# *MICRO-FC SECTION*

# Contents

## MICRO-FC

Two types of MICRO-FCs are provided with micro-program exchange and on-line patch.  Micro-program exchange is explained in chapter 1 to 5, and on-line patch in chapter 6.

# 1. Overview

## 1.1 Micro-program Types

The micro-programs listed below can be exchanged via the SVP.  Therefore, the exchange of micro-programs requires operational knowledge of the SVP.

| Micro-program | Written to |
|---|---|
| Setup installer | — |
| DKCMAIN | FM (MP) |
| SVP | Hard disk in the SVP |
| HTP/FCDG | FM (MP) |
| FOEF | FM (MP) |
| DKAF | FM (MP) |
| CUDG4 | Hard disk in the SVP |
| SSW | HDU |
| Expander | HDU |
| Expander[FMU] | HDU (FMU) |
| DKU/HDD | HDU |
| SCHIP | HDU |
| SSVP | FM (MN) |
| RAM BOOT | FM (MP) |
| CMBK | FM (CACHE) |
| CMSSD | FM (CACHE) |
| CONFIG | Hard disk in the SVP |
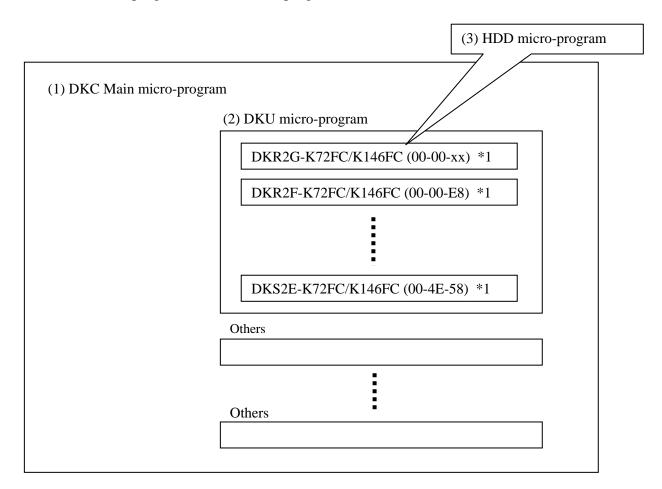
## 1.1.1 Definition of Micro-program Types

The objective of this document is to clarify the definition of micro-program group.

(1)  DKC Main micro-program :  Micro-program for DKC
(2)  DKU micro-program :       Group of HDD micro-programs
(3)  HDD micro-program :       Micro-program for each HDD model
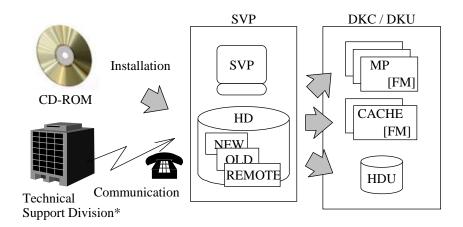


(1)  DKC Main micro-program combines DKU micro-program.

(2)  DKU micro-program consists of plural HDD micro-programs.

(3)  HDD micro-program defined as the micro-program for each HDD model.

*1:  HDD Model name and Version is an example

## 1.2 Micro-program Exchange Flow



The SVP keeps two generations (new and old versions) of micro-programs.


     \*:    Technical Support Division : A base of maintenance service and technical support


Micro-programs can be exchanged in four ways.
(1) Downloading after storing the micro-programs from CD-ROM to the hard disk
(2) Downloading of the latest versions on the hard disk in the SVP
(3) Remote (downloading of the micro-programs transferred from the maintenance center)
(4) Version Down (downloading of old versions on the hard disk)


### 1.2.1 About OSS media

In this subsystem, OSS (Open Source Software) contained in the media of a micro program until now is stored in another media. This media is called OSS media. Tomcat, Flash player, Apache, JRE, and Perl are contained in this.
OSS media is used at an initial install or at these install when the version of one of Apache, JRE, or Perl is upgraded.
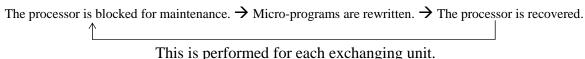
## 1.3 Micro-program Exchange

Micro-programs can be exchanged off-line or on-line.

(1) Off-line
   All processors are blocked for maintenance. → Micro-programs are rewritten. → All
   processors are recovered. → The DKC is turned off then on again.

(2) On-line
   The processor is blocked for maintenance. → Micro-programs are rewritten. → The processor is recovered.

   This is performed for each exchanging unit.

Note:

- The SVP checks the version of the micro-program to be substituted before rewriting it.
  When the SVP determines that the micro-program cannot be rewritten, it displays an error
  message and cancels the exchange of the micro-program.

- The SVP terminates the exchange of micro-programs when the error status is displayed (i.e.
  when a message " ...... error ...... " or "...... failed ......" is displayed) or when the [Cancel]
  button is selected.
  If you want to retry the exchange, please start from the first step of the MICRO-FC
  procedure.
  However, when the error status is displayed in downloading from SVP to DKC (FM) or
  DKU by "3.3 Transferring micro-program to the DKC" or by "4.3 Transferring micro-
  program", you can retry by "3.4 Hard Disk Download" or by "4.4 Hard Disk Download".

- All program files which are automatically exchanged on an SVP during a micro-program
  exchange, will also be automatically exchanged on the other SVP when the SVP High
  Availability Feature is installed and the other SVP is functional.
  Those programs which are not automatically exchanged, such as Apache, must be manually
  exchanged on both SVPs.
  Please confirm that both SVPs contain the same program versions after exchanging
  program versions. However, SVP switching must be performed before and after the version
  check.
  (Refer to SVP02-1420 "2.18 SVP Switching".)

- If it is required to version down the current microcode running on the DKC to a version
  that is not the last installed, do not attempt this without receiving guidance specific to your
  case from technical support division or the factory.
  This needs to be analyzed on a case by case basis and a unique procedure may need to be
  provided for each case.

⚠ **CAUTION**

When the SVP High Reliability Kit is installed, the microprogram replacement operation is only in the normal SVP. The selected microprogram is transferred or updated automatically to the standby SVP. However, if the version of Apache/JRE/Perl to be installed in the OSS media changes, you need to install it for the standby SVP manually.

⚠ **CAUTION**

In case of ShadowImage for Mainframe/ShadowImage/Volume Migration/Hi-Copy/ FlashCopy (R) V2/Copy-on-Write Snapshot/Thin Image, the differential bitmap data on the shared memory of DKC is volatilized by the offline microprogram exchange operation. Furthermore, in case of FlashCopy (R) V2, the relationship is all released. Also, in case of Copy-on-Write Snapshot/Thin Image, Pool is blocked.

Execute the online microprogram exchange operation not to volatilize the differential bitmap data on the shared memory of DKC, the relationship of FlashCopy (R) V2, and the Pool information on Copy-on-Write Snapshot/Thin Image.

## 2. Pre-Process Micro FC

### 2.1 Connect to SVP from Remote PC

Connect to SVP from Remote PC, with referring "Connecting the PC to the SVP" (SVP01-60) and then execute following process.

# 3. Micro-program Exchange Procedure (Off-line)

If an error occurs during a micro-program exchange, retry the exchanging procedure from the beginning.

## 3.1 Processing before exchange

- Check the subsystem status through the entire status display. (Check the versions of the all programs through the version display.).
- Make sure that correction copy and other processing are not in progress.
- Perform post processing for PIN data.
- Check that all processors are normal.
- Check that all CHL pass to the subsystem are off-line (to block all micro-programs).
- HTP, FCDG, DKCMAIN, and RAMBOOT micro-programs can be exchanged on off-line.
- In the case of existing relationship of FlashCopy (R) V2 option and performing off-line micro-program exchange operation, it is necessary to follow the procedure of THEORY OF OPERATION SECTION "3.14.8 Micro-program Exchange (1) Off-line Micro-program Exchange".
- In case that the off-line micro-program exchange operation is executed when there is a pair of Copy-on-Write Snapshot/Thin Image, it is necessary to delete all Snapshot/Thin Image pairs.
- Refer to "3.14.8 Micro-program Exchange (1) Off-line Micro-program Exchange" on THEORY OF OPERATION SECTION if you perform off-line Micro-exchange when the Copy-on-Write Snapshot/Thin Image is installed.
- In case of performing the off-line micro-program exchange for UR/UR for z/OS pairs, please make sure not to perform on the MCU and RCU simultaneously.
- In some primary subsystems and in some secondary subsystems, when off-line micro-program exchange is executed under the Universal Replicator's remote copy configuration, please suspend the pairs that were previously registered in EXCTG.
  Furthermore, please do not exchange micro-program on the supervisor-side subsystem & subordinate-side subsystem at the same time.
- In an OPEN environment, when exchanging the micro-program off-line in the remote copy configuration using multiple primary and secondary subsystems of Universal Replicator, first suspend all the pairs in this configuration.

Note:  If the status of LDEV which is created by external device mapping function is "Maintenance blockade" status and micro-exchange is operated, the maintenance blockaded LDEV status is resorted and the status is changed to the normal status.

Note:  Please do not open the 'Maintenance' window during micro-program exchange. If the window is opened, micro-program exchange may end abnormally.
       In the case that the 'Maintenance' window needs to be opened due to an error and so on, contact T.S.D. for help.

Note: When off-line micro exchange is executed, monitor information on the collection on Dynamic Tiering is annulled. Therefore, the next relocation is not executed for the automatic execution mode. Please execute the termination processing of the monitor if necessary for the manual execution mode.
After off-line micro exchange, the relocation executed before off-line micro exchange is restarted regardless of the execution mode.

Table3.1-1  Off-line Micro-program Exchange time (approximate)

(unit : minutes)
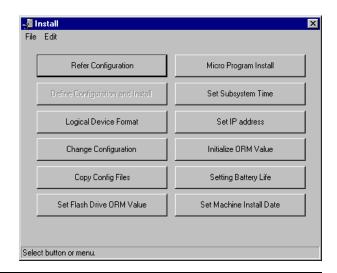
|          | CD-ROM → HDD | Downloading (MP) |
|----------|--------------|------------------|
| HTP      |              |                  |
| FCDG     |              |                  |
| DKCMAIN  | 3            | 2                |
| RAMBOOT  |              |                  |
| FOEF     |              |                  |
| DKAF     |              |                  |
| TOTAL    | 3            | 6                |
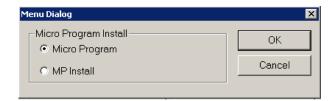
Note: After you execute this operation, DKC will clear the condition that DKC reports SIM to the host.  Therefore, DKC will report the next SIM to the host when the host accesses 16K I/O, and after you wait for an hour if P/S on is executed.

## 3.2 Storing the micro-programs to be substituted in the SVP

(1)

  <Initial screen>

---

(2)

  Change the mode to [Modify] (CL).
  Select (CL) [Install].

---

(3)

  In the 'Install' window, select (CL) [Micro
  Program Install].



| | |
| --- | --- |
| Refer Configuration | Micro Program Install |
| Define Configuration and Install | Set Subsystem Time |
| Logical Device Format | Set IP address |
| Change Configuration | Initialize ORM Value |
| Copy Config Files | Setting Battery Life |
| Set Flash Drive ORM Value | Set Machine Install Date |

Select button or menu.

---

(4)

  Select (CL) [Micro Program] and select (CL)
  [OK].



Menu Dialog

Micro Program Install
  ⦿ Micro Program
  ○ MP Install

OK
Cancel

(5)

In the 'Microprogram Exchange' dialog box,
[How]: select (CL) [Offline].
[From]: select (CL) the source from which to store the
micro-programs.
[PC-Drive]: select (CL) the PC and the drive letter from
which to store the micro-programs (In the case of CD-
ROM).

[From]'s selection branch
CD-ROM:      After being stored on the hard disk
             from CD-ROM, the micro-programs
             are downloaded.
             --- Select (CL) from the selection of PC-Drive.
Hard Disk:   The latest versions on the SVP hard disk are downloaded.
             --- Go to 3.4 (1). (MICRO03-560)
Version Down: Old versions on the hard disk are downloaded.
             --- Go to 3.5 (1). (MICRO03-580)

[PC-Drive]'s selection branch
SVP:         The SVP's drive  --- Select (DR) the drive letter and Select (CL) [OK] and Go
             to (6)
Client PC:   The Client PC's drive  --- Select (DR) the drive letter and Select (CL) [OK]
             and Go to (6)
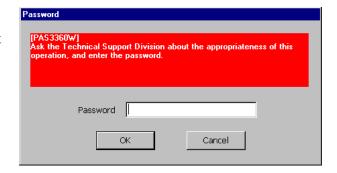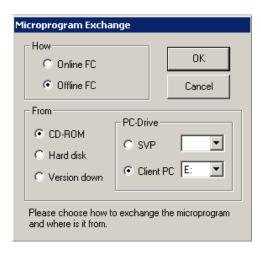
Selecting (CL) [Cancel] returns you to be step (4).

(6)

If you want to continue this process, select
(CL) [OK] and enter the password, and select
(CL) [OK].

(7)

The 'Microprogram Exchange' dialog box appears.
Select (CL) one or more items from the list of the type of micro-programs, and select (CL) [OK].

☑ : Micro-programs to be substituted.

One of the messages is displayed by the subsystem configuration.
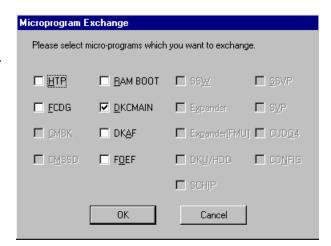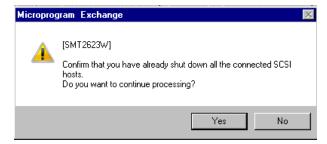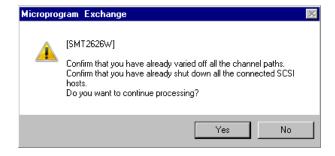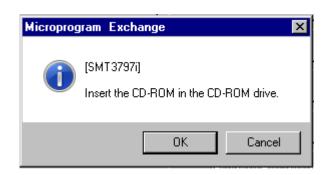
After you confirm that you have already varied all the CHL paths to off-line, select (CL) [Yes].

(8)

If you select CD-ROM, a dialog "Insert the
CD-ROM in the CD-ROM drive." appears.
Insert the CD-ROM and select (CL) [OK].

| Microprogram Exchange                    🗙 |
|---|
| ⓘ  [SMT3797i] |
| Insert the CD-ROM in the CD-ROM drive. |
| [ OK ]    [ Cancel ] |

<<Error>>

No CD-ROM or incorrect CD-ROM in the disk drive:

The Message "Insert the correct CD-ROM." is displayed.

Insert the correct CD-ROM and select (CL) [Retry].

Internal error:

- "Old files erase failed, copy stop."
- "Memory error has occurred."
- "File I/O error has occurred."
- "Logical error has occurred."
- "The directory create error and copy stop."
- "The file size is Wrong and copy stop."

(9)

If you select CD-ROM, the message
"Copying CD-ROM files to HD DKCMAIN"
appears.

| Files Copying... |
|---|
| Copying CD-ROM files to HD   DKCMAIN |
| 7% |

<<Error>>

Internal error:

- "The file size is Wrong and copy stop."
- "The directory create error and copy stop."
- "Micro-program version disagreement and copy stop."
- "Logical error has occurred."
- "File I/O error has occurred."
- "Memory error has occurred."

Note : When the error message "File I/O error has occurred." or "Memory error has occurred."
is displayed, power SVP off and on again if the same message appears after reexecuting
the micro-program exchange (see SVP01-150 in the SVP SECTION).
Then execute the same micro-program exchange again.  If the same error occurs (the
same error message is displayed), replace SVP hardware (see REP01-240 in the
REPLACE SECTION).

(10)
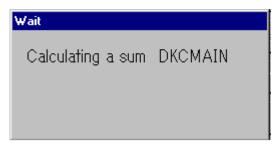
If you select CD-ROM, a dialog "Remove the CD-ROM." appears.
Remove the CD-ROM and select (CL) [OK].

After copy end, sum checker starts.
While checking, the message appears.
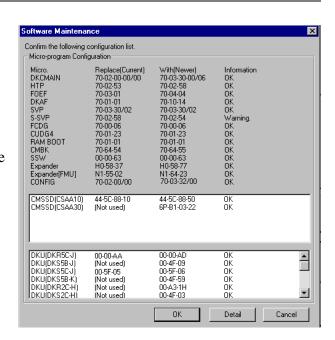
(11)

On the 'Software Maintenance' dialog box, the micro-program types, current versions, new versions, and message are displayed.

<Display with no error>
The message "Confirm the following configuration list." is displayed below the title bar. The micro-program can be replaced only when all rows in the information column show "OK", "Not change" or "Warning". To make processing progress, select (CL) [OK].
To terminate micro-program replacement, select (CL) [Cancel].

---

### ⚠ CAUTION

If "Warning" is displayed. Refrain from selecting (CL) "OK" or "Cancel". Select (CL) "Detail" surely. Confirm the contents and ask the technical support division for decision for selecting "OK" or "Cancel" according to the contents. To make processing progress, select (CL) [OK], input the password and select (CL) [OK]. Password is needed for this operation. Please call Technical Support Division to obtain password and authorization.

<Display with an error>

A sample display at occurrence of an error is shown on the right. An error message is displayed below the title bar. At the same time, error information is displayed in the information column.
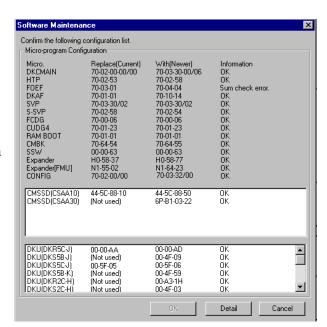
Select (CL) [Cancel] to terminate micro-program replacement. (Note: The [OK] button is not displayed.)

Select (CL) [Detail] to display detailed error information.

Before making an attempt to rerun, be sure to correct

the cause of the error by referring to the entire status

(SVP SECTION), action code (ACC SECTION), and other information.

| Software Maintenance | | | |
|---|---|---|---|
| Confirm the following configuration list. | | | |
| Micro-program Configuration | | | |
| Micro. | Replace(Current) | With(Newer) | Information |
| DKCMAIN | 70-02-00-00/00 | 70-03-30-00/06 | OK |
| HTP | 70-02-53 | 70-02-58 | OK |
| FOEF | 70-03-01 | 70-04-04 | Sum check error. |
| DKAF | 70-01-01 | 70-10-14 | OK |
| SVP | 70-03-30/02 | 70-03-30/02 | OK |
| S-SVP | 70-02-58 | 70-02-54 | OK |
| FCDG | 70-00-06 | 70-00-06 | OK |
| CUDG4 | 70-01-23 | 70-01-23 | OK |
| RAM BOOT | 70-01-01 | 70-01-01 | OK |
| CMBK | 70-64-54 | 70-64-55 | OK |
| SSW | 00-00-63 | 00-00-63 | OK |
| Expander | H0-58-37 | H0-58-77 | OK |
| Expander[FMU] | N1-55-02 | N1-64-23 | OK |
| CONFIG | 70-02-00/00 | 70-03-32/00 | OK |
| CMSSD(CSAA10) | 44-5C-88-10 | 44-5C-88-50 | OK |
| CMSSD(CSAA30) | (Not used) | 6P-B1-03-22 | OK |
| DKU(DKR5C-J) | 00-00-AA | 00-00-AD | OK |
| DKU(DKS5B-J) | (Not used) | 00-4F-09 | OK |
| DKU(DKS5C-J) | 00-5F-05 | 00-5F-06 | OK |
| DKU(DKS5B-K) | (Not used) | 00-4F-59 | OK |
| DKU(DKR2C-H) | (Not used) | 00-A3-1H | OK |
| DKU(DKS2C-H) | (Not used) | 00-4F-03 | OK |

[ OK ]  [ Detail ]  [ Cancel ]

Below are messages and information that may be displayed in the Information column.

Note: Select (CL) [Detail] to display detailed error information, and confirm the cause of these errors.
- "Version error"
- "Revision error"
- "Warning"

Version Check Message Table.

| | Message : | Contents and Maintenance |
|---|---|---|
| 1 | Confirm the following configuration list. | Check the version (Normal or Warning). If Warning, it is necessary to be approved by TSD (Technical Support Division). |
| 2 | Version error. | Incorrect version.  Confirm the micro-program version. |
| 3 | Can't read the configuration of the micro-program. | Error caused while the micro-program configuration is being read.  Recover the blockade of a concerned processor. |
| 4 | Internal error. (On SVP Logic) | Inconsistent logic. (SVP logic) Retry exchange.  If the same message is displayed, power SVP off and on. |
| 5 | Internal error. (On SVP Memory) | Inconsistent logic. (SVP memory) Retry exchange.  If the same message is displayed, power SVP off and on. |
| 6 | Internal error. (On Temporary Files) | Inconsistent logic. (temporary file) Retry exchange.  If the same message is displayed, power SVP off and on. |
| 7 | Version error. (Previous maintenance needed) | Incorrect version. (partial replacement) Confirm the micro-program version. |
| 8 | Version error. (Incompatible MP exists) | Incorrect version. (partial replacement) Confirm the micro-program version. |
| 9 | Sum Check error. | Sum check code is incorrect. Micro-program data in Micro-Media isn't correct. Exchange the Micro-Media. |
| 10 | Revision error | Incorrect revision. Confirm the micro-program revision. |
| 11 | The micro-program is incompatible with the system. | Incorrect micro-program. Confirm the micro-program version and system. Contact TSD (Technical Support Division). |
| 12 | Combination error | Incorrect micro-program exchange process. Confirm the combination of micro-program version and the exchange process. |
| 13 | Internal Version error. | If you perform the replacement of micro-program with the combination of these micro-program versions, there is a possibility that DKC/HDU blockades the part. Confirm the micro-program version and replace process. |

| | Information | Contents |
|---|---|---|
| 1 | OK | The micro-program is replaceable. |
| 2 | Version error [#xxxx] | MP has an incorrect micro-program version. [processor number] |
| 3 | FC Condition [#xxxx] | MP has an incorrect micro-program version with partial replacement. [processor number] |
| 4 | Internal error [#xxxx] | Inconsistent logic error has occurred. [internal error code] |
| 5 | Not change | The micro-program will not be replaced. |
| 6 | Read error | An error has occurred while reading the current configuration. |
| 7 | Sum Check error | The sum check code is incorrect. |
| 8 | Warning | It is necessary to contact TSD (Technical support Division) for approval. |
| 9 | Revision error | MP has an incorrect micro-program revision. |
| 10 | Package condition | The combination error of micro-program and package has occurred. |
| 11 | Facility condition [#xxxx] | MP has an incorrect micro-program version with function of system. [Facility condition error code] |
| 12 | Combination error [#xxxx] | The combination error of more than two micro-programs has occurred. [Combination error code] |

| | Internal error code | Contents |
|---|---|---|
| 1 | 0001 | Parameter error. |
| 2 | 0002, 0003 | Memory allocation error. |
| 3 | 0005 | File I/O error. |

| | Combination error code | Contents |
|---|---|---|
| 1 | 8000 | High Speed Adapter error |
| 2 | 8001 | Compressed LCDG error |

| | Facility condition error code | Contents |
|---|---|---|
| 1 | C000 ~ C011 | Reserve |
| 2 | C012 | Compressed DKCMAIN error |

If SVP Version is before than 70-03-3X, refer to "Function Bit Map Table" below.
If SVP Version is 70-03-3X and higher, refer to "FunctionID Table" (MICRO03-310).

• Function Bit Map Table

| Function Bit Map Table | | | |
|---|---|---|---|
| Bit Pattern | Function | Contents | Action (*1) |
| 0100 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Nondisruptive Migration Support | Nondisruptive Migration Support | Please contact TSD (Technical Support Division).<br><br>Note: This function bit turned on with function bit of "the expansion attribute support of the outside volume". |
| 0010 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Extended Volume for External Volume Support | Extended Volume for External Volume Support | Please execute the micro exchange again after deleting all Extended External Volumes.<br><br>This bit may turned on with the following function bit. In that case, please execute the action of the function bit turning on at the same time.<br>• Nondisruptive Migration Support |
| 0001 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | UR performance improvements | UR performance improvements | Please execute the micro exchange again after doing the following procedures.<br>• Delete all UR pairs whose state of the pair in DKC is HOLD (Hold) or HLDE (Hlde).<br>• All UR pairs are suspended. |
| 0000 1000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Support for Background Erase of HDP/HDT | Version Down from support micro for Background Erase of HDP/HDT to unsupport micro is controlled. | Please execute the micro exchange again after deleting all HDP/HDT pool, or turning off System Option Mode 896, and having stopped Background Erase of HDP/HDT. |

| Function Bit Map Table | | | |
|---|---|---|---|
| Bit Pattern | Function | Contents | Action (*1) |
| 0000 0001 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Mainframe Fibre Data Migration Support | Mainframe Fibre Data Migration Support | Please try exchange again after executing all of FICON port type change from FNP to HTP. |
| 0000 0000 0100 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Support for Sync Copy of Volume Migration | Support for Sync Copy of Volume Migration | Please execute the micro exchange again after deleting of all OPEN-Volume Migration pairs. |
| 0000 0000 0010 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Support for consolidation of FlashCopy (R) SE and copy features | Support for consolidation of FlashCopy (R) SE and copy features | Please withdraw the relationship of FlashCopy (R) SE that is sharing a volume with Secondary-Volume of TC, Primary-Volume of SI, Primary-Volume of UR, Primary-Volume of XRC, and source volume of FlashCopy (R) V2. Or, please delete all pairs of Secondary-Volume of TC, Primary-Volume of SI, Primary-Volume of UR, Primary-Volume of XRC, and source volume of FlashCopy (R) V2 those are sharing volumes with FCSE. |

| Function Bit Map Table | | | |
|---|---|---|---|
| Bit Pattern | Function | Contents | Action (*1) |
| 0000 0000 0000 1000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Support for mixed RAID1 in HDP/HDT pool | Version Down from support micro for mixed RAID1 in HDP/HDT pool to unsupport micro is controlled. | Please execute the micro exchange again after removing the pool mixed RAID1 in HDP/HDT pool or deleting RAID1 pool-VOL.<br>Please execute the micro exchange again after removing the pool, if the pool whose only RAID1 and [Enable] is set for [Mixable] exists.<br>*: Please execute the micro exchange again after removing RAID1 3390-V emulation volumes, if RAID1 3390-V emulation volumes exists. |
| 0000 0000 0000 0000<br>0001 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Support for CLI ShadowImage for Mainframe | When useing Consistency groups for SI-MF pair made from RAID Manager, Version Down to unsupportmicro is controlled. | Please delete SI-MF pair in Consistency groups made from RAID Manager.<br>If you can't know SI-MF pair in Consistency groups made from RAID Manager, please delete SI-MF pair in Consistency groups. |
| 0000 0000 0000 0000<br>0000 0001 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Function bit expansion support | Function bit expansion support. | A version of the DKCMAIN microprogram is mismatched with SVP version. After having made a version agree, please retry again. |
| 0000 0000 0000 0000<br>0000 0000 0010 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | RESERVE/PGR support for Nondisruptive Migration | Version Down from RESERVE/PGR support for Nondisruptive Migration to unsupport micro is controlled. | Please confirm whether Nondisruptive Migration (NDM) is running or not. If NDM is running, please delete all of the volumes with NDM attribute (finish the migration) first. After that, please execute the micro program exchange to enter the password. |

| Function Bit Map Table | | | |
|---|---|---|---|
| Bit Pattern | Function | Contents | Action (*1) |
| 0000 0000 0000 0000<br>0000 0000 0000 1000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Support of DKS2D-H3R0SS | Suppress version downgrade to the microprogram that supports for DKS2D-H3R0SS.<br>• DKS2D-H3R0SS<br>  x: generation (B to Z)<br>  y: capacity (GB) | De-install all DKS2D-H3R0SS drives before the microprogram replacement, wait for two minutes, and then execute the microprogram replacement again. |
| 0000 0000 0000 0000<br>0000 0000 0000 0100<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | UR Delta resync Function support | UR Delta resync Function support | Perform the microprogram replacement after doing the following procedures.<br>• Please delete all UR pairs, which status is HOLD (Hold) or HLDE (Hlde) with each DKC of 3DC Multi-target Configuration.<br>Refer to the TROUBLESHOOTING SECTION "17.6 UR Microprogram Version-Down Replacement Procedure (3DC Multi-target Configuration)" for the procedure for performing the microprogram replacement. |

| Function Bit Map Table | | | |
|---|---|---|---|
| Bit Pattern | Function | Contents | Action (*1) |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0001 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | CHA Data Protection Mode Change Support | Suppress version downgrade to the CHA Data Protection Mode Change unsupported microprogram version. | After setting System Option Mode 945 to "ON", and performing dummy replacement of all installed CHF (8UFC/16UFC) packages, please exchange the microcode again. After having exchanging the microcode, please set System Option Mode 945 to "OFF". |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0100<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | HAM (High Availability Manager) support | Suppress version downgrade to the HAM unsupported microprogram version. | Please execute the micro exchange again after deleting all the HAM Pair and Quorum Disk. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0100 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | UR OPEN No I site data vol Support | Version Down from supportmicro for UR OPEN No I site data vol to unsupportmicro is controlled. | Please delete the registered journal by setting 2DC Cascade to Enable in the Edit Journal Volumes dialog box and execute it again. |

| Function Bit Map Table | | | |
|---|---|---|---|
| Bit Pattern | Function | Contents | Action (*1) |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0100 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | UR OPEN M×N | Downgrading the micro-program of UR M×N OPEN supported version to an unsupported version is prevented. | Check the pair configuration that uses this function, and then perform either of the operations below accordingly. After that, exchange the micro-program again.<br>For details about how to check the JNLG that uses this function, see "Journal Operation Window" in "Universal Replicator GUI reference" of Universal Replicator User Guide.<br>1. If multiple JNLGs are defined with the same CTG# in one DKC, re-build the pair configuration so that one JNLG is defined with one CTG#.<br>2. Suspend all the pairs in the configuration that uses this function. |

| Function Bit Map Table | | | |
|---|---|---|---|
| Bit Pattern | Function | Contents | Action (*1) |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 1000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | UR Control Path Support | Downgrading the micro-program of UR Control Path supported version to an unsupported version is prevented. | Please execute the micro exchange again after releasing the setting of the remote command device registered in all Journal groups. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0001<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Support for Write Same | Version Down from supportmicro for Write Same to unsupportmicro is controlled. | Please execute the micro exchange again after waiting for a few moments, or all Discarding Zero Data are suspended, or set System Option Mode 755 to "ON".<br>*: Function Bit turned on by Discard Zero Data function. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>1000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Support for cooperation of Discard Zero Data and program product (TC/UR) | Version Down from supportmicro for cooperation of Discard Zero Data and program product (TC/UR) to unsupportmicro is controlled. | Please execute the micro exchange again after Discarding Zero Data for the specified DP-VOL is completely finished, or Discarding all Zero Data are suspended, or set System Option Mode755 to "ON".<br>*: Function Bit turned on by Write Same function. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0100 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | TC Sync Open/MF Consistency function support | Version Down from supportmicro for TC Sync Open/MF Consistency function to unsupportmicro is controlled. | Please execute the micro exchange again after releasing all of the MF Volumes which registered in TC Sync Open/MF Consistency Group. |

| Function Bit Map Table | | | |
|---|---|---|---|
| Bit Pattern | Function | Contents | Action (*1) |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0100 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Support HAM pair of LUSE | Suppressing version downgrade to the microprogram version that does not support HAM pair of LUSE. | De-install all HAM pair of LUSE and then execute the microprogram exchange again. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0100 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Restoration processing of account capacity in ShadowImage/ CoW Snapshot/ Thin Image | When the account capacity is restored and processed when the version is downed, the down of the version is controlled. | Please execute the micro exchange again after it does for a while. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0010 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | URxUR Support | Version Down from supportmicro for URxUR to unsupportmicro is controlled. | Please execute the micro exchange again after deleting all journal group that registers on the [Edit journal volumes] window effectively specifying [UR 3DC]. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0010 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | UR-SI AtTime Split SI-Quick function support | Version Down from supportmicro for UR-SI AtTime Split SI-Quick function to unsupportmicro is controlled. | Please execute the micro exchange again after releasing all of the setting that split type of SI has been "Quick Split". |

| Function Bit Map Table | | | |
|---|---|---|---|
| Bit Pattern | Function | Contents | Action (*1) |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0100 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | TC Performance improvement Support | Suppress version downgrade to the TC performance improvement unsupported microprogram version. | After making the setting of Host Mode Option 49/50/51 all turning off microprogram exchange again.<br>When remove 8UFC/16UFC, execute the setting of Host Mode Option 49/50/51 all turning off also in advance. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0001 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Shortening of RIOMIH TIME | Since the TC/TC-MF pair under RIOMIH time shortening operation exists, the version down to an unsupported micro is controlled. | Please execute the micro exchange again after dividing or deleting of all the TC/TC-MF pairs under RIOMIH time shortening operation. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 1000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | PreserveMirror FlashCopy Support | PreserveMirror FlashCopy Support | Please release relationship of PreserveMirrorFlashCopy.<br>If there are TrueCopy for Mainframe pairs that PreserveMirrorFlashCopy relationship were released with Force parameter of ICKDSF/TSO during background copy of PreserveMirrorFlashCopy were processing, please delete TC pair. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0100 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Resync multi job copy support | Resync multi job copy function support | Please execute the micro exchange again after finished or suspend all ShadowImage or ShadowImage for Mainframe pairs copying resync copy. |

| Function Bit Map Table | | | |
|---|---|---|---|
| Bit Pattern | Function | Contents | Action (*1) |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0010 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Improvement of FCv2 Establish performance | Improvement of FCv2 Establish performance | Please release relationship of all Incremental FlashCopy. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 1000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Support CLI for MF-UR | Suppress version downgrade to the Support CLI for MF-UR unsupported microprogram version. | Please execute the micro exchange again after deleting all pairs that use CTG with Universal Replicator for Mainframe.<br>*: Please refer to Universal Replicator for Mainframe User Guide's "D.1 Journal Operation window" for the confirm method of JNLG that uses this function. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0001<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Support of HDT for Mainframe | Version Down from support micro for HDT for Mainframe to unsupport micro is controlled. | Please execute the micro exchange again after deleting all MF-HDT pools or converting it into the MF-HDP pool. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>1000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Exclusive control of Shrink Pool | Version Down from support micro for Exclusive control of Shrink Pool to unsupport micro is controlled. | Please execute the micro exchange again after waiting for the completion of Shrink Pool or Stop Shrinking Pool. |

| Function Bit Map Table | | | |
|---|---|---|---|
| Bit Pattern | Function | Contents | Action (*1) |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0100 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Support for Shrink of pool-VOL with System Area | Version Down from support micro for Shrink of pool-VOL with System Area to unsupport micro is controlled. | Please execute the micro exchange again after having deleted all Pools which executed Shrink of pool-VOL with System Area.<br><br>Verify the target pool as follows.<br>(1) Select (CL) [OK] on the "Software Maintenance" dialog appeared when the micro-program exchange is performed.<br>(2) SSB = AFD7 is output after the operation (1), and then check the items included in the SSB (*2). |

*2: Format of SSB = AFD7

| Data position | Item | Value |
|---|---|---|
| 0x27 | Format message | 0x9F |
| 0x28 | Module ID | 0xAF |
| 0x29 | Routine ID | 0xD7 |
| 0x40 - 0x7F | Error information | 0x00 - 0x7F : Pool#<br>                    (hexadecimal number)<br>0xFF          : Disabled<br><br>Caution: It is displayed by a decimal<br>                number on Storage Navigator. |

SSB = AFD7 reports information of 64 pools per SSB.
Therefore, when there are more than 65 corresponding pools, 2 SSB = AFD7 will be reported.

| Function Bit Map Table | | | |
|---|---|---|---|
| Bit Pattern | Function | Contents | Action (*1) |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0010 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | HDP for Mainframe Support | Suppressing version downgrade to the microprogram version that does not support HDP for Mainframe. | De-install all 3390-V volume and all 3390-V parity group and then execute the microprogram exchange again. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0001 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | EAV Support | Suppressing version downgrade to the microprogram version that does not support EAV. | De-install all 3390-A volume and all 3390-A parity group and then execute the microprogram exchange again. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 1000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Support for Improvement of VM Failure | Version Down from supportmicro for Improvement of VM failure to unsupportmicro is controlled. | Please execute the micro exchange again after deleting of all Volume Migration Pairs. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0100 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | HAM Support to connect VSP with an earlier storage system | Suppress version downgrade to the HAM to connect VSP with an earlier storage system unsupported microprogram version. | Please remove the HAM configuration HAM pair volumes to VSP with an earlier storage system and then execute the microprogram exchange again. |

| Function Bit Map Table | | | |
|---|---|---|---|
| Bit Pattern | Function | Contents | Action (*1) |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0010 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | HAM SCSI-2 Reserve Propagation Support | Suppress version downgrade to the HAM SCSI-2 Reserve Propagation unsupported microprogram version. | After making the setting of Host Mode Option 52 all turning off the microprogram exchange again. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0001 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Maximum pool capacity of 5PB | Version Down from support micro for Maximum pool capacity of 5PB to unsupport micro is controlled. | Please execute the micro exchange again after de-install the shared memory for DP/HDT/TI Extension. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 1000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | TC Sync Open/MF Multi DKC Consistency function (Multi-C) support | TC Sync Open/MF Multi DKC Consistency function (Multi-C) is used, Version Down to unsupportmicro is controlled. | Please execute the micro exchange again after releasing all TC/TC-MF pairs that registered in TC Sync Open/MF Multi DKC Consistency Group (Multi-C). |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0010 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | FCoE pass volume for TC/UR Support | FCoE channel pass volume used for TC/UR. | Please remove the configuration TC/UR pair volume with FCoE channel pass volumes. |

| Function Bit Map Table | | | |
|---|---|---|---|
| Bit Pattern | Function | Contents | Action (*1) |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 1000<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | Support of DKxxx-HxxxSS/ SLRxx-SxxxSS | Suppress version downgrade to the microprogram that supports for DKxxx-HxxxSS (2TB or more) and SLRxx-SxxxSS.<br>• DKabc-HdddSS<br>  a: maker (R or S)<br>  b: size (2 or 5)<br>  c: generation (A to Z)<br>  d: capacity (2TB or more)<br>• SLRxy-SzzzSS<br>  x: size (2 or 5)<br>  y: generation (A to Z)<br>  z: capacity (GB) | De-install all DKxxx-HxxxSS (2TB or more) and SLRxx-SxxxSS drives before microprogram replacement, wait for two minutes, and then execute microprogram replacement again. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0100<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | UR Open/MF Consistency function support | Version Down from supportmicro for UR Open/MF Consistency function to unsupportmicro is controlled. | If there is any MF volume pair or Delta Resync pair in the Journal Group that uses this function, delete all those pairs. After that execute the microprogram exchange again.<br>*: For details about how to check the Journal Group that uses this function, see "Journal Operation Window" in "Universal Replicator GUI reference" of Universal Replicator User Guide or "Universal Replicator for Mainframe GUI reference" of Universal Replicator of Mainframe User Guide. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0010<br>0000 0000 0000 0000<br>0000 0000 0000 0000 | XRC Multiple Reader function support | Version Down from supportmicro for XRC Multiple Reader function to unsupported micro is controlled. | Please delete all XRC (Single Reader and Multiple Reader) UTILITY volumes and XRC pair volumes.<br>After that execute the microprogram exchange again. |

| Function Bit Map Table | | | |
|---|---|---|---|
| Bit Pattern | Function | Contents | Action (*1) |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0100 0000 0000 0000<br>0000 0000 0000 0000 | FlashCopy (R)<br>Space Efficient<br>feature | Version Down from<br>supportmicro for<br>FlashCopy (R) Space<br>Efficient to<br>unsupportmicro is<br>controlled. | Delete all TSE volume and<br>FlashCopy (R) SE relation. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0001 0000 0000 0000<br>0000 0000 0000 0000 | Support for<br>increasing SCSI-<br>3 reservation<br>keys. | Suppress version<br>downgrade to the<br>microprogram that<br>supports increasing<br>reservation keys. | Please turn off Host Mode Option<br>61 when you execute the<br>microprogram downgrade<br>procedure. |

| Function Bit Map Table | | | |
|---|---|---|---|
| Bit Pattern | Function | Contents | Action (*1) |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 1000 0000 0000<br>0000 0000 0000 0000 | Assignment over 128GB of cache per MPB | Version Down from supportmicro for assignment over 128GB of cache per MPB to unsupportmicro is controlled. | Please execute the microprogram exchange to enter the password after doing the following procedures.<br>(1) If there are CC/XRC pairs, please suspend the CC/XRC pairs.<br>(2) Please set System Option Mode 857 to "ON".<br>(3) If the cache capacity is over 128GB, wait for 1 hour.<br>*: Please set System Option Mode 857 to "OFF" after executing the microprogram exchange.<br>If you cannot execute yet, please execute the microprogram exchange after the following (*3) procedures. |

*3: (A) When Cache-1CB/2CD is not installed, perform (a) and (b) in order.
   (a) Perform self replacement of Cache-1CA
   (b) Perform self replacement of Cache-2CC

(B) When Cache-1CB/2CD is installed, perform (a) to (h) in order.
   (a) Change the SVP mode to mode.
   (b) Block Cache-1CB
   (c) Perform self replacement of Cache-1CA
      (Because there is a blocked Cache package, it is necessary to perform it forcibly by entering the password)
   (d) Perform self replacement of Cache-1CB
   (e) Block Cache-2CD
   (f) Perform self replacement of Cache-2CC
      (Because there is a blocked Cache package, it is necessary to perform it forcibly by entering the password)
   (g) Perform self replacement of Cache-2CD
   (h) Restore the SVP mode to the original one.

| Function Bit Map Table | | | |
|---|---|---|---|
| Bit Pattern | Function | Contents | Action (*1) |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0100 0000 0000<br>0000 0000 0000 0000 | Support for Continuous Mode of HDT | Version Down from support micro for Continuous Mode to unsupportmicro is controlled. | (1) Please execute the setting change of the following pool.<br> • Please set the monitor mode of all pools to Period Mode.<br> • Please set the monitor cycle of all pools excluding 30 minutes.<br> • Please set the rate of buffer space for new page assignment of all pools to 2%.<br>(2) Please confirm the things that the status of monitor information is not "Being calculated".<br>(3) Please execute the micro exchange again after setting System Option Mode749 to "ON". |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0010 0000 0000<br>0000 0000 0000 0000 | Support for Mixable pool of HDP/HDT | Version Down from support micro for Mixable pool of HDP/HDT to unsupport micro is controlled. | Please execute the micro exchange again after deleting Mixable pools of all.<br>*: Check coexistence capability of pools on Pools window. When [Enable] is displayed in [Mixable] column of a pool, the pool can coexist.<br>If the [Mixable] column is not displayed on the Pool window, change the setting from [Column settings] of table option. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0001 0000 0000<br>0000 0000 0000 0000 | Resource Partition Manager Support | Version Down from supportmicro for Resource Partition Manager to unsupportmicro is controlled. | Please delete resource groups ID is not 0, and uninstall the Resource Partition Manager program product. |

| Function Bit Map Table | | | |
|---|---|---|---|
| Bit Pattern | Function | Contents | Action (*1) |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 1000 0000<br>0000 0000 0000 0000 | Resource ID Takeover Support | Version Down from supportmicro for Resource ID Takeover to unsupportmicro is controlled. | Please execute the micro exchange again after releasing all Resource ID Takeover settings. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0100 0000<br>0000 0000 0000 0000 | UR Multi target and Cascade Support | Downgrading the microprogram of UR Multi target and Cascade supported version to an unsupported version is prevented. | • Please execute the micro exchange again after releasing multi targets or the cascade form.<br>• Please input the password and continue processing when you exchange it for the version since 70-01-4x-00/00. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0010 0000<br>0000 0000 0000 0000 | Support for C32G DIMM | Suppressing version downgrade to the microprogram version that does not support C32G DIMM. | De-install all C32G DIMM and then execute the microprogram exchange again. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 1000<br>0000 0000 0000 0000 | Support for SATA-E in HDP pool | Version Down from supportmicro for SATA-E in HDP pool to unsupportmicro is controlled. | Please execute the micro exchange again after removing the pool mixed SATA-E drive by deleting the pool or deleting pool volumes. |

| Function Bit Map Table | | | |
|---|---|---|---|
| Bit Pattern | Function | Contents | Action (*1) |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0010<br>0000 0000 0000 0000 | Support for Server Priority Manager | Downgrading the microprogram of Server Priority Manager supported version to an unsupported version is prevented. | Please execute the micro exchange again after releasing all Server Priority Manager function. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0001<br>0000 0000 0000 0000 | EAV Support (V02 (ICS code) only) | Suppressing version downgrade to the microprogram version that does not support EAV. | De-install all 3390-A volume and all 3390-A parity group and then execute the microprogram exchange again. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>1000 0000 0000 0000 | HDP for Mainframe Support (V02 (ICS code) only) | Suppressing version downgrade to the microprogram version that does not support HDP for Mainframe. | De-install all 3390-V volume and all 3390-V parity group and then execute the microprogram exchange again. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0100 0000 0000 0000 | Support for Depletion threshold of HDP | Version Down from supportmicro for Depletion threshold of HDP to unsupportmicro is controlled. | After the user agrees with the following conditions, enter the password and execute Version Down.<br>• After Version Down, Depletion threshold is disabled, and System threshold (80%) is enabled.<br>• If Warning threshold is within the range from 1 to 4% or 96 to 100%, User-defined threshold is fixed at 70% after Version Down. |

| Function Bit Map Table | | | |
|---|---|---|---|
| Bit Pattern | Function | Contents | Action (*1) |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0010 0000 0000 0000 | Support for Improvement of Rebalance, Reclaim Zero Pages | Version Down from supportmicro for Improvement of Rebalance, Reclaim Zero Pages to unsupportmicro is controlled. | Please execute the micro exchange again after setting System Option Mode749/755 to "ON", or execute Version Down by entering the password. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0001 0000 0000 0000 | UR 4x4~MF~ Function support | UR 4x4~MF~ Function support | Perform the microprogram replacement after doing the following procedures.<br>• Please release all slave JNL Group from EXCTG. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0100 0000 0000 | SI-QS Combination CTG Support | Support of Consistency groups setting for each SI-QS Combination pairs. | Please execute the micro exchange again after deleting of all SI-QS Combination pairs setting Consistency groups. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0010 0000 0000 | System disk buffer of audit log support | Suppressing version downgrade to the microprogram version that does not support the system disk buffer of audit log. | Please execute the micro exchange again after executing either the following<br>• Please turn off System Option 676.<br>• Please invalidate the Audit Log buffer on the Audit Log Setting screen of Storage Navigator. |

| Function Bit Map Table | | | |
|---|---|---|---|
| Bit Pattern | Function | Contents | Action (*1) |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0001 0000 0000 | Support for mixed drive type in the pool | Version Down from supportmicro for mixed drive type in the pool to unsupportmicro is controlled. | Please execute the micro exchange again after removing the pool mixed drive types by deleting the pool or deleting pool volumes. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 1000 0000 | Support for FlashCopy (R) V2 to UR Primary Volume function | Version Down from supportmicro for Support for FlashCopy (R) V2 to UR Primary Volume function to unsupportmicro is controlled. | Please withdraw the relationship of FlashCopy (R) V2 that is sharing / had shared with Primary-Volume of UR as Target-Volume of FlashCopy (R) V2. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 1000 | 8FOE PK Support | 8FOE PK is installed. | Please try again after De-Install 8FOE PK. |
| 0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0000<br>0000 0000 0000 0010 | Support for Volume Retention Manager function | When Volume Retention Manager function is used, Version Down to unsupportmicro is controlled. | Please execute the micro exchange again after releasing all access attributes (Read Only, Protect) set to the Mainframe volume. |

*1: If SVP displayed an error message as 2179 during microcode exchange, please check which function is detected by this message, and do the corresponding action. After, please retry exchanging.

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• FunctionID Table

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 00 : 01 | Nondisruptive Migration Support | Nondisruptive Migration Support | Please contact TSD (Technical Support Division).<br><br>Note: This function bit turned on with function bit of "the expansion attribute support of the outside volume". |
| 00 : 02 | Extended Volume for External Volume Support | Extended Volume for External Volume Support | Please execute the micro exchange again after deleting all Extended External Volumes.<br><br>This bit may turned on with the following function bit. In that case, please execute the action of the function bit turning on at the same time.<br>• Nondisruptive Migration Support |
| 00 : 03 | UR performance improvements | UR performance improvements | Please execute the micro exchange again after doing the following procedures.<br>• Delete all UR pairs whose state of the pair in DKC is HOLD (Hold) or HLDE (Hlde).<br>• All UR pairs are suspended. |
| 00 : 04 | Support for Background Erase of HDP/HDT | Version Down from support micro for Background Erase of HDP/HDT to unsupport micro is controlled. | Please execute the micro exchange again after deleting all HDP/HDT pool, or turning off System Option Mode 896, and having stopped Background Erase of HDP/HDT. |
| 00 : 07 | Mainframe Fibre Data Migration Support | Mainframe Fibre Data Migration Support | Please try exchange again after executing all of FICON port type change from FNP to HTP. |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 00 : 09 | Support for Sync Copy of Volume Migration | Support for Sync Copy of Volume Migration | Please execute the micro exchange again after deleting of all OPEN-Volume Migration pairs. |
| 00 : 10 | Support for consolidation of FlashCopy (R) SE and copy features | Support for consolidation of FlashCopy (R) SE and copy features | Please withdraw the relationship of FlashCopy (R) SE that is sharing a volume with Secondary-Volume of TC, Primary-Volume of SI, Primary-Volume of UR, Primary-Volume of XRC, and source volume of FlashCopy (R) V2. Or, please delete all pairs of Secondary-Volume of TC, Primary-Volume of SI, Primary-Volume of UR, Primary-Volume of XRC, and source volume of FlashCopy (R) V2 those are sharing volumes with FCSE. |
| 00 : 12 | Support for mixed RAID1 in HDP/HDT pool | Version Down from support micro for mixed RAID1 in HDP/HDT pool to unsupport micro is controlled. | Please execute the micro exchange again after removing the pool mixed RAID1 in HDP/HDT pool or deleting RAID1 pool-VOL. Please execute the micro exchange again after removing the pool, if the pool whose only RAID1 and [Enable] is set for [Mixable] exists. *: Please execute the micro exchange again after removing RAID1 3390-V emulation volumes, if RAID1 3390-V emulation volumes exists. |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 00 : 19 | Support for CLI ShadowImage for Mainframe | When useing Consistency groups for SI-MF pair made from RAID Manager, Version Down to unsupportmicro is controlled. | Please delete SI-MF pair in Consistency groups made from RAID Manager. If you can't know SI-MF pair in Consistency groups made from RAID Manager, please delete SI-MF pair in Consistency groups. |
| 00 : 26 | RESERVE/PGR support for Nondisruptive Migration | Version Down from RESERVE/PGR support for Nondisruptive Migration to unsupport micro is controlled. | Please confirm whether Nondisruptive Migration (NDM) is running or not. If NDM is running, please delete all of the volumes with NDM attribute (finish the migration) first. After that, please execute the micro program exchange to enter the password. |
| 00 : 28 | Support of DKS2D-H3R0SS | Suppress version downgrade to the microprogram that supports for DKS2D-H3R0SS.<br>• DKS2D-H3R0SS<br>  x: generation (B to Z)<br>  y: capacity (GB) | De-install all DKS2D-H3R0SS drives before the microprogram replacement, wait for two minutes, and then execute the microprogram replacement again. |
| 00 : 29 | UR Delta resync Function support | UR Delta resync Function support | Perform the microprogram replacement after doing the following procedures.<br>• Please delete all UR pairs, which status is HOLD (Hold) or HLDE (Hlde) with each DKC of 3DC Multi-target Configuration.<br>Refer to the TROUBLESHOOTING SECTION "17.6 UR Microprogram Version-Down Replacement Procedure (3DC Multi-target Configuration)" for the procedure for performing the microprogram replacement. |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 01 : 03 | CHA Data Protection Mode Change Support | Suppress version downgrade to the CHA Data Protection Mode Change unsupported microprogram version. | After setting System Option Mode 945 to "ON", and performing dummy replacement of all installed CHF (8UFC/16UFC) packages, please exchange the microcode again. After having exchanging the microcode, please set System Option Mode 945 to "OFF". |
| 01 : 13 | HAM (High Availability Manager) support | Suppress version downgrade to the HAM unsupported microprogram version. | Please execute the micro exchange again after deleting all the HAM Pair and Quorum Disk. |
| 01 : 21 | UR OPEN No I site data vol Support | Version Down from supportmicro for UR OPEN No I site data vol to unsupportmicro is controlled. | Please delete the registered journal by setting 2DC Cascade to Enable in the Edit Journal Volumes dialog box and execute it again. |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 02 : 01 | UR OPEN M×N | Downgrading the micro-program of UR M×N OPEN supported version to an unsupported version is prevented. | Check the pair configuration that uses this function, and then perform either of the operations below accordingly. After that, exchange the micro-program again. For details about how to check the JNLG that uses this function, see "Journal Operation Window" in "Universal Replicator GUI reference" of Universal Replicator User Guide. 1. If multiple JNLGs are defined with the same CTG# in one DKC, re-build the pair configuration so that one JNLG is defined with one CTG#. 2. Suspend all the pairs in the configuration that uses this function. |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 02 : 08 | UR Control Path Support | Downgrading the micro-program of UR Control Path supported version to an unsupported version is prevented. | Please execute the micro exchange again after releasing the setting of the remote command device registered in all Journal groups. |
| 02 : 15 | Support for Write Same | Version Down from supportmicro for Write Same to unsupportmicro is controlled. | Please execute the micro exchange again after waiting for a few moments, or all Discarding Zero Data are suspended, or set System Option Mode 755 to "ON". <br> *: Function Bit turned on by Discard Zero Data function. |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 02 : 16 | Support for cooperation of Discard Zero Data and program product (TC/UR) | Version Down from supportmicro for cooperation of Discard Zero Data and program product (TC/UR) to unsupportmicro is controlled. | Please execute the micro exchange again after Discarding Zero Data for the specified DP-VOL is completely finished, or Discarding all Zero Data are suspended, or set System Option Mode755 to "ON". <br> *: Function Bit turned on by Write Same function. |
| 02 : 17 | TC Sync Open/MF Consistency function support | Version Down from supportmicro for TC Sync Open/MF Consistency function to unsupportmicro is controlled. | Please execute the micro exchange again after releasing all of the MF Volumes which registered in TC Sync Open/MF Consistency Group. |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 02 : 21 | Support HAM pair of LUSE | Suppressing version downgrade to the microprogram version that does not support HAM pair of LUSE. | De-install all HAM pair of LUSE and then execute the microprogram exchange again. |
| 02 : 25 | Restoration processing of account capacity in ShadowImage/ CoW Snapshot/ Thin Image | When the account capacity is restored and processed when the version is downed, the down of the version is controlled. | Please execute the micro exchange again after it does for a while. |
| 02 : 26 | URxUR Support | Version Down from supportmicro for URxUR to unsupportmicro is controlled. | Please execute the micro exchange again after deleting all journal group that registers on the [Edit journal volumes] window effectively specifying [UR 3DC]. |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 03 : 02 | UR-SI AtTime Split SI-Quick function support | Version Down from supportmicro for UR-SI AtTime Split SI-Quick function to unsupportmicro is controlled. | Please execute the micro exchange again after releasing all of the setting that split type of SI has been "Quick Split". |
| 03 : 05 | TC Performance improvement Support | Suppress version downgrade to the TC performance improvement unsupported microprogram version. | After making the setting of Host Mode Option 49/50/51 all turning off microprogram exchange again.<br>When remove 8UFC/16UFC, execute the setting of Host Mode Option 49/50/51 all turning off also in advance. |
| 03 : 07 | Shortening of RIOMIH TIME | Since the TC/TC-MF pair under RIOMIH time shortening operation exists, the version down to an unsupported micro is controlled. | Please execute the micro exchange again after dividing or deleting of all the TC/TC-MF pairs under RIOMIH time shortening operation. |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 03 : 08 | PreserveMirror FlashCopy Support | PreserveMirror FlashCopy Support | Please release relationship of PreserveMirrorFlashCopy. If there are TrueCopy for Mainframe pairs that PreserveMirrorFlashCopy relationship were released with Force parameter of ICKDSF/TSO during background copy of PreserveMirrorFlashCopy were processing, please delete TC pair. |
| 03 : 09 | Resync multi job copy support | Resync multi job copy function support | Please execute the micro exchange again after finished or suspend all ShadowImage or ShadowImage for Mainframe pairs copying resync copy. |
| 03 : 10 | Improvement of FCv2 Establish performance | Improvement of FCv2 Establish performance | Please release relationship of all Incremental FlashCopy. |
| 03 : 12 | Support CLI for MF-UR | Suppress version downgrade to the Support CLI for MF-UR unsupported microprogram version. | Please execute the micro exchange again after deleting all pairs that use CTG with Universal Replicator for Mainframe. *: Please refer to Universal Replicator for Mainframe User Guide's "D.1 Journal Operation window" for the confirm method of JNLG that uses this function. |
| 03 : 15 | Support of HDT for Mainframe | Version Down from support micro for HDT for Mainframe to unsupport micro is controlled. | Please execute the micro exchange again after deleting all MF-HDT pools or converting it into the MF-HDP pool. |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 03 : 16 | Exclusive control of Shrink Pool | Version Down from support micro for Exclusive control of Shrink Pool to unsupport micro is controlled. | Please execute the micro exchange again after waiting for the completion of Shrink Pool or Stop Shrinking Pool. |
| 03 : 17 | Support for Shrink of pool-VOL with System Area | Version Down from support micro for Shrink of pool-VOL with System Area to unsupport micro is controlled. | Please execute the micro exchange again after having deleted all Pools which executed Shrink of pool-VOL with System Area.<br><br>Verify the target pool as follows.<br>(1) Select (CL) [OK] on the "Software Maintenance" dialog appeared when the micro-program exchange is performed.<br>(2) SSB = AFD7 is output after the operation (1), and then check the items included in the SSB (*2). |

*2: Format of SSB = AFD7

| Data position | Item | Value |
|---|---|---|
| 0x27 | Format message | 0x9F |
| 0x28 | Module ID | 0xAF |
| 0x29 | Routine ID | 0xD7 |
| 0x40 - 0x7F | Error information | 0x00 - 0x7F : Pool# (hexadecimal number)<br>0xFF        : Disabled<br><br>Caution: It is displayed by a decimal number on Storage Navigator. |

SSB = AFD7 reports information of 64 pools per SSB.
Therefore, when there are more than 65 corresponding pools, 2 SSB = AFD7 will be reported.

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 03 : 18 | HDP for Mainframe Support | Suppressing version downgrade to the microprogram version that does not support HDP for Mainframe. | De-install all 3390-V volume and all 3390-V parity group and then execute the microprogram exchange again. |
| 03 : 19 | EAV Support | Suppressing version downgrade to the microprogram version that does not support EAV. | De-install all 3390-A volume and all 3390-A parity group and then execute the microprogram exchange again. |
| 03 : 20 | Support for Improvement of VM Failure | Version Down from supportmicro for Improvement of VM failure to unsupportmicro is controlled. | Please execute the micro exchange again after deleting of all Volume Migration Pairs. |
| 03 : 21 | HAM Support to connect VSP with an earlier storage system | Suppress version downgrade to the HAM to connect VSP with an earlier storage system unsupported microprogram version. | Please remove the HAM configuration HAM pair volumes to VSP with an earlier storage system and then execute the microprogram exchange again. |
| 03 : 22 | HAM SCSI-2 Reserve Propagation Support | Suppress version downgrade to the HAM SCSI-2 Reserve Propagation unsupported microprogram version. | After making the setting of Host Mode Option 52 all turning off the microprogram exchange again. |
| 03 : 23 | Maximum pool capacity of 5PB | Version Down from support micro for Maximum pool capacity of 5PB to unsupport micro is controlled. | Please execute the micro exchange again after de-install the shared memory for DP/HDT/TI Extension. |
| 03 : 24 | TC Sync Open/MF Multi DKC Consistency function (Multi-C) support | TC Sync Open/MF Multi DKC Consistency function (Multi-C) is used, Version Down to unsupportmicro is controlled. | Please execute the micro exchange again after releasing all TC/TC-MF pairs that registered in TC Sync Open/MF Multi DKC Consistency Group (Multi-C). |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 03 : 26 | FCoE pass volume for TC/UR Support | FCoE channel pass volume used for TC/UR. | Please remove the configuration TC/UR pair volume with FCoE channel pass volumes. |
| 03 : 28 | Support of DKxxx-HxxxSS/ SLRxx-SxxxSS | Suppress version downgrade to the microprogram that supports for DKxxx-HxxxSS (2TB or more) and SLRxx-SxxxSS.<br>• DKabc-HdddSS<br>  a: maker (R or S)<br>  b: size (2 or 5)<br>  c: generation (A to Z)<br>  d: capacity (2TB or more)<br>• SLRxy-SzzzSS<br>  x: size (2 or 5)<br>  y: generation (A to Z)<br>  z: capacity (GB) | De-install all DKxxx-HxxxSS (2TB or more) and SLRxx-SxxxSS drives before microprogram replacement, wait for two minutes, and then execute microprogram replacement again. |
| 03 : 29 | UR Open/MF Consistency function support | Version Down from supportmicro for UR Open/MF Consistency function to unsupportmicro is controlled. | If there is any MF volume pair or Delta Resync pair in the Journal Group that uses this function, delete all those pairs. After that execute the microprogram exchange again.<br>*: For details about how to check the Journal Group that uses this function, see "Journal Operation Window" in "Universal Replicator GUI reference" of Universal Replicator User Guide or "Universal Replicator for Mainframe GUI reference" of Universal Replicator of Mainframe User Guide. |
| 03 : 30 | XRC Multiple Reader function support | Version Down from supportmicro for XRC Multiple Reader function to unsupported micro is controlled. | Please delete all XRC (Single Reader and Multiple Reader) UTILITY volumes and XRC pair volumes.<br>After that execute the microprogram exchange again. |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 04 : 01 | FlashCopy (R) Space Efficient feature | Version Down from supportmicro for FlashCopy (R) Space Efficient to unsupportmicro is controlled. | Delete all TSE volume and FlashCopy (R) SE relation. |
| 04 : 03 | Support for increasing SCSI-3 reservation keys. | Suppress version downgrade to the microprogram that supports increasing reservation keys. | Please turn off Host Mode Option 61 when you execute the microprogram downgrade procedure. |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 04 : 04 | Assignment over 128GB of cache per MPB | Version Down from supportmicro for assignment over 128GB of cache per MPB to unsupportmicro is controlled. | Please execute the microprogram exchange to enter the password after doing the following procedures.<br>(1) If there are CC/XRC pairs, please suspend the CC/XRC pairs.<br>(2) Please set System Option Mode 857 to "ON".<br>(3) If the cache capacity is over 128GB, wait for 1 hour.<br>*: Please set System Option Mode 857 to "OFF" after executing the microprogram exchange.<br>If you cannot execute yet, please execute the microprogram exchange after the following (*3) procedures. |

*3: (A) When Cache-1CB/2CD is not installed, perform (a) and (b) in order.
     (a) Perform self replacement of Cache-1CA
     (b) Perform self replacement of Cache-2CC

   (B) When Cache-1CB/2CD is installed, perform (a) to (h) in order.
     (a) Change the SVP mode to mode.
     (b) Block Cache-1CB
     (c) Perform self replacement of Cache-1CA
        (Because there is a blocked Cache package, it is necessary to perform it forcibly by entering the password)
     (d) Perform self replacement of Cache-1CB
     (e) Block Cache-2CD
     (f) Perform self replacement of Cache-2CC
        (Because there is a blocked Cache package, it is necessary to perform it forcibly by entering the password)
     (g) Perform self replacement of Cache-2CD
     (h) Restore the SVP mode to the original one.

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 04 : 05 | Support for Continuous Mode of HDT | Version Down from support micro for Continuous Mode to unsupportmicro is controlled. | (1) Please execute the setting change of the following pool.<br>• Please set the monitor mode of all pools to Period Mode.<br>• Please set the monitor cycle of all pools excluding 30 minutes.<br>• Please set the rate of buffer space for new page assignment of all pools to 2%.<br>(2) Please confirm the things that the status of monitor information is not "Being calculated".<br>(3) Please execute the micro exchange again after setting System Option Mode749 to "ON". |
| 04 : 06 | Support for Mixable pool of HDP/HDT | Version Down from support micro for Mixable pool of HDP/HDT to unsupport micro is controlled. | Please execute the micro exchange again after deleting Mixable pools of all.<br>*: Check coexistence capability of pools on Pools window. When [Enable] is displayed in [Mixable] column of a pool, the pool can coexist. If the [Mixable] column is not displayed on the Pool window, change the setting from [Column settings] of table option. |
| 04 : 07 | Resource Partition Manager Support | Version Down from supportmicro for Resource Partition Manager to unsupportmicro is controlled. | Please delete resource groups ID is not 0, and uninstall the Resource Partition Manager program product. |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 04 : 08 | Resource ID Takeover Support | Version Down from supportmicro for Resource ID Takeover to unsupportmicro is controlled. | Please execute the micro exchange again after releasing all Resource ID Takeover settings. |
| 04 : 09 | UR Multi target and Cascade Support | Downgrading the microprogram of UR Multi target and Cascade supported version to an unsupported version is prevented. | • Please execute the micro exchange again after releasing multi targets or the cascade form.<br>• Please input the password and continue processing when you exchange it for the version since 70-01-4x-00/00. |
| 04 : 10 | Support for C32G DIMM | Suppressing version downgrade to the microprogram version that does not support C32G DIMM. | De-install all C32G DIMM and then execute the microprogram exchange again. |
| 04 : 12 | Support for SATA-E in HDP pool | Version Down from supportmicro for SATA-E in HDP pool to unsupportmicro is controlled. | Please execute the micro exchange again after removing the pool mixed SATA-E drive by deleting the pool or deleting pool volumes. |
| 04 : 14 | Support for Server Priority Manager | Downgrading the microprogram of Server Priority Manager supported version to an unsupported version is prevented. | Please execute the micro exchange again after releasing all Server Priority Manager function. |
| 04 : 15 | EAV Support (V02 (ICS code) only) | Suppressing version downgrade to the microprogram version that does not support EAV. | De-install all 3390-A volume and all 3390-A parity group and then execute the microprogram exchange again. |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 04 : 16 | HDP for Mainframe Support (V02 (ICS code) only) | Suppressing version downgrade to the microprogram version that does not support HDP for Mainframe. | De-install all 3390-V volume and all 3390-V parity group and then execute the microprogram exchange again. |
| 04 : 17 | Support for Depletion threshold of HDP | Version Down from supportmicro for Depletion threshold of HDP to unsupportmicro is controlled. | After the user agrees with the following conditions, enter the password and execute Version Down. • After Version Down, Depletion threshold is disabled, and System threshold (80%) is enabled. • If Warning threshold is within the range from 1 to 4% or 96 to 100%, User-defined threshold is fixed at 70% after Version Down. |
| 04 : 18 | Support for Improvement of Rebalance, Reclaim Zero Pages | Version Down from supportmicro for Improvement of Rebalance, Reclaim Zero Pages to unsupportmicro is controlled. | Please execute the micro exchange again after setting System Option Mode749/755 to "ON", or execute Version Down by entering the password. |
| 04 : 19 | UR 4x4~MF~ Function support | UR 4x4~MF~ Function support | Perform the microprogram replacement after doing the following procedures. • Please release all slave JNL Group from EXCTG. |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 04 : 21 | SI-QS Combination CTG Support | Support of Consistency groups setting for each SI-QS Combination pairs. | Please execute the micro exchange again after deleting of all SI-QS Combination pairs setting Consistency groups. |
| 04 : 22 | System disk buffer of audit log support | Suppressing version downgrade to the microprogram version that does not support the system disk buffer of audit log. | Please execute the micro exchange again after executing either the following<br>• Please turn off System Option 676.<br>• Please invalidate the Audit Log buffer on the Audit Log Setting screen of Storage Navigator. |
| 04 : 23 | Support for mixed drive type in the pool | Version Down from supportmicro for mixed drive type in the pool to unsupportmicro is controlled. | Please execute the micro exchange again after removing the pool mixed drive types by deleting the pool or deleting pool volumes. |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 04 : 24 | Support for FlashCopy (R) V2 to UR Primary Volume function | Version Down from supportmicro for Support for FlashCopy (R) V2 to UR Primary Volume function to unsupportmicro is controlled. | Please withdraw the relationship of FlashCopy (R) V2 that is sharing / had shared with Primary-Volume of UR as Target-Volume of FlashCopy (R) V2. |
| 04 : 28 | 8FOE PK Support | 8FOE PK is installed. | Please try again after De-Install 8FOE PK. |
| 04 : 30 | Support for Volume Retention Manager function | When Volume Retention Manager function is used, Version Down to unsupportmicro is controlled. | Please execute the micro exchange again after releasing all access attributes (Read Only, Protect) set to the Mainframe volume. |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 05 : 00 | Rack model support for Resource ID Takeover | Version Down from Rack model support micro for Resource ID Takeover to unsupport micro is controlled. | Please execute the micro exchange again after deleting the virtual device information of a resource group set as Rack model in a Resource ID Takeover. |
| 05 : 01 | TC Round Trip extended function support | Microprogram downgrading to the version unsupporting this function is inhibited when the set up option of this function is enabled. | After making the setting of Host Mode Option 65 (Round Trip extended set up option) in an array subsystem all turning off. |
| 05 : 02 | Performance improvement of UNMAP command | Version Down from support micro for performance improvement of UNMAP command to unsupport micro is controlled. | Please execute the micro exchange again after doing the following procedures. (1) Confirm that blockaded DP-VOL doesn't exist. (2) Turn on System Option Mode 755 and turn off System Option Mode 905.<br><br>\*: Please turn off System Option Mode 755 and turn on System Option Mode 905 after executing the micro exchange. |
| 05 : 03 | Support of SLR5x-MxxxSS | Suppress version downgrade to the microprogram that supports for SLR5x-MxxxSS/ SFB5x-MxxxSS.<br>• SLR5x-MxxxSS/ SFB5x-MxxxSS<br>x: generation (B to Z)<br>y: capacity (GB) | De-install all SLR5x-MxxxSS/ SFB5x-MxxxSS drives before the microprogram replacement, wait for two minutes, and then execute the microprogram replacement again. |
| 05 : 04 | RAID1 3390-V Guard | Version Down from support micro for RAID1 3390-V emulation to unsupport micro is controlled. | Please execute the micro exchange again after removing RAID1 3390-V emulation volumes. |
| 05 : 06 | Improvement of FlashCopy Full Volume performance | Version Down from support micro for Improvement of FlashCopy Full Volume performance to unsupported micro is controlled. | Please execute the micro exchange again after setting System Option Mode 910 to "OFF". |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 05 : 09 | Support for zHPF Multi Track function | Version Down from support micro for zHPF Multi Track function to unsupport micro is controlled. | Please execute the micro exchange again after uninstalling the HPF program product. |
| 05 : 11 | Load Balance Mode support | Version down from UVM Load Balance Mode supported version to unsupported version is controlled. | Change Load Balance Mode of all of the external volumes from "Extended Round-robin" or "Disabled" to "Normal Round-robin". |
| 05 : 12 | Generic Profile support | Version down from UVM Generic Profile supported version to unsupported version is controlled. | Delete all of the external volumes whose Model is displayed as "generic". |
| 05 : 13 | Support for policy setting per HDT page | Version Down from support micro for Support for policy setting per HDT page to unsupport micro is controlled. | Please standby for one hour after turning on System Option Mode 912, and release the policy setting on each page. Afterwards, please execute the micro exchange again. <br><br>*: Please turn off System Option Mode 912 after execute the micro exchange. |
| 05 : 14 | HDD coexistence in HDP/HDT Tier | Version Down from support micro HDD coexistence in HDP/HDT Tier to unsupport micro is controlled. | Please execute the micro exchange again after doing the following procedures. <br><br>(1) If the pool which uses four or more kinds of drives exists, please changes into three or less kinds. <br>(2) If the pool which has two or more RAID levels in one tier exists, please change to one RAID level in one tier. <br>(3) If there is a pool-VOL of External LDEV whose tier rank is High or Low, please change the tier rank to Middle. |
| 05 : 15 | CLI Volume Migraiton for Mainframe support | When exists Mainframe-Volume Migration pair made from RAID Manager, Version Down to unsupport micro is controlled. | Please execute the micro exchange again after deleting of all Mainframe-Volume Migration pairs. |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 05 : 16 | Change ED_TOV Option Support | Microprogram downgrading to the version unsupporting this function is inhibited when the set up option of this function is enabled. | After making the setting of Host Mode Option 67 (Change ED_TOV set up option) in an array subsystem all turning off. |
| 05 : 17 | Support for RAID6 (14D+2P) | Version Down from support micro for RAID6 (14D+2P) to unsupport micro is controlled. | Please execute the micro exchange again after de-installing all RAID6 (14D+2P) parity group. |
| 05 : 18 | Support for Parity Group unit Rebalance | Version Down from support micro for Parity Group unit Rebalance to unsupport micro is controlled. | Please execute the micro exchange again after deleting all HDP/HDT pool, or turning off System Option Mode 917, and after it does for a while. |
| 05 : 19 | Support of FBX and FMD (NFH1x-PyyySS) | Suppress version downgrade to the microprogram that supports for FBX and FMD (NFH1x-PyyySS).<br>• NFH1x-PyyySS<br>  x: generation (A to Z)<br>  y: capacity (TB) | De-install all FBX and FMD (NFH1x-PyyySS) drives before the microprogram replacement, wait for two minutes, and then execute the microprogram replacement again. |
| 05 : 22 | URxUR Support for MF | Version Down from support micro for URxUR Support for MF to unsupport micro is controlled. | Please execute the micro exchange again after deleting all journal group of Universal Replicator for Mainframe that registers on the [Edit journal volumes] window effectively specifying [UR 3DC]. |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 05 : 25 | Backend performance improvement | Version down from the Backend performance improvement supported version to unsupported version is controlled. | Please uninstall the P.P. license of "Flash Acceleration". And please execute the micro exchange again after 10 minutes or more pass. |
| 05 : 26 | Expansion of SCP time | Expansion of SCP time | Please ask a customer to set the SCP time of all the CU(s) as 600 or less seconds. When contact with a customer cannot be taken, or version down is controlled although the customer set the SCP time of all the CU(s) as 600 or less seconds, refer WEB CONSOLE SECTION "3.10 Local Replication" and check the value of SCP time, if the value is set as 601 seconds or more, set the value as 120 seconds (default value). And please execute the micro exchange again after 10 minutes or more pass. |
| 05 : 27 | Virtual LDEV ID support for Resource ID Takeover | Version Down from Virtual LDEV ID support micro for Resource ID Takeover to unsupport micro is controlled. | Please execute the micro exchange again after deleting the LDEV where actual LDEV ID unlike virtual LDEV ID is set in a Resource ID Takeover. |
| 05 : 29 | HTI support | Version Down from support micro for HTI Support to unsupport micro is controlled. | Please execute the micro exchange after deleting all the HTI pool and uninstalling the P.P. license of "HTI". |
| 05 : 30 | Support for AES-KeyWrap | Version Down from the encrypting key by a new code method to unsupport micro is controlled. | When it is understood the preservation of the encrypting key AES-ECS method and carries out microversion down, please execute the micro exchange again after carrying out "C:\dkc200\mp\pc\DwnGrdFmtOfEnc.exe" from select (CL) [Start]-[Run...] of the Windows task bar of SVP. |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 06 : 01 | Support for Reclaim Zero Page of OPEN DP VOL using by ShadowImage/ VolumeMigration | Version Down from Reclaim Zero Page of OPEN DP VOL using by ShadowImage/ VolumeMigraiton Supported version to an unsupported version is controlled. | Please execute the micro-program exchange again after turning on System Option Mode 930, and confirming the output of SSB = 2cc9. |
| 06 : 03 | AIX GPFS Support | Downgrading the micro-program of GPFS supported version to an unsupported version is prevented. | Please execute the micro-program exchange again after the host mode option 72 is set to off on all Host Group. |
| 06 : 04 | ID Takeover OPEN-x and LUSE support | Downgrading the micro-program of ID Takeover OPEN-x and LUSE supported version to an unsupported version is prevented. | Please execute the micro-program exchange again after deleting all LDEVs whose product ID are virtualized. |
| 06 : 06 | TC/UR Connection to HUS VM Support | Version down from supported micro version of TC/UR Connection to HUS VM to unsupported version is contorolled. | Please execute the micro exchange again after releasing all TC pair, UR pair, Logical path to HUS VM storage system. |
| 06 : 07 | Support for HDT Trial-Mode | Version Down from support micro for HDT Trial-Mode to unsupport micro is controlled. Removing SM16/SM20 is controlled until the monitoring information for HDP Pool has been discarded. | Please execute the micro exchange again after 30 minutes have passed since System Option Mode 937 = OFF set. |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 06 : 08 | NDM RAID500 Reserved Volume support | Downgrading the micro-program of NDM RAID500 Reserved Volume supported version to an unsupported version is prevented. | Please execute the micro-program exchange again and enter the password after confirming that data migration using NDM is not executed. |
| 06 : 09 | UR/CAJ Path Group ID support | Version Down from supportmicro for UR/CAJ Path Group ID Support to unsupportmicro is controlled. | Please execute the micro exchange again after deleting all Universal Replicator pairs set to Path Group ID excluding 0. |
| 06 : 11 | Support for HOST DCR | Version Down from support micro for HOST DCR to unsupport micro is controlled. | (1) Please execute the micro exchange again after turning off System Option Mode 81 and System Option Mode 940. (2) Please input the password and continue processing when you micro exchange. |
| 06 : 12 | Improvement of asynchronous de-staging for UVM volume | Version Down from support micro for improvement of asynchronous de-staging for UVM volume to unsupported micro is controlled. | Please execute the micro exchange again after setting System Option Mode 927 to "OFF". |
| 06 : 14 | Background Copy control by FCv2 option | Version Down from support micro for FC Ext. Slower Copy 1 and FC Ext. Slower Copy 2 options from unsupport micro is controlled when at least one of these options are enabled. | Please execute the micro exchange again after turning off both FC Ext. Slower Copy 1 and FC Ext. Slower Copy 2 options. |
| 06 : 15 | Support for TPF HPF | Version Down from support micro for TPF HPF to unsupport micro is controlled. | Please execute the micro-program exchange again and enter the password after confirming that the TPF OS is to be less than PUT8 (HPF non-support). |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 06 : 17 | Support for Nondisruptive Migration - ShadowImage Combination | Version Down from support micro for Nondisruptive Migraiton - ShadowImage Combination to unsupported micro is controlled, when exist External VOL of NDM using by ShadowImage or System Option Mode 957 set "ON". | Please execute the micro exchange again after executing either the following<br>• Wait for completion of Nondisruptive Migraiton that is sharing a volume with ShadowImage and setting System Option Mode 957 to "OFF".<br>• Delete of all ShadowImage pairs that is using External VOL of NDM and setting System Option Mode 957 to "OFF". |
| 06 : 18 | Support of fast registration of TI pairs generation | Version Down from support micro for fast registration of TI pairs generation to unsupport micro is controlled. | Please execute the micro exchange again after checking all TI pairs finished pair split. |
| 06 : 19 | Change of the Format monitoring logic | Suppress version downgrade to the micro-program that supports for DKabc-HdddSS (4TB or more).<br>• DKabc-HdddSS<br>  a: maker (R or S)<br>  b: size (2)<br>  c: generation (A to Z)<br>  d: capacity (4TB or more) | De-install all DKabc-HdddSS (4TB or more) drives before micro-program replacement, wait for two minutes, and then execute micro-program replacement again. |
| 06 : 20 | Support for Volume Security | Version Down from support micro for Volume Security to unsupport micro is controlled. | Please execute the micro exchange again after releasing the setting of all Volume Security. |

| FunctionID Table | | | |
|---|---|---|---|
| FunctionID | Function | Contents | Action (*1) |
| 06 :25 | Support for Periodic drive evacuation of the mapping | Version Down from support micro for Periodic drive evacuation of the mapping to unsupport micro is controlled. | Please execute the micro exchange again after it does for a while. |

*1: If SVP displayed an error message as 2179 during microcode exchange, please check which function is detected by this message, and do the corresponding action. After, please retry exchanging.

(12)

The message "Making a backup of micro-program files. Please Wait..." appears.

**Wait**

Making a backup of
microprogram files. Please wait...
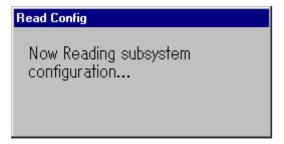
(13)

File copy in SVP

Go to 3.3 (1).

**File Copy**
Copying...

From : C:\DKC200\TMP\OTHERS\SM.GRP
To : C:\DKC200\OTHERS\SM.GRP

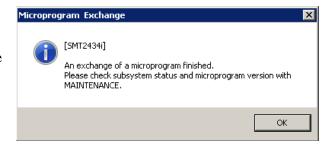## 3.3 Transferring micro-programs to the DKC

(1)

The message "Now Reading subsystem
configuration..." appears.

**Read Config**

Now Reading subsystem
configuration...

<<Error>>
- "On exchanging a micro-program, An error has occurred.  XX processing is stopped"
- "The processor of an obstacle blockade exits.  XX processing is stopped"
- "The processor that failed in an exchange of micro-program exists"
- "An error had occurred in XX blockade processing"
- "File size check error"
- "Invalid file contents"

(2)

The message "Downloading *** micro-program..." (***:  MAIN,  ...) appears.

(3)

The message "Now MP Rebooting...  Group# n/N" appears.
All processors are recovered.

(4)

After downloading the micro-programs, SVP
makes the sub-system to be enable and
displays the following message "An exchange
of a microprogram finished.  Please check
subsystem status and microprogram version
with MAINTENANCE.", select (CL) [OK].

Go to 3.6 (MICRO03-610).

**Microprogram Exchange**
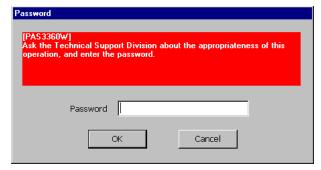
[SMT2434i]

An exchange of a microprogram finished.
Please check subsystem status and microprogram version with
MAINTENANCE.

OK

## 3.4 Hard Disk Download

The latest version of the DKCMAIN micro-program on the SVP hard disk is downloaded to the
DKC.

(1)

[How]: Select (CL) [Offline FC].
[From]: Select (CL) [Hard disk] in the 'Microprogram
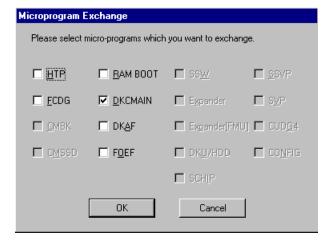Exchange' dialog box.
And select (CL) [OK].

If you want to continue this process, select
(CL) [OK], enter the password, and select
(CL) [OK].

The 'Microprogram Exchange' dialog box
appears.
Select (CL) one or more items from the list of
the type of micro-programs, and select (CL)
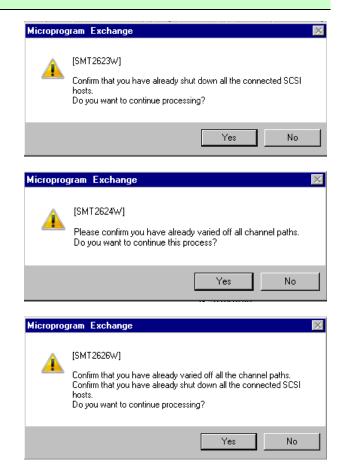[OK].

☑ : Micro-programs to be substituted.

One of the messages is displayed by the subsystem configuration.

Microprogram Exchange

[SMT2623W]

Confirm that you have already shut down all the connected SCSI hosts.
Do you want to continue processing?

Yes     No

Microprogram Exchange

[SMT2624W]

Please confirm you have already varied off all channel paths.
Do you want to continue this process?

Yes     No

Microprogram Exchange

[SMT2626W]

Confirm that you have already varied off all the channel paths.
Confirm that you have already shut down all the connected SCSI hosts.
Do you want to continue processing?

Yes     No

After you confirm that you have already varied all the CHL paths to off-line, select (CL) [Yes].

Go to 3.2 (11). (MICRO03-70)

If an error occurs in downloading micro-programs to DKC, remove the cause of an error using Maintenance Display (SVP section), Action Code (Action Code section), and other information to execute the exchange again.  Then start from the first step of MICRO-FC procedure.  At this time, you can select [Hard Disk] at 3.2 (5) (MICRO03-40).

(2)
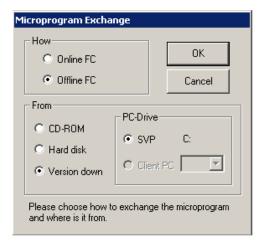
Go to 3.3 (1) (MICRO03-550).
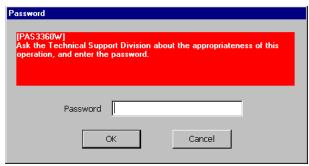
### 3.5 Version Down

> ⚠️ **CAUTION**
>
> Ask the technical support division about the appropriateness of the operation.
> Please do not execute the Version Down function during initial copy or resynchronization of TrueCopy or Universal Replicator. If you execute it, the micro-program exchange may fail.

If you want to restore the micro-program to the previous version of the micro-program after the exchange (by CD-ROM, Floppy Disk or Remote function) , execute the Version Down function.

(1)
[How]: Select (CL) [Offline].
[From]: Select (CL) [Version Down] in the 'Microprogram Exchange' dialog box.
And select (CL) [OK].

If you want to continue this process, select (CL) [OK], enter the password, and select (CL) [OK].

The 'Microprogram Exchange' dialog box appears.
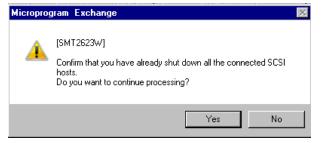Select (CL) one or more items from the list of the type of micro-programs, and select (CL) [OK].
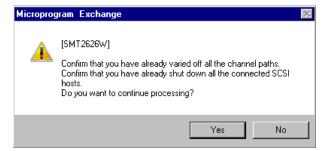
☑ : Micro-programs to be substituted.

One of the messages is displayed by the subsystem configuration.

After you confirm that you have already varied all the CHL paths to off-line, select (CL) [Yes].

Go to 3.2 (11). (MICRO03-70)

(2)

      Copy source and copy destination are
displayed.

### 3.6 Checking the functions after exchange

Check that the version of the recently installed micro-program is the same as that of the replaced micro-program by using the version display in the MAINTENANCE function.
(See SVP SECTION.)

Note: If you find "??-??···" or incompatibility version, recover the status following the subsection 6.2.

When you downgraded the version of the microprogram of SVP, the program (jar file) of Web Console may be cached and not operated. Clear the cache of Java. Refer to the WEB CONSOLE SECTION for clearing the cache of Java.

After changing the mode from [Modify Mode] to [View Mode], select (CL) the [Execute]-[Exit] menu on the maintenance screen and then check that Web Console starts. If it failed to start, recover it referring to troubleshooting in the WEB CONSOLE SECTION.

When the customer uses Storage Navigator, request the customer to restart the Storage Navigator running PC (Web client) surely after replacing the microprogram.

# 4. Micro-program Exchange Procedure (On-line)

If an error occurs during a micro-program exchange, retry the exchanging procedure from the beginning or execute the procedure explained in Chapter 7 "Trouble Recovery Procedure in Exchanging Micro-programs".

> Note: In case an error occurs during an exchange of the DKU micro-programs, make a note on the number of the DKU in which the error occurred when the error is recovered.

## 4.1 Processing before exchange

- The following Online DKU/HDD Micro-program exchange is supported for all models.
- Check the subsystem status through the entire status display. (Check the versions of all the programs through the version display.)
- Make sure that no processing is in progress. (*1)

> *1: In case Dynamic Sparing, Correction Copy, or Copy Back is running, the micro-program exchange can be performed if DKU or SCHIP micro-program is not included. For details, refer to "3.34 Notes on maintenance during LDEV Format/drive copy operations" on THEORY SECTION (THEORY03-34-10).

- Perform postprocessing for PIN data.
- Check that all processors are normal.

> Note: It is recommended to execute this function in the status of all MP's utilization rates less than 50% because there is a possibility of receiving the influence of I/O processing at the processing time of this function.

> Note: If the status of LDEV which is created by external device mapping function is "Maintenance blockade" status and micro-exchange is operated, the maintenance blockaded LDEV status is restored and the status is changed to the normal status.

> Note: Please do not use the newly supported function until all micro-program exchange operations are completed.

> Note: Please do not open the 'Maintenance' window during micro-program exchange. If the window is opened, micro-program exchange may end abnormally. In the case that the 'Maintenance' window needs to be opened due to an error and so on, contact T.S.D. for help.

> Note: When the SVP High Reliability Kit has been installed and an SVP fail over (SIM=7FF3XX) is detected,at first,take actions to resolve the failure (SIM=7FF3XX).

Table 4.1-1  On-line Micro-Program Exchange time (approximate)

(unit : minutes)

| | CD-ROM → HDD | Download HDD → SM/(HDD → FM) | MP Reboot |
|---|---|---|---|
| HTP | | 1/(3) | 6 |
| FCDG | | 1/(3) | |
| DKCMAIN | | 4 | |
| RAM BOOT | 3 | 1 | |
| FOEF | | 1/(3) | 6 (*1) |
| DKAF | | 1/(3) | 40 (*2) |
| SSW | | 10 | 80 (*3) |
| Expander | | 10 | |
| Expander[FMU] | | 10 | |
| DKU/HDD | | 60 | — |
| SCHIP | | | — |
| CMBK | | 2 | — |
| CMSSD | | 2 | 2 (*4) |
| SSVP | | 15 | — |
| SVP | 2 | 3 | — |
| CUDG4 | | 0 | — |
| CONFIG | 2 | 1 | — |
| Total | 7 | 122/(130) | 134 |

(MP Processors : 16, The number of DKAs : 4, The number of HDU BOX : 8, The number of Drives : 500)

*1:  Indicates the FOE reboot time as FOE is rebooted in FOEF exchange.

*2:  Indicates the DKA reboot time as DKA is rebooted in DKAF exchange.

*3:  Indicates the SSW reboot time as SSW is rebooted in SSW/Expander/Expander[FMU] exchange.

*4:  Indicates the CMSSD reboot time as CMSSD is rebooted in CMSSD exchange.
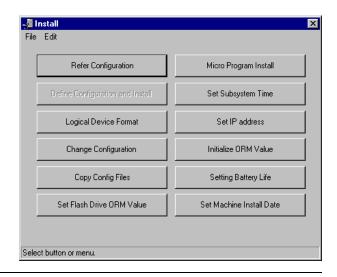
## 4.2 Storing the micro-programs to be substituted in the SVP

(1)

      &lt;Initial screen&gt;

(2)

      Change the mode to [Modify] (CL).
      Select (CL) [Install].

(3)

      In the 'Install' window, select (CL) [Micro
      Program Install].



Install — File Edit

| | |
|---|---|
| Refer Configuration | Micro Program Install |
| Define Configuration and Install | Set Subsystem Time |
| Logical Device Format | Set IP address |
| Change Configuration | Initialize ORM Value |
| Copy Config Files | Setting Battery Life |
| Set Flash Drive ORM Value | Set Machine Install Date |

Select button or menu.

(4)
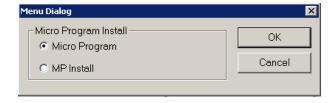
      Select (CL) [Micro Program].
      Select (CL) [OK].
      Selecting (CL) [Cancel] returns you to step
      (3).



Menu Dialog

Micro Program Install
- ⦿ Micro Program
- ○ MP Install

OK
Cancel

(5)

In the 'Microprogram Exchange' dialog box,
[How] : Select (CL) [Online FC].
[From]: Select (CL) the source from which to store the
micro-programs.
[PC-Drive]: Select (CL) the PC and the drive letter
from which to store the micro-programs (In the case of
CD-ROM).

[From]'s selection branch
CD-ROM:      After being stored on the hard disk
             from CD-ROM, the micro-programs are
             downloaded.
                --- Select (CL) from the selection of PC-Drive.
Hard Disk:    The latest versions on the SVP hard disk are downloaded.
                --- Go to 4.4 (1). (MICRO04-190)
Version Down: Old versions on the hard disk are downloaded.
                --- Go to 4.5 (1). (MICRO04-200)

[PC-Drive]'s selection branch
SVP:            The SVP's drive  --- Select (DR) the drive letter and select (CL) [OK].
                Go to (6).
Client PC:      The Client PC's drive  --- Select (DR) the drive letter and select (CL) [OK].
                Go to (6).
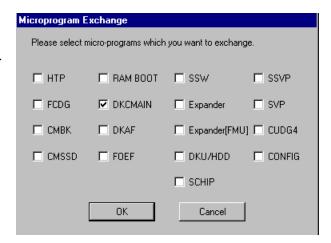
Selecting (CL) [Cancel] returns you to be step (4).
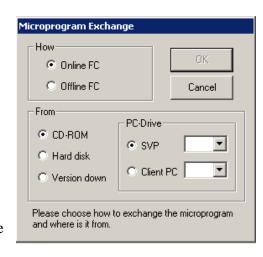
---

(6)

The 'Microprogram Exchange' dialog box
appears.
Select (CL) one or more items from the list of
the type of micro-programs, and select (CL)
[OK].

☑ : Micro-programs to be substituted.

(7)

When DKCMAIN, or RAMBOOT were selected, you can select the reboot pattern from the list.

---

### ⚠ CAUTION

Please select a reboot pattern by taking the following table into account.

| REBOOT PATTERN | | BY 1/2 | BY 1/4 | BY 1/8 | BY ONE |
|---|---|---|---|---|---|
| EXCHANGE TIME | STANDARD VALUE(*) [MINUTE](APPROX.) | 10 | 15 | 20 | 30 |
| | | SHORT ⟵⟶ LONG | | | |
| EFFECT ON PERFORMANCE OF DKC | | BIG ⟵⟶ SMALL | | | |

*:MEASURE CONDITION : 16MP (MP PCB × 4), NO I/O.

Sometimes an "error" message is displayed temporarily in [Reboot status display].
But, there is no problem if the reboot is finished without error.

---

Please select (CL) one of these patterns and select (CL) [OK].

By 1/2 : Reboot by half MPs in the DKC sub system.
By 1/4 : Reboot by quarter MPs in the DKC sub system.
By 1/8 : Reboot by 1/8 MPs in the DKC sub system.
By One : Reboot by minimum reboot unit MPs in the DKC sub system.
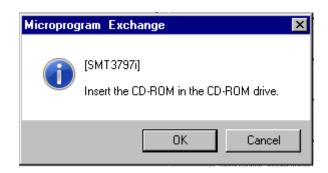
**Microprogram Exchange**

How do you want to reboot processors?

Reboot processors
- ○ By 1/2
- ● By 1/4
- ○ By 1/8
- ○ By One

[ OK ]
[ Cancel ]

(8)

If you select CD-ROM, a dialog "Insert the CD-ROM in the CD-ROM drive." appears. Insert the CD-ROM and select (CL) [OK].

Microprogram Exchange

[SMT3797i]

Insert the CD-ROM in the CD-ROM drive.

OK    Cancel

<<Error>>
No CD-ROM or uncorrect CD-ROM in the disk drive:
    The Message "Insert the correct CD-ROM." is displayed.
    Insert the correct CD-ROM and select (CL) [Retry].
Internal error:
    • "Old files erase failed, copy stop."
    • "Memory error has occurred."
    • "File I/O error has occurred."
    • "Logical error has occurred."
    • "The directory create error and copy stop."
    • "The file size is Wrong and copy stop."

(9)

If you select CD-ROM, the message "Copying CD-ROM files to HD DKCMAIN" appears.

Files Copying...

Copying CD-ROM files to HD   DKCMAIN

7%

<<Error>>

Internal error:

- "The file size is Wrong and copy stop."
- "The directory create error and copy stop."
- "Micro-program version disagreement and copy stop."
- "Logical error has occurred."
- "File I/O error has occurred."
- "Memory error has occurred."

Note : When the error message "File I/O error has occurred." or "Memory error has occurred." is displayed, power SVP off and on again if the same message appears after reexecuting the micro-program exchange (see SVP01-150 in the SVP SECTION).
Then execute the same micro-program exchange again. If the same error occurs (the same error message is displayed), replace the SVP hardware (see REP01-240 in the REPLACE SECTION.).

(10)
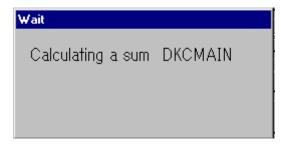
If you select CD-ROM, a dialog "Remove the CD-ROM." appears.
Remove the CD-ROM and select (CL) [OK].
If you select floppy disk, upon completion of reading from all floppy disks, the message "Remove the FD" appears.
In response to this message, remove the floppy disk and select (CL) [OK].

After copy end, sum checker starts.
While checking, the message appears.
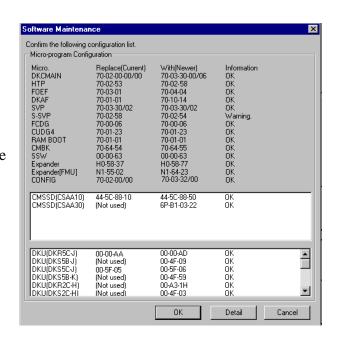
(11)

On the 'Software Maintenance' dialog box,
the micro-program types, current versions,
new versions, and message are displayed.

<Display with no error>
The message "Confirm the following
configuration list." is displayed below the title
bar. The micro-program can be replaced only
when all rows in the information column
show "OK", "Not change" or "Warning".
To continue processing, select (CL) [OK].
To terminate micro-program replacement,
select (CL) [Cancel].

| Software Maintenance | | | |
|---|---|---|---|
| Confirm the following configuration list. | | | |
| Micro-program Configuration | | | |
| Micro. | Replace(Current) | With(Newer) | Information |
| DKCMAIN | 70-02-00-00/00 | 70-03-30-00/06 | OK |
| HTP | 70-02-53 | 70-02-58 | OK |
| FOEF | 70-03-01 | 70-04-04 | OK |
| DKAF | 70-01-01 | 70-10-14 | OK |
| SVP | 70-03-30/02 | 70-03-30/02 | OK |
| S-SVP | 70-02-58 | 70-02-54 | Warning. |
| FCDG | 70-00-06 | 70-00-06 | OK |
| CUDG4 | 70-01-23 | 70-01-23 | OK |
| RAM BOOT | 70-01-01 | 70-01-01 | OK |
| CMBK | 70-64-54 | 70-64-55 | OK |
| SSW | 00-00-63 | 00-00-63 | OK |
| Expander | H0-58-37 | H0-58-77 | OK |
| Expander[FMU] | N1-55-02 | N1-64-23 | OK |
| CONFIG | 70-02-00/00 | 70-03-32/00 | OK |
| CMSSD(CSAA10) | 44-5C-88-10 | 44-5C-88-50 | OK |
| CMSSD(CSAA30) | (Not used) | 6P-B1-03-22 | OK |
| DKU(DKR5C-J) | 00-00-AA | 00-00-AD | OK |
| DKU(DKS5B-J) | (Not used) | 00-4F-09 | OK |
| DKU(DKS5C-J) | 00-5F-05 | 00-5F-06 | OK |
| DKU(DKS5B-K) | (Not used) | 00-4F-59 | OK |
| DKU(DKR2C-H) | (Not used) | 00-A3-1H | OK |
| DKU(DKS2C-H) | (Not used) | 00-4F-03 | OK |

[ OK ]     [ Detail ]     [ Cancel ]

---

### ⚠ CAUTION

If "Warning" is displayed. Select (CL) "Detail" surely. Confirm the contents and ask the
technical support division for decision for selecting "OK" or "Cancel" according to the
contents. To make processing progress, select (CL) [OK], input the password and select
(CL) [OK]. Password is needed for this operation. Please call Technical Support Division
to obtain password and authorization.

<Display with an error>
A sample error display is shown on the right.
An error message is displayed below the title bar.
At the same time, error information is displayed in the information column.
Select (CL) [Cancel] to terminate the micro-program replacement. (Note: The [OK] button is not displayed.)
Select (CL) [Detail] to display detailed error information.
Before attempting to rerun, be sure to correct the cause of the error. Refer to the entire status (SVP SECTION), action code (ACC SECTION), and other information.
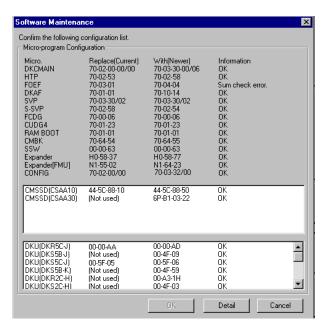
See Version Check Message Table (MICRO03-90).
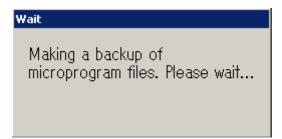
Note: Select (CL) [Detail] to display detailed error information, and confirm the cause of these error.
• "Version error"
• "Revision error"
• "Warning"

(12)

The message "Making a backup of microprogram files. Please Wait..." appears.

(13)

File copy in SVP.

• DKC/DKU: go to 4.3.1 (MICRO04-90).
• SSVP: go to 4.3.2 (1) (MICRO04-130).
• SVP: go to 4.3.2 (2) (MICRO04-130).
• Config: go to 4.3.4 (MICRO04-170).
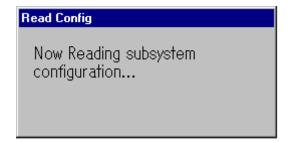
## 4.3 Transferring micro-programs

4.3.1 Transferring micro-programs to the DKC/DKU

(1)

The message "Now Reading subsystem configuration..." appears.

Read the current DKC configuration.

**Read Config**

Now Reading subsystem configuration...

Note: When a match is not found in the version and revision between the micro-program in the DKC and that on the SVP hard disk, the micro-program cannot be exchanged on on-line. In this case, the message "Is the device off-line?" appears, and the exchange is canceled.
When a processor is blocked due to a failure, the message "Processing cannot be continued because of a processor blocked due to a failure" appears, and the exchange is canceled.

If an error occurs in downloading micro-programs, resolve the cause of an error using Maintenance Display (SVP section), Action Code (Action Code section), and other information to execute the exchange again. Then start from the beginning of the MICRO procedure. At this time, you can select [Hard Disk] at 4.4 (MICRO04-190) or [CD-ROM] at 4.2 (5) (MICRO04-30).

<HTP Micro code Exchange>
If HTP Micro code Exchange, the following message appears.

(a)

The message displays the execution status of the online patch in the installed LCP/HTP.

<Explanation of status>

Not selected --------------- Not selected as the target.

Waiting for Execution -- Execution is awaited.

Executing... --------------- Execution is in progress.

XXXX Blockade Error Processor XXXX is blockaded.

```
Online Patch Status Display
[Cluster-1]
Processor Status          Processor  Status    [Cluster-2]
                                               Processor Status          Processor  Status

HTP-1A  00:Normal End                          HTP-2A  Waiting for Exec
HTP-3A  00:Normal End                          HTP-4A  Waiting for Exec
HTP-5A  00:Normal End                          HTP-6A  Waiting for Exec
HTP-7A  00:Normal End                          HTP-8A  Waiting for Exec
HTP-1B  00:Normal End                          HTP-2B  Waiting for Exec
HTP-3B  00:Normal End                          HTP-4B  Waiting for Exec
HTP-5B  00:Normal End                          HTP-6B  Waiting for Exec
HTP-7B  00:Normal End                          HTP-8B  Waiting for Exec

HTP-1C  00:Normal End                          HTP-2C  Waiting for Exec
HTP-3C  00:Normal End                          HTP-4C  Waiting for Exec
HTP-5C  00:Normal End                          HTP-6C  Waiting for Exec
HTP-7C  00:Normal End                          HTP-8C  Waiting for Exec
HTP-1D  00:Normal End                          HTP-2D  Waiting for Exec
HTP-3D  00:Normal End                          HTP-4D  Waiting for Exec
HTP-5D  00:Normal End                          HTP-6D  Waiting for Exec
HTP-7D  00:Normal End                          HTP-8D  Waiting for Exec

HTP-1E  Executing...                           HTP-2E  Waiting for Exec
HTP-3E  Executing...                           HTP-4E  Waiting for Exec
HTP-5E  Executing...                           HTP-6E  Waiting for Exec
HTP-7E  Executing...                           HTP-8E  Waiting for Exec
HTP-1F  Executing...                           HTP-2F  Waiting for Exec
HTP-3F  Executing...                           HTP-4F  Waiting for Exec
HTP-5F  Executing...                           HTP-6F  Waiting for Exec
HTP-7F  Executing...                           HTP-8F  Waiting for Exec

HTP-1G  Waiting for Exec                        HTP-2G  Waiting for Exec
HTP-3G  Waiting for Exec                        HTP-4G  Waiting for Exec
HTP-5G  Waiting for Exec                        HTP-6G  Waiting for Exec
HTP-7G  Waiting for Exec                        HTP-8G  Waiting for Exec
HTP-1H  Waiting for Exec                        HTP-2H  Waiting for Exec
HTP-3H  Waiting for Exec                        HTP-4H  Waiting for Exec
HTP-5H  Waiting for Exec                        HTP-6H  Waiting for Exec
HTP-7H  Waiting for Exec                        HTP-8H  Waiting for Exec

HTP-9C  Waiting for Exec                        HTP-AC  Waiting for Exec
HTP-BC  Waiting for Exec                        HTP-CC  Waiting for Exec
HTP-DC  Waiting for Exec                        HTP-EC  Waiting for Exec
HTP-FC  Waiting for Exec                        HTP-GC  Waiting for Exec
HTP-9D  Waiting for Exec                        HTP-AD  Waiting for Exec
HTP-BD  Waiting for Exec                        HTP-CD  Waiting for Exec
HTP-DD  Waiting for Exec                        HTP-ED  Waiting for Exec
HTP-FD  Waiting for Exec                        HTP-GD  Waiting for Exec

                              OK
```
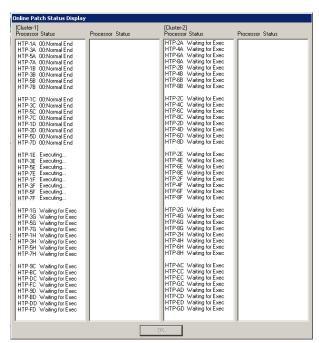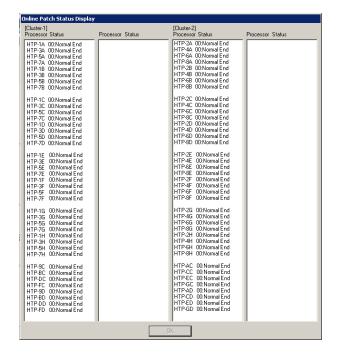
(b)

When execution is competed for all targets, you will go to step (2). If some errors occur, you can now select [OK].

Select (CL) [OK].

You will return to 4.2 (3).

```
Online Patch Status Display
[Cluster-1]
Processor Status          Processor  Status    [Cluster-2]
                                               Processor Status          Processor  Status

HTP-1A  00:Normal End                          HTP-2A  00:Normal End
HTP-3A  00:Normal End                          HTP-4A  00:Normal End
HTP-5A  00:Normal End                          HTP-6A  00:Normal End
HTP-7A  00:Normal End                          HTP-8A  00:Normal End
HTP-1B  00:Normal End                          HTP-2B  00:Normal End
HTP-3B  00:Normal End                          HTP-4B  00:Normal End
HTP-5B  00:Normal End                          HTP-6B  00:Normal End
HTP-7B  00:Normal End                          HTP-8B  00:Normal End

HTP-1C  00:Normal End                          HTP-2C  00:Normal End
HTP-3C  00:Normal End                          HTP-4C  00:Normal End
HTP-5C  00:Normal End                          HTP-6C  00:Normal End
HTP-7C  00:Normal End                          HTP-8C  00:Normal End
HTP-1D  00:Normal End                          HTP-2D  00:Normal End
HTP-3D  00:Normal End                          HTP-4D  00:Normal End
HTP-5D  00:Normal End                          HTP-6D  00:Normal End
HTP-7D  00:Normal End                          HTP-8D  00:Normal End

HTP-1E  00:Normal End                          HTP-2E  00:Normal End
HTP-3E  00:Normal End                          HTP-4E  00:Normal End
HTP-5E  00:Normal End                          HTP-6E  00:Normal End
HTP-7E  00:Normal End                          HTP-8E  00:Normal End
HTP-1F  00:Normal End                          HTP-2F  00:Normal End
HTP-3F  00:Normal End                          HTP-4F  00:Normal End
HTP-5F  00:Normal End                          HTP-6F  00:Normal End
HTP-7F  00:Normal End                          HTP-8F  00:Normal End

HTP-1G  00:Normal End                          HTP-2G  00:Normal End
HTP-3G  00:Normal End                          HTP-4G  00:Normal End
HTP-5G  00:Normal End                          HTP-6G  00:Normal End
HTP-7G  00:Normal End                          HTP-8G  00:Normal End
HTP-1H  00:Normal End                          HTP-2H  00:Normal End
HTP-3H  00:Normal End                          HTP-4H  00:Normal End
HTP-5H  00:Normal End                          HTP-6H  00:Normal End
HTP-7H  00:Normal End                          HTP-8H  00:Normal End

HTP-9C  00:Normal End                          HTP-AC  00:Normal End
HTP-BC  00:Normal End                          HTP-CC  00:Normal End
HTP-DC  00:Normal End                          HTP-EC  00:Normal End
HTP-FC  00:Normal End                          HTP-GC  00:Normal End
HTP-9D  00:Normal End                          HTP-AD  00:Normal End
HTP-BD  00:Normal End                          HTP-CD  00:Normal End
HTP-DD  00:Normal End                          HTP-ED  00:Normal End
HTP-FD  00:Normal End                          HTP-GD  00:Normal End

                              OK
```

(2)

The message "Downloading *** micro- program..." (***:  MAIN, HTP, ...) appears.
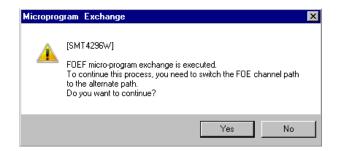
<Replacement of the FOEF micro-program>

---

⚠ **CAUTION**

The FOEF micro-program can be replaced by switching alternant path without stopping I/O of the host connected with FOE PCB. Please the FOEF micro-program is updated after it confirms the precondition of "11. Procedure of the FOEF Micro-program Exchange by Alternate Path" (MICRO11-10) beforehand.
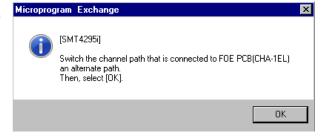
---

(a)

The execution confirmation message screen of the FOEF micro-program exchange displays it.
If the precondition of the FOEF micro-program exchange is filled, you select (CL) [Yes] in response to the message. If it is not filled, you select (CL) [No].
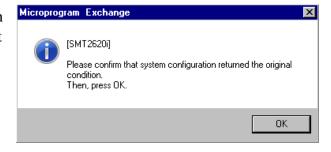


(b)

Instruction message of switching alternant path display it.
The FOE PCB channel path is switched to alternant path. Afterwards you select [OK].



Instruction is executed in following order.
　① DKC-1/Cluster-1 implement of FOE PCB.
　② DKC-1/Cluster-2 implement of FOE PCB.
　③ DKC-2/Cluster-1 implement of FOE PCB.
　④ DKC-2/Cluster-2 implement of FOE PCB.

(c)

After it confirms the system configuration return to the original condition, you select (CL) [Yes].



Notice:  The process of the micro-program exchange keeps waiting until responding to each confirming message of alternant path exchange.

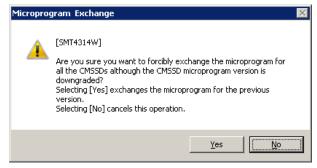<Replacement of the CMSSD micro-program>
  (a)
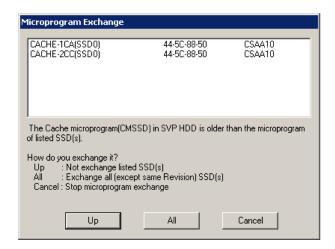
   When the revision of the CMSSD micro-
   program is older than that of CMSSD's,
   the location of CMSSD in the Revision
   Down is displayed.

   • When you select (CL) [Up], the
    CMSSD micro-program in the revised
    CMSSD only is updated.

| Microprogram Exchange | | |
|---|---|---|
| CACHE-1CA(SSD0) | 44-5C-88-50 | CSAA10 |
| CACHE-2CC(SSD0) | 44-5C-88-50 | CSAA10 |

The Cache microprogram(CMSSD) in SVP HDD is older than the microprogram of listed SSD(s).

How do you exchange it?
Up  : Not exchange listed SSD(s)
All  : Exchange all (except same Revision) SSD(s)
Cancel : Stop microprogram exchange

[ Up ]  [ All ]  [ Cancel ]

   • When you select (CL) [All], the
    message shown on the right is
    displayed.
    When you select (CL) [Yes] in response
    to the message, the CMSSD micro-
    programs of the CMSSD having micro-
    programs of different versions are
    updated.
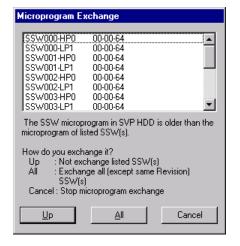
Microprogram Exchange

[SMT4314W]

Are you sure you want to forcibly exchange the microprogram for all the CMSSDs although the CMSSD microprogram version is downgraded?
Selecting [Yes] exchanges the microprogram for the previous version.
Selecting [No] cancels this operation.

[ Yes ]  [ No ]

<Replacement of the SSW micro-program>
(a) When the revision of SSW micro-program is older than that of SSW's, the location of SSW in the Revision Down is displayed.

• When you select (CL) [Up], the SSW micro-program in the revised SSW only is updated.
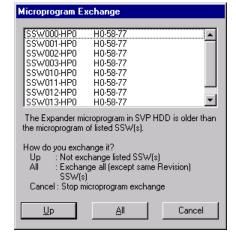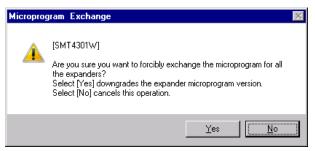


• When you select (CL) [All], the message shown on the right is displayed.
When you select (CL) [Yes] in response to the message, SSW micro-programs of the SSW having micro-programs of different versions are updated.



<Replacement of the Expander/Expander[FMU] micro-program>
(a) When the revision of Expander/Expander[FMU] micro-program is older than that of SSW's, the location of SSW in the Revision Down is displayed.

• When you select (CL) [Up], the Expander/ Expander[FMU] micro-program in the revised SSW only is updated.



• When you select (CL) [All], the message shown on the right is displayed.
When you select (CL) [Yes] in response to the message, Expander/Expander[FMU] micro-programs of the SSW having micro-programs of different versions are updated.

<Replacement of the DKU/HDD micro-program>
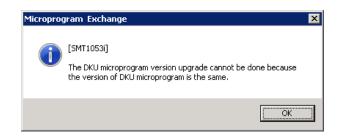
(a)

When the SVP hard disk and the HDU have DKU/HDD micro-programs of the same revision, the replacement of the DKU/HDD micro-program ends with the following message on the screen:
"The DKU microprogram version upgrade cannot be done because the version of DKU microprogram is the same."
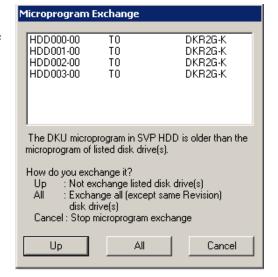
(b)

When the revision of the DKU/HDD micro-program in the HDU is older than that in the SVP hard disk, the HDD location number and the revision are displayed in the Revision Down HDU list.
When you select (CL) [Up], the DKU micro-program in the revised HDU only is updated.

When you select (CL) [All], the message shown on the right is displayed.
When you select (CL) [Yes] in response to the message, DKU micro-programs of the HDUs having micro-programs of different versions are updated.
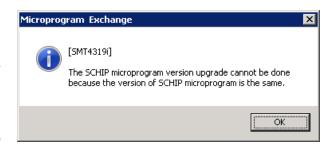
<Replacement of the SCHIP micro-program>
(a)

When the SVP hard disk and the HDU have SCHIP micro-programs of the same revision, the replacement of the SCHIP micro-program ends with the following message on the screen:

"The SCHIP microprogram version upgrade cannot be done because the version of SCHIP microprogram is the same."

(b)

When the revision of the SCHIP micro-program in the HDU is older than that in the SVP hard disk, the HDD location number and the revision are displayed in the Revision Down HDU list.
When you select (CL) [Up], the SCHIP micro-program in the revised HDU only is updated.

When you select (CL) [All], the message shown on the right is displayed.
When you select (CL) [Yes] in response to the message, SCHIP micro-programs of the HDUs having micro-programs of different versions are updated.
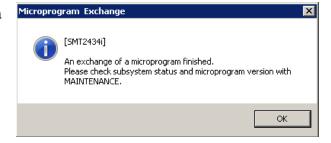
(3)

The message "Now MP Rebooting... Group# n/N" appears.
The processor is recovered.
SVP executes steps (2) and (3) for each exchanging unit.

(4)

In response to the message "An exchange of a microprogram finished. Please check subsystem status and microprogram version with MAINTENANCE.", select (CL) [OK].

Go to 4.6. ()



Microprogram Exchange

[SMT2434i]

An exchange of a microprogram finished.
Please check subsystem status and microprogram version with MAINTENANCE.

OK

## 4.3.2 Transferring micro-programs to SVP/SSVP

(1)

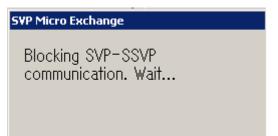The message "SSVP microprogram download." Is
displayed.

**SSVP Micro Exchange**

SSVP microprogram
download.(10/15)

(2)

Start of the exchange (SVP).
The message "Blocking SVP-SSVP communication.
Wait..." is displayed.

**SVP Micro Exchange**

Blocking SVP-SSVP
communication. Wait...

<<Error>>
Internal error :
  • "Information file doesn't exist or open error has occurred!"
  • "SVP-SSVP communication blockade error has occurred."

(3)

End of the exchange (SVP).
Select (CL) [OK].
Terminate some application programs, so SVP is rebooted
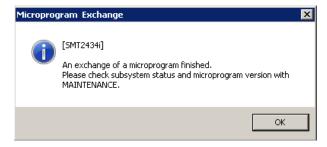automatically.



Note:　After SVP reboot, because the connection with the Clients PC and the SVP goes out,
make re-connection (refer to SVP 1.5.2) and check surely the message of the
microprogram exchange end.

(4)

In response to the message "An exchange of a
microprogram finished. Please check
subsystem status and microprogram version
with MAINTENANCE.", select (CL) [OK].
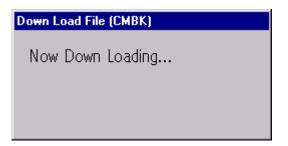
Go to 4.6. (MICRO04-220)

### 4.3.3 Transferring micro-programs to CM

(1)

The message "Now Down Loading..." is displayed.

**Down Load File (CMBK)**

Now Down Loading...

When the revision of the CMBK micro-program in the CM is older than that in the SVP hard disk, the CM location and the revision are displayed in the Revision Down CM list.

• When you select (CL) [Up], the CMBK micro-program in the revised CM only is updated.

**Microprogram Exchange**

| CACHE-1CA | 70-14-54 |
| CACHE-2CC | 70-14-54 |

The Cache microprogram(CMBK) in SVP HDD is older than the microprogram of listed cache pcb(s).

How do you exchange it?
Up     : Not exchange listed cache pcb(s)
All     : Exchange all (except same Revision)
            cache pcb(s)
Cancel : Stop microprogram exchange

| Up | All | Cancel |

• When you select (CL) [All], the message shown on the right is displayed.
When you select (CL) [Yes] in response to the message, CMBK micro-programs of the CMs having micro-programs of different versions are updated.

**Microprogram  Exchange**

[SMT4242W]

⚠ Are you sure you want to forcibly exchange the microprogram(CMBK) for all cache PCB(s).
The cache microprogram(CMBK) version will be downgraded due to this operation.

| Yes | No |

(2)
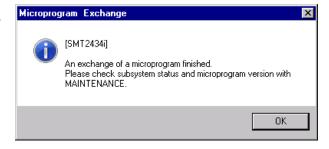
    The message "Now CmBattery Rebooting..." is
displayed.

**CmBattery Reboot**

Now CmBattery Rebooting...
Group #  1/ 2

(3)

    In response to the message "An exchange of a
microprogram finished. Please check
subsystem status and microprogram version
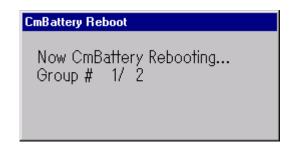with MAINTENANCE.", select (CL) [OK].

    Go to 4.6. (MICRO04-220)

Microprogram Exchange                                      ☒

    ⓘ   [SMT2434i]

       An exchange of a microprogram finished.
       Please check subsystem status and microprogram version with
       MAINTENANCE.

                                [ OK ]
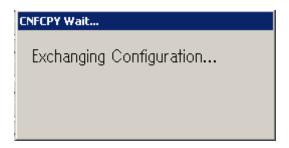
## 4.3.4 Config Update

(1)

The message "Exchanging Configuration..." is displayed.

(2)
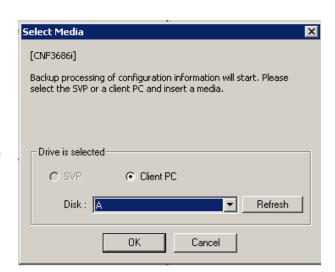
Execute an operation for backing up the configuration information.
Prepare the removable media for backup and insert the media.
Please select (CL) the [Refresh] button, and update drive information.
Select (CL) the drive and the PC in which the media was inserted. Select (CL) the [OK] button.
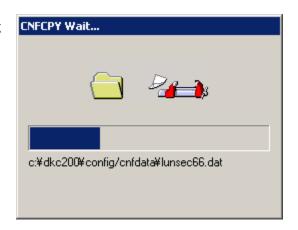
Note:  For the procedure of backing up the configuration information to a CD-R, see page MICRO07-140.

(3)

Backup the configuration information to the Config media for backup. While this operation is being done, the 'CNFCPY Wait...' window is displayed.

(4)

After the Config media is pulled out, select (CL) the [OK] in response to the message "Please remove the configuration information media.".

(5)

End of the exchange (SVP).
Select (CL) [OK].
Terminate some application programs, so SVP is rebooted automatically.
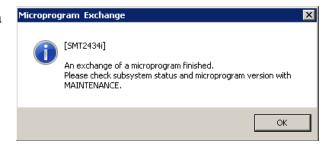
Note: After SVP reboot, because the connection with the Clients PC and the SVP goes out, make re-connection (refer to SVP 1.5.2) and check surely the message of the microprogram exchange end.

---

(6)

In response to the message "An exchange of a microprogram finished. Please check subsystem status and microprogram version with MAINTENANCE.", select (CL) [OK].

Go to 4.6. (MICRO04-220)

---

## 4.4 Hard Disk Download
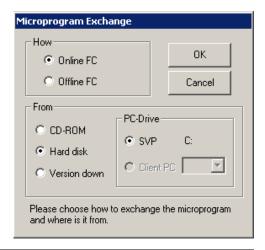
The latest version of micro-programs on the SVP hard disk are downloaded to DKC.
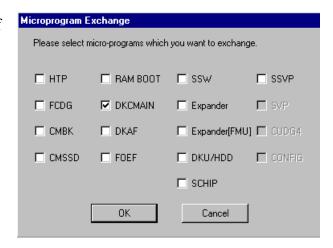
(1)

[How]: Select (CL) [Online FC].
[From]: Select (CL) [Hard disk] in the 'Microprogram Exchange' dialog box.
And select (CL) [OK].

(2)

Select (CL) one or more items from the list of the type of micro-programs.
And select (CL) [OK].

☑ : Micro-programs to be substituted.

(3)

Go to 4.2 (7) (MICRO04-40).

(4)

Execute from 4.3.1 (1).
Go to 4.3.1 (1) (MICRO04-90).

## 4.5 Version Down

> ⚠️ **CAUTION**
>
> Ask the technical support division about the appropriateness of the operation.
> Please do not execute the Version Down function during initial copy or resynchronization of TrueCopy or Universal Replicator. If you execute it, the micro-program exchange may fail.

> ⚠️ **CAUTION**
>
> SVP version must not be changed to less than 70-06-11/00.
>
> If SVP version is changed to less than 73-03-04/00 and java version is 1.6.0_12, must downgrade java version 1.6.0_12. (Reference 5.4.2 java downgrade (WEB05-210))
>
> After the java update, if SVP version is changed to less than 70-06-11/00, refer to the Technical Support Division.
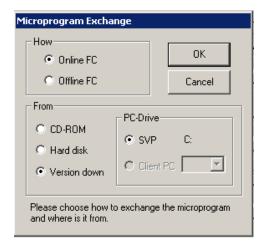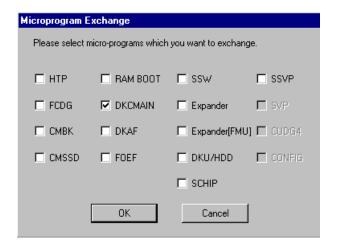
If you want to restore micro-programs to the previous versions of the micro-programs after the exchange (by CD-ROM, Floppy Disk or Remote function), execute the Version Down function.

(1)
　　[How]: Select (CL) [Online FC].
　　[From]: Select (CL) [Version down] in the
　　'Microprogram Exchange' dialog box.
　　And select (CL) [OK].

(2)
　　Micro-programs to be restored are displayed
　　in the 'Microprogram Exchange' dialog box.

(3)

Go to 4.2 (7) (MICRO04-40).

---

(4)

Copy source and copy destination are displayed.

Execute 4.3 (1).
Go to 4.3.1 (1) (MICRO04-90)

Note:
- The Version Down function can restore only micro-programs that have been exchanged by or Remote function of the MICRO.
  When the MICRO (Remote function) has not been executed the Version Down function cannot be executed until the next MICRO is done.
- After HTP Version Down, replace the PCB.
- After FOEF Version Down, from DKCMAIN micro-program 70-03-0X-XX/XX after to DKCMAIN micro-program 70-02-XX-XX/XX before, replace the FOE PCB.

## 4.6 Checking the functions after exchange

Check that the version of the recently installed micro-program is the same as that of the replaced micro-program by using the version display in the MAINTENANCE function.
(See SVP section.)

> Note:  If you find "??-??···" or incompatibility version, recover the status following the section 6.1.

When you downgraded the version of the microprogram of SVP, the program (jar file) of Web Console may be cached and not operated. Clear the cache of Java. Refer to the WEB CONSOLE section for clearing the cache of Java.

After changing the mode from [Modify Mode] to [View Mode], select (CL) the [Execute]-[Exit] menu on the maintenance screen and then check that Web Console starts. If it failed to start, recover it referring to troubleshooting in the WEB CONSOLE section.

When the customer uses Storage Navigator, request the customer to restart the Storage Navigator running PC (Web client) surely after replacing the microprogram.

# 5. MP Install

## 5.1 Over view

This facility is used to restore a processor that failed to complete the rewrite of the micro-programs in FM (Flash Memory) due to an error during the micro-program download.

Since a processor that encountered such a problem started unsuccessfully without loading micro-programs, in a state of waiting for FM write.  In such a case, a SIM with reference code = 7900XY (for the MP (Channel adaptor)) is reported.  Also, an SSB (F/M = 8C, EC = 3309) is reported.  The user must examine this SIM or SSB and perform MP Install on the processor that issued the SIM or the SSB.
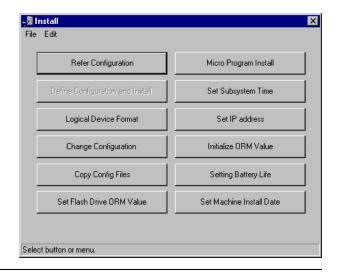
If MP Install has failed, please replace the PCB with a service part. (see REPLACE SECTION)

## 5.2 MP Install
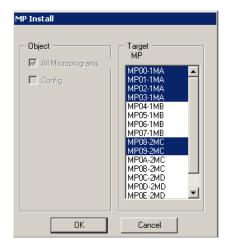
(1)

Select (CL) the [Install] icon in the 'SVP' window.

(2)

Select (CL) [Micro Program Install] in the 'Install' window.



(3)

Select (CL) the [Install] menu in the 'Menu Dialog' window and select (CL) [MP Install].



(4)

Select (CL) a processor in the 'Target' and select (CL) [OK].
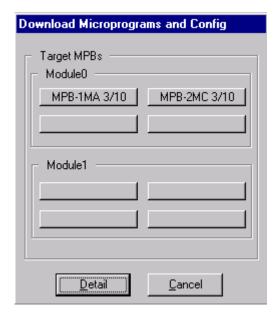
(5)

Progress Dialog appears.

Executing PCB button blink.
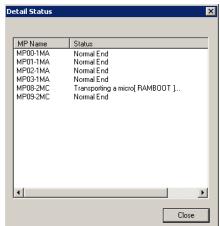
When MP Install process finished, the dialog will be
closed automatically.

- [Detail]:  You can see detail status. See following
  "Detail status display".
- [Cancel]: You can interrupt MP Install process.
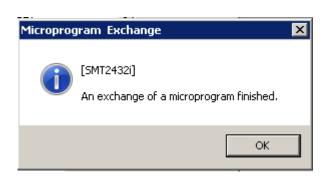


"Detail status display"

Executing MP location and detail status are displayed.

Select (CL) [Close] and return progress dialog.



(6)

In response to the message "An exchange of a
microprogram finished.", select (CL) [OK].



(7)

You will return to the 'Install' screen.

# 6. Trouble Recovery Procedure in Exchanging Micro-programs

## 6.1 Recovery procedure in on-line menu was selected

If trouble occurs while the micro-programs are being exchanged, symptoms (1) to (10) below can be observed apparently.  In these cases, use the recovery procedures shown in flowcharts [A] to [I].

> Note:  When Virus Checker, Monitor, etc. are in operation so that the SVP is in the heavy load state, the Micro-program exchange may fail. In this case, please wait for a while, and then perform the Micro-program exchange again.
> If the Micro-program exchange operation still fails, please perform the recovery operations by following the procedures in this section.

(1)  A power failure occurs.
→ Go to [A]. (MICRO06-30)

(2)  An error message displayed. "On exchanging a micro-program, an error has occurred..."
  (a)  The message "An error occurred while reading from the micro program media..." is displayed.
     → Retry the Micro FC according to the message.
  (b)  The message "A file I/O error has occurred in a hard disk in the SVP..." is displayed.
     → Go to [D]. (MICRO06-60)
  (c)  In the case before MP reboot. (Before display the IMPL status. : Not exist SSB = 0x334F.), excepting the case (a),(b).
     → Go to [B]. (MICRO06-40)
  (d)  In the case after MP reboot. (After displayed the IMPL status. : Exist SSB = 0x334F.), excepting the case (a),(b).
     → Go to [C]. (MICRO06-50)
  (e)  In the case of except (a)–(d)
     → Go to [C]. (MICRO06-50)

(3)  An AP error occurs, resulting in SVP trouble (Key-in operations are disabled and the screen disappears).
→ Go to [B]. (MICRO06-40)

(4)  Recovery of a cache failure during the micro-program exchange of DKCMAIN Action.
→ MICRO06-180

(5)  Procedure for returning the micro-program version to the previous version.
→ Go to [E]. (MICRO06-70)

(6)  In the case of incorrect version display ("??-??..." or incompatibility). (The disagreement of a binary version (Internal administrative information) contains it.) (Refer to SVP03-400.)
→ Go to [B]. (MICRO06-40)

(7)  An error occurs in the DKU/HDD/SCHIP micro-program replacing.
     → Go to [F]. (MICRO06-90)


(8)  An error occurs in the SSVP micro-program replacing.
     → Go to [G]. (MICRO06-100)


(9)  An error occurs in the SSW/Expander/Expander[FMU] micro-program replacing.
     → Go to [H]. (MICRO06-101)


(10) An error occurs in the CMSSD micro-program replacing.
     → Go to [I]. (MICRO06-102)



[Sections to be referenced for recovery procedure]
     (i)   Status display      : "3.4 Main screen" on SVP SECTION
     (ii)  Version display     : "3.7 Version of Microprogram" on SVP SECTION
     (iii) MP installation     : "5. MP Install" on MICRO SECTION
     (iv)  Package exchange    : "1. Hot Replace" on REPLACE SECTION
     (v)   PC exchange         : "1. Hot Replace" on REPLACE SECTION
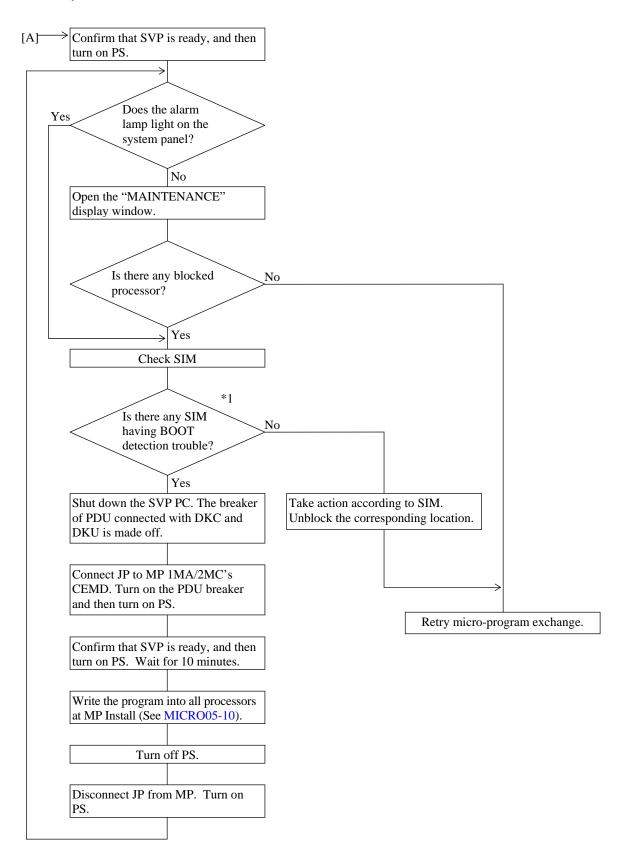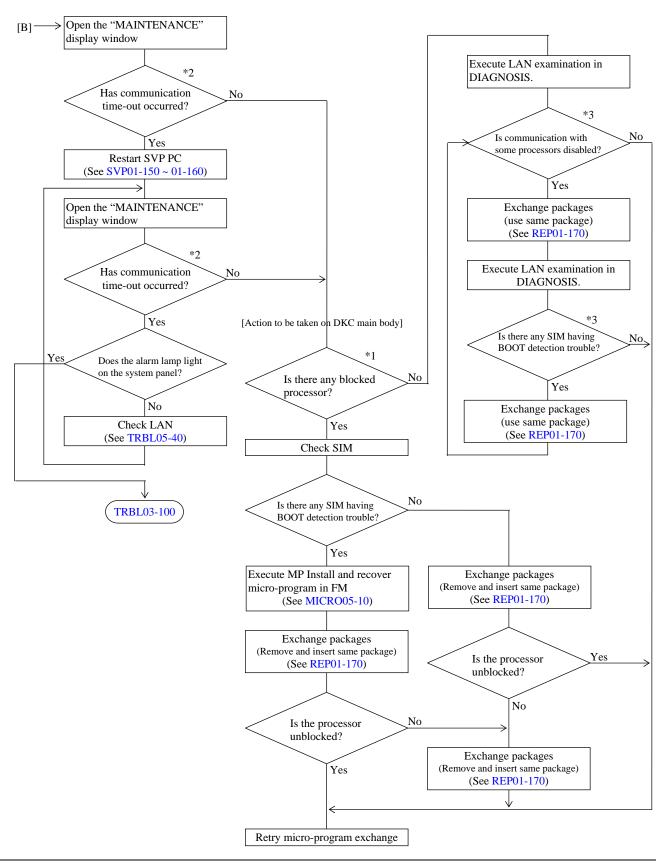
[Recovery Procedure for Power Failure]

[A] ⟶ Confirm that SVP is ready, and then turn on PS.

Does the alarm lamp light on the system panel? — Yes / No

Open the "MAINTENANCE" display window.

Is there any blocked processor? — No / Yes

Check SIM

Is there any SIM having BOOT detection trouble? *1 — No / Yes

Shut down the SVP PC. The breaker of PDU connected with DKC and DKU is made off.

Take action according to SIM. Unblock the corresponding location.

Connect JP to MP 1MA/2MC's CEMD. Turn on the PDU breaker and then turn on PS.

Retry micro-program exchange.

Confirm that SVP is ready, and then turn on PS.  Wait for 10 minutes.

Write the program into all processors at MP Install (See MICRO05-10).

Turn off PS.

Disconnect JP from MP.  Turn on PS.

[Recovery Procedure for Communication Time-out/PC Trouble in Downloading Micro-program /Version incompatibility]

[B] → Open the "MAINTENANCE" display window

Has communication time-out occurred? *2

Restart SVP PC (See SVP01-150 ~ 01-160)

Open the "MAINTENANCE" display window

Has communication time-out occurred? *2 — No →

Does the alarm lamp light on the system panel? — Yes

Check LAN (See TRBL05-40)

TRBL03-100

Execute LAN examination in DIAGNOSIS.

Is communication with some processors disabled? *3 — No

Exchange packages (use same package) (See REP01-170)

Execute LAN examination in DIAGNOSIS.

Is there any SIM having BOOT detection trouble? *3 — No →

Exchange packages (use same package) (See REP01-170)

[Action to be taken on DKC main body]

Is there any blocked processor? *1 — No

Check SIM

Is there any SIM having BOOT detection trouble? — No →

Execute MP Install and recover micro-program in FM (See MICRO05-10)

Exchange packages (Remove and insert same package) (See REP01-170)

Exchange packages (Remove and insert same package) (See REP01-170)

Is the processor unblocked? — Yes →

Is the processor unblocked? — No →

Exchange packages (Remove and insert same package) (See REP01-170)

Retry micro-program exchange

[Recovery Procedure for Communication Time-out in Blocking/Unblocking Processor]

[Recovery Procedure for I/O Error on SVP Hard Disk]

```
[D] ────────→ ┌─────────────────────────┐
              │ Restart the SVP.        │
              │ (See SVP01-150)         │
              └─────────────────────────┘
                          │
                          ▼
                      ╱───────╲          *5
                   ╱─────────────╲
                 ╱  Has the SVP    ╲    No
                ⟨  error occurred?  ⟩─────────┐
                 ╲                 ╱          │
                   ╲─────────────╱            │
                      ╲───────╱               │
                          │ Yes               │
                          ▼                   │
              ┌─────────────────────────┐     │
              │ Exchange the SVP         │     │
              │ (See REP03-20-10         │     │
              │ (Work ID=RTC5))          │     │
              └─────────────────────────┘     │
                          │◄──────────────────┘
                          ▼
              ┌─────────────────────────┐
              │ Recover files on the SVP │
              │ (Copy the files from     │
              │ CD-ROM again by rerunning│
              │ FC process.).            │
              └─────────────────────────┘
                          │
                          ▼
                     Go to [B]
```

*1: Reference code "7900XY" or "7901XY"
XY: Shows processor id. (See SIMRC02-540)
For details of the trouble, refer to the explanation about the BOOT detected error at SSB
(Byte27 =8C).
(See SSBLOG05-2190)

*2: The message "connection error occurred SVP-DKC" is displayed.

*3: Each LAN error processor button blinks.

*4: Reference code
3080x0:Indicates that a WCHK1 dump has occurred.
3081x0:Indicates that an ABEND dump has occurred.
x: Shows processor id.
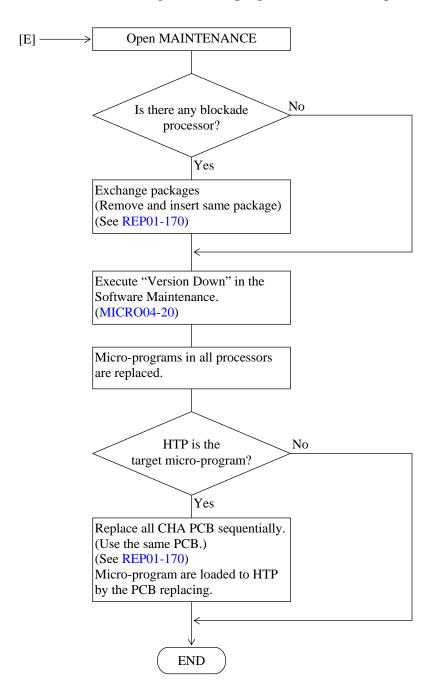
*5: The message "Please turn off SVP and replace it" is displayed.

*6: Refer to "SSBLOG05-2190" for the SSB with the error code 3309.
Also, the error code of initialization function is shown in 5C-5Fth byte of the SSB. The
procedures corresponding to the error code of initialization function are as follows.

| Error code of initialization function | Procedures | Note |
|---|---|---|
| 56000041 | ① SVP Replace<br>② MP Install<br>③ Package Replace | Use the same package in ③.<br>Refer to "REP03-20-10 (Work ID : RTC5)"<br>for SVP Replace. |
| others | ① MP Install<br>② Package Replace | Use the same package in ②. |

[Procedure for returning the micro-program version to the previous version]
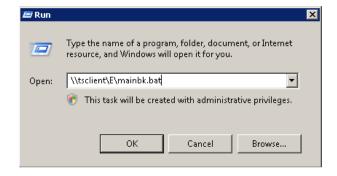
```
[E] ─────────→  ┌─────────────────────────┐
                │   Open MAINTENANCE      │
                └─────────────────────────┘
                            │
                            ▼
                     ◇─────────────◇
                    Is there any blockade      No
                         processor?        ──────────┐
                     ◇─────────────◇                 │
                            │ Yes                     │
                            ▼                          │
          ┌─────────────────────────────────┐         │
          │ Exchange packages               │         │
          │ (Remove and insert same package)│         │
          │ (See REP01-170)                 │         │
          └─────────────────────────────────┘         │
                            │ ←──────────────────────┘
                            ▼
          ┌─────────────────────────────────┐
          │ Execute "Version Down" in the   │
          │ Software Maintenance.           │
          │ (MICRO04-20)                    │
          └─────────────────────────────────┘
                            │
                            ▼
          ┌─────────────────────────────────┐
          │ Micro-programs in all processors│
          │ are replaced.                   │
          └─────────────────────────────────┘
                            │
                            ▼
                     ◇─────────────◇
                        HTP is the            No
                   target micro-program?  ──────────┐
                     ◇─────────────◇                 │
                            │ Yes                     │
                            ▼                          │
          ┌─────────────────────────────────┐         │
          │ Replace all CHA PCB sequentially.│        │
          │ (Use the same PCB.)             │         │
          │ (See REP01-170)                 │         │
          │ Micro-program are loaded to HTP │         │
          │ by the PCB replacing.           │         │
          └─────────────────────────────────┘         │
                            │ ←──────────────────────┘
                            ▼
                      ╭───────────╮
                      │   END     │
                      ╰───────────╯
```

[Copy to program files from backup files on the SVP hard disk]

(1)

Select (CL) [Run...] from the [Start] button.
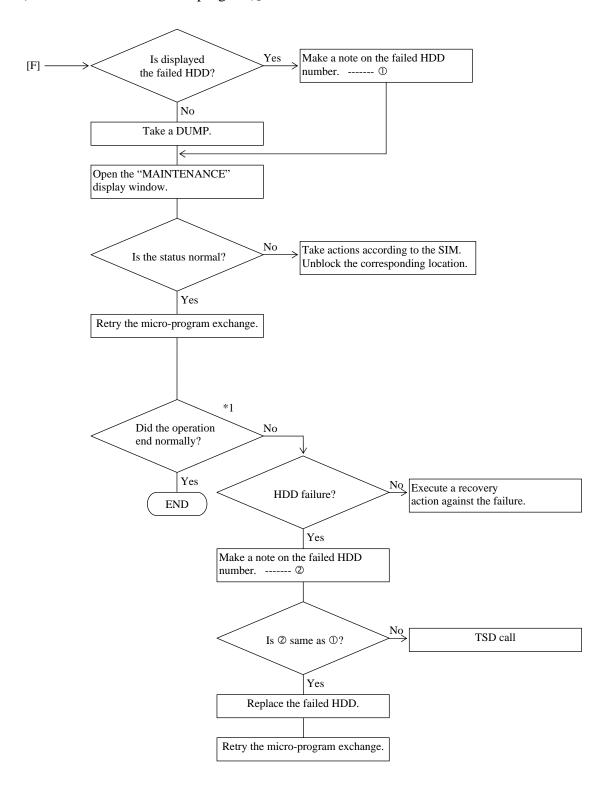
(2)

Insert the Micro-program media (CD-ROM) in the CD-ROM drive, and wait until the CD-ROM drive recognizes the CD-ROM.

(3)

Input the file name "\\tsclient\E\mainbk.bat" in 'Open' and select (CL) [OK].
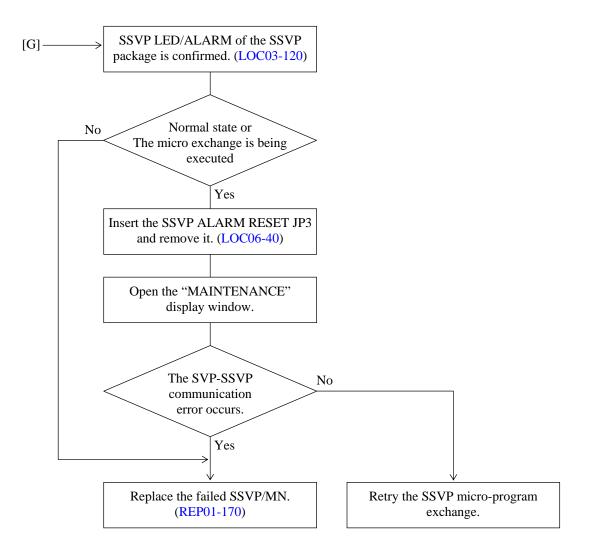
[Recovery procedure when a DKU error occurs during a downloading of the micro-program
(DKU/HDD/SCHIP micro-program)]
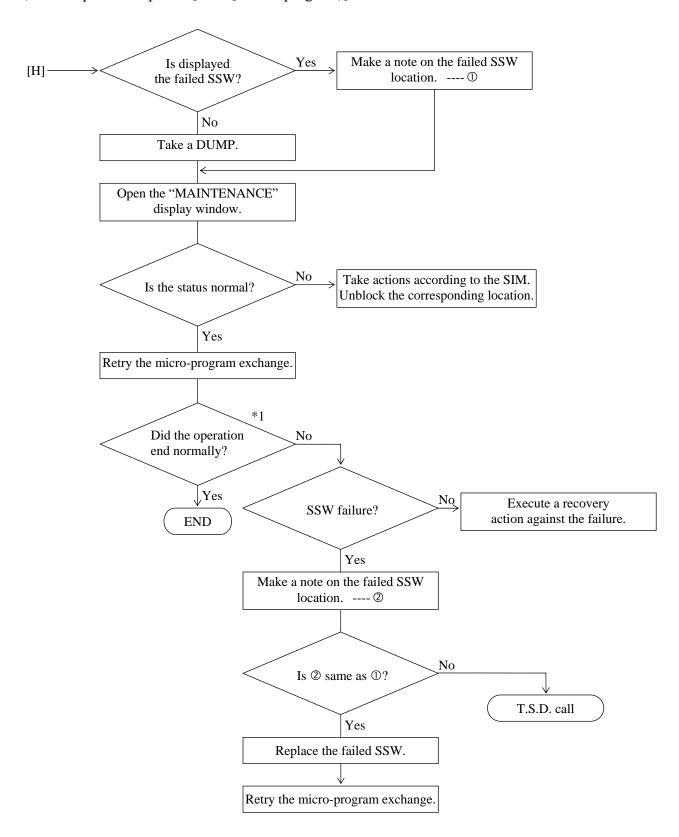
[Recovery procedure SSVP micro-program]

```
[G] ──────▶ ┌─────────────────────────────┐
            │ SSVP LED/ALARM of the SSVP  │
            │ package is confirmed. (LOC03-120) │
            └─────────────────────────────┘
                          │
                          ▼
              ╱─────────────────────╲
    No       ╱   Normal state or     ╲
  ◀─────────   The micro exchange is being
             ╲      executed         ╱
              ╲─────────────────────╱
                          │ Yes
                          ▼
            ┌─────────────────────────────┐
            │ Insert the SSVP ALARM RESET JP3 │
            │ and remove it. (LOC06-40)   │
            └─────────────────────────────┘
                          │
                          ▼
            ┌─────────────────────────────┐
            │ Open the "MAINTENANCE"      │
            │ display window.             │
            └─────────────────────────────┘
                          │
                          ▼
              ╱─────────────────────╲
             ╱   The SVP-SSVP        ╲    No
             ╲   communication        ──────▶
             ╲   error occurs.        ╱
              ╲─────────────────────╱
                          │ Yes
                          ▼
            ┌─────────────────────────┐    ┌─────────────────────────┐
            │ Replace the failed SSVP/MN. │  │ Retry the SSVP micro-program │
            │ (REP01-170)             │    │ exchange.               │
            └─────────────────────────┘    └─────────────────────────┘
```

[Recovery procedure when a DKU error occurs during a downloading of the micro-program (SSW/Expander/Expander[FMU] micro-program)]
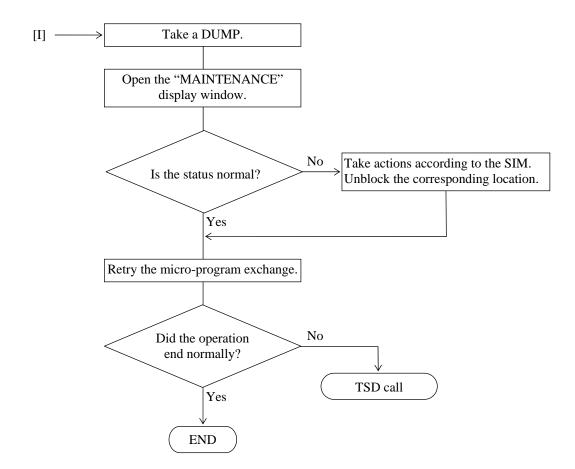
```
                    ┌────────────────┐
                    │ Is displayed   │  Yes   ┌──────────────────────────┐
[H] ──────────────→ │ the failed SSW?│ ─────→ │ Make a note on the failed │
                    └────────────────┘        │ SSW location.  ---- ①     │
                            │ No              └──────────────────────────┘
                    ┌────────────────┐                      │
                    │ Take a DUMP.   │                      │
                    └────────────────┘ ←────────────────────┘
                            │
                    ┌────────────────────┐
                    │ Open the "MAINTENANCE"│
                    │ display window.    │
                    └────────────────────┘
                            │
                    ┌────────────────────┐  No   ┌──────────────────────────────┐
                    │ Is the status normal?│ ───→ │ Take actions according to the SIM.│
                    └────────────────────┘        │ Unblock the corresponding location.│
                            │ Yes                 └──────────────────────────────┘
                    ┌────────────────────────────┐
                    │ Retry the micro-program exchange.│
                    └────────────────────────────┘
                            │                    *1
                    ┌────────────────┐  No
                    │ Did the operation│ ─────────────┐
                    │ end normally?  │                │
                    └────────────────┘                ▼
                            │ Yes           ┌────────────────┐  No   ┌──────────────────────┐
                      ┌─────────┐           │ SSW failure?   │ ───→ │ Execute a recovery    │
                      │  END    │           └────────────────┘       │ action against the failure.│
                      └─────────┘                   │ Yes           └──────────────────────┘
                                          ┌──────────────────────────┐
                                          │ Make a note on the failed │
                                          │ SSW location.  ---- ②     │
                                          └──────────────────────────┘
                                                    │
                                          ┌────────────────┐  No
                                          │ Is ② same as ①?│ ──────────┐
                                          └────────────────┘           ▼
                                                    │ Yes        ┌──────────────┐
                                          ┌──────────────────────┐│ T.S.D. call  │
                                          │ Replace the failed SSW.│└──────────────┘
                                          └──────────────────────┘
                                                    │
                                          ┌────────────────────────────┐
                                          │ Retry the micro-program exchange.│
                                          └────────────────────────────┘
```

[Recovery procedure when the micro-program exchange of CMSSD is failed.]

```
[I] ──────→  ┌──────────────────────┐
              │     Take a DUMP.      │
              └──────────────────────┘
                         │
              ┌──────────────────────┐
              │ Open the "MAINTENANCE"│
              │   display window.     │
              └──────────────────────┘
                         │
                      ◇         No   ┌──────────────────────────────────┐
              Is the status normal? ──→│ Take actions according to the SIM. │
                      ◇               │ Unblock the corresponding location.│
                         │            └──────────────────────────────────┘
                       Yes                          │
                         ←───────────────────────────
                         │
              ┌──────────────────────────────┐
              │ Retry the micro-program exchange.│
              └──────────────────────────────┘
                         │
                      ◇          No
              Did the operation  ──→
                end normally?
                      ◇               ( TSD call )
                       Yes
                         │
                     ( END )
```

## 6.2 Recovery procedure in off-line menu was selected

If trouble occurs while the micro-programs are being exchanged, symptoms (1) to (5) below can be observed apparently.  In these cases, use the recovery procedures shown in flowcharts [A] to [F].

---

Note:  When Virus Checker, Monitor, etc. are in operation so that the SVP is in the heavy load state, the Micro-program exchange may fail. In this case, please wait for a while, and then perform the Micro-program exchange again.
If the Micro-program exchange operation still fails, please perform the recovery operations by following the procedures in this section.

---

(1)   A power failure occurs.
→ Go to [A]. (MICRO06-130)

(2) An error message displayed. "On exchanging a micro-program, an error has occurred.…"
   (a)  The message "An error occurred while reading from the micro program media.…" is displayed.
       → Retry the Micro FC according to the message.
   (b)  The message "A file I/O error has occurred in a hard disk in the SVP…" is displayed.
       → Go to [F]. (MICRO06-170)
   (c)  In the case before MP reboot. (Before display the IMPL status. : Not exist SSB = 0x334F), excepting the case (a),(b).
       → Go to [B]. (MICRO06-140)
   (d)  In the case after MP reboot. (After displayed the IMPL status. : Exist SSB = 0x334F.), excepting the case (a),(b).
       → Go to [D]. (MICRO06-150)
   (e)  In the case of except  (a)–(d)
       → Go to [C]. (MICRO06-140)

(3)   An AP error occurs, resulting in SVP trouble (Key-in operations are disabled and the screen disappears).
→ Go to [E]. (MICRO06-160)

(4)   Recovery of a cache failure during the micro-program exchange of DKCMAIN Action.
→ MICRO06-180

(5)   In the case of incorrect version display ("??-??…" or incompatibility). (The disagreement of a binary version (Internal administrative information) contains it.) (Refer to SVP03-400.)
→ Go to [B]. (MICRO06-140)

[Sections to be referenced for recovery procedure]

    (i)  Status display         : "3.4 Main screen" on SVP section

    (ii)  Version display       : "3.7 Version of Microprogram" on SVP section
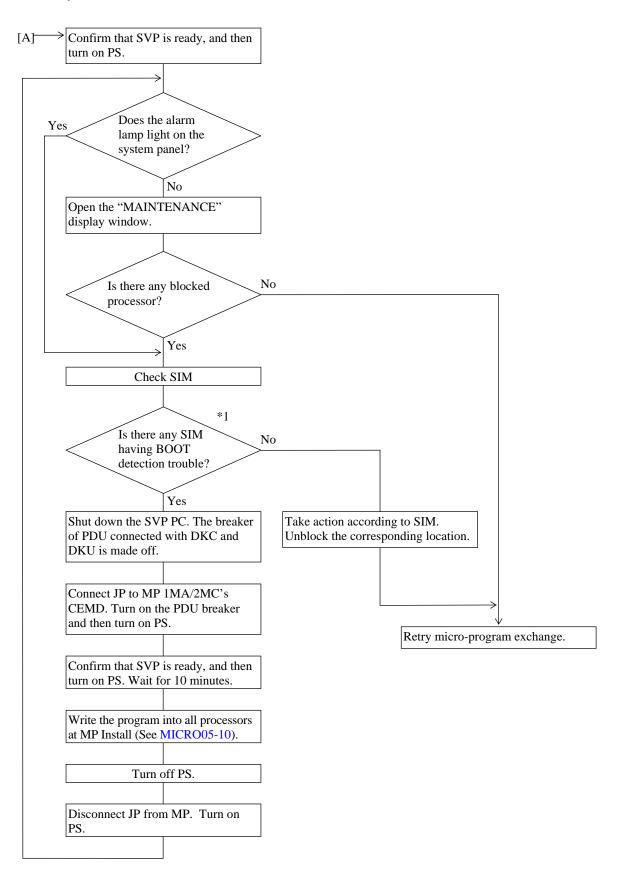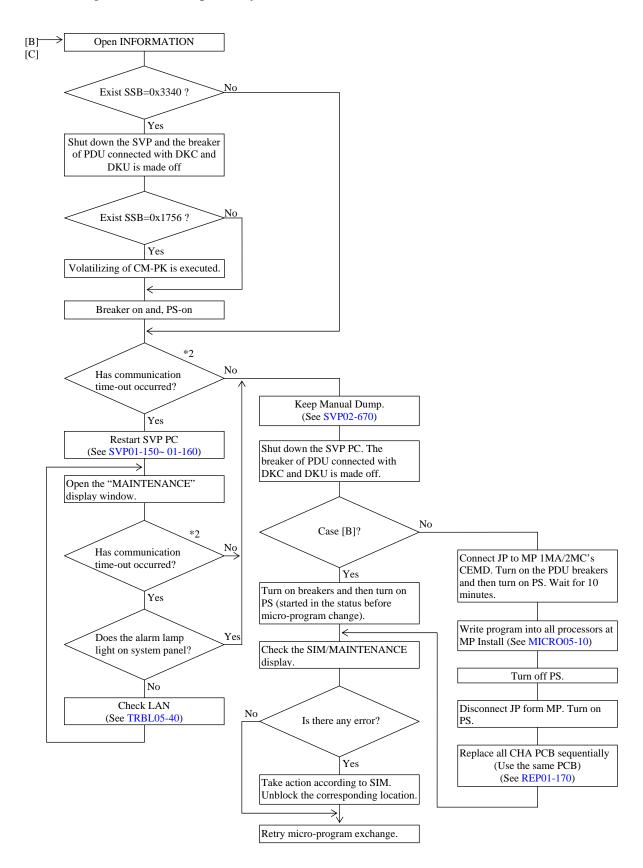
    (iii) MP installation       : "5. MP Install"

    (iv) Package exchange    : "1. Hot Replace" on REPLACE section

    (v)  PC exchange          : "1. Hot Replace" on REPLACE section

[Recovery Procedure for Power Failure]

```
[A] ───→ ┌─────────────────────────────┐
         │ Confirm that SVP is ready,  │
         │ and then turn on PS.        │
         └─────────────────────────────┘
                       │
                       ▼
              ╱───────────────╲
        Yes  ╱  Does the alarm  ╲
       ←─────   lamp light on the 
             ╲  system panel?   ╱
              ╲───────────────╱
                     │ No
                     ▼
         ┌─────────────────────────────┐
         │ Open the "MAINTENANCE"      │
         │ display window.             │
         └─────────────────────────────┘
                     │
                     ▼
              ╱───────────────╲        No
             ╱  Is there any    ╲ ─────────────→
             ╲  blocked         ╱
              ╲  processor?    ╱
               ╲─────────────╱
                     │ Yes
                     ▼
         ┌─────────────────────────────┐
         │        Check SIM            │
         └─────────────────────────────┘
                     │
                     ▼                    *1
              ╱───────────────╲        No
             ╱  Is there any    ╲ ─────────────→
             ╲  SIM having BOOT ╱
              ╲ detection trouble?╱
               ╲─────────────╱
                     │ Yes
                     ▼
```

| Shut down the SVP PC. The breaker of PDU connected with DKC and DKU is made off. | Take action according to SIM. Unblock the corresponding location. |

| Connect JP to MP 1MA/2MC's CEMD. Turn on the PDU breaker and then turn on PS. | Retry micro-program exchange. |

Confirm that SVP is ready, and then turn on PS. Wait for 10 minutes.

Write the program into all processors at MP Install (See MICRO05-10).

Turn off PS.

Disconnect JP from MP. Turn on PS.

[Recovery procedure for communication time-out during system block processing/micro-program downloading/Version incompatibility]

[B] → Open INFORMATION
[C]

Exist SSB=0x3340 ? — No →

Yes ↓

Shut down the SVP and the breaker of PDU connected with DKC and DKU is made off

Exist SSB=0x1756 ? — No →

Yes ↓

Volatilizing of CM-PK is executed.

Breaker on and, PS-on

Has communication time-out occurred? *2 — No →

Yes ↓

Restart SVP PC
(See SVP01-150~ 01-160)

Open the "MAINTENANCE" display window.

Has communication time-out occurred? *2 — No →

Yes ↓

Does the alarm lamp light on system panel? — Yes →

No ↓

Check LAN
(See TRBL05-40)

Keep Manual Dump.
(See SVP02-670)

Shut down the SVP PC. The breaker of PDU connected with DKC and DKU is made off.

Case [B]? — No →

Yes ↓

Turn on breakers and then turn on PS (started in the status before micro-program change).

Check the SIM/MAINTENANCE display.

Is there any error? — No →

Yes ↓

Take action according to SIM. Unblock the corresponding location.

Retry micro-program exchange.

Connect JP to MP 1MA/2MC's CEMD. Turn on the PDU breakers and then turn on PS. Wait for 10 minutes.

Write program into all processors at MP Install (See MICRO05-10)

Turn off PS.

Disconnect JP form MP. Turn on PS.

Replace all CHA PCB sequentially (Use the same PCB)
(See REP01-170)

[Recovery procedure for communication time-out during system recovery processing]

[D] → Open the "MAINTENANCE" display window.

*2
Has communication time-out occurred? — No → Check the SIM/MAINTENANCE display.

Yes ↓

Restart SVP PC (See SVP01-150)

↓

Open the "MAINTENANCE" display window.

*2
Has communication time-out occurred? — No →

Yes ↓

Is any breaker turned off once? — Yes →

No ↓

Shut down the SVP PC. The breaker of PDU connected with DKC and DKU is made off.

↓

Turn on the breakers and then turn on PS.

↓

Is the READY lamp lighting? — Yes →

No ↓

Return old version to file on the SVP HD (See MICRO03-30).

↓

Disconnect JP from MP. Turn on the breaker and then turn on PS. Wait for 10 minutes.

↓

Write the program into all processors at MP Install (See MICRO05-10).

↓

Turn off PS.

---

Check the SIM/MAINTENANCE display.

↓

Is there any error? — No →

Yes ↓

Take action according to SIM. Unblock the corresponding location.

↓

Is there any error? — No → Retry micro-program exchange.

Yes ↓

END

---

Connect JP to MP 1MA/2MC's CEMD. Turn on PS.

↓

Replace all CHA PCB sequentially (Use the same PCB) (See REP01-220 ~ 230)

↓

Turn off PS.

↓

Is there any error? — No →

Yes ↓

Take action according to SIM

↓

End of recovery. Stop exchange of micro-program.

[Recovery Procedure for an error in data transferred to the DKC/AP error/PC error]

[E] → Open INFORMATION

Exist SSB=0x3340 ? — No →

↓ Yes

Shut down the SVP and the breaker of PDU connected with DKC and DKU is made off

Volatilizing of CM-PK is executed.

Breaker on and, PS-on.

*2

Has communication time-out occurred? — No →

↓ Yes

Restart SVP PC
(See SVP01-150)

Open the "MAINTENANCE" display window.

Has communication time-out occurred? — No →

↓ Yes

*2

Is the alarm lamp on DKC panel lighting? — Yes →

↓ No

Check LAN.
(See TRBL05-40)

Is any there blocked processor? — No →

Retry micro-program exchange.

↓ Yes

Exit from the Windows system of the SVP PC.
Turn off the both AC BOXes of the 1st DKU.

Turn on the breakers and then turn on PS.

Go to [A].
(MICRO06-130)

[Recovery Procedure for I/O Error on SVP Hard Disk]

```
[F] ─────►┌────────────────────────┐
           │     Restart the SVP     │
           │    (See SVP01-150)      │
           └────────────────────────┘
                       │
                       ▼                    *3
                  ╱─────────╲
                 ╱ Has the SVP ╲        No
                 ╲ error occurred? ╲──────────┐
                  ╲─────────╱                  │
                       │                       │
                      Yes                      │
                       ▼                       │
           ┌────────────────────────┐          │
           │    Exchange the SVP     │          │
           │ (See REP03-20-10 (Work  │          │
           │      ID=RTC5))          │          │
           └────────────────────────┘          │
                       │◄─────────────────────┘
                       ▼
           ┌────────────────────────┐
           │ Recover files on the SVP.│
           │ (Copy the files from CD-ROM again│
           │ by rerunning FC process.)│
           └────────────────────────┘
                       │
                       ▼
                  Go to [E].
                (MICRO06-160)
```

*1: Reference code "7900XY" or "7901XY"
XY: Shows processor id. (See SIMRC02-540)
For details of the trouble, refer to the explanation about the BOOT detected error at SSB
(Byte27 =8C).
(See SSBLOG05-2190)
*2: The message "connection error occurred SVP-DKC" is displayed.
*3: The message "Please turn off SVP and replace it" is displayed.

<Recovery of a cache failure during the micro-program exchange of DKCMAIN Action>

1.  Retry micro-program exchange of DKCMAIN program.
    - For Version up by Offline FC : Refer to MICRO03-560.
    - For Version up by Online FC : Refer to MICRO04-190.
    - For Version down by Offline FC : Refer to MICRO03-580.
    - For Version down by Online FC : Refer to MICRO04-200.

    <Note>
    - The processors which had finished the micro-program exchange to new version will be skipped.
    - Password is necessary.

2.  Then, replace the failure parts according to SIM message and M.M.

# 7. Config Exchange Procedure

## 7.1 Config Version Up

(1)

It changes into [Modify] mode on the 'SVP' window.

---

(2)

Select (CL) [Install] in the 'SVP' window and select (CL) [Copy Config Files] in the 'Install'.

---

(3)

Select (CL) [Configuration Update] in the 'Copy Config Files'.



---
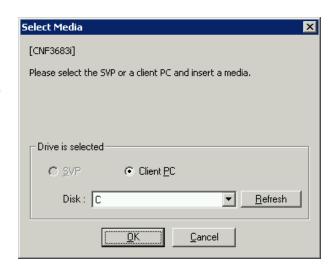
(4)

Insert the media for version up.
Please select (CL) the [Refresh] button, and update drive information.
Select (CL) the drive and the PC in which the media was inserted. Select (CL) the [OK] button.

Note: For the procedure of backing up the configuration information to a CD-R, see page MICRO07-140.

(5)

Copy the configuration information from the
Config media to the SVP.
While this operation is being done, the 'CNFCPY
Wait...' window is displayed.

**CNFCPY Wait...**

c:¥dkc200¥config/cnfdata¥extdev35.dat
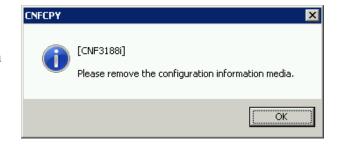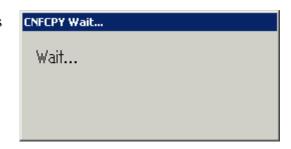
(6)

After the Config media is pulled out, select
(CL) the [OK] in response to the message
"Please remote the configuration information
media.".

**CNFCPY**

[CNF3188i]

Please remove the configuration information media.

OK

(7)

Processing for reflecting composition information is
performed.
In the meantime, the wait window is displayed.
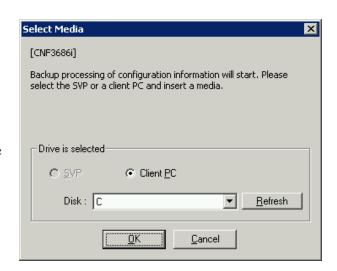
**CNFCPY Wait...**

Wait...

(8)

Execute an operation for backing up the
configuration information.
Prepare the removable media for backup and
insert the media.
Please select (CL) the [Refresh] button, and
update drive information.
Select (CL) the drive and the PC in which the
media was inserted. Select (CL) the [OK]
button.

Note:　For the procedure of backing up the
configuration information to a CD-R,
see page .

**Select Media**

[CNF3686i]

Backup processing of configuration information will start. Please
select the SVP or a client PC and insert a media.

Drive is selected

○ SVP　　　　　⦿ Client PC

Disk : C　　　　　　　　　　Refresh

OK　　　Cancel
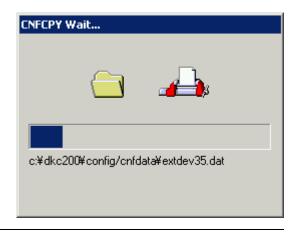
(9)

If you want to continue, select (CL) [Yes].
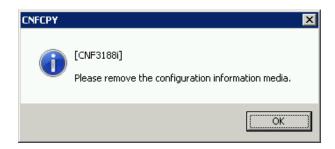
CNFCPY

[CNF3351i]

Data in the Config media will be overwritten due to this operation.
Are you sure you want to continue?

Yes    No

(10)

Back up the configuration information to the
Config media for backup. While this operation is
being done, the 'CNFCPY Wait...' window is
displayed.

CNFCPY Wait...

c:¥dkc200¥config/cnfdata¥extdev35.dat

(11)

After the Config media is pulled out, select
(CL) the [OK] button.

CNFCPY

[CNF3188i]

Please remove the configuration information media.

OK
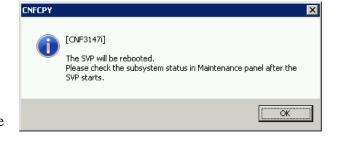
(12)

When Selecting [OK] to the message "The
SVP will be rebooted. Please check the
subsystem status in Maintenance panel after
the SVP starts." SVP PC reboots.

Note: After the SVP reboot, re-connect to the
SVP with the Client PC.

CNFCPY

[CNF3147i]

The SVP will be rebooted.
Please check the subsystem status in Maintenance panel after the
SVP starts.

OK

(13)

After SVP PC starts, select (CL) [MAINTENANCE] in the 'SVP' windows (See SVP03-10).

## 7.2 Config Backup

(1)

It changes into [Modify] mode on the 'SVP' window.

(2)

Select (CL) [Install] in the 'SVP' window and select (CL) [Copy Config Files] in the 'Install'.

(3)

Select (CL) [Create Configuration Backup] in the 'Copy Config Files'.



(4)

Execute an operation for backing up the configuration information.
Prepare the removable media for backup and insert the media.
Please select (CL) the [Refresh] button, and update drive information.
Select (CL) the drive and the PC in which the media was inserted. Select (CL) the [OK] button.

Note: For the procedure of backing up the configuration information to a CD-R, see page .



(5)
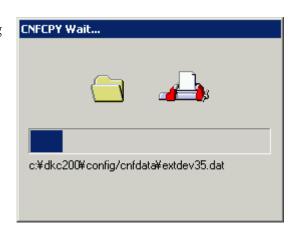
When you want to continue the process, select the [Yes] button. When the backup to the Config media is not necessary, select the [No] button.

(6)

Backup the configuration information to the Config media for backup. While this operation is being done, the 'CNFCPY Wait...' window is displayed.

**CNFCPY Wait...**

c:¥dkc200¥config/cnfdata¥extdev35.dat

(7)

After the Config media is pulled out, select (CL) the [OK] in response to the message "Please remove the configuration information media.".

**CNFCPY**

[CNF3188i]

Please remove the configuration information media.

OK

(8)

Select (CL) [Exit] of the 'Copy Config Files' to finish this operation.

(9)

It changes into [View] mode on the 'SVP' window.

## 7.3 Define Configuration & Install

(1)

It changes into [Initial Setting] mode on the 'SVP' window.
(Press the [Shift] + [Ctrl] + [I] keys, and enter the password and select (CL) [OK].)
Select (CL) [Install] in the 'SVP' window and select (CL) [Copy Config Files] in the 'Install'.

Note:  The mode changes to [Initial Setting (Unlocked)] when the subsystem is in CE MODE.

(2)

Select (CL) [All Configuration Files...] in the 'Copy Config
Files'.
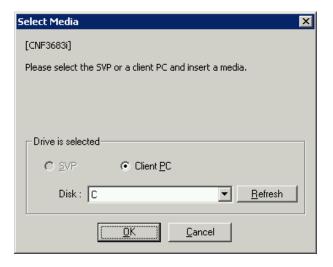
(3)

Insert the media.
Please select (CL) the [Refresh] button, and
update drive information.
Select (CL) the drive and the PC in which the
media was inserted. Select (CL) the [OK]
button.

Note:  For the procedure of backing up the
       configuration information to a CD-R,
       see page MICRO07-140.

(4)
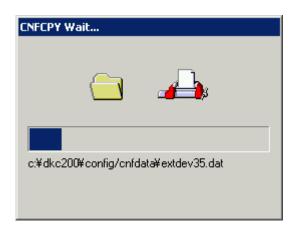
Copy the configuration information from the
Config media to the SVP.
While this operation is being done, the 'CNFCPY
Wait...' window is displayed.



(5)

After the Config media is pulled out, select
(CL) the [OK] in response to the message
"Please remove the configuration information
media.".



(6)

Select (CL) [Exit] of the 'Copy Config Files', and execute 'Define Configuration & Install' (go
to INST05-80).

## 7.4 Restoring Configuration Information

(1)

It changes into [Initial Setting] mode on the 'SVP' window.
(Press the [Shift] + [Ctrl] + [I] keys and select (CL) the [OK] button after entering a password.)
Then select (CL) [Install]. Select (CL) [Copy Config Files] in the 'Install' window.

---

(2)

Select (CL) [Restore Configuration] in the 'Copy Config Files' window.

| Copy Config Files |
| --- |
| Configuration Update |
| All Configuration Files |
| Create Configuration Backup |
| Restore Configuration |
| Exit |

---

(3)

Select (CL) the configuration information to be restored. When restoring the configuration information using the Configuration Information media, select "Backup Config Media" and select (CL) the [OK] button. When restoring the configuration information using the configuration information backup data stored in a hard disk of the SVP, select "HDD Backup Data", and then select (CL) the [OK] button.

**Select Restore Data**

[CNF3685i]

Restoration processing of configuration information will start. Please select the data for restoration.

Select Restore Data
- ● Backup Config Media
- ○ HDD Backup Data

[ OK ]    Cancel[X]

When you have selected the "Backup Config Media", go to Step (4).
When you have selected the "HDD Backup Data", go to Step (5).
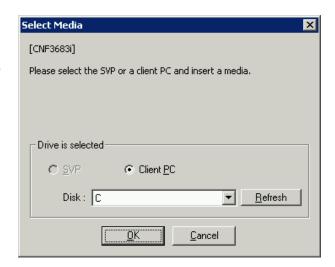
(4)

Insert the media
Please select (CL) the [Refresh] button, and update drive information.
Select (CL) the drive and the PC in which the media was inserted. Select (CL) the [OK] button.
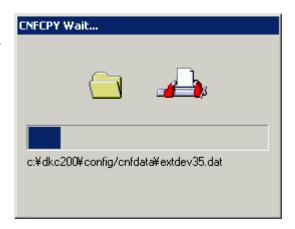
Note:　For the procedure of backing up the configuration information to a CD-R, see page MICRO07-140.



(5)
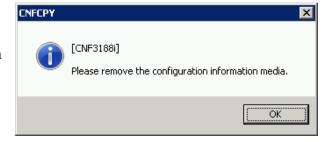
Make a copy of the configuration information. During the copying, the 'CNFCPY Wait...' window is displayed.



(6)

Since a message shown in the figure on the left is displayed when the "Config FD" is selected in Step (3), pull off the Configuration Information media, and then select (CL) the [OK] button.
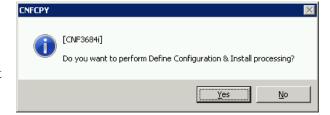


(7)

When you restore the configuration information successively, select (CL) the [Yes].
When you want to abort the restoration, select (CL) the [No].
When you have selected [Yes], go to Step (8).

(8)
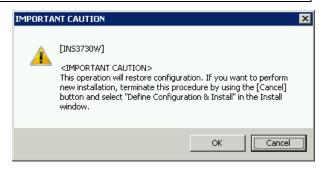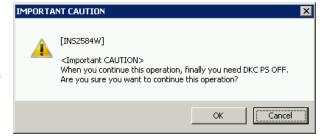
> ⚠ **CAUTION**
>
> This is a special (exceptional) operation that requires entry of a password and may cause a serious failure such as a system down and a data loss if executed in a case other than the restoration of the configuration information. Ask the Technical Support Division for propriety of the operation and enter a password after the performance of the operation is approved by the Technical Support Division.

Select (CL) the [OK] button in response to the cautionary message, "<IMPORTANT CAUTION> This operation will restore configuration. If you want to perform new installation, terminate this procedure by using the [Cancel] button and select "Define Configuration & Install" in the Install window.".

IMPORTANT CAUTION

[INS3730W]

<IMPORTANT CAUTION>
This operation will restore configuration. If you want to perform new installation, terminate this procedure by using the [Cancel] button and select "Define Configuration & Install" in the Install window.

OK    Cancel

(9)

Select (CL) the [OK] button in response to the confirmatory message, "<Important CAUTION> When you continue this operation, finally you need DKC PS OFF. Are you sure you want to continue this operation?".

IMPORTANT CAUTION

[INS2584W]

<Important CAUTION>
When you continue this operation, finally you need DKC PS OFF. Are you sure you want to continue this operation?

OK    Cancel

(10)

Select (CL) the [OK] button in response to the confirmatory message, "<Important CAUTION> When you continue this operation, customer's DATA is LOST. Are you sure you want to continue this operation?".

IMPORTANT CAUTION

[INS2585W]

<Important CAUTION>
When you continue this operation, customer's DATA is LOST. Are you sure you want to continue this operation?

OK    Cancel
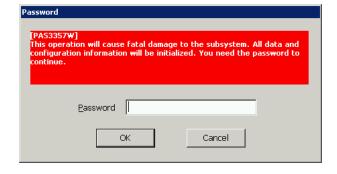
(11)

Enter a password and select (CL) the [OK] button.
To perform this operation, an entry of a password is required. For the password, ask the Technical Support Division.

Password

[PAS3357W]
This operation will cause fatal damage to the subsystem. All data and configuration information will be initialized. You need the password to continue.

Password  [            ]

OK    Cancel
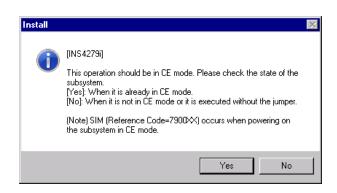
(12)

Response to the message "This operation should be in CE mode. Please check the state of the subsystem.
[Yes]: When it is already in CE mode.
[No]: When it is not in CE mode or it is executed without the jumper.
(Note) SIM (Reference Code=7900XX) occurs when powering on the subsystem in CE mode.".
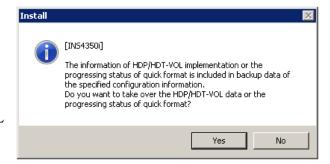


Note:  When information of HDP/HDT-VOL implementation or progressing state of quick format is not included, go to Step (14).

(13)

Response to the message "The information of HDP/HDT-VOL implementation or the progressing status of quick format is included in backup data of the specified configuration information.
Do you want to take over the HDP/HDT-VOL data or the progressing status of quick format?".



When you take over the data, select (CL) [Yes].
When you do not take over the data, select (CL) [No].
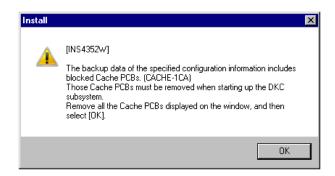
(14)

"The backup data of the specified
configuration information includes blocked
Cache PCBs. (CACHE-nnn)
Those Cache PCBs must be removed when
starting up the DKC subsystem.
Remove all the Cache PCBs displayed on the
window, and then select [OK]." is displayed.

Note:  When there is not a blocked part in Cache PCB, this message is not displayed.

(15)
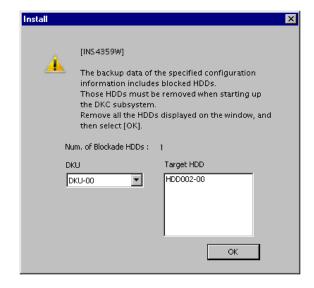
"The backup data of the specified configuration
information includes blocked HDDs.
Those HDDs must be removed when starting up
the DKC subsystem.
Remove all the HDDs displayed on the window,
and then select [OK]." is displayed.

Select the DKU list and remove the target
HDD(s) because two or more DKU might be
listed.

Note:  When there is not a blocked HDD, this
        message is not displayed.

(16)
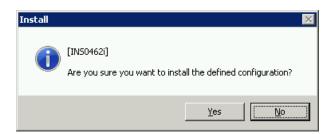
> The window for subsystem configuration information reference, in which the configuration information is to be restored, is displayed.
> For details of the subsystem configuration information reference window, refer to "3. <DKC Configuration window>" and following steps in Subsection "5.2.4, Refer Configuration" (INST05-510).

---

(17)
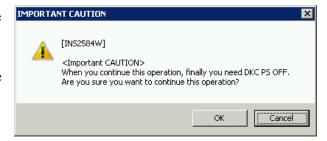
> Select (CL) the [Yes] button in response to the confirmatory message, "Are you sure you want to install the defined configuration?".
>
> (When the [No] button is selected, the restoration of the configuration information is suppressed and the procedure for the restoration is terminated.)

Install

[INS0462i]

Are you sure you want to install the defined configuration?

Yes    No

---

(18)

> Select (CL) the [OK] button in response to the confirmatory message, "<Important CAUTION> When you continue this operation, finally you need DKC PS OFF. Are you sure you want to continue this operation?".

IMPORTANT CAUTION

[INS2584W]

<Important CAUTION>
When you continue this operation, finally you need DKC PS OFF.
Are you sure you want to continue this operation?

OK    Cancel

---

(19)

> Select (CL) the [OK] button in response to the confirmatory message, "<Important CAUTION> When you continue this operation, customer's DATA is LOST. Are you sure you want to continue this operation?".

IMPORTANT CAUTION

[INS2585W]

<Important CAUTION>
When you continue this operation, customer's DATA is LOST. Are you sure you want to continue this operation?

OK    Cancel
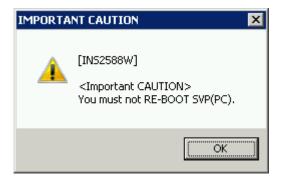
(20)

Select (CL) the [OK] button in response to the confirmatory message, "<Important CAUTION> When you select [OK] button, you can't cancel this operation. Are you sure you want to continue this operation? If you terminate this operation by some forcible method, the subsystem be in UNRECOVERABLE SERIOUSLY DAMAGE.".

IMPORTANT CAUTION                                                    ✕

⚠   [INS2587W]

    <Important CAUTION>
    When you select [OK] button, you can't cancel this operation. Are
    you sure you want to continue this operation?
    If you terminate this operation by some forcible method, the
    subsystem be in UNRECOVERABLE SERIOUSLY DAMAGE.

                                    OK          Cancel

(21)
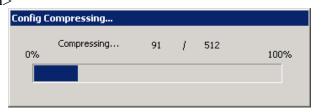
Select (CL) the [OK] button in response to the cautionary message, "<Important CAUTION> You must not RE-BOOT SVP(PC).".

IMPORTANT CAUTION                                ✕

⚠   [INS2588W]

    <Important CAUTION>
    You must not RE-BOOT SVP(PC).

                              OK

(22) <Compressing of the configuration information>
   The configuration information is compressed.
   The dialog of 'Config Compressing...' is
   displayed. After the compressing is
   completed, go to Step (24)
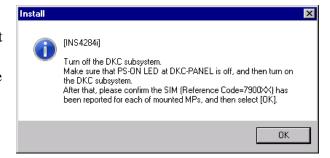
   Note:  However, on page MICRO07-101 (12),
          it advances to Step (23) when [No] is selected (CL).
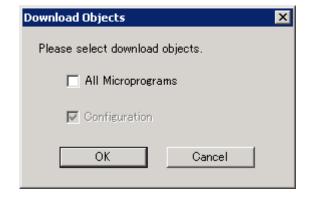
(23)
   Select (CL) [OK] in response to the message
   "Turn off the DKC subsystem. Make sure that
   PS-ON LED at DKC-PANEL is off, and then
   turn on the DKC subsystem. After that, please
   confirm the SIM (Reference Code=7900XX)
   has been reported for each of mounted MPs,
   and then select [OK].".
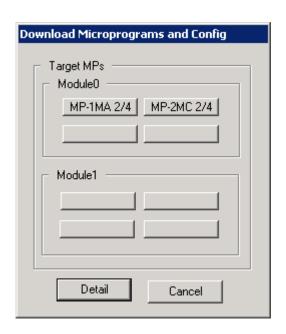
(24) <Download Objects window>
   Select (CL) the [OK] button.

   Note:  Please do not select (CL) [All
          Microprograms].
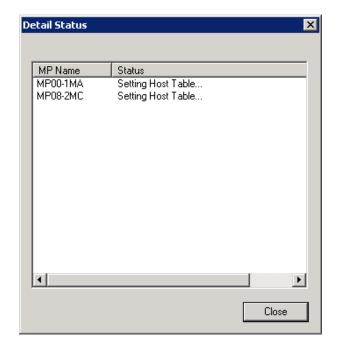
(25) <Configuration information transfer>
    The configuration information is forwarded.
    After the forward is completed, go to Step (26).
    Select (CL) the [Detail] button. Go to Step (25)-1.

(25)-1
    Details of transfer situation are confirmed on
    'Detail Status' window.
    When you close the 'Detail Status' window,
    select (CL) the [Close] button.
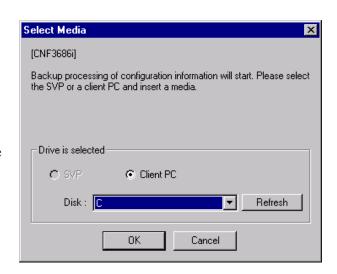
(26)

Execute an operation for backing up the
configuration information.
Prepare the removable media for backup and
insert the media.
Please select (CL) the [Refresh] button, and
update drive information.
Select (CL) the drive and the PC in which the
media was inserted. Select (CL) the [OK]
button.

Note:  For the procedure of backing up the
       configuration information to a CD-R,
       see page .

**Select Media** ✕

[CNF3686i]

Backup processing of configuration information will start. Please select
the SVP or a client PC and insert a media.

┌─ Drive is selected ──────────────────────┐
│                                            │
│   ○ SVP          ⊙ Client PC               │
│                                            │
│   Disk : [C        ▼]    [ Refresh ]       │
└────────────────────────────────────────────┘

[ OK ]    [ Cancel ]

(27)

When this procedure is completed, the
message "Please remove the configuration
information media." is displayed.
Remove the configuration information media,
and then select (CL) the [OK] button.

**CNFCPY** ✕

ⓘ  [CNF3188i]

Please remove the configuration information media.

[ OK ]
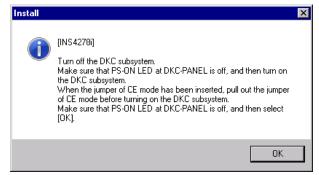
(28)

"Reconstructing device information..." is displayed.

**Install**

Reconstructing device
information...

(29)

Select (CL) [OK] in response to the message
"Turn off the DKC subsystem. Make sure that
PS-ON LED at DKC-PANEL is off, and then
turn on the DKC subsystem. When the jumper
of CE mode has been inserted, pull out the
jumper of CE mode before turning on the
DKC subsystem. Make sure that PS-ON LED
at DKC-PANEL is on, and then select [OK].".

**Install** ✕

ⓘ  [INS4278i]

Turn off the DKC subsystem.
Make sure that PS-ON LED at DKC-PANEL is off, and then turn on
the DKC subsystem.
When the jumper of CE mode has been inserted, pull out the jumper
of CE mode before turning on the DKC subsystem.
Make sure that PS-ON LED at DKC-PANEL is off, and then select
[OK].

[ OK ]

(30)

Select (CL) the [OK] button in response to the message, "This will reboot SVP.".

Note: Although the DKC is powered off, the SVP is neither powered off nor rebooted.



(31)

Execute the Config Version UP (MICRO07-10) with a media that is used in this operation.
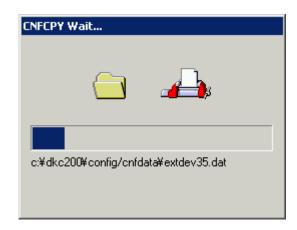
## 7.5 Storing a backup of configuration information (config) to a CD-R

(1)

To store a backup of the config, prepare a blank CD-R.

(2)

If the DKC200 directory exists in the root of the hard disk (C drive) of the client PC to which the backup of the config is stored temporarily, delete the DKC200 directory.

(3)

Perform the backup processing of the config. Select the drive (C drive) prepared in (2).



(4)

The backup processing is performed. The 'CNFCPY Wait...' window appears.

(5)

Select (CL) the [OK] button.



(6)

The DKC200 directory exists in the root of the drive (C drive) specified in (3). Use the CD writing tool to copy the DKC200 directory to the root directory of the CD-R, which was prepared in (1).
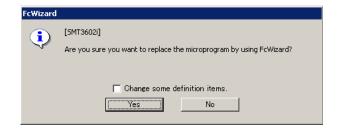
# 8. Microprogram Exchange Wizard

Only inserting the CD-ROM and execute the Microprogram-Exchange-Wizard, micro-program are exchanged automatically according to the contents of the definition.

---

### ⚠ CAUTION

Perform the micro-program exchange when MP processing rate is less than 50%. If the MP processing rate is 50% or higher, micro-program exchange may end abnormally.

---

• The starting method

(1)

Connect the Client PC to the SVP PC.

---

(2)

Insert CD-ROM that the micro-program was stored in the CD-ROM drive of the Client PC.

---

(3)

Change the SVP mode to [Modify].

---

(4)

Select (CL) [FcWizard].

---

(5)

The message "Are you sure you want to replace the microprogram by using FcWizard?" appears.
Select (CL) [Yes].



If you check (CL) the "Change some definition items" these following dialog appears and you can change some definition of the micro-program exchange.

[Reboot processor] dialog
If the target micro-programs contains DKCMAIN or RAMBOOT, you can select (CL) processors' reboot pattern.
Refer to 4.2 (7).
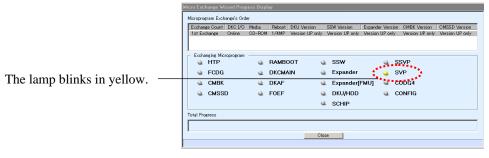
(6)

According to the contents of the definition file stored in the CD-ROM, micro-program is exchanged automatically (If you change some definitions FcWizard follows those.).

---
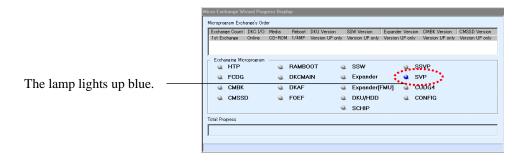
**⚠ CAUTION**

When Including FOE PCB and Current version and New version is different, Exchanging the FOEF micro-program display confirmation message screen of switching FOE alternant path. It is necessary to respond by manual operation. See detailed procedure of "4.3.1 (2) <Replacement of the FOEF micro-program>".

---

(7)

The progress dialog is displayed upper left, and the lamp of the micro-program under execution blinks in yellow.

The lamp blinks in yellow. ——— 

(8)

The lamp of the micro-program exchanged normally lights up blue.

The lamp lights up blue. ———
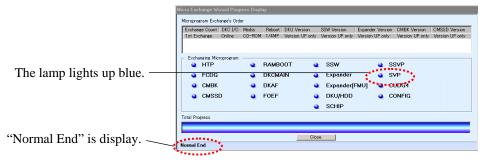
(9)

After the micro-program exchange, [Close] button is displayed.
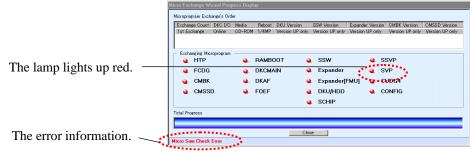
Normal End:

After all micro-program exchange finish, "Normal End" is displayed on the dialog lower left.

The lamp lights up blue. ────

"Normal End" is display. ────

Abnormal End:

The lamp of micro-program lights up red, and the error information is displayed on the dialog lower left.

The lamp lights up red. ────

The error information. ────

| Error information | Action |
|---|---|
| MP Reboot stop, Due to heavy I/O load | The micro-program exchange is stopped because MP processing rate is 50% or higher. Reduce the MP processing rate less than 50% and then retry the micro-program exchange. |
| Micro Version Error | The micro-program version is incorrect. Confirm the version. |
| Micro Sum Check Error | Sum check code is incorrect. Micro-program data in micro-media isn't correct. Exchange the micro-media. |
| Micro Revision Error | The micro-program revision is incorrect. Confirm the revision. |
| Micro Combination Error | If you perform the micro-program exchange with the combination of these micro-program versions, DKC/HDU may be partially blocked. Confirm the micro-program versions and exchange procedure. |
| Micro Media Error | The micro-media has an error. Replace the micro-media. |
| Errors other than above | Confirm 'SIM/Maintenance' window, remove the error and then retry the micro-program exchange. |

(10)

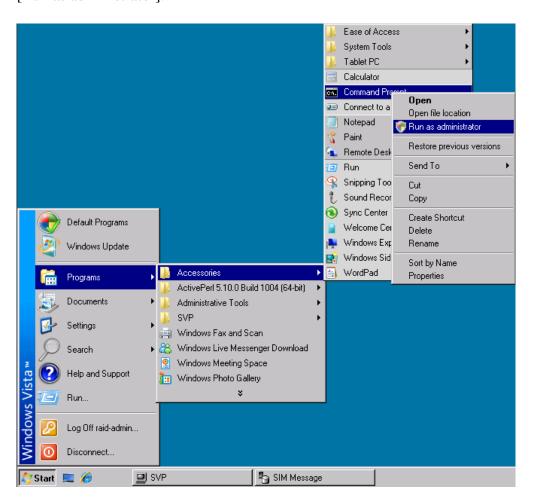After confirming the message, push the [Close] button and end.

(11)

Change the SVP mode to [View].

# 9. Version upgrade of RAID Manager (SVP)

The procedure of the upgrade of RAID Manager installed in SVP is shown. Especially, work concerned is unnecessary execution when there is no instruction from the factory.

(1)

Insert the micro-program media.
Insert the micro-program media into the CD-ROM drive in the console PC.

(2)

Start the command prompt with the Administrator authority.
Select (CL) [Start]-[Programs]-[Accessories], right-click [Command Prompt], and select (CL) [Run as administrator].
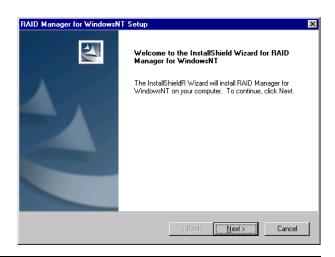
(3)

    Start the installer.

    Enter "\\tsclient\D\RM\Setup.exe /SVP" in the command prompt and press the Enter key.

    (Enter a space before /SVP).
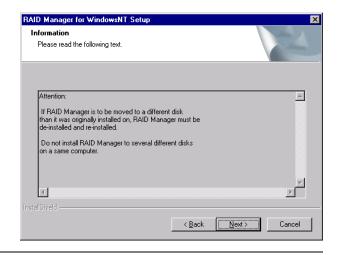
    Note:  The format of the input value is "\\tsclient\<Drive name>\ RM\Setup.exe /SVP". Use the name of the drive in which the media is inserted. In the example above, the media is inserted in the D drive.

---

(4)

    Move to the next dialog box.

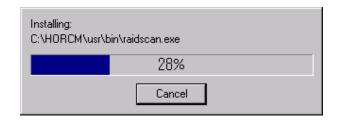    The 'RAID Manager for WindowsNT Setup' dialog box appears. Select (CL) [Next>].



---

(5)

    Move to the next dialog box.

    Select (CL) [Next >].
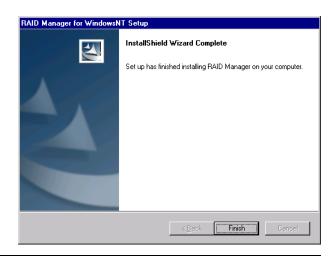


---

(6)

    Wait for the installation to complete.



---

(7)

Complete the installation operation.
Select (CL) [Finish].



(8)

Reboot SVP.
Select (CL) [Start]-[Run...].
Enter "shutdown /r /t 0" and select (CL) [OK].
SVP reboots.

Note:  If the SVP High Reliability kit is installed, you need to install it in the standby SVP by
using the same procedure. For the procedure of switching to the standby SVP, see "2.18
SVP Switching" in the SVP SECTION.

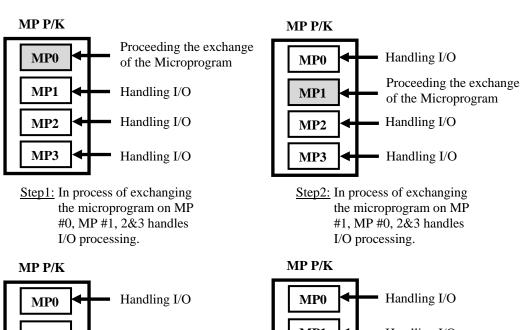# 10. Microprogram Exchange with Non Stop SCSI Host

## 10.1 Outline

The exchange of the microprogram can be done without making a host connected to the CHF stop issuing I/O instructions. (That is to say, microprogram replacement with Non Stop SCSI Host is possible.)
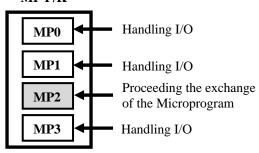The exchange of the microprogram is possible without a fail-over even for a configuration with an alternative path.

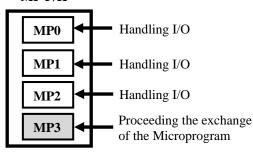| Method | Specification |
|---|---|
| ONLINE Microprogram exchange | DKC proceeds the exchange of the microprogram without stopping host I/O on single SCSI path. |

## 10.2 Procedure for exchanging the Microprogram

One microprocessor ; MP proceeds the exchange of the microprogram and the other 3MPs handle I/O in each MP P/K. DKC make possible to exchange the microprogram without stopping host I/O by repeating this process sequentially for 4MPs.

**MP P/K**

MP0 ← Proceeding the exchange of the Microprogram

MP1 ← Handling I/O

MP2 ← Handling I/O

MP3 ← Handling I/O

Step1: In process of exchanging the microprogram on MP #0, MP #1, 2&3 handles I/O processing.

**MP P/K**

MP0 ← Handling I/O

MP1 ← Proceeding the exchange of the Microprogram

MP2 ← Handling I/O

MP3 ← Handling I/O

Step2: In process of exchanging the microprogram on MP #1, MP #0, 2&3 handles I/O processing.

**MP P/K**

MP0 ← Handling I/O

MP1 ← Handling I/O

MP2 ← Proceeding the exchange of the Microprogram

MP3 ← Handling I/O

Step3: In process of exchanging the microprogram on MP #2, MP #0, 1&3 handles I/O processing.

**MP P/K**

MP0 ← Handling I/O

MP1 ← Handling I/O

MP2 ← Handling I/O

MP3 ← Proceeding the exchange of the Microprogram

Step4: In process of exchanging the microprogram on MP #3, MP #0, 1&2 handles I/O processing.

## 10.3 Notes on the exchange of Microprogram

If Non Stop SCSI Microprogram exchanging will be performed, please confirm that the following conditions are met.

| Condition | Action | Influences |
|---|---|---|
| All of MP processing rate in DKC is less than 50%. | The exchange is possible. | Nothing. |
| MP processing rate larger than 50% with one or more MP in DKC. | Please explain the influence that the exchange gives in highly processing rate and contents of a necessary action.<br>Please let the customer choose an action when a message to judge the continuation possible or not was displayed. | • Some event should be logged on host servers.<br>• Host server may be looked like in a state such as the hung up for I/O time-out.<br>• In case of multi path configuration, fail-over will be occurred.<br>• JOB will be in abnormal end. |

## 10.4 Notice on Microprogram Exchange

10.4.1 Notice in case of applying P.P.

It is impossible to perform Pair operation and RCU operation of TrueCopy and PPRC command cannot work in term of the Microprogram exchange is processing. Please do not perform those operations in this term.

# 11. Procedure of the FOEF Micro-program Exchange by Alternate Path

## 11.1 Overview

With Fibre Channel over Ethernet (FCoE), when updating the revision of the FOEF micro-program, the path connected to the host is disconnected temporarily during the micro-program exchange. To perform the micro-program exchange without stopping I/O from the host connected with FCoE, use the alternate path function of the host and perform the FOEF micro-program exchange for each cluster. In addition, FCoE package (FOE PCB) is called as CHG (CHannel of Gigabit ethernet).

Basically only the DKCMAIN micro-program and the FOEF micro-program that are stored in the same medium (CD-ROM medium) can run in combination.

## 11.2 Confirming the alternate path in advance

It is necessary that the alternate path is configured properly and path switching works at the time of the exchange. Confirm with the customer and the customer SE.
For how to confirm the alternate path, see Table 11.5-1.

## 11.3 Micro-program exchange type

HP-UX, Solaris, AIX, Windows, Red Hat Linux: Alternate SCSI Path mode.

## 11.4 Restrictions

(1) Confirm that the alternate path is set properly.
(2) Online exchange can be performed only when both the primary path and the alternate path are normal.
   If the paths have any problem, recover them and then perform the online exchange.
(3) Stop I/O to LDEV, in which no alternate path is set, in advance.
(4) In the case of Dual Active, one path may have too much load during the micro-program exchange or the FOEF micro-program exchange. Perform the exchange carefully by choosing the time period when the host load is low, for example.
(5) If RAID Manager is used in the Path Manager environment of Windows OS, the alternate path function is not supported, so shut down RAID Manager.
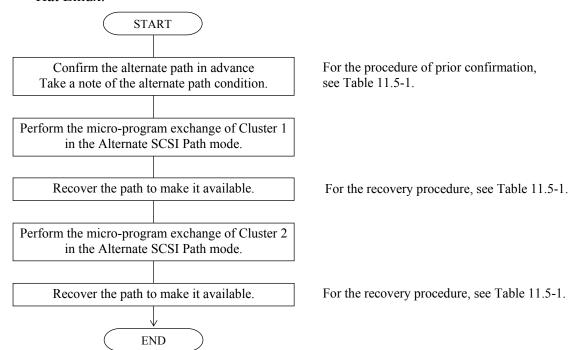
## 11.5 Procedure of online micro-program exchange

(1) Procedure of the FOEF micro-program exchange for HP-UX, Solaris, AIX, Windows, and Red Hat Linux.

```
                    ┌─────────────────┐
                    │      START      │
                    └─────────────────┘
                             │
    ┌─────────────────────────────────────────┐
    │  Confirm the alternate path in advance   │     For the procedure of prior confirmation,
    │ Take a note of the alternate path condition. │   see Table 11.5-1.
    └─────────────────────────────────────────┘
                             │
    ┌─────────────────────────────────────────┐
    │ Perform the micro-program exchange of Cluster 1 │
    │      in the Alternate SCSI Path mode.    │
    └─────────────────────────────────────────┘
                             │
    ┌─────────────────────────────────────────┐
    │   Recover the path to make it available. │      For the recovery procedure, see Table 11.5-1.
    └─────────────────────────────────────────┘
                             │
    ┌─────────────────────────────────────────┐
    │ Perform the micro-program exchange of Cluster 2 │
    │      in the Alternate SCSI Path mode.    │
    └─────────────────────────────────────────┘
                             │
    ┌─────────────────────────────────────────┐
    │   Recover the path to make it available. │      For the recovery procedure, see Table 11.5-1.
    └─────────────────────────────────────────┘
                             │
                    ┌─────────────────┐
                    │       END       │
                    └─────────────────┘
```

Table 11.5-1  Alternate path confirmation procedure and recovery confirmation procedure (1/8)

| No. | Platform | Alternate path confirmation procedure | Recovery procedure |
|-----|----------|---------------------------------------|--------------------|
| 1 | HP | [PVLink]<br>Use the command "vgdisplay -v" to display and check the path status (Pstate) of all devices (LUs).<br>Confirm that "PV Name" is displayed as Alternate Link and the Status is available.<br><br>○When switching a path, the following message is output.<br><br>(1)  When a path is switched<br>  vmunix:  SCSI: Async write error -<br>  vmunix:  SCSI: Read error --<br>  vmunix:  LVM: Performed aswitch for LUN ID ...<br>  vmunix:  LVM: Recovered Path ...<br>  vmunix:  LVM: vg[18]: pvnum = 1 is POWERFAILED<br><br>(2)  When a path is recovered<br>  vmunix:  LVM: Restored PV 0 to VG 19 | [PVLink]<br>Auto recovery<br>Use the command "vgdisplay -v" to display and check the path status (Pstate) of all devices (LUs). |

Table 11.5-1 Alternate path confirmation procedure and recovery confirmation procedure (2/8)

| No. | Platform | Alternate path confirmation procedure | Recovery procedure |
|---|---|---|---|
| 1 | HP | [HDLM]<br>Use the command "dlnkmgr view -path" to check the status of all adapters.<br>Perform the following operation according to the adapter status.<br><br>• All ONLINE ------- All paths are available. After recording this status, perform the micro-program exchange or the CHG exchange.<br>• All OFFLINE ------ A path has a failure. After removing the path failure, place the path online by following the recovery procedure described in this table.<br><br>○When switching a path, the following message is output.<br><br>(1) When a path is switched<br>  dlmmgr: KAPL08019-E<br>      The path detected an error.<br>  dlmmgr: KAPL08022-E<br>      A path error occurred.<br><br>(2) When a path is recovered<br>  dlmmgr: KAPL01022-1<br>      8path (s) were processed.<br>      Operation name = online<br>  dlmmgr: KAPL01001-1<br>      The HDLM command completed normally.<br>      Operation name = online | [HDLM]<br>Step (1):<br>Perform the FOEF micro-program exchange in one cluster.<br><br>Step (2):<br>Check the number of the offline adapter by using the command "dlnkmgr view -path".<br><br>Step (3):<br>If the path is not recovered automatically, execute the command "dlnkmgr online -pathid x -s". ('x' here indicates the number of the adapter in which the micro-program exchange was performed)<br><br>Step (4):<br>Confirm that the status of all adapters is restored to ONLINE by using the command "dlnkmgr view -path". Perform Steps (1) to (4) also in another cluster.<br><br>• All ONLINE --- All paths are available.<br>• All OFFLINE-- A path has a failure. After performing the micro-program exchange or the CHG exchange, and the path is recovered, start from Step (1) again. Or after removing the path failure, start from Step (1) again. |

Table 11.5-1  Alternate path confirmation procedure and recovery confirmation
procedure (3/8)

| No. | Platform | Alternate path confirmation procedure | Recovery procedure |
|-----|----------|---------------------------------------|---------------------|
| 2 | Solaris | [VxVM DMP]<br>Use the VxVM command "vxdisk list *diskxx*" or "vxdisk list *cxtxdxsx*" to display and check the path status of all devices (LUs). Perform the following operation according to the path status.<br><br>• Disabled ----- A path has a failure (or after the micro-program exchange or the CHG exchange, the path is not recovered yet). After removing the failure, check the path status again by performing the procedure.<br>• Enabled ------ After recording this status, perform the micro-program exchange or the CHG exchange.<br><br>Note: If there is at least one disabled path, do not perform online micro-program exchange or CHG exchange. Make sure to remove the failure first and then perform the micro-program exchange.<br><br>○When switching a path, the following message is output.<br><br>(1)  When a path is switched<br>　vxdmp:   Path failure on 32/0x17dd4<br>　vxvm: vxdmp:  disabled path 32/0x17dd0<br>　　　　　　　　belonging to the dmpnode<br>　　　　　　　　106/0x20.<br><br>(2)  When a path is recovered<br>　vxvm: vxdmp:  disabled path 32/0x17db8<br>　　　　　　　　belonging to the dmpnode<br>　　　　　　　　106/0x8. | [VxVM DMP]<br>Step (1):<br>Use the VxVM command "vxdmpadm enablectlr = cx (cx: Controller number)" to make the disabled path available.<br><br>Step (2):<br>Use the command "vxdisk list *diskxx*" or "vxdisk list *cxtxdxsx*" to confirm that all devices are enabled ( = Initial state). If there is any disabled path remaining, start from Step (1) again. |

Table 11.5-1  Alternate path confirmation procedure and recovery confirmation
procedure (4/8)

| No. | Platform | Alternate path confirmation procedure | Recovery procedure |
|---|---|---|---|
| 2 | Solaris | [SUN StorEdge Traffic Manager (MpxIO)]<br>Confirm the current alternate path.<br>luxadm display/dev/rdsk/cxtxdxsx ----<br>(For cxtxdxsx, enter devicename that is displayed by the format command and check the status of all devices.)<br><br>• ONLINE----- All paths are available. After recording this status, perform the micro-program exchange or the CHG exchange.<br>• OFFLINE --- A path has a failure.<br><br>○When switching a path, the following message is output.<br><br>(1)  When a path is switched<br> e4500-2 SCSI transport failed: reason 'aborted': retrying command<br> mpxio: ...Device name multipath status: degraded, path ...to target address: WWN, 6 is offline.<br><br>(2)  When a path is recovered<br> multipath status: optimal, path ... to target address: WWN, 7 is online. | [SUN StorEdge Traffic Manager (MpxIO)]<br>Auto recovery<br>luxadm display/dev/rdsk/cxtxdxsx ----<br>(For cxtxdxsx, enter devicename that is displayed by the format command and check the status of all devices.) |

Table 11.5-1  Alternate path confirmation procedure and recovery confirmation procedure (5/8)

| No. | Platform | Alternate path confirmation procedure | Recovery procedure |
|-----|----------|---------------------------------------|--------------------|
| 2 | Solaris | [HDLM]<br>Use the command "dlnkmgr view -path" to check the status of all adapters.<br>Perform the following operation according to the adapter status.<br><br>• All ONLINE ------- All paths are available. After recording this status, perform the micro-program exchange or the CHG exchange.<br>• All OFFLINE ------ A path has a failure. After removing the path failure, place the path online by following the recovery procedure described in this table.<br><br>○When switching a path, the following message is output.<br><br>(1)  When a path is switched<br>  dlmmgr: KAPL08019-E<br>          The path detected an error.<br>  dlmmgr: KAPL08022-E<br>          A path error occurred.<br><br>(2)  When a path is recovered<br>  dlmmgr: KAPL01022-1<br>          8path (s) were processed. Operation name = online<br>  dlmmgr: KAPL01001-1<br>          The HDLM command completed normally. Operation name = online | [HDLM]<br>Step (1):<br>Perform the FOEF micro-program exchange in one cluster.<br><br>Step (2):<br>Check the number of the offline adapter by using the command "dlnkmgr view -path".<br><br>Step (3):<br>If the path is not recovered automatically, execute the command "dlnkmgr online -pathid x -s". ('x' here indicates the number of the adapter in which the micro-program exchange was performed)<br><br>Step (4):<br>Confirm that the status of all adapters is restored to ONLINE by using the command "dlnkmgr view -path". Perform Steps (1) to (4) also in another cluster.<br><br>• All ONLINE --- All paths are available.<br>• All OFFLINE-- A path has a failure. After performing the micro-program exchange or the CHG exchange, and the path is recovered, start from Step (1) again. Or after removing the path failure, start from Step (1) again. |

Table 11.5-1  Alternate path confirmation procedure and recovery confirmation procedure (6/8)

| No. | Platform | Alternate path confirmation procedure | Recovery procedure |
|---|---|---|---|
| 3 | Windows | [Multi-path I/O]<br>In the property window of Multi-Path Disk Device in Windows, select the [MPIO] tab and confirm the status of all paths. After that, perform the following operation according to the status.<br><br>• All ONLINE ------- All paths are available. After recording this status, perform the micro-program exchange.<br>• All OFFLINE ------ A path has a failure. After removing the path failure, perform the micro-program exchange. | [Multi-path I/O]<br>Step (1):<br>Perform the FOEF micro-program exchange in one cluster.<br><br>Step (2):<br>In the property window of Multi-Path Disk Device in Windows, select the [MPIO] tab and check if there is any OFFLINE path.<br><br>Step (3):<br>Confirm that the OFFLINE path found in Step (2) is automatically recovered. If it is not recovered, remove the path failure.<br><br>Step (4):<br>Confirm that all paths are restored to ONLINE and perform Steps (1) to (4) also in another cluster.<br><br>• All ONLINE --- All paths are available. After recording this status, perform the micro-program exchange.<br>• All OFFLINE-- A path has a failure. After removing the path failure, perform the micro-program exchange. |

Table 11.5-1  Alternate path confirmation procedure and recovery confirmation
procedure (7/8)

| No. | Platform | Alternate path confirmation procedure | Recovery procedure |
|---|---|---|---|
| 4 | AIX | [HDLM]<br>Use the command "dlnkmgr view -path" to check the status of all adapters.<br>Perform the following operation according to the adapter status.<br><br>• All ONLINE ------- All paths are available. After recording this status, perform the micro-program exchange or the CHG exchange.<br>• All OFFLINE ------ A path has a failure. After removing the path failure, place the path online by following the recovery procedure described in this table.<br><br>○When switching a path, the following message is output in errpt -a.<br>  • Link error<br>  • Software program error<br>  • Disk operation error | [HDLM]<br>Step (1):<br>Perform the FOEF micro-program exchange in one cluster.<br><br>Step (2):<br>Check the number of the offline adapter by using the command "dlnkmgr view -path".<br><br>Step (3):<br>If the path is not recovered automatically, execute the command "dlnkmgr online -pathid x -s". ('x' here indicates the number of the adapter in which the micro-program exchange was performed)<br><br>Step (4):<br>Confirm that the status of all adapters is restored to ONLINE by using the command "dlnkmgr view -path". Perform Steps (1) to (4) also in another cluster.<br><br>• All ONLINE --- All paths are available.<br>• All OFFLINE-- A path has a failure. After performing the micro-program exchange or the CHG exchange, and the path is recovered, start from Step (1) again. Or after removing the path failure, start from Step (1) again. |

Table 11.5-1  Alternate path confirmation procedure and recovery confirmation procedure (8/8)

| No. | Platform | Alternate path confirmation procedure | Recovery procedure |
|---|---|---|---|
| 5 | Red Hat Linux | [HDLM]<br>Use dlnkmgr view -afb to confirm that the Auto Fail Back mode is set to ON.<br>Use the command "dlnkmgr view -path" to check the status of all adapters.<br>Perform the following operation according to the adapter status.<br><br>• All ONLINE ------- All paths are available. After recording this status, perform the micro-program exchange or the CHG exchange.<br>• All OFFLINE ------ A path has a failure. After removing the path failure, place the path online by following the recovery procedure described in this table.<br><br>○When switching a path, the following message is output.<br><br>(1)  When a path is switched<br>  Mar 29 13:26:57 kernel: SCSI disk error : host 3 channel 0 id 0 lun 1 return code = 10000<br>  Mar 29 13:26:57 kernel: I/O error: dev 08:a0, sector 1867456.<br><br>(2)  When a path is recovered<br>  Mar 29 13:28:49 dlmmgr: KAPL08023-I A path was recovered. PathID = 8, PathName = 0003.0000.0000000000000000.0000, DNum = 0, HDevName = sddlmad | [HDLM]<br>Step (1):<br>Check the number of the offline adapter by using the command, "dlnkmgr view -path".<br><br>Step (2):<br>Execute the command "dlnkmgr online -path".<br><br>Step (3):<br>Confirm that the status of all adapters is restored to ONLINE by using the command "dlnkmgr view -path".<br><br>• All ONLINE --- All paths are available.<br>• All OFFLINE-- A path has a failure. After performing the micro-program exchange or the CHG exchange, and the path is recovered, start from Step (1) again. Or after removing the path failure, start from Step (1) again. |

# 12. Version upgrade of OSS

OSS media upgrade is done by reinstalling the software. Please refer to the instructions below.

WEB CONSOLE SECTION:
"5. Procedure of server software uninstallation/installation" (WEB05-10)

Especially, work concerned is unnecessary execution when there is no instruction from the factory.