC drives. (d) This LU is using master partition (partition#0or1) (e) RAID level of this LU is RAID5 (4D+1P or 8D+1P) or RAID6 (4D+2P or 8D+2P). (f) The longer sequential write command (more than 512KB length) in this LU. (g) The controller is recovered Due to the microcode bug in sequence of controller recovery during sequential write.	
	12	C	B	SD1350148 (DF600-16156/51386/16142)	DF700-0064	SATA HDD blockade	SATA HDD was blockaded by the confliction between online verify and host I/O. The problem may occur when all the following conditions are met. (a) DF700 (b) SATA HDD (c) The confliction between online verify and host I/O. When the online verify and host I/O access the same area, the microcode executes the online verify process by priority. In this case, drive access for host I/O may result in a timeout error, and SATA HDD may be blockaded.	

	13	C	B	D700-16195	DF700-0065	LU hang up	LU may be hung up because the controller fails to blockade when the obstacle occurs on the controller. When all of the following conditions are met, the phenomenon may occur. (a) DF700 (b) The specific obstacle occurs in the controller. (c) LAN access frequently The phenomenon is caused by a bug in the microcode logic to blockade the controller when the specific obstacle occurs on the controller.
	14	C	B		DF700-0066	Incorrect WEB information messages for NNC DIMM failure	When a failure of an NNC DIMM occurs, the displayed information message points out a wrong DIMM slot number. When all of the following conditions are met, the phenomenon occurs. (a) NAS Configuration (DF700XS, DF700S, DF700M with NNC) (b) Microcode version is 0726/A or later (c) Uncorrectable error or Correctable error (threshold over) occurs in an NNC DIMM occurs. The phenomenon is caused by a bug in the microcode logic to determine the DIMM slot number from the hardware error information.

V3.2 0732/A Base System V3.0/C 0730/C	15	C	B		DF700-0067	NNC failure after pulling out the SFP modules	NNC failure occurs with the message of "NNC Hardware failure detected [TEMP](NNC-X)" after pulling out the SFP module. When all of the following conditions are met, the phenomenon may occur. (a) NAS Configuration (DF700XS, DF700S, DF700M with NNC) (b) Microcode version is 0726/A or later (c) SFP on the NNC is pulled out NNC failure occurred after pulling out the SFP modules, Due to the microcode bug which makes unproper referenece of hard error register.
	16	C	B		DF700-0068	Controller/ENC recovery failure after hardware error	Controller/ENC recovery failure after hardware error When all of the following conditions are met, the phenomenon may occur. (a) DF700 (b) During Controller or ENC recovery (c) Hardware error occurs in the Controller or ENC Due to the microcode bug on the sequence of hardware error during Controller or ENC recovery.
	17	C	B		DF700-0069	Improper ENC failure and improper Unit # on the failure message after HDU replacement.	Improper ENC failure and improper Unit # on the failure message occur after HDU replacement which has some fibre channel port failure. When all of the following conditions are met, the phenomenon occurs. (a) DF700 (b) HDUwhich has fibre channel failure on the port is replaced. Due to the microcode bug on the sequence of HDU recovery, microcode found the backend fibre channel failure improperly, after HDU replacement.

	18	C	B		DF700-0070	SNM connection failure by LAN failure	Storage Navigator Moduler connection failure may occur by LAN failure. Web connection and host I/O are no problem. When all of the following conditions are met, the phenomenon occurs. (a) Reference to the DF700 information from SNM (b) LAN failure occurs (c) Response error from SNM after (b) The phenomenon is caused by a bug in the microcode logic to connect SNM.	
	19	C	B		DF700-0071	No guard for creating the pair with S-VOL of TrueCopy in Read only or Protected LUof Data Retention	No guard for creating the pair with S-VOL of TrueCopy in Read only or Protected LUof Data Retention. When all of the following conditions are met, the phenomenon occurs. (a) DF700 (a) Read only or Protected LUof Data Retention (b) The pair is created as S-VOL of TrueCopy in the LU. The phenomenon is caused by a bug in the microcode logic to create TrueCopy pair in Read only and Protected LU.	
	20	C	B		DF700-0072	Inappropriate drive failure for drive response diagnosis function	Inappropriate drive failure may occur for drive response diagnosis function. The problem may occur when all the following conditions are met. (a) DF700 (b) Drive Response Time Diagnosis is set to "Enable(Output Message and Dynamic Sparing)" (c) The host I/O is about 100 IO/minute for both controllers. Due to the microcode bug in sequence of drive response diagnosis function.	

	21	C	B		DF700-0073	Sequential read performance deterioration	Sequential read performance may deteriorate. The problem may occur when all the following conditions are met. (a) DF700 (b) During sequential read (c) SNM setting, or pair setting from CCI, or LU ownership change by host I/O Due to the microcode bug in interruption sequence of prefetch, the prefetch may hung up, and sequential read performance may deteriorate.	
	22	C	B		DF700-0074	Controller failure during the PS ON sequence after cache data lost	After cache data lost, a controller failure may occur during the PS ON sequence when Snapshot has been installed. The problem may occur when all the following conditions are met. (a) DF700 (b) Snapshot is installed (c) PS ON after cache data lost Due to the microcode bug in PS ON sequence of Snapshot after cache data lost.	
	23	C	B		DF700-0075	Inappropriate summer time for NAS	The summer time for NAS may starts and ends later than expected, or the summer setting does not become effective. The problem may occur when all the following conditions are met. (a) NAS Configuration (DF700XS, DF700S, DF700M with NNC) (b) Summer time for NAS is used Due to the microcode bug in computation sequence of summer time for NAS.	

	24	C	B		DF700-0076	Controller failure due to NNC DIMM failure during NNC reboot	Controller failure may occur for NNC DIMM failure during NNC reboot The problem may occur when all the following conditions are met. (a) NAS Configuration (DF700XS, DF700S, DF700M with NNC) (b) During NNC reboot (c) Cache failure of NNC occurs Due to the microcode bug in sequence of NNC cache failure during NNC reboot.	
	25	C	B		DF700-0077	NNC boot timeout	NNC boot timeout may occur after the recovery of the failed controller. The problem may occur when all the following conditions are met. (a) NAS Configuration (DF700XS, DF700S, DF700M with NNC) (b) NNC boot after the recovery of the failed controller Due to the microcode bug in NNC boot sequence.	
	26	C	C		DF700-0078	Alarm LED on the Fibre Channel interface board wasn't lit after controller replacement.	Alarm LED on the Fibre Channel interface board wasn't lit after the controller was replaced without installing SFP module. The problem may occur when all the following conditions are met. (a) DF700 with Dual controllers (b) SFP was failed or un-installed (c) Controller was replaced whose SFP was failed or un-installed Due to the microcode bug in the failure detection during controller recovery sequnence, LED on the Fibre Channel interface board was not it light.	

	27	C	C		DF700-0079	Improper IP address display for the NNC port after initial set up of NAS	Improper IP address (0.0.0.0) was displayed for the NNC port, after initial set up of NAS without reseting the IP address / Subnet Mask. The problem may occur when all the following conditions are met. (a) NAS Configuration (DF700XS, DF700S, DF700M with NNC) (b) Microcode 0726/A or later (c) Initial setup without reseting IP address / Subnet Mask for the NNC ports. Microcode bug which didn't set the default value on the IP address / Subnet Mask configuration caused the improper IP address (0.0.0.0) display.			
						V3.3, 0733/A		2/28/2006	134	-
	1	I				Cache Partition Manager(CPM)enhancement	-Segment size of cache partition is supported 64KB/256KB/512KB. -Stripe size of LU is supported 256KB/512KB.			
	2	I				“Change maintenance port IP address automatically” option support	If this option is set when IP address of user port is changed with reboot, IP address of maintenance port is changed automatically as following (Same as DF600). - CTL0: 10.0.0.16 or 192.168.0.16 - CTL1: 10.0.0.17 or 192.168.0.17			
	3	I				Sequential Write performance improvement	DF700H performance of Sequential Write is improved.			

	4	C			DF700-0080	Command check response with ShadowImage S-VOL switch	The following commands are responded by check while ShadowImage pair switches to S-VOL for double drives failure of P-VOL. TEST UNIT READY, REZERO UNIT, REASSIGN BLOCKS, SEEK(6), SEEK(10), VERIFY, SYNCHRONIZE CACHE The problem may occur when all the following conditions are met. (a) DF700 (b) While ShadowImage pair switches to S-VOL for double drives failure of P-VOL. (c) The following commands are received - TEST UNIT READY - REZERO UNIT - REASSIGN BLOCKS - SEEK(6) - SEEK(10) - VERIFY - SYNCHRONIZE CACHE Due to the microcode bug in sequence of response to those commands while ShadowImage pair switches to S-VOL for double drives failure of P-VOL.
	5	C			DF700-0081	Controller failure for iSCSI heatrun	Controller failure may occur with "Microprogram error[ISD]" or "Microprogram error[ISM]" message during iSCSI heatrun. The problem may occur when all the following conditions are met. (a) DF700 iSCSI (b) Command abort occurs from iSCSI hosts Due to the microcode bug in abort sequence of iSCSI command, controller failure may occur with improper error detection.

V3.3 0733/A Base System V3.2 0732/A	6	C			DF700-0082	Controller failure in DF700S/XS of 2port I/F option after pulling out path	Controller failure may occur with "Microprogram error[HSC]" message in DF700S/XS of 2port I/F option after pulling out path . When all of the following conditions are met, the phenomenon may occur. (a) DF700S or DF700XS (b) 2port I/F option is used (c) Pulling out path Due to the microcode bug in abort sequence of data transfer after pulling out the path cable, controller failure may occur with improper reference of internal control table.
	7	C			DF700-0083	Controller failure for double drives failure with DF700-NAS	Controller failure may occur with "Microprogram error[NSM]" message after double drives failure on DF700-NAS When all of the following conditions are met, the phenomenon occurs. (a) NAS Configuration (DF700XS, DF700S, DF700M, DF700H with NNC) (b) Microcode version is 0726/A or later (c) Double drives failure occurs. Due to the microcode bug in sequence of NAS I/O recovery after double drives failure, controller may be failure with the logical error on the resouce management for command execution.

	8	C			DF700-0084	Booting failure after executing offline microcode update from microcode 071x/x to 0720/A or later	Booting failure may occur after executing offline microcode update from microcode 071x/x to 0720/A or later When all of the following conditions are met, the phenomenon may occur. (a) DF700M or DF700S (b) In 071x/x , SNM setting, or pair setting from CCI, etc... (c) Executing offline microcode update (with Web) from microcode 071x/x to 0720/A or later without PS OFF/ON. Due to the microcode bug on the system area check on the 071x/x, check code on the system area becomes improper value, and controller may fail by the check code error after offline microcode update into the Ver 0720/A.	
	9	C			DF700-0085	Performance deterioration for SyncImage function on a DF700-NAS	Sequential write performance deterioratioin for SyncImage function on a DF700-NAS When all of the following conditions are met, the phenomenon may occur. (a) DF700 (b) Microcode version 0730/A or later. (c) Receiving sequential write and Random write concurrently. Due to the microcode bug on the cache control sequence, data transfer request may not be executed on the destaging Job and performance may deteriorate.	

	V3.5, 0735/A								3/29/2006	142 -
	1	N				TrueCopy Extended Distance support	TrueCopyED is a function for the asynchronous remote copy between the LUs in the subsystems connected via the Fibre Channel interface.			
	2	I				iSCSI support platform enhancement	Microsoft iSCSI initiator 2.01 is supported. RedHat Linux with NIC is supported.			
	3	C	B		DF700-0086	When the Subsystem boots, it does not detect the failure in spite of ENC cables are connected abnormally.	When the Subsystem boots, it does not detect the failure and become Ready in spite of ENC cables are connected abnormally (IN and OUT are connected conversely.) The problem may occur when the Subsystem boots while ENC cables are connected abnormally. (IN and OUT are connected conversely.) Due to the microcode bug in the ENC cable check(IN/OUT check) during the Subsystem booting.			
	4	C	B		DF700-0087	Subsystem does not become ready with "Unit which cannnot be managed(Unit-XX)"	Subsystem does not become ready with "Unit which cannnot be managed(Unit-XX)" in following order of connection. RKH(DF700HDKC) -- RKA(FC) -- RKA(FC) -- RKAT(SATA) The problem may occur when all the following conditions are met. (a) The timing of Subsystem booting (b) DF700H (c) The last of additional UNIT is RKAT(SATA) (d) The rightest HDU (HDU-14) which is in RKA(FC) connected next to the basic UNIT. Due to the microcode bug in the order of failure detection during the Subsystem booting.			

	5	C	A		DF700-0088	Execute pairresync during Quick Format for PVOL after ShadowImage I/O Switch	In case that the ShadowImage I/O Switch Mode is enable in ShadowImage, when the HDDs that compose PVOL are blockaded, the correct maintenance procedure is below. (a) Exchange of the obstacle HDDs (b) Execute Quick Format for the PVOL (c) Wait for completion of Quick Format. (d) Execute pairresync after the (c). In the case of (c), when pairresync is executed before Quick Format is completed, the pairresync can be incorrectly executed. As a result, a host may not recognize PVOL. When all of the following conditions are met, the phenomenon may occur. (a) ShadowImage is enabled. (b) “ShadowImage I/O Switch Mode” is enabled. (c) The HDDs that composes PVOL are blockaded. (d) Execute Quick Format after the obstacle HDDs exchange. (e) Execute pairresync during Quick Format for the PVOL. In the state of PSUE(SVOL Switch), Quick Format for the PVOL is possible. But, there was not a check of paireresync for PVOL executing Quick Format.
	6	C	B		DF700-0089	Countermeasure for performance down in high-multiplex commands in iSCSI.	The performance down for Write or Read/Write may occur in high-multiplex commands in iSCSI. The problem may occur when all following conditions are met. (a) iSCSI IF (b) Many hosts (more than 40 hosts) (c) Command multiplex number is more than 512 from whole hosts. This problem happened because multiplex command number was assigned more than necessity. Therefor we modified to assign them evenly.

7	C	B		DF700-0090	Subsystem down with "Backend down[Cable ERR]".	Subsystem down may occur by Loop obstacle during the Subsystem booting. The problem may occur when all following conditions are met. (a) The timing of Subsystem booting (b) The last of additional UNIT is RKAT(SATA) and connected on Path0 or Path2. (c) There is Loop obstacle in CTL#0. Due to the microcode bug in the diagnosis process during the Subsystem booting.
8	C	C		DF700-0091	Subsystem down with "Microprogram error[SNR]".	Subsystem down with "Microprogram error[SNR]" may occur after the SnapShot restore is completed. (1) The problem may occur when TrueCopy pair status is changed during executing the restore of SnapShot. (2) The problem may occur when 'pairsplit -S' is executed to the pair which is executing SnapShot restore. Due to the microcode bug in the SnapShot restore process.
9	C	B		DF700-0092	A subsystem does not down in spite of both ENC blockade.	ENC#0 is failure because of removing ENC#0. ENC#1 is failure because SES command can not be read. But the subsystem does not down in spite of both ENC blockade. The problem may occur when one of following conditions is met. (1) ENC#0 blockade (2) ENC#1 blockade because of one failure except for Loop failure. Due to the microcode bug in the backend diagnosis.
10	C	B		DF700-0093	CTL blockade with DCTL failure in iSCSI.	CTL blockade with DCTL failure in iSCSI. Some of these case, CTL blockade is not needed. The problem may occur when one of following condition is met. (1) iSCSI I/F (2) When the controller receives host I/O in both ports, DCTL failure occurs in Port#1 and there is no DCTL failure in Port#0. Due to the microcode bug in the iSCSI DCTL transaction.

V3.5 0735/A Base System V3.3 0733/A	11	C	B		DF700- 0094	Countermeasure for performance down of random-Write.	Performance of random-Write in RAID5 is downed extremely temporarily. This occurs on not only 1LU(1RG), but also 2,4,8,12LUs. The problem may occur when all following conditions are met. (a) RAID5 (b) random Write I/O (c) cache size is big Due to the microcode bug in the cache transaction.
	12	C	C		DF700- 0095	Illegal setting condition for directory change.	Directory change does not work temporarily. Performance of I/O may be downed. The problem may occur when all following conditions are met. (1) Each directory is assigned to each controller. (2) Copys of each controller complete at the same time while both controllers execute TrueCopy. Due to the microcode bug in the directory change process.
	13	C	A		DF700- 0096	System down during Snapshot restore	Restore of Snapshot can be execute by "pairresync -restore" command. System down (both controllers failure) might occur just before finishing restore of Snapshot. When all of the following conditions are met, the phenomenon may occur. (a) Snapshot license is available. (b) LU size of Snapshot pair is larger than 100GB. (c) Executing Snapshot restore. (pairresync -restore) (d) No LAN access is during the end process of Snapshot restore. (Neither Management LAN nor Maintenance LAN is accessed.) It is so that the timer of watchdog timeout is cleared by LAN access. Due to the microcode bug, the end process of Snapshot restore takes time more than 10 seconds in proportion to LU capacity. DF controller failure may occur for watchdog timeout (10 seconds) at the end process of Snapshot restore.

	14	C	B		DF700-0097	Performance down in high-load heatrun with low line.	Performance down may occur in iSCSI high-load heatrun with low line(100Mbps). The problem may occur when all following conditions are met. (a) iSCSI I/F (b) low line(less than 100Mbps) (c) high-load, high-multiplex (more than 1280 command/port) Due to the microcode bug in the iSCSI command transaction.
	15	C	B		DF700-0098	Snapshot V-VOL can not be deleted by Storage Navigator Modular.	Snapshot V-VOL can not be deleted by Storage Navigator Modular. One of followings works on CTL0 and CTL1 at the same time. (1) Snapshot status becomes 'PSUE'. (2) Internal job for removing V-VOL are completed. Due to the microcode bug in the 'Snapshot' process.
	16	C	B		DF700-0099	Changing the way of Outbound check in iSCSI.	iSCSI outbound EDC check may hung. (countermeasure for Qlogic errata) The problem may occur when all following conditions are met. (a) iSCSI IF (b) Outbound Write transfer (c) Using the EDC check function Changing the hardware specification. (countermeasure for Qlogic errata)

	17	C	B		DF700-0100	LA error is detected in iSCSI Read transfer.	LA error may be detected in iSCSI Read transfer while Subsystem carry the 8GB cache. LA error may be detected in iSCSI Read transfer while Subsystem carry the 8GB cache. A microcode bug in the iSCSI Read transfer.
	18	C	A		DF700-0101	NAS Quick Installation Tool Fails	NAS Quick Installation Tool fails for DF700XS/S/M. The following messages are displayed during the installation to NNC#2. Connect() error, WSAGetLastError = 10060. Failed to initialize socket for NNC2. Error Code=0x00000001 When all of the following conditions are met, the phenomenon may occur. (a) Subsystem is DF700XS, DF700S or DF700M (DF700H does not have a potential of this problem) (b) Microcode Version is 0730/A or later. (c) The Quick Install tool is used after changing the IP address of the maintenance port by SNM. A microcode bug in setting of NAS maintenance IP address.
	19	C	A		DF700-0102	Subsystem can not work for commands.	One of followings may occur. (1) Subsystem can not work for all commands except for Read/Write. (2) One of controller can not receive the host I/O. The problem may occur when one of followings works on CTL0 and CTL1 at the same time. (1) Setteing command from Storage Navigator Modular is executed. (2) Setteing command from CCI is executed. (3) Directory change is executed. (4) Reserve command is executed. A microcode bug in command selection process.

	20	C	B		DF700-0103	DF does not response with raw I/O in NIC connection of RedhatLinux4.0U1.	DF does not response with raw I/O in NIC connection of RedhatLinux4.0U1. The problem may occur when all following conditions are met. (a) iSCSI (b) RAW I/O from Linux (c) high-load I/O from multiplex hosts A ISP4022Firmware bug in Linux raw I/O.			
	21	C	B		DF700-0104	When the CTL reboots (include online microprogram exchange), the host connection path isn't recovered.	When the CTL reboots (include online microprogram exchange), the host connection port isn't Link-Up and the path isn't recovered. The problem may occur when all following conditions are met. (1) DF700 XS/S + 4G FC I/F (2) Direct connection from AIX+HBA(FC6239) to port B of DF700 (3) When the CTL reboots (include online microprogram exchange) When self-test program runs at port A , AIX HBA(FC6239) of direct connecting port B of DF700 may hang up.			
	22	C	A		DF700-0105	Commands timeout occurs with Snapshot function.	When the Snapshot function is used, the host I/O become a time out. And next I/Os is rejected. The problem may occur when all following conditions are met. (a) Host issues Write commands to Snapshot P-VOL . (b) It fails in the any SnapShot-Copy (from P-VOL to Pool) processing for CTL failure etc. (v) Execution of the other SnapShot pair operation A microcode bug in Snapshot-copy process.			
						V3.5/B, 0735/B		4/17/2006	165	-
V3.5/B 0735/B Base System V3.5 0735/A	1	N				Maintenance IP addres Auto-swap mode without reboot	The Microcode 0735/B supports Auto-swap mode without reboot. In Auto-swap mode, when IP address of User port is changed, IP address of Maintenance port is automatically changed into following address without reboot. [User port IP] --> [Maintenance port IP] - 10.xxx.xxx.xxx --- CTL0 : 192.168.0.16, CTL1 : 192.168.0.17 - other than above --- CTL0 : 10.0.0.16, CTL1 : 10.0.0.17			
	2	N				LAN setting with Constitute file	The Microcode 0735/B supports the User port and Maintenance port LAN Setting funtion with a constitute file. To use this function, you can store the LAN information of the system in this file, and apply LAN configuration data to another subsystem without reboot.			

	3	N				Mozilla 1.5 Browser support	The Microcode 0735/B supports Mozilla 1.5 browser for following OS: - AIX 4.3 - AIX 5.1			
					V4.0/B, 0740/B			4/27/2006	166	-
V4.0/B 0740/B Base System V4.0 0740/A	1	C	B		DF700-0106	CTL blockade with displaying LUN Manager Information on WEB	When the LUN Manager Information is displayed on WEB, the CTL failure may occur. The problem may occur when all of the followings works are met;. (1) LUN Manager is enable (2) LU Mapping Mode is enable (3) Host Group Security is enable (4) More than 54 WWNs are registered Due to the microcode bug in web displaying WWN for port, controller may fail with improper memory access.			
	2	C	B		DF700-0107	PSUE occurred with setting Host Group on SNM	When the Host Group Setting is changed on SNM, the TrueCopy pair may become PSUE. The problem may occur when all of the followings work at the same time. (1) LUN Manager is enable on the port which True Copy is using (2) Host Group Security is enable (3) Setting WWN Information with SNM Due to the microcode bug in relogin sequence after WWN setting on Host Group Security, PSUE occurred by taking unexpected long time wo relogin.			
	3	C	C		DF700-0108	Clearning the port configuration not completed on the change of the interface board	When the type of the installed interface board is changed, the port option setting is not cleared. In changing interface board, the following information should be cleared; A. Host Group B. LU Mapping C. Port Options The setting of Host Group and LU Mapping are cleared normally, but the Port Options are not cleared. Due to the microcode bug in the initialization process.			

	4	C	B		DF700-0109	TrueCopy Path failure occurred with "command time out"	If sequential write to the TrueCopy P-VOL would be done, the path failure will occur. The problem may occur when following condition on TrueCopy S-VOL, (1)RAID 6, Stripe size:512KB, Segment size 16KB, 5D+2P and more (2)RAID 6, Stripe size:512KB, Segment size 64KB, 18D+2P and more (3)RAID 6, Stripe size:256KB, Segment size 8KB, 5D+2P and more (4)RAID 6, Stripe size:256KB, Segment size 16KB, 13D+2P and more (5)RAID 6, Stripe size:64KB, Segment size 4KB, 13D+2P and more (6)RAID 5, Stripe size:512KB, Segment size 16KB, 8D+1P and more (7)RAID 5, Stripe size:256KB, Segment size 8KB, 8D+1P and more Due to the microcode bug in drive writting process, timeout may occur by taking unexpected long time to access to the larger size stripe.	
	5	C	B		DF700-0110	TrueCopy Path failure occurred with "Path login failed"	In the TrueCopy configuration via FC switch, when one subsystem reboot, "Path login failed" occurs and the path do not recover automatically. The problem may occur when all of following condition are met; (1) In the TrueCopy configuration via FC switch (2) Zone configuration not configure (3) When one subsystem reboot Due to the microcode bug in path login/logout process after one subsystem reboot, one of the path may fail to reboot.	
	6	C	B		DF700-0111	Controller failure with "Data transfer check error[CCPLUNERR]"	Controller failure may occur with the following message using ShadowImage. Web Message: Data transfer check error[CCPLUNERR] (EN_DF700_M14) When all of the following conditions are met, the phenomenon may occur. A. ShadowImage is used. B. The pair status of ShadowImage is "COPY" or "PAIR". C. Subsystem receives "Write & Verify command " from a host for SVOL of ShadowImage. Due to the microcode bug in the "Write & Verify command" processing for SVOL of ShadowImage.	

	V4.0/C, 0740/C							5/19/2006	176 -
V4.0/C 0740/C Base System V4.0 0740/B	1	N				Support of copy backless function for DF600-RKA	The Microcode 0740/C supports copy backless function for FC HDDs of DF600-RKA that is enabled by setting mode.		
	2	I				IP connection check before starting IP change without reboot	The Microcode 0740/C supports IP connection check before changing IP address without reboot. If there remains any connection on the LAN ports whose IP address is being changed, then the IP address change sequence without reboot is stopped, and error message is displayed. Furthermore, information about the connecting IP address on the LAN ports is output to “netstat.inf” file in the directory where Storage Navigator Modular has been installed.		
	3	I				QLA2460 support	The Microcode 0740/C supports FC HBA “QLA2640”.		
	4	C	A	SD1448710	DF700-0112	Host I/O fails while using a spare disk drive	When a spare HDD is used, the LU access may fail because the controller responds to a host I/O with a Check Condition status (Sense Key = 0Bh, Sense Code = C006h). When all of the following conditions are met, the phenomenon may occur. (a) Microcode version is 0730 or later. (b) The spare disk drive is used: - In case of the copy-back-less mode: From the beginning to the end of the correction copy operation to the spare disk drives - In case of the copy-back mode: From the beginning of the correction copy operation to the spare disk drive, to the end of the copy back operation to the replaced disk drive (c) The host issues I/Os only to the RAID group using the spare disk drive. (The write processing to the spare disk drive works when host I/Os are not issued to the RAID group or host I/Os are issued to the other RAID group.) Due to the microcode bug in the logic to check the write data for a spare disk drive after the writing processing to a spare disk drive is interrupted, and the write data for the spare drive may not written to the spare disk drive. As the result, the cache memory of the controller is occupied by the write data for the spare disk drive, and the host I/O cannot be executed because the cache segment cannot be allocated.		

	V5.0/A, 0750/A							6/19/2006	183	-
V5.0/A 0750/A Base System V4.0/C 0740/C	1	N				ShadowImage 1:3 support	The microcode supports ShadowImage “1:3”.			
	2	N				Snapshot 1:15 support	The microcode supports Snapshot “1:15”.			
	3	N				iSCSI 255 initiator support	The microcode supports 255-initiator connection on iSCSI platform. - Target count: 128 to 255 - CHAP user count: 256 to 512 - Initiator count: 128 to 255			
	4	N				LAN Negotiation Mode support	The microcode supports LAN Negotiation Mode. It can be selected from the following modes. - Auto (default) - 100Mbps Full - 100Mbps Half - 10Mbps Full - 10Mbps Half			
	5	I				Random Read performance improvement in RAID1	The microcode is modified to improve the performance of random Read in RAID1 by improving the process of disk access.			
	6	I				“SATA 500GB HDD 720 hours per month use” support	The microcode changes Online Verify processing to support “SATA 500GB HDD 720 hours per month use”. The microcode executes Online Verify for SATA 500GB HDD as frequent as FC HDD (full time Online Verify execution).			
	7	I				Improvement of both Loop obstacles processing during the Subsystem booting.	The microcode is improved to prevent the hung up by both Loop obstacles during the Subsystem booting.			
	8	I				Improvement of the Backend automatic diagnosis for Controller unit in DF700H	The microcode is improved to check a controller with an obstacle by the Backend automatic diagnosis for Controller unit in DF700H.			
	9	I				Improvement for repetitive blockade by LA/LRC error in the Dual controller configuration	To avoid repetitive controller blockade, the microcode is modified not to blockade the controller when the LA/LRC error is detected in the same area(block) after controller exchange.			
	10	I				Web indication of NAS PP Version	The microcode is improved to display a version of installed NAS PP.			
	11	I				Modification of LU size check of NAS system Lus	The microcode is modified to check out the LUs too small for NAS system LUs.			

	12	I				Web message change in “NNC Boot time-out”	The microcode is modified to clarify the factors of “NNC Boot time-out”. The following messages will be displayed by this change: - NNC Boot time-out[post xxxx, yyyy](NNC-z) - NNC Boot time-out[PXE][post xxxx,yyyy](NNC-z) - NNC Boot time-out[BIOS][post xxxx,yyyy](NNC-z) - NNC Boot time-out[TUR][post xxxx,yyyy](NNC-z) - NNC Boot time-out[BIOS_LOAD][post xxxx, yyyy](NNC-z) - NNC BIOS firmware installation time-out[post xxxx, yyyy](NNC-z)
	13	I				Backend Auto Diagnosis Threshold setting support	The microcode supports a function to change the maximum retry count of Backend auto diagnosis. A default value of the maximum retry count of Backend auto diagnosis is 10.
	14	I				Improvement of Backend Auto Diagnosis	The microcode is improved to prevent an incorrect judgment of an obstacle part by an intermittent obstacle in the backend Loop.
	15	I				Improvement of Multiple LBA command processing in the NAS system	When a multi-LBA command is received in the NAS system, a command time-out may occur. The microcode improves the processing of the multi-LBA command.
	16	I				Improvement of User IP address change	The microcode improves the following items for User IP address change in the Storage Navigator Modular GUI Window. - The microcode maintains a chosen value (“set with reboot” or “set now without reboot”). - The microcode is modified to set the default value of setting timing to “set now without reboot”.
	17	I				Improvement in NNC voltage obstacle	When a voltage obstacle occurred in NNC, the microcode is improved to fail over the NNC. And, the microcode improves a detection process of a voltage obstacle.

	18	I				Improvement about SnapShot POOL	When SnapShot POOL LU is made with a large segment(256KB, 512KB), the microcode is modified to improve a process to get POOL resource to reduce the internal processing time.
	19	I				Improvement of Backend Auto Diagnosis in ENC/SENC firmware exchange	The microcode is modified to improve the diagnosis logic of the obstacle part when an ENC/SENC obstacle occurred in ENC/SENC firmware exchange.
	20	I				iSCSI connection enhance	The microcode is modified to change the iSCSI Login Response parameters according to each iSCSI driver logic. - HP-UX support The microcode changes IFMaker and OFMarker parameter. - Solaris support The microcode changes FirstBurstLength parameter.
	21	C	A		DF700-0113	Subsystem Hung Up or Controller failure by "Data share job time-out" during recovery of 3 HDDs obstacle in RAID6	The following phenomenon may occur during recovery of 3 HDDs obstacle in RAID6. - Subsystem Hung up - Controller failure by "Data share job time-out" The problem may occur when all the following conditions are met. (a) SATA configuration (b) RAID6 (c) receive Write command (d) An obstacle occurs in more than 3 HDDs. (e) during the recovery of (c) (f) not use "Drive Detach Mode" (g) write through condition (battery obstacle, PIN Over etc) Due to the microcode bug in the Write command processing during the recovery of HDD obstacle.

22	C	A		DF700-0114	Subsystem down by both controllers failure with "Kernel processing error"	The Subsystem down may occur by both controllers failure with following web message. Web message: Kernel processing error The problem may occur when all the following conditions are met. (a) LU#0 is not defined. (b) executing system copy by system HDD obstacle. (c) One of the following conditions occurs: (1) LU change (all LU change pattern: Directory unit or LU unit) (2) CHK1(Controller hardware failure) Due to the microcode bug in a cache segment acquisition process in a system copy.
23	C	B		DF700-0115	Controller failure during the Subsystem booting	A controller may be blockaded with the following messages during the Subsystem booting. Web message: OTH CTL Response time-out[OFW] When all of the following conditions are met, the phenomenon may occur. (a) the Subsystem booting (b) execute system copy by a system HDD obstacle (c) slave controller (usually controller#1) process is delayed by interruptions during the system copy Due to the microcode bug in Communication processing between controllers.
24	C	B		DF700-0116	Host connection failure in iSCSI	Host connection may fail in iSCSI. The problem may occur when all the following conditions are met. (a) use iSCSI interface (b) set LU mapping (c) receive Reserve command (d) release or change LU mapping before releasing the reservation Due to the microcode bug in iSCSI port initialization.

25	C	B		DF700-0117	NNC failure by the Subsystem cache memory obstacle	When the controller fails by the cache memory obstacle, NNC which is connected to the controller may fail. The problem may occur when all the following conditions are met. (a) DF700H (b) NAS system (c) controller failure by a cache memory obstacle Due to the microcode bug in NNC check processing of controller failure.
26	C	B		DF700-0118	Write command error for PVOL in ShadowImage	When PVOL and SVOL switch by a PVOL obstacle, a Write command error may occur. The problem may occur when all the following conditions are met. (a) Install ShadowImage (b) ShadowImage pair status: PAIR or COPY (c) Enable "ShadowImage I/O Switch Mode" (d) receive Write command for PVOL (e) After a respond of (d), multiple HDDs obstacle in PVOL occurs. (f) The data copy from PVOL to SVOL fail. Due to the microcode bug in check processing of Write command in data copy failure.
27	C	B		DF700-0119	NAS PP install failure after NNC maintenance IP address change	In case that the NNC maintenance IP address has been changed before the microcode initial etup, that, the installation of NAS PP fails though the installation of NAS OS completes. The problem may occur when all the following conditions are met. (a) NAS system (b) change NNC maintenance IP address before (c) (c) execute the microcode initial setup (d) connect to the LAN network where another subsystem is connected. (e) install NAS OS (f) install NAS PP after (e) Due to the microcode bug in setting processing of NNC maintenance IP address.

28	C	B		DF700-0120	Power off failure by NNC obstacle after pushing PS off switch	When a NNC obstacle occur after pushing PS off switch, Power off failure may occur. The problem may occur when all the following conditions are met. (a) NAS system (b) push PS off switch (c) After (b), NNC obstacle occurs Due to the microcode bug in the NNC obstacle processing during PS off.
29	C	B		DF700-0121	Controller failure by "Microprogram error[RSM]"	When a SATA HDD blockade by SMART occur, a controller may fail with following web message. <Web Message> SATA HDD blockade: SATA HDU limit over[Self-monitoring] Controller failure: Microprogram error[RSM] The problem may occur when all the following conditions are met. (a) SATA configuration (b) SATA HDD error threshold over is detected by SMART processing (c) A case in the following conditions occurs: (1) not setting Spare SATA HDD (2) All Spare SATA HDD is used. (3) during the Forced Parity Correction. (4) There is no LUs in the SATA HDD (b). Due to the microcode bug in the internal resource release processing.
30	C	B		DF700-0122	Controller failure by "PS OFF failed[DSTG HUNG]"	The controller failure with following Web message may occur during PS OFF. Web message: PS OFF failed[DSTG HUNG] The problem may occur when all the following conditions are met. (a) There are a lot of dirty data in cache memory. (it takes more than 20 minutes to destage the dirty data) (b) PS off or reboot using Storage Navigator Modular Due to the microcode bug in the reference process of dirty data.

	31	C	B		DF700-0123	Automatical TrueCopy path recovery failure	When Fibre obstacle occur in the TrueCopy configuration using Silkworm200E, the TrueCopy path may fail to recover automatically. The problem may occur when all the following conditions are met. (a) Fibre Speed configuration: 4Gbps (b) Install TrueCopy remote replication or TrueCopy Extended Distance (c) The TrueCopy configuration using Silkworm200E (d) The Fibre link down occur by Fibre obstacle. Due to the microcode bug in the recovery processing of TrueCopy path.
	32	C	B		DF700-0124	Controller failure by "Microprogram error[JSD]"	When a spare HDD during copy back was blockaded, a controller failure with a following web message may occur. Web message: Microprogram error[JSD] The problem may occur when all the following conditions are met. (a) executing copy back (b) a spare HDD of (a) is blockaded. (c) One of the following conditions occurs: (1) received Read command to an LU of the RAID Group during copy back. (2) executing PVOL copy of ShadowImage/TrueCopy in the RAID Group during copy back. (3) received Write command to a SnapShot PVOL in the RAID Group during copy back. Due to the microcode bug in the processing for copy back failure.

	33	C	B		DF700-0125	Controller failure by "Data share job time-out"	When PS off of an NNC is executed, a controller failure with following web message may occur. Web message: Data share job time-out The problem may occur when all the following conditions are met. (a) NAS system (b) during command processing by data share. (c) NNC PS off (d) NNC PS off is detected by the microcode polling process before the interruption of NNC PS off. Due to the microcode bug in the processing to detect PS OFF of NNC.
	34	C	C		DF700-0126	Incorrect IP address indication in DHCP mode	Displayed IP address may be different from the correct IP address. The problem may occur when all the following conditions are met. (a) use DHCP mode (b) fail in the acquisition of IP address from DHCP server during the Subsystem booting (c) succeed in acquisition of IP address from DHCP server after the Subsystem Ready Due to the microcode bug in update of IP address information.

	35	C	C		DF700-0127	Pair operation during Parity Correction using Storage Navigator Modular	The microcode incorrectly execute the pair operation during Forced Parity Correction using Storage Navigator Modular. The problem may occur when all the following conditions are met. <In ShadowImage> (a) Install ShadowImage (b) execute Forced Parity Correction for ShadowImage PVOL and SVOL (c) Parity Correction status: "parity correcting", "Waiting Parity Correction" (d) execute "paircreate" or "pairresync". <In SnapShot> (a) Install SnapShot (b) execute Forced Parity Correction for SnapShot PVOL and POOL (c) Parity Correction status: "parity correcting", "Waiting Parity Correction" (d) execute "paircreate" or "pairresync". Due to the microcode bug in the guard processing for pair operation.		
						V5.1/A, 0751/A		7/20/2006	194	-
V5.1/A 0751/A Base System V5.0/A 0750/A	1	N				TrueCopy remote replication and TrueCopy Extended Distance support on NAS platform	The microcode supports TrueCopy remote replication and TrueCopy Extended Distance on NAS platform.			
	2	I				Improvement of “ShadowImage I/O Switch Mode”	When a double HDD obstacle occurred in a RAID Group that does not include a pair of ShadowImage, microcode is modified not to make LU of this RAID Group unformatted.			
	3	I				Improvement of NAS BIOS version indication	The microcode is modified to display a NAS BIOS version even if the NAS OS is not installed.			
	4	I				Improvement of NAS BIOS update method	When a NAS BIOS update is failed, a BOOT BLOCK of a NAS BIOS may be destroyed. The microcode is modified to process of a NAS BIOS update by not updating BOOT BLOCK in NAS BIOS update.			

	5	I				Improvement in NAS boot up	When the following processes are executed in NNC boot up, NNC may be blockaded. - During copy operation in TrueCopy remote replication/TrueCopy Extended Distance - During drive restoration The microcode is modified to process a command for a NNC boot with precedence.	
	6	I				Improvement of NAS OS install method	When NAS OS install by NAS Setup including SNM, install timeout may occur. The microcode is modified to process of NAS OS install.	
	7	C	B	D600-51585	DF700-0128 (same as DF600-0065)	Host connection failure by an HDD obstacle	A host may fail to access LU after HDD blockade. When all of the following conditions are met, the phenomenon may occur. (a) An HDD command timeout is detected by online verify processing. (b) A command from LAN (configuration setting or login process for password protection) starts the execution just after the above timeout. Due to the microcode bug in the Online Verify processing of HDD command timeout.	
	8	C	B		DF700-0129	Controller failure by "Microprogram error[ISM]"	A controller may be blockaded by "Microprogram error[ISM]" in the following conditions a subsystem. - during connection with a host - during no host I/O. When all of the following conditions are met, the phenomenon may occur. (a) iSCSI platform (b) One of the following conditions occurs: (1) during PIO transfer (Inquiry, Read Capacity etc) (2) KeepAlive (c) receive two NOP-Out(responce) for one NOP-In(request) by subsystem. There was not consideration for the duplication receipt of a respond frame(NOP-Out) in microcode.	

	V5.2/A, 0752/A							7/31/2006	202 -
V5.2/A 0752/A Base System V5.1/A 0751/A	1	I				Improvement of Backend Auto Diagnosis (Phase II)	The microcode is modified to improve the ability to isolate an obstacle (intermittent) part in the backend loop by increasing the number of diagnosis frames by max 30 times to check the backend loop.		
	2	C	A		DF700-0130	Subsystem down during SENC firmware exchange	When FC HDD obstacle occurs during SENC firmware exchange, Subsystem down may occur. When all of the following conditions are met, the phenomenon may occur. (a) DF700M (b) both Loop obstacle in Path#1 by FC HDD during SENC#0 firmware exchange OR both Loop obstacle in Path#0 by FC HDD during SENC#1 firmware exchange Due to the microcode bug in Backend Auto Diagnosis during SENC firmware exchange.	
	3	C	B		DF700-0131	PSUE occurs without an obstacle factor in ShadowImage	PSUE of a ShadowImage pair may occur without an obstacle factor during "paircreate" or "pairresync". When all of the following conditions are met, the phenomenon may occur. (a) ShadowImage used. (b) "paircreate" or "pairresync" in ShadowImage. (c) copy interruption by following factor during (b). (1) Exclusive processing For example, - LU ownership change (all LU change pattern: Directory unit or LU unit) - Configuration setting by Storage Navigator Modular (2) PS OFF (3) controller blockade (4) forced PS OFF (5) reboot by Storage Navigator Modular (6) CHK1(Controller hardware failure) (d) receive Persistent Reserve for the pair just after (c) Due to the microcode bug in copy restart processing after ShadowImage copy interruption.	

	4	C	B		DF700-0132	Obstacle controller isolation failure by Backend Auto Diagnosis	When both Loop obstacle occur in the controller, obstacle controller isolation may fail. When all of the following conditions are met, the phenomenon may occur. (a) DF700H (b) connect SATA Unit in Path#2 and Path#3. (c) both Loop obstacle by controller failure Due to the microcode bug in the Backend Auto Diagnosis by controller obstacle in DF700H.			
	V5.3/A, 0753/A							8/31/2006	208	-
V5.3/A 0753/A Base System V5.2/A 0752/A	1	I				Prevention of subsystem down by an obstacle of ENC and a controller	When a controller is blockaded during an ENC blockade condition, the Subsystem down may occur because the ENC on the controller becomes unavailable. The microcode is modified to improve not to blockade a controller by a failure such as correctable cache error in case that all backend loops become unavailable by the blockade of the controller.			
	2	C	A		DF700-0133	System down by changing Time Zone	When Time Zone is changed from the area where daylight saving time is available to where daylight saving time is NOT available by using Storage Navigator Modular for CLI, System down (both controllers failure) may occur. When all of the following conditions are met, the phenomenon may occur. (a) The Time Zone is set to the area where daylight saving time is available. (b) Daylight saving time is valid. (c) Use Storage Navigator Modular for CLI. (d) Change the Time Zone to the area where daylight saving time is NOT available. Due to the microcode bug regarding Time Zone, Time Zone is set to the area where daylight saving time is NOT available as daylight saving time is valid. As a result, microcode detects self-contradiction, and then system down occurs.			

	3	C	B	DF600-51462	DF700-0134 (same as DF600-0066)	PIN Over in RAID500	PIN Over in RAID500 may occur by an HDD obstacle in the External Storage(DF series) connected with RAID500. When all of the following conditions are met, the phenomenon may occur. (a) the External Storage(DF array) connected with RAID500. (b) Correction read is started due to an HDD obstacle in DF array. (c) An HDD command timeout occurs during the above correction read operation. Due to the microcode bug in the response from the DF array to RAID500.	
	4	C	B	DF700-51728	DF700-0135	SNM connection failure	After closing SNM in the middle of the online microcode exchange for the array unit with the Password Protection function, SNM may not conect with DF array. When all of the following conditions are met, the phenomenon may occur. (a) Password Protection function is used. (b) execute online microcode exchange for one controller (c) close SNM window after (b) Due to the microcode bug in the enable process check during online microcode exchange	
	5	C	B	D600-80037/17195	DF700-0136 (same as DF600-0076)	Controller blockade by SNMP function	Controller blockade may occur by SNMP function. When all of the following conditions are met, the phenomenon may occur. (a) SNMP Agent Support Function is used. (b) receive multiple GET processing of MIB in very short interval time. The microcode could not handle other requests by the SNMP processing.	

	6	C	B	D600H-17262	DF700-0137 (same as DF600-0067)	Host I/O delay during the acquisition of performance information	While SNM/HiCommand acquires performance information from LAN, host I/O may delay. When all of the following conditions are met, the phenomenon may occur. (a) SNM/HiCommand issues linked commands to the subsystem from LAN. (b) A LAN obstacle occurs. (c) A host issues the command(*) that should be executed exclusively. (*): The commands are below. - Format Unit command - Mode Select command - Synchronized Cache command - Write Buffer command - Persistent Reserve Out command - Forced Reserve command - A change of pair conditions When the command that should be executed exclusively (such as Persistent Reserve Out) is finished while Linked commands from LAN are active, the subsequent commands can not start the execution until Linked commands are finished. Therefore, the subsequent commands have to wait long time if the LAN transfers delays.			
	7	C	B		DF700-0138 (same as DF600-0074)	PIN Over without HDD obstacle	PIN Over may occur without HDD obstacle. The PIN data may be created when all the following conditions are met. This problem occur when the PIN data exceeds the threshold value. (a) SATA HDD (b) HDD error occurs in HDD write processing. Due to the microcode bug in the failure processing in SATA HDD error.			
	V6.0/A, 0760/A							9/25/2006	213	-
V6.0/A 0760/A Base System V5.3/A 0753/A	1	N								
	2	N				Modular Volume Migration support	The microcode supports Modular Volume Migration.			
	3	N				Account Authentication support	The microcode supports Account Authentication.			
	4	N				Audit Logging support	The microcode supports Audit Logging.			
	5	N				DF700S/XS TrueCopy support	The microcode supports True Copy Remote Replication on DF700S/XS.			
	6	N				SATA drive firmware download support	The microcode supports SATA drive firmware download.			
	7	I				Improvement of SPC-1 performance	The microcode is modified to improve the performance of SPC-1.			

	8	I				Web indication of backend diagnostic pattern	The microcode is added to clarify the factors of "Backend Diagnostic pattern". The following messages will be displayed by this change: - I5FF00 Obstacle HDU search end - I5FF01 Obstacle HDU search end - I5FF02 Obstacle HDU search end - I5FF03 Obstacle HDU search end - I5FF04 Obstacle HDU search end			
	9	C	A		DF700-0139	Subsystem outage by "Microprogram error[LUC]"	Subsystem outage occures with "Microprogram error[LUC]" When all of the following conditions are met, the phenomenon may occur. 1. Dual active mode 2. One of the following conditions occurs: (1) Change the default controller (2) Expand LU from Storage Navigator Modular (3) Resysnc from RAID Manager 3. A controller fails during 2). Due to the microprogram bug in the LU changing process.			
	10	C	B	D700-17541	DF700-0140	Multiple HDD obstacle occurred after Automatically ENC/SENC Firmware Download.	An SATA HDD failure does not recover because some SATA HDDs in same RAID Group cannot be accessed. One of the following conditions occurs: 1.Microprogrom update 2.Download of SENC firmware Some SATA HDDs cannot be accessed because SENC Firmware detects DDS (Digital Drive Signature) errors.			
	11	C	B		DF700-0141	Controller failure by "Microprogram error[RVM]"	A controller may fail with "Microprogram error[RVM]" when reboot the subsystem after the power failure or CHK1(Controller hardware failure) When all of the following conditions are met, the phenomenon may occur. 1. COPY or PAIR status on the TrueCopy 2. During host IOs 3. Power failure or CHK1 occurs -> The pair status changes to PSUE 4. Recover the failure Due to the microcode bug in recovery process of S-VOL			

	12	C	B		DF700-0142	Controller failure by "Microprogram error[FSM]"	A controller fails with Microprogram error[FSM] during host Ios When all of the following conditions are met, the phenomenon may occur. 1. TrueCopy remote replication 2. Dualing write commands to P-Vol 3. Health check command of remote path is failed by mocrocode bug. Due to the microcode bug in path-check mechanisum on TrueCopy.			
	13	C			DF700-0143	Controller failure or hangup during PS OFF	If Dual active mode: A controller may fail. Else if Single mode A controller may hang up. When all of the following conditions are met, the phenomenon may occur. 1.One of the following conditions occurs: (a) PS OFF (b) Remote reboot from Storage Navigator Modular 2. The above JOB becomes timeout 3. PDEV timeout occurs Due to microcode bug in PS OFF sequence			
	14	C	B		DF700-0144	Addition of retry mechanisum during NAS dump	NAS dump may fail by NNC failure. When all of the following conditions are met, the phenomenon may occur. 1. Execute NAS dump 2. A controller fails on the other side Due to no retry mechanisum.			
	15	C	C		DF700-0145	Wrong status is displayed in forced parity recovery	Waiting list of forced parity recovery is NOT displayed in ascending order in RAID6. When all of the following conditions are met, the phenomenon may occur. 1. RAID6 2. LUN expansion 3. Need to execute parity correction by some reason (e.g. A power failure and cache volatilization) 4. One HDD is in failure 5. Execute forced parity recovery before the HDD is recovered Due to microcode bug in displaying process of waiting list of parity correction			

	16	C	C		DF700-0146	Wrong message is displayed in Cache Residency	Following message is displayed on Storage Navigator Modular CLI when uncreated LUN is registered in Cache Residency. "The specified logical unit cannot be set as Cache Residency LU because its cache partition is not 0 or 1. Please try again after changing a cache partition into 0 or 1, or specify the logical unit of the cache partition 0 or 1." When all of the following conditions are met, the phenomenon may occur. 1. Cache Residency 2. Resister uncreated LUN from Storage Navigator Modular CLI Due to the microcode bug in checking process of registered LU in Cache Residency.			
	17	C	C		DF700-0147	Wrong quick format status / wrong waiting list in LUN expansion	When quick format is executed in expanded LU, the wrong status is displayed in Storage Navigator Modular and it is not in ascending order. When all of the following conditions are met, the phenomenon may occur. 1.LUN Expansion 2.Execute quick format to expanded LU Due to the microcode bug in displaying mechanisum of status in LUN Expansion.			
	18	C	C		DF700-0148	Guard message of single mode on SnapShot and TCE	After changing from dual active mode to single mode when SnapShot or TCE is enabled, wrong message is displayed when rebooting. When all of the following conditions are met, the phenomenon may occur. 1.SnapShot or TCE 2.Change from dual active mode to single mode Due to the microcede bug in the gurd mechanisum of single mode			
	19	C	C		DF700-0149	Guard message when upgrade from DF700M to DF700H	Wrong massage is displayed when upgrade from DF700M to DF700H. When all of the following conditions are met, the phenomenon may occur. 1. SnapShot or TCE 2. Upgrade from DF700M from DF700H 3. 2GB cache memory in both system Due to the microcode bug in the guard process from DF700M to DF700H			

	20	C	C		DF700-0150	Null web message when hardware error occurs	The message which includes only time-stamp and controller number is displayed. 09/25/2006 11:22:33 C0 Two or more hardware error (e.g. CHK1, D-CTL error) occurs at the same time . Due to the microcode bug in handring process of hardware error.			
	21	C	C		DF700-0151	Single mode on SnapShot or TCE	Snapshot or TCE can become Ready on Single mode When all of the following conditions are met, the phenomenon may occur. 1. SnapShot or TCE 2. Disable Snapshot or TCE on Dual active mode 3. Change from Dual active mode to Single mode 4. Reboot 5. Enable SnapShot or TCE Due to the microcode bug in the guard process of SnapShot and TCE.			
	22	C	C		DF700-0152	Partition change failure in Cache Partition Manager	Partition change opetration is failed. When all of the following conditions are met, the phenomenon may occur. 1. A controller fails by some reason 2. Recover the controller 3. After 2), the subsystem does NOT turn off and on 4. Change the reservation of cache residency's LU on Cache Residency Manager 5. Change the Cache Partition of LU without reboot after 4). Due to the microcode bug in the checking process in Cache Pertition manager			

	V5.5/A, 0755/A							10/31/2006	228	-
V5.5/A 0755/A Base System V5.3/A 0753/A	1	I				Check function reinforcement for an attached LU in NAS system.	The microcode is improved to check a mapping operation for an attached LU in NAS system.			
	2	C	A	D600-80168/17850	DF700-0153 (same as DF600-0078)	Subsystem down by "HH4E00 Backend down[SES access error BKW]"	In configuration with FC Units and SATA Units, Subsystem down may occur by an FC HDD obstacle. When all of the following conditions are met, the phenomenon may occur. (a) FC Units and SATA Units in the Subsystem (b) FC HDD obstacles on both ports. (c) SES polling for SATA Unit starts before bypassing the HDD from Loop. Due to the microcode bug in HDD bypass method from Loop.			
	3	C	A		DF700-0154 (same as DF700-0139)	Subsystem outage by "Microprogram error[LUC]"	Subsystem outage occurs with "Microprogram error[LUC]" When all of the following conditions are met, the phenomenon may occur. (a) Dual active mode (b) One of the following conditions occurs: (1) Change the default controller (2) Expand LU from Storage Navigator Modular (3) Resync from RAID Manager (c) A controller fails during (b). Due to the microprogram bug in the LU changing process.			
	4	C	B	D700-17541	DF700-0155 (same as DF700-0140)	Multiple HDD obstacle occurred after Automatically ENC/SENC Firmware Download.	An SATA HDD failure does not recover because some SATA HDDs in same RAID Group cannot be accessed. One of the following conditions occurs: (a) Microprogram update (b) Download of SENC firmware Some SATA HDDs cannot be accessed because SENC Firmware detects DDS (Digital Drive Signature) errors.			

	5	C	B	DF700-17829	DF700-0156	Controller blockade by a watchdog timeout error	A controller blockade by a watchdog timeout error may occur. This problem may result in a subsystem down if this problem occurs on both controllers. This problem may occur when more than 2 clients try to connect to the LAN port of the controller with Port#111(RPC: Remote Procedure Call) and transfers large data. In case that controller#0 and controller#1 are connected to the same LAN environment, a subsystem down may occur because both controller may be put in the same environment. Memory stack overflow occurs by recursive calls of LAN handle function.			
	6	C	B		DF700-0157 (same as DF700-0141)	Controller failure by "Microprogram error[RVM]"	A controller may fail with "Microprogram error[RVM]" when reboot the subsystem after the power failure or CHK1(Controller hardware failure) When all of the following conditions are met, the phenomenon may occur. (a) COPY or PAIR status on the TrueCopy (b) During host IOs (c) Power failure or CHK1 occurs -> The pair status changes to PSUE (d) Recover the failure Due to the microcode bug in recovery process of S-VOL			
	7	C	B		DF700-0158 (same as DF700-0142)	Controller failure by "Microprogram error[FSM]"	A controller fails with Microprogram error[FSM] during host IOs When all of the following conditions are met, the phenomenon may occur. (a) TrueCopy remote replication (b) During write commands to P-VOL (c) Health check command of remote path is failed by microcode bug. Due to the microcode bug in path-check mechanism on TrueCopy.			

	8	C	B		DF700-0159 (same as DF700-0144)	Addition of retry mechanism during NAS dump	NAS dump may fail by NNC failure. When all of the following conditions are met, the phenomenon may occur. (a) Execute NAS dump (b) A controller fails on the other side Due to no retry mechanism			
	V5.6/A, 0756/A							11/17/2006	232	-
V5.6/A 0756/A Base System V5.5/A 0755/A	1	C	B	DF700-18063	DF700-0162	McDATA switch login issue after DF700 power Cycle.	McDATA switch may not recognize the port of DF700 after turning off and on DF700. When all of the following conditions are met, the phenomenon may occur. (a) connect McDATA switch to DF700 (b) DF power-on When the first Link up after power-on, DF700 issues Link Reset to reset and change the BB_Credit after the receipt of ACC for FLOGI, and issues FLOGI again.Though McDATA switch responds with ACC for the second FLOGI, it may not respond to the subsequent PLOGI from DF700, and the port of DF700 cannot be recognized.The problem of McDATA switch seems to be induced by the second FLOGI after Link Reset from DF700.			
	V6.0/B, 0760/B							10/31/2006	229	-
V6.0/B 0760/B Base System V6.0/A 0760/A	1	I				Check function reinforcement for an attached LU in NAS system.	The microcode is improved to check a mapping operation for an attached LU in NAS system.			

V6.0/B 0760/B Base System V6.0/A 0760/A	2	C	A	D600-80168/17850	DF700-0160 (same as DF600-0078, DF700-0153)	Subsystem down by "HH4E00 Backend down[SES access error BKW]"	In configuration with FC Units and SATA Units, Subsystem down may occur by an FC HDD obstacle. When all of the following conditions are met, the phenomenon may occur. (a) FC Units and SATA Units in the Subsystem (b) FC HDD obstacles on both ports. (c) SES polling for SATA Unit starts before bypassing the HDD from Loop. Due to the microcode bug in HDD bypass method from Loop.			
	3	C	B	DF700-17829	DF700-0161 (same as DF700-0156)	Controller blockade by a watchdog timeout error	A controller blockade by a watchdog timeout error may occur. This problem may result in a subsystem down if this problem occurs on both controllers. This problem may occur when more than 2 clients try to connect to the LAN port of the controller with Port#111(RPC: Remote Procedure Call) and transfers large data. In case that controller#0 and controller#1 are connected to the same LAN environment, a subsystem down may occur because both controller may be put in the same environment. Memory stack overflow occurs by recursive calls of LAN handle function.			
	V7.0/A, 0770/A							12/26/2006	237	-
V7.0/A 0770/A Base System V6.0/B 0760/B	1	N				Power Saving support	Power saving is a function aimed for reduction of electric power consumption of AMS/WMS by spinning down unused HDDs by user instruction. This function is also effective to reduce air conditioning cost of data center. User can spin-down/spin-up HDDs by specifying the RAID group number by SNM.			
	2	I				Inquiry Page83H Identifier=3 support (for Longhorn)	When "SPC-2 Mode" is set, the microcode supports Inquiry Page83H Identifier=3. Note) This mode is Microsoft test use only.			
	3	I				Attention awakening in constitution information elimination	When “initial setup” and “Configuration Clear” by Web is executed, the microcode is improved to urge attention by Web information and check box.			

	4	I		D700-17541		Information enhancement of DDS failure on SATA HDD	When DDS failure (0b/88/02) occurred on SATA HDD, the microcode gets more information for route cause by enhancement of SENC firmware.			
	5	C	A		DF700-0165	LA error occurs by controller CHK1/obstacle or Subsystem interruption of power during HDD recovery	When controller CHK1/obstacle or Subsystem power outage occurs during HDD recovery, LA error may occur. When all of the following conditions are met, the phenomenon may occur. (a) during Dynamic sparing or copy back (b) controller CHK1 or controller obstacle or Subsystem power outage occurs during the termination process of (a). (about 10ms time frame) Due to the microcode bug in the processing to resume obstacle during HDD recovery.			
	6	C	A		DF700-0166	Subsystem down after online Unit addition failure	When online Unit addition fails, Subsystem down may occur. This phenomenon may occur when all of the following conditions are met. (a) Online unit addition fails (b) Spin-down of the HDDs in the added unit is in process. (c) The completion of the spin-down and the request for the termination of the spin-down process occur simultaneously. Due to the microcode bug in the processing to check HDD spin-down.			
	7	C	A	D600-80168/17850	DF700-0167	Subsystem down by "HH4E00 Backend down[SES access error BKW]"	In case of DF700S, Subsystem down may occur by an FC HDD obstacle. When all of the following conditions are met, the phenomenon may occur. (a) DF700S (b) FC HDD obstacles on both ports. (c) SES polling starts before bypassing the HDD from Loop.			

	8	C	B	DF700-18063	DF700-0162	McDATA switch login issue after DF700 power Cycle.	McDATA switch may not recognize the port of DF700 after turning off and on DF700. When all of the following conditions are met, the phenomenon may occur. (a) connect McDATA switch to DF700 (b) DF power-on When the first Link up after power-on, DF700 issues Link Reset to reset and change the BB_Credit after the receipt of ACC for FLOGI, and issues FLOGI again.Though McDATA switch responds with ACC for the second FLOGI, it may not respond to the subsequent PLOGI from DF700, and the port of DF700 cannot be recognized.The problem of McDATA switch seems to be induced by the second FLOGI after Link Reset from DF700. Due to the microcode bug in HDD bypass method from Loop.			
	9	C	B		DF700-0168	LAN connection failure	The current LAN IP address may be changed to the following value regardless of the LAN setting, and the LAN connection with the original IP address fails. 192.168.0.16 for LAN user port (controller 0/controller 1) 10.0.0.16 for LAN maintenance port of controller 0 10.0.0.17 for LAN maintenance port of controller 1 This phenomenon occurs at the controller replacement or the microcode replacement. This phenomenon occurs when all of the following conditions are met: (a) The microcode stored in the system drives is 0750/A or later. (b) The microcode stored in the flash memory of the controller is older than 0726/A.			

						(c) The controller is rebooted. These conditions are met at the following cases: <Case 1> Controller Replacement <1-1> The microcode 0750/A or later is installed in the subsystem. <1-2> A controller failure occurs. <1-3> The controller replacement is executed using a spare controller. <1-4> The spare controller has the microcode older than 0726/A in the flash memory. <Case 2> Microcode Replacement <2-1> The microcode older than 0726/A is installed in the subsystem. <2-2> The microcode is changed to 0750/A or later. <2-3> The controller or subsystem is rebooted. The main microcode, loaded from the system drives, sets the IP address of the controller according to the LAN parameters transferred by the microcode in the flash memory. However we found that the microcode later than Ver. 0750/A may reject the LAN parameters from the microcode in the flash memory. In this case, the controller cannot be connected via LAN because the LAN setting of the controller becomes default.			
	10	C	B	D600H-18142	DF700-0169 (same as DF600-0088)	Some SATA HDD failure by SENC LA error	Some SATA HDD belonging to the SENC may be blockaded though there is an LA error factor in the SENC. This phenomenon may occur by the SENC failure that causes an LA error. Though there was a SENC factor when a LA error occurred in Read to SATA HDD, the microcode specified it only with a SATA HDD factor.			
	11	C	B	D700-18011/51868	DF700-0170	Not enable to set Tuning Parameter	Following parameters in System tab on Tuning Parameter panel of Storage Navigator Modular do not work without changing other parameters or reboot of the Subsystem. - Dirty Data Opportunity - Dirty Data Stop Opportunity When customer tries to set above parameters in this phenomenon by Storage Navigator Modular. Due to the microcode bug in the processing to operation to enable the parameters has been omitted.			

	12	C	B	D700-17955	DF700-0171	The upgraded cache memory is recognized as unallocated area in use Cache Partition Manager	When upgrading the cache memory in use of Cache Partition Manager, the upgraded cache memory is recognized as unallocated area. This phenomenon may occur when upgrading the cache memory in use of Cache Partition Manager. Cache Partition Manager is included Resource Manager, and usually it is enabled by installing Resource Manager. In use of Cache Partition Manager, capacity of the cache partition can be changed only manually. For this reason, capacity of the cache partition is kept as same as prior setting even after upgrading the cache memory, and it will be recognized as unallocated area.			
	13	C	B	D700-80221	DF700-0172	CPU usage constantly at 99% in TrueCopy environment	In TrueCopy environment, CPU usage may constantly at 99%. When all of the following conditions are met, the phenomenon may occur. (a) TrueCopy remote replication or TrueCopy Extended Distance is used. (b) during data copy from local site to remote site (c) receive host I/O (d) TrueCopy paths are instable. Due to the microcode bug in the processing to LU ownership change by TrueCopy path obstacle.			
	14	C	B		DF700-0173 (same as DF600-0089)	Spare SATA HDD failure by LA error	When the Subsystem starts HDD recovery to spare an HDD, the spare HDD may fail. When all of the following conditions are met, the phenomenon may occur. (a) A write command is issued to SATA LU. (b) The write command is executed with write through mode. (Battery obstacle, PIN over, PIN HIT, etc) (c) HDD recovery starts automatically after the completion of writing data and before reading data to compare. Due to the microcode bug in the drive I/O processing when the Subsystem execute HDD recovery to spare HDD.			

	15	C	B		DF700-0174	Controller failure by "Microprogram error[RCH]"	A controller may fail during LU ownership change with "Microprogram error[RCH]. When all of the following conditions are met, the phenomenon may occur. (a) There is a cache directory to each controller. (b) LU ownership change of LU Unit occurs. (c) CHK1 during (b) Due to the microcode bug in the processing to resume LU ownership change after CHK1.			
	16	C	B		DF700-0175	Controller failure by "CTL communication send time-out"	When some HDDs in a RAID Group fail, a controller may fail. - HG0100 CTL communication send time-out When all of the following conditions are met, the phenomenon may occur. (a) Drive Detach Mode is used. (b) some HDDs failure in a same RAID group (c) Communication is received from the other controller during purging the data of the RAID group. Due to the microcode bug in the LU detaching process.			
	17	C	B		DF700-0176	HDD blockade during HDD spin-up	When HDD exchange or online Unit addition is executed, HDD blockade may occur. This phenomenon may occur during HDD spin-up (HDD exchange or online Unit addition), in case that the internal timer (max 70min) loops in the middle of the spin-up operation (typ. 15 sec). Due to the microcode bug in the processing to check HDD command time-out.			

	18	C	B		DF700-0177	Controller failure by "Microprogram error[RCH]" at "REASSIGN BLOCKS"	When Subsystem receive "REASSIGN BLOCKS" command, a controller may fail. When all of the following conditions are met, the phenomenon may occur. (a) RAID0 (b) receive "REASSIGN BLOCKS" command (c) Target LU of "REASSIGN BLOCKS" belongs to an other controller of (b). Due to the microcode bug in the processing to check LU ownership.			
	19	C	C	DF700-17919	DF700-0178	CPU usage constantly at 25%	CPU usage is constantly at 25% though there is not host I/O. There are not influence to performance and other processing. This phenomenon may occur by using microcode 0750/A or later. Due to the microcode bug in the processing to calculate CPU usage.			
	20	C	C		DF700-0179 (same as DF600-0083)	The number of simultaneous copy operation for ShadowImage	In ShadowImage, when copy operations are ordered with more than maximum number (= 4 copies), less than 4 copy operations may be executed simultaneously. This phenomenon may occur by the LU ownership change by directory or the controller failure during the copy operations. Due to the microcode bug in the processing to change a copy to the other controller.			
	21	C	C		DF700-0180	NAS dump collection failure	NAS dump can not be gathered during NASOS booting. When all of the following conditions are met, the phenomenon may occur. (a) during NASOS booting (Web information: NAS OS Condition is "BOOT") (b) indicate NAS dump collection from Web Due to the microcode bug in the processing to check a state of NASOS.			

	22	C	C		DF700-0181	LUSE failure after Volume Migration	When LUSE execute after Volume Migration, LUSE may temporarily fail. When all of the following conditions are met, the phenomenon may occur. (a) Modular Volume Migration is used. (b) LUN Size Expansion (LUSE) is used. (c) indicate LUSE as "Main Logical Unit" in migrated LU (d) "Main Logical Unit" belongs to default controller. (e) "Sub Logical Unit" is moded by LU ownership change by LU to the directory different from "Main Logical Unit" Due to the microcode bug in the processing to convert a LU number.			
	23	C	C		DF700-0182	Controller failure by "Microprogram error[BKW]" during Subsystem shutdown	When Subsystem shutdown is executed during ENC firmware download, a controller may fail with "Microprogram error[BKW]" message. When all of the following conditions are met, the phenomenon may occur. (a) DF700H/DF700HE (b) during ENC firmware download for ENC on the controller #1 (c) Subsystem shutdown in the NAS system or Subsystem shutdown by "Delay Planned Shutdown" Due to the microcode bug in the processing to execute Shutdown during ENC firmware download.			

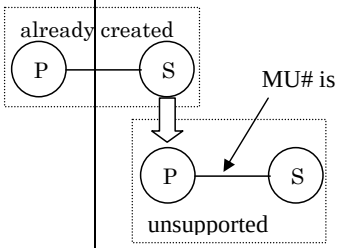
	24	C	C		DF700-0183	LU Unit performance information error	When LU Unit performance information is collected after Volume Migration, this performance information may be wrong. When all of the following conditions are met, the phenomenon may occur. (a) Modular Volume Migration is used. (b) TrueCopy remote replication or TrueCopy Extended Distance is used. (c) execute Volume Migration (d) set LU of (c) in P-VOL of (b) (e) LU Unit performance information is collected after the completion of (c). Due to the microcode bug in the processing to convert a LU number.			
	25	C	C		DF700-0184	"SYNCHRONIZE CACHE" command dose not work.	When Subsystem receive "SYNCHRONIZE CACHE " command, "SYNCHRONIZE CACHE" command may not work. When all of the following conditions are met, the phenomenon may occur. (a) "Synchronize Cache Execution Mode" is used. (b) receive "SYNCHRONIZE CACHE " command (c) Target LU of "SYNCHRONIZE CACHE " belongs to an other controller of (b). Due to the microcode bug in the processing to check LU ownership.			
	26	C	C		DF700-0185	Tuning Parameter setting check condition error	When "Dirty Data Opportunity" set "0", "Dirty Data Stop Opportunity" can set a value except 0 illegally. In this case, performance down in high load may occur. When all of the following conditions are met, the phenomenon may occur. (a) "Dirty Data Opportunity" set "0" (b) "Dirty Data Stop Opportunity" set a value except "0". Due to the microcode bug in the processing to check Tuning parameter.			

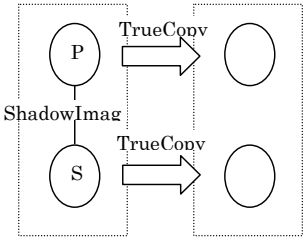
	V7.0/C, 0770/C							1/31/2007	251	-
V7.0/C 0770/C Base System V7.0/A 0770/A	1	I				Changes to Daylight Saving Time (DST) in 2007	The microcode supports the new DST rule in the following area. Countries and regions (GMT -09:00) Alaska (GMT -08:00) Pacific Time (US & Canada), Tijuana (GMT -07:00) Mountain Time (US & Canada) (GMT -06:00) Central Time (US & Canada) (GMT -05:00) Eastern Time (US & Canada) (GMT -04:00) Atlantic Time (Canada) (GMT -03:30) Newfoundland (GMT -03:00) Brasilia (GMT -03:00) Greenland (GMT +02:00) Jerusalem (GMT +02:00) Cairo (GMT +03:30) Tehran (GMT +08:00) Perth			
	2	I		D700-18416		Improvement for ShadowImage pairresync not being completed	The microcode is modified to collect more information for the problem of ShadowImage pairresync not being completed.			
	3	C	B		DF700-0186 (same as DF600-0091)	ShadowImage copy does not finish	ShadowImage copy does not finish. In addition, the following phenomena may occur. - HDD recovery does not finish - Snapshot restore copy does not finish. - Format does not finish. - Forced parity correction does not finish. - Status change of TrueCopy pair does not finish. - Volume migration does not finish. When all of the following conditions are met, the phenomenon may occur. (a) ShadowImage copy is in process. (b) Persistent Reserve command is received just before ShadowImage copy process starts the change of the status at the end of the copy operation. Due to the microcode bug in the control processing when two exclusion processing occurs at the same time.			

	V7.0/D, 0770/D								2/13/2007	253	-
V7.0/D 0770/D Base System V7.0/C 0770/C	1	C	B		DF700-0187	NAS subsystem down after changing IP address of user port of DF700	NAS subsystem down occurs about 1 minute after changing the IP address of the user port of DF700. When this phenomenon occurs, both NNC fails and reboot with the following WEB information message: - IA2D0x NNC No Response to Heartbeat(NNC-x) This phenomenon occurs when all of the following conditions are met: (a) NAS configuration (b) The microcode of DF700 is 0770/A or 0770/C. (c) The IP address of the user port of DF700 is changed. We found that the microcode of DF700 sends an invalid message to NAS OS when the IP address of DF700 is changed by SNM, and detects the heartbeat failure because the NAS OS terminates the processing by the receipt of the unrecognized message.			
	V7.0/E, 0770/E								3/1/2007	257	-
V7.0/E 0770/E Base System V7.0/D 0770/D	1	C	A	D600-80285	DF700-0188 (same as DF600-0094)	Subsystem hung-up during write share-job running	Subsystem hung-up may occur during write share-job running. When all of the following conditions are met, the phenomenon may occur. (a) PAIR or COPY status on the TrueCopy (b) A write command for LU of (a) is reset by host because the command processing in the Subsystem is delayed. (c) The following actions occur at the same time. (1) Write job reset by reset processing from a host (2) Completion of write data transfer Due to the microcode bug in the reset processing of data transfer.			
	2	C	A	D700-80219/51928/18200	DF700-0189	All HDD in a unit can not be accessed by a SENC obstacle.	All HDDs in a unit become inaccessible due to WWN discrepancies, and some HDDs and a controller are blockaded. The host may not be able to access the subsystem by PIN over condition. This phenomena may occur by a SENC obstacle that causes the WWN discrepancies of all HDDs in the unit. The WWN discrepancy is not considered to be caused by a SENC obstacle.			

	3	C	B		DF700-0190	Controller failure by FC HDD obstacle	Controller failure may occur with the following message by FC HDD obstacle. Web Message: H20100 Parity generation LA error[DRR] When all of the following conditions are met, the phenomenon may occur. (a) RAID6 with FC HDD (b) An HDD in the RAID group is detached. (c) No spare HDD is available to recover the detached HDD. (d) Online Verify detects a medium error in the other HDDs in the RAID group. Due to the microcode bug in the online verify processing in RAID6.			
	4	C	B	D700-18434	DF700-0191	Controller failure by Queue Full	In a heavy I/O environment, a controller blockade may occur when a host continues a quick command retry for Queue Full (*1) status from the controller. (*1) The controller responds with Queue Full status when more than 512 commands from a port are received simultaneously. This phenomenon may occur when the host continue a quick command retry (*2) for Queue Full status for more than 20 seconds. (*2) More than 10,000 retries per second. The CPU of the controller is occupied by the Queue Full processing, and the other controller detects the controller timeout.			

	V7.0/F, 0770/F								3/14/2007	260	019
V7.0/F 0770/F Base System V7.0/E 0770/E	1	C	B		DF700- 0192	NNC failure at the power-on or microcode replacemen	An NNC failure occurs at the power-on sequence of the NNC or the microcode replacement. The following message is displayed in the WEB information message field. - IA2Fxy NNC Power on time-out(CTL-x, NNC-y) - IAPM00 NNC Boot time-out[post 0000,0000](NNC-y) - IA2H00 NNC Hardware failure detected[SMBUS-NNC](NNC-y) When all of the following conditions are met, the phenomenon may occur. (a) NAS configuration with the following serial numbers of NNCs: 00010321,00010322,00010323,00010324,00010325,00010326, 00010327,00010328,00010329,00010330,00010336,00010339, 00010340 The package identification information of the NNCs other than above has been changed back to the original value. (b) One of the following operations is executed: (b-1): The microcode is upgraded to 0770/A or later. (b-2): The subsystem with the microcode 0770/A or later is turned on. (b-3): The NNC in the subsystem with the microcode 0770/A or later is replaced. The microcode version 0770/A or later changed the logic to distinguish the product package from sample package by checking the package identification information saved in the internal PROM of the NNC. However, the information of newly produced NNC package was changed, and the microcode recognizes the product package as a sample package incorrectly. The difference between product and sample units in power on sequence causes this problem.			

	V7.0/G, 0770/G							3/19/2007	261	
V7.0/G 0770/G Base System V7.0/F 0770/F	1	C	B	D700M-18833	DF700- 0193	Command Timeout Errors by Synchronize Cache command	Intermittent command timeout errors were detected by several servers connected to DF700. When all of the following conditions are met, the phenomenon may occur. (a) Microcode version is 0770/A or later. (b) One of the hosts issues a Synchronize Cache command to DF700. (c) The Synchronize Cache command is issued to a LUN through the non-owner controller of the LUN. Due to the microcode bug in the exclusion processing for a Synchronize Cache command.			
	V7.0/J, 0770/J							4/27/2007	267	-
V7.0/J 0770/J Base System V7.0/G 0770/G	1	C	A	D700-18972	DF700- 0194	System down by the ShadowImage pair operation  create a new ShadowImage pair, the P-VOL of which is the S-VOL of the existing ShadowImage pair	In case of DF700, when an initial copy of a ShadowImage pair starts on the unsupported configuration, subsystem down, data lost and PSUE may occur. When all of the following conditions are met, the phenomenon may occur. (a) Microcode version is 0750/A or later. (b) Unsupported ShadowImage configuration (cascade) as shown above. (c) MU# of P-VOL is not 0. (If MU# is 0, the guard logic is effective.) DF700 don't support the following configuration (cascade) for ShadowImage, however the guard logic for miss-configuration has a problem. Therefore when an initial copy of a ShadowImage pair starts on the miss-configuration, subsystem down, data lost and PSUE may occur.			

						V7.2/A, 0772/A		6/5/2007	273	-
V7.2/A 0772/A Base System V7.0/J 0770/J	1	N				TrueCopy pair cascade from both ShadowImage P-VOL and S-VOL	TrueCopy pair can be cascaded from both ShadowImage P-VOL and S-VOL. 			
	2	C	C		DF700-0195 (same as DF600-0092)	Recovery failure in the HDD insertion	When a HDD pull out and insert, the HDD does not recover. When all of the following conditions are met, the phenomenon may occur. (a) Execute "Delete All" of RAID Group from SNM (b) Create RAID Group/LU after (a) (c) Replace an HDD in the RAID Group of (b) Note) When Subsystem shutdown is executed after (a), this phenomenon does not occur. Due to the microcode bug in the deletion processing of all RAID Group.			
	3	C	B		DF700-0196 (same as DF600-0100)	Controller blockade by "HZ0N0x Kernel processing error(CTL-x)"	When the Subsystem receives random write, a controller blockade may occur with the following message. Web message: HZ0N0x Kernel processing error(CTL-x) This phenomenon may occur when some write area is duplicated in an LU. Due to the microcode bug in the search processing of a write area.			

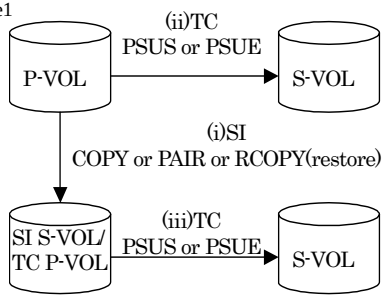
	4	C	B		DF700-0197 (same as DF600-0097)	Write command time-out during large write	When sequential and random I/O is received for an LU, write command time-out may occur. When all of the following conditions are met, the phenomenon may occur. (a) DF700HE/DF700H/DF700M (b) Cache memory is more than 2GB per a controller. (c) LU(s) are configured with FC HDDs by RAID5 with 4D+1P or 8D+1P. OR LU(s) are configured with FC HDDs by RAID6 with 4D+2P or 8D+2P. (d) Stripe size is 64KB. (e) LU of (b) is using master partition (partition#0or1). (f) LU of (b) receives sequential write commands. (g) LU of (c) receives random write commands. Due to the microcode bug in the exclusion processing of sequential write and random write.			
	5	C	B		DF700-0198 (same as DF600-0099)	Host command time-out and PS off failure occur	When CHK1(*) occurs in a write processing to SATA HDD, host command time-out and PS off failure may occur. (*) CHK1: internal reset in a controller by hardware error. When all of the following conditions are met, the phenomenon may occur. (a) SATA HDD (b) HDD error occurs in HDD write processing. (c) CHK1 occurs in a controller. (d) (b) and (c) occur at the same time. Due to the microcode bug in the exclusion processing between controllers in SATA configuration.			

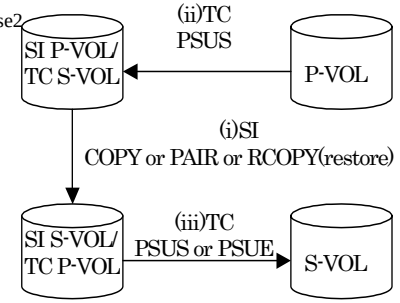
	6	C	A	DF600-18960 SD1783345	DF700-0199 (same as DF600-0104)	System down by SES access error when HDD is pulled out	When a controller failure occurs by SES access error after pulling out an HDD, the other controller is blockaded by SES access error. When all of the following conditions are met, the phenomenon may occur. (a) an FC HDD is detached (b) an ENC is detached at the same unit (c) HDU bypass process is executed (d) HDU Alarm LED lighting process is executed (e) (c) and (d) occur in the same unit at the same time . Due to the microcode bug in the SES access processing			
	7	C	B		DF700-0200	Controller failure by "Microprogram error[CMD]"	When the Subsystem receives heavy load I/O, a controller blockade may occur with the following message. Web message: HJ0E3Q Microprogram error[CMD](CTL-x) When all of the following conditions are met, the phenomenon may occur. (a) internal command time-out error occurs by the connection of many hosts or narrow band of TCP (b) iSCSI chip hung-up occurs (c) (a) and (b) occur at the same time. Due to the microcode bug in the recovery processing of iSCSI command time-out			
	8	C	B		DF700-0201	Controller failure when the Subsystem boots up	When the Subsystem boots up, a controller blockade may occur by link failure of the host FC interface port. Link failure occurs continuously in the host FC interface port during booting up the subsystem Due to the microcode bug in the initialization processing in the host FC interface port			
	9	N			DF700-0202	“SATA 750GB HDD 720 hours per month use” support	The microcode supported “SATA 500GB HDD 720 hours per month use”. The microcode executes Online Verify for SATA 750GB HDD as frequent as FC HDD (full time Online Verify execution).			

	V7.2/D, 0772/D							9/3/2007	286	-
V7.2/D 0772/D Base System V7.2/A 0772/A	1	I			DF700-0203 (same as DF600-0105)	HDU reliability improvement by changing Online Verify process	The microcode changes Online Verify period to activate the IDLE SEEK(self-diagnosis function) of the following HDDs when these HDDs are installed. FC HDD: HGST HUS151414VLF400 (Model: DF-F700-AGH146(H), Firmware: K0) HGST HUS151473VLF400 (Model: DF-F700-AGH72(H), Firmware: K0)			
	2	C	B		DF700-0204	Controller blockade by "HH7U00 H-IPC PCI ECC error"	[phenomena] When the iSCSI interface board is installed in the controllers, a controller blockade may occur with the following message. Web message: HH7U00 H-IPC PCI ECC error [Conditions of Occurrence] When all of the following conditions are met, the phenomenon may occur. (a) iSCSI interface board is installed. (b) Microprogram executes iSCSI ECC correctable error check process. (Microprogram usually executes iSCSI correctable error check process every 5 minites.) (c) iSCSI firmware detects the iSCSI error and accesses the error count registers to count up these counters. (d) The processes of (b), (c) is executed in the same time in the same controller. (e) iSCSI ECC error counter is over the threshold(512). [Cause] Due to the microcode bug in the count-up process of the iSCSI ECC correctable error check			
	3	C	C		DF700-0205	Due to the microcode bug in the initialization process in the LED of DF700-RKNAS	[phenomena] Warning LED or ALARM LED of DF700-RKNAS falsely remain to be lighted up when DF700-RKNAS boots up after some LED of DF700-RKNAS has been lighted up.. [Conditions of Occurrence] Warning LED or ALARM LED of DF700-RKNAS falsely remain to be lighted up when DF700-RKNAS boots up after some LED of DF700-RKNAS has been lighted up.. [Cause] Due to the microcode bug in the initialization process in the LED of DF700-RKNAS			

	4	C	A		DF700-0206 (same as DF600-0106)	Both controllers blockade by Backend down [NO SES HDU BKD] immediately after an HDU blockade.	[Phenomena] Immediately after an SES_HDU blockades, both controllers may blockade by Backend down [NO SES HDU BKD]. [Conditions of Occurrence] When the following conditions are met, this phenomenon may occur. (a) Micro program version 0755/A, 0760/B, 0770/A or later. (b) When HDU#2 of a basic unit or an extended unit blockades by one of following reasons. ・Blockade direction from Storage Navigator Modular ・Preventive blockade direction from Storage Navigator Modular (dynamic sparing directions) ・Blockade by removal ・Blockade by error threshold over ・Blockade by retry over This obstacle is not generated in the blockade by back end I/F diagnosis. Moreover, this obstacle is not generated in a SATA HDU blockade. (c) When the first SES_HDU used by SES access diagnosis (HDU alarm LED lighting processing) is HDU#0 [Cause] In case of HDU blockade, it is necessary to process sequentially "HDU bypass processing" and "HDU alarm LED lighting processing." However, there is a micro program bug which performs these two processing in parallel. According to this defect, an SES access obstacle occurs and both controllers blockad The controller blockade message at this time is "Backend down [NO SES HDU BKD] ".			

	5	C	A	DF700-19630	DF700-0207	Subsystem down by the both controllers blockade by Microprogram error[LUC] and Microprogram error[RCH]	[Phenomena] The controller blockade may occur with the following message when the path check process of HDLM is executed. Web message: HJ1Exx Microprogram error[LUC] Then Subsystem down may immediately occur because the other controller blockade will also occur. Web message: HJ11xx Microprogram error[RCH] [Conditions of Occurrence] When all of the following conditions are met, the phenomenon may occur. (a) I/O is not issued to one controller which has more than 21 LUs and has default ornership for these LUs. And I/O is issued via another controller to LUs for which another controller has default ornership. Therefore, one controller has all of LUs which involves the LUs for which another controller has default ornership. (b) The path check of the application is defined to be issued from the controller which has default ornership for the LUs. (c) 2 read command are issued in another controller of (a) to the LUs whose ornership is in the other controller now. (d) LU ornership change process is executed in the both controllers in the same time. [Cause] Due to the microcode bug in the exclussion processing in LU ornership change between controllers			

	6	C	A	DF700-19750	DF700-0208	System down by the Write Command on ShadowImage and TrueCopy cascade configuration.	[Phenomenon] When the host issue Write command to CTL0 of DF , CTL0 is blockaded. When the host issue Write command to CTL1 of DF for retry, CTL1 also is blockaded and system down. [Conditions of occurrence] This phenomenon occurs when all of the following conditions are met: (a) Microcode version is 0772/A or later. (b) There are TrueCopy cascades for both P-VOL and S-VOL of ShadowImage (c) The pair status of ShadowImage and TrueCopy are the following case1 and case2. (d) The host issue Write command to P-VOL of ShadowImage. Case1  			

							This phenomenon occurs when all of the following conditions are met: (i) Pair staus of ShadowImage COPY or PAIR or RCOPY(restore) (ii) Pair staus of TrueCopy (P-VOL side of ShadowImage) PSUS or PSUE (iii) Pair staus of TrueCopy (S-VOL side of ShadowImage) PSUS or PSUE Case2  This phenomenon occurs when all of the following conditions are met: (i) Pair staus of ShadowImage COPY or PAIR or RCOPY(restore) (ii) Pair staus of TrueCopy (P-VOL side of ShadowImage) PSUS (iii) Pair staus of TrueCopy (S-VOL side of ShadowImage) PSUS or PSUE [Cause] Microprogram 0772/A was supported TrueCopy cascades for both P-VOL and S-VOL of ShadowImage. When Write command to P-VOL of ShadowImage is received, there is a case of unsetting TC difference bit of TrueCopy (P-VOL side of ShadowImage) by mistake. CTL is blockaded, because TrueCopy difference bit unset is detected just before the status transfer of Write command. (Check logic)			

	7	C	C	DF700/HDVM-52391	DF700-0209	Disk discovery commnand in the setting of HDvM can not be completed.	[Phenomena] Disk discovery commnand of HDvM is rejected by subsystem because user signature(IP address) can not be certificated by subsystem. [Conditions of Occurrence] When all of the following conditions are met, the phenomenon may occur. (a) Passoword Protection is enable. (b) User login and user authentification has completed successfully in the controller. (c) Network failure is detected. (d) Network access(i.e. Disk discovery command of HDvM) is executed in another controller of (b). [Cause] Due to the microcode bug in the signature check process in user authetification of Password Protection			
	8	C	C		DF700-0210	The nickname of the iSCSI initiator can not be changed to a "blank".	[Phenomena] The nickname of the iSCSI initiator can not be changed to a "blank". [Conditions of Occurrence] When all of the following conditions are met, the phenomenon may occur. (1) iSCSI Interface board is installed. (2) LUN Manager is enable. (3) Target Security of Access Mode is enable for an iSCSI port. (4) The iSCSI initiator whose nickname is a "blank" already exists in a target in the port of (3). (5) The nickname of another iSCSI initiator is changed to a "blank". [Cause] Due to the microcode bug in the setting processing in the Nick Name of the iSCSI initiator			
	9	I		DF700-19645	DF700-0211	Daylight saving time changes in New Zealand	New Zealanders will have three weeks more daylight saving from 30 September this year following the decision by the Labour-led Government to extend the period to 27 weeks. Daylight saving in New Zealand for 2007-2008 will start at 2am on 30 September 2007 and end at 3am on 6 April 2008.			