



C120-E370-01ENZ2(A)

Enhanced Support Facility User's Guide

**for FJVTS
(PRIMEPOWER)**



FUJITSU



Preface

Purpose

This manual provides an overview of each of the function of the FJVTS. These functions are provided for the PRIMEPOWER series.

Read this manual before using the ESF for the first time.

Intended Readers

This manual is intended for the following readers:

- System administrators who introduce and operate this software
- Technicians who maintain system hardware

Organization

This manual is organized as follows:

Chapter1 : Outline of FJVTS

It explains the outline of FJVTS.

Chapter2 : Method of starting FJVTS

It explains the setup and use of FJVTS.

Chapter3 : Function of FJVTS

It explains the following examination modules.

- fjbcdrttest
- fjcachetest
- fjcpptest
- fjswutest
- fjvfytest
- fjwpcdttest

Notation

The following names, abbreviated expressions, and symbols are used in this manual:

Manual names:

- This manual itself is referred to as “this manual.”
- Any manual for this product is sometimes referred to by omitting “Enhanced Support Facility” at beginning of the formal name and supported server models at the end of the formal name. “User’ s Guide for Machine Administration.” or “User’ s Guide for REMCS” is one of such examples.

Example : Enhanced Support Facility User’ s Guide for FJVTS

→ User’ s Guide for FJVTS

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Chapter1 Outline of FJVTS

The Fujitsu/PFU Validation and Test Suite(FJVTS) is a system which diagnoses the function of the controllers and the devices. FJVTS is the verification system which works by the user interface of SunVTS. The products of Fujitsu/PFU are supported. This manual is composed of starting method of FJVTS and the options and the procedure and the error messages of each test.

Chapter2 Method of starting FJVTs

This chapter describes the condition, the setup method, the operating procedure, and notes when FJVTs is used.

2.1 Operation of FJVTs

The operation of FJVTs is the same as SunVTS. Please refer to the SunVTS User's Guide and the SunVTS Test Reference Manual in the following URL for the operation.

<http://docs.sun.com/>

- 「Solaris 2.6 on Sun Hardware AnswerBook」
- 「Solaris 8 on Sun Hardware Collection」
- 「Solaris 9 9/02 on Sun Hardware Documentation Set」

2.2 Software Requirements

You must meet the following requirements to install FJVTs.

- Please install FJVTs after installing SunVTS.
- OpenWindows must be installed in /usr/openwin.
- OperationSystem must be installed as Developer System Support or more.

2.3 Starting FJVTS

FJVTS syntax is shown below.

FJVTS Syntax

| FJVTS command | |
|--|---|
| /opt/FJSVvts/bin/fjvts [-v] [-g] [-F FJVTS_bin_directory] [-S SUNVTS_bin_directory] [-tqpsel] [-o options_file] [-f logfile_directory] [-h hostname] | |
| Arguments | Description |
| -v | Display the version of "fjvts", "vtsk", and "vtsui". |
| -g | After the FJVTS system is set up, FJVTS is executed. |
| -S SUNVTS_bin_dir | The directory in which SunVTS is installed is specified. The default is /opt/SUNWvts/bin |
| -F FJVTS_bin_dir | The directory in which FJVTS is installed is specified. The default is "/opt/FJSVvts/bin". |
| other options | Same as the options of sunvts SunVTS5.1 does not support OPENLOOK interface. Execution by CDE (option less) or the TTY interface (-t option) is recommended. |

2.4 Setup of FJVTs

The syntax of setting up FJVTs is shown below.

Setup of FJVTs Syntax

| FJVTs setup command | |
|---|---|
| Arguments | Description |
| <code>/opt/FJSVvts/bin/testgenfj [-f] [-S SUNVTS_bin_directory] [-F FJVTs_bin_directory]</code> | |
| <code>-f</code> | The Setup is forced to execute. |
| <code>-S SUNVTS_bin_dir</code> | The directory in which SunVTS is installed is specified. The default is <code>/opt/SUNWvts/bin</code> |
| <code>-F FJVTs_bin_dir</code> | The directory in which FJVTs is installed is specified. The default is <code>"/opt/FJSVvts/bin"</code> . |

2.5 FJVTs version display

The syntax to see the FJVTs version is shown below.

FJVTs version display Command Line Syntax

| FJVTs version display command | |
|---|--|
| Arguments | Description |
| /opt/FJsvts/bin/testinfofj [-F FJVTs_bin_dir] | |
| FJVTs_bin_dir | The directory in which FJVTs is installed is specified. The default is "/opt/FJsvts/bin". |

2.6 32-Bit and 64-Bit Tests (since FJVTs3.0)

Because each test is a separate program, you can run individual tests directly from the command line. When this is done, care must be taken to run the appropriate test (32-bit or 64-bit) that corresponds to the operating system that is running (32-bit or 64-bit). This is done by running tests from specific directories as follows:

- 32-bit tests-`/opt/FJsvts/bin/ testname`
- 64-bit tests-`/opt/FJsvts/bin/sparcv9/ testname`

Note

- If you use the `fjvts` command to run FJVTs with a user interface (not from the command line), FJVTs will automatically allocate 32-bit or 64-bit tests based on the 32-bit or 64-bit Solaris(TM) Operating Environment that is running.

2.7 Notes about running FJVTS

the notes about running FJVTS is shown below.

Notes Description

- Don't use the ampersand(&) to run FJVTS in the background.
- When the TTY interface is used, "Arrow key" may not operate depending on the terminal software. In that case, please operate with the following alternate keys.
UP : Ctrl + 'u'
DOWN : Ctrl + 'n'
RIGHT : Ctrl + 'r'
LEFT : Ctrl + 'p'
- When the service which uses serial port (se, zs) is enabled, FJVTS cannot be started with an error occasionally. In that case, please make the service disable by admintool or the pmadm command.
- Please do not execute sptest which is a serial port test to the console port (includes the standby port of multi-path) on the system which does not mount the display card. Otherwise, the timeout error or open() error will be occurred.
- Note that, when you select the "reset" option on FJVTS, the message -- "reset selector..." is displayed on a OS console. When you select the "apply" button of the mptest option, the message -- "number_processors : x" is displayed on a OS console. It's no problem to see these messages.
- When you use the OPENLOOK interface, it may happen that you cannot click the button because of other overlapped button. In that case, please use the TTY interface.
- When you invoke the FJVTS on the OS console, it may happen that some messages of the OS or driver appear, and disturb the FJVTS menu window. In that case, please operate "Ctrl + 'l'".
- It's no problem that the following message is displayed when you use FJVTS4.0.
8012 08/18/06 22:02:19 Failed on ioctl DKIOCGMEDIAINFO: 6: No such device or address
- It's no problem that the following message is displayed when you use FJVTS5.1.
Sep 15 15:14:25 xxxxx SunVTS5.1: entry = .customtest
Sep 15 15:14:25 xxxxx SunVTS5.1: entry = .customtest_OtherDevices
ses dev /dev/es/ses0 open failed
ses dev /dev/es/ses1 open failed

Aug 17 09:39:45 xxxxx SunVTS5.1: Error: cXtXdXsX, disk: Probable Cause: No media in the drive.

Aug 17 09:46:31 xxxxx SunVTS5.1ps3: Warning: cXtXdXsX, disk: Probable Cause: No media in the drive.

Aug 17 10:02:28 xxxxx SunVTS5.1: Error: cXtXdXsX, disk DKIOCGGEO ioctl failed.
Probable_Cause(s): <device off-line> <cable> < Corrupt label- wrong magic number>

Recommended_Action(s): <Read /var/adm/messages> < Check Cables> <Check disk label>: Operation not supported

Aug 17 10:14:30 xxxxx SunVTS5.lps3: Error: cXtXdXsX, disk DKIOCGGGEOM ioctl failed.
Probable_Cause(s): <device off-line> <cable> < Corrupt label- wrong magic number>
Recommended_Action(s): <Read /var/adm/messages> < Check Cables> <Check disk label>: Operation not supported

- On the FJVTS4.0, after an option file is loaded, the operation of "Quit UI and Kernel" may not quit UI. In this case, the once more operation will quit UI.
- It's no problem that the following message is displayed when you use FJVTS5.1 on Solaris 10.
The SunVTS release version 5.1 is supported in the Solaris 9 operating environment.

| Solaris | SunOS | SunVTS |
|-------------|-------|--------|
| ===== | ===== | ===== |
| 9 9/02 | 5.9 | 5.1 |
| 9 5/02 | 5.9 | 5.1 |
| 8 2/02 | 5.8 | 5.1 |
| 9 | 5.9 | 5.0 |
| 8 2/02 | 5.8 | 4.6 |
| 8 10/01 | 5.8 | 4.5 |
| 8 7/01 | 5.8 | 4.4 |
| 8 4/01 | 5.8 | 4.3 |
| 8 1/01 | 5.8 | 4.2 |
| 8 10/00 | 5.8 | 4.1 |
| 8 6/00 | 5.8 | 4.0 |
| 8 | 5.8 | 4.0 |
| 7 11/99 | 5.7 | 3.4 |
| 7 8/99 | 5.7 | 3.3 |
| 7 5/99 | 5.7 | 3.2 |
| 7 3/99 | 5.7 | 3.1 |
| 7 | 5.7 | 3.0 |
| 2.6 5/98 | 5.6 | 2.1.3 |
| 2.6 3/98 | 5.6 | 2.1.2 |
| 2.5.1 11/97 | 5.5.1 | 2.1.1 |

Incompatible SunVTS and Solaris versions.

2.8 Notes about invoking via Machine Administration

The notes when diagnosis(FJVTs) is executed from Machine Administration are shown below.

Notes Discription

- Please set "DISPLAY" where FJVTs is displayed after selecting "Diagnoses Program" in Machine Administration, when FJVTs is invoked via GUI of Machine Administration. It is necessary to execute "xhost" command in advance at the target display.
- When FJVTs which uses OpenWindows interface is invoked via CUI of Machine Administration, it is need to set "DISPLAY" variable where FJVTs is displayed before executing Machine Administration.
e. g.) `setenv DISPLAY host_name:0.0`
- If OpenWindows was installed besides /usr/openwin, it is need to change "OPENWINHOME" variable described in "fjvts" command.
- When FJVTs is about to be invoked from GUI of Machine Administration, please note that it is occasionally happened to fail invoking FJVTs and remain the "vtsk" process alive without the error messages.
Probably the cause is a setting of X-window. It's no problem that you set the right setting and invoke FJVTs again.

Chapter3 Function of FJVTs

This chapter explains following FJVTs test modules.

- fjbcdrttest
- fjcachetest
- fjcputest
- fjswutest
- fjvfytest
- fjwpcdttest

3.1 Basic Communication adapter test (fjbcdrtst)

The fjbcdrtst diagnoses PC4B adapter (GP7B8BA1). This test program executes the self-loop tests as follows.

- Chip internal loopback test
- Loopback tests at connector
- Loopback test at modem

It will give you a fault-location at error detected. FJVTS user interface or command "fjbcdrtst", is available to run the test program.

But now, PC4B adapter is supported for Japan only.

Note

- The BC driver must be stopped before the test runs.
 - The command `"/opt/FSUNbcdr/bin/stpbc"` will stop the BC driver.
 - After the diagnostic has done, you should start the BC driver using the following commands.
`"/opt/FSUNbcdr/bin/strbc"`

(When you install FSUNbcdr package in `"/opt"` respectively.)

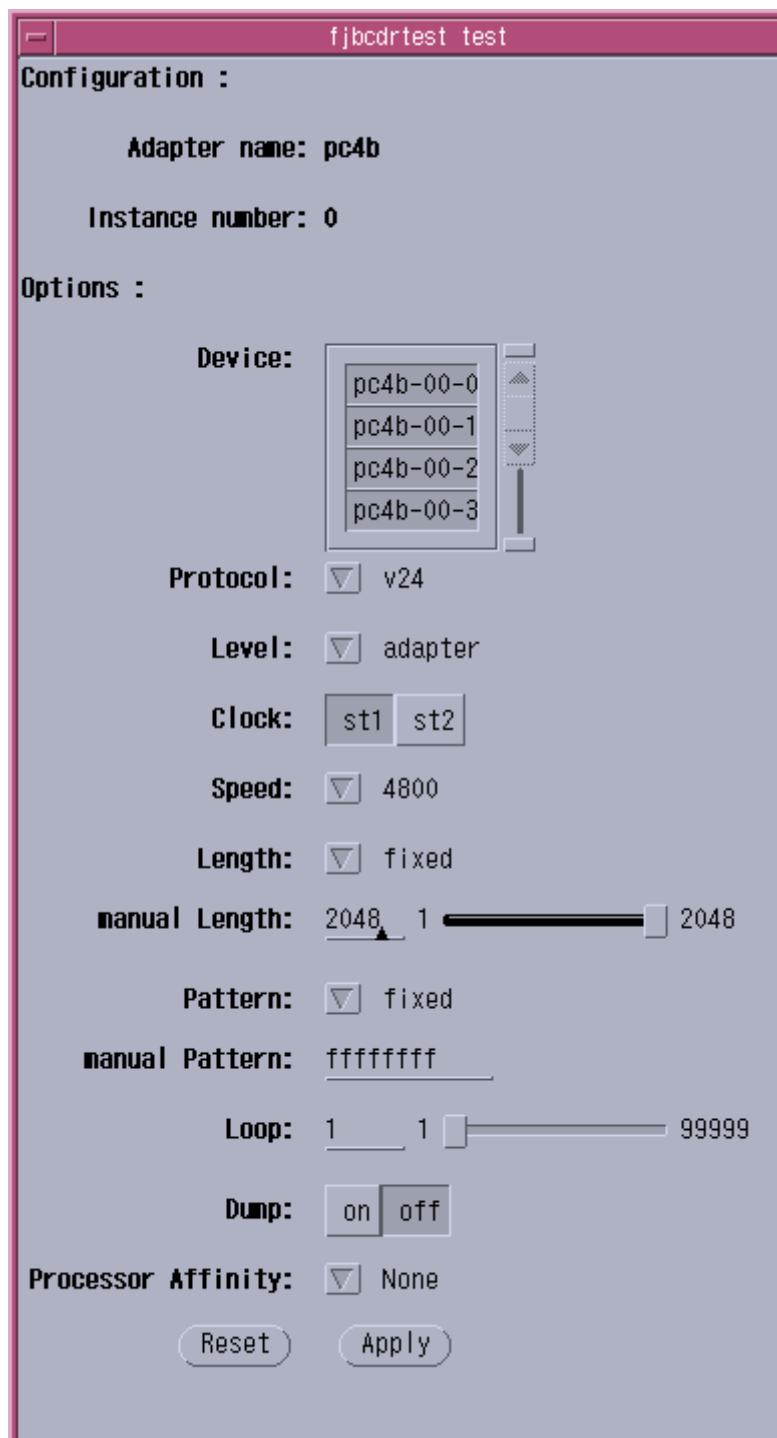
- You may attach the appropriate connector for loopback test at connector, and modem and cable as well for the loopback test at modem.
- The below packages are required for this test program.
 - FSUNnet
 - FSUNbcdr
- The FJVTS option, [intervention], should be "Enable" when you use the FJVTS user interface.
- Multiple initiation of the test is inhibited. It may cause an unpredictable result. You have to reset the card to recover it.
 - The adapter reset command is
`"/opt/FSUNbcdr/bin/ctladp -R adapter_name"`.

(When you install the package of FSUNbcdr in `"/opt"`).

Please refer to "BC driver manual" for details.

- The elapsed time at default for one cycle test respectively are;
about 50 seconds at one adapter.
- With "all" specified in the test option, it may take more than one hour.

3.1.1 fjbcdrttest Test Options



fjbcdrtest test options

| Options | Description | | | | |
|--|--|------------------------------|---------|--|-----------------------|
| Device | <p>The examined line name is selected. More than one line could be diagnosed at the same time.</p> <table border="1" data-bbox="699 383 1358 488"> <thead> <tr> <th data-bbox="699 383 1082 418">The optional number of lines</th> <th data-bbox="1082 383 1358 418">Default</th> </tr> </thead> <tbody> <tr> <td data-bbox="699 418 1082 488">4 lines can be selected. Select one or more line.</td> <td data-bbox="1082 418 1358 488">4 lines are selected.</td> </tr> </tbody> </table> | The optional number of lines | Default | 4 lines can be selected. Select one or more line. | 4 lines are selected. |
| The optional number of lines | Default | | | | |
| 4 lines can be selected. Select one or more line. | 4 lines are selected. | | | | |
| Protocol | <p>The examined protocol is selected. This option cannot be changed.</p> <table border="1" data-bbox="699 674 1358 745"> <thead> <tr> <th data-bbox="699 674 1027 710">Optional Protocol</th> <th data-bbox="1027 674 1358 710">Default</th> </tr> </thead> <tbody> <tr> <td data-bbox="699 710 1027 745">V24</td> <td data-bbox="1027 710 1358 745">V24</td> </tr> </tbody> </table> | Optional Protocol | Default | V24 | V24 |
| Optional Protocol | Default | | | | |
| V24 | V24 | | | | |
| Level | <p>The level of the loopback test is selected, but only one level.</p> <table border="1" data-bbox="699 931 1358 1003"> <thead> <tr> <th data-bbox="699 931 1027 967">Optional Level</th> <th data-bbox="1027 931 1358 967">Default</th> </tr> </thead> <tbody> <tr> <td data-bbox="699 967 1027 1003">adapter, connector, modem</td> <td data-bbox="1027 967 1358 1003">adapter</td> </tr> </tbody> </table> <p>Note: The description of Optional Level adapter : Internal loopback(loopback at MPC860 chip) connector: Loopback at connector modem : Loopback at modem</p> | Optional Level | Default | adapter, connector, modem | adapter |
| Optional Level | Default | | | | |
| adapter, connector, modem | adapter | | | | |
| Clock | <p>The clock used is selected. Either can be selected.</p> <table border="1" data-bbox="699 1290 1358 1361"> <thead> <tr> <th data-bbox="699 1290 1027 1326">Optional Clock</th> <th data-bbox="1027 1290 1358 1326">Default</th> </tr> </thead> <tbody> <tr> <td data-bbox="699 1326 1027 1361">st1, st2</td> <td data-bbox="1027 1326 1358 1361">st1</td> </tr> </tbody> </table> <p>Note: The description of "st1" and "st2" st1 : The clock of the adapter is used. st2 : The clock of the modem is used. "st2" requires a modem. And, the option "Speed" must be specified in the baud rate of modem</p> | Optional Clock | Default | st1, st2 | st1 |
| Optional Clock | Default | | | | |
| st1, st2 | st1 | | | | |
| Speed | <p>Data-transfer speed(Baud rate) is selected. Only one can be selected.</p> <table border="1" data-bbox="699 1729 1358 1834"> <thead> <tr> <th data-bbox="699 1729 1027 1765">Optional Speed</th> <th data-bbox="1027 1729 1358 1765">Default</th> </tr> </thead> <tbody> <tr> <td data-bbox="699 1765 1027 1834">1200, 2400, 4800, 9600, 19200, all</td> <td data-bbox="1027 1765 1358 1834">4800</td> </tr> </tbody> </table> <p>Note: With "all" specified, all optional baud rate are specified. Note: "all" cannot be specified when option "Clock" is "st2".</p> | Optional Speed | Default | 1200, 2400, 4800, 9600, 19200, all | 4800 |
| Optional Speed | Default | | | | |
| 1200, 2400, 4800, 9600, 19200, all | 4800 | | | | |

| Length | <p>The transfer size of the test data is selected. Only one can be selected.</p> <table border="1" data-bbox="699 297 1355 409"> <thead> <tr> <th data-bbox="699 297 1026 331">Optional Length pattern</th> <th data-bbox="1034 297 1355 331">Default</th> </tr> </thead> <tbody> <tr> <td data-bbox="699 331 1026 409">fixed, sequential, random, manual, all</td> <td data-bbox="1034 331 1355 409">fixed</td> </tr> </tbody> </table> <p>Note: The description of the Optional Length pattern fixed : Fixed value(1, 2048) sequential : 2, 4, 8, 16, 32, , 1024, 2048 random : Random value(1-2048) manual : Specified value(by manual Length) all : All patterns of fixed, sequential and random are executed.</p> | Optional Length pattern | Default | fixed, sequential, random, manual, all | fixed |
|--|---|-------------------------|---------|--|-------|
| Optional Length pattern | Default | | | | |
| fixed, sequential, random, manual, all | fixed | | | | |
| manual Length | <p>When "manual" is selected for option "Length", the data length is specified. You can set the value to 1-2048. Default is 2048.</p> <p>Note: To examine effectively when option "Pattern" is "fixed", you had better set the value to 2048.</p> | | | | |
| Pattern | <p>Transfer data pattern is selected. Only one can be selected.</p> <table border="1" data-bbox="699 1021 1355 1133"> <thead> <tr> <th data-bbox="699 1021 1026 1055">Optional Pattern data</th> <th data-bbox="1034 1021 1355 1055">Default</th> </tr> </thead> <tbody> <tr> <td data-bbox="699 1055 1026 1133">fixed, sequential, random, manual, all</td> <td data-bbox="1034 1055 1355 1133">fixed</td> </tr> </tbody> </table> <p>Note: Description of Optional Pattern data fixed : Fixed value (0xff, 0x00, 0x55, 0xaa 1byte pattern, 0xff-0x00 loop pattern, cross-talk data pattern) sequential : Increment value(0x000102030405. . . feff) random : Random value manual : Specified value(by manual Pattern) all : All patterns of fixed, sequential and random are executed.</p> | Optional Pattern data | Default | fixed, sequential, random, manual, all | fixed |
| Optional Pattern data | Default | | | | |
| fixed, sequential, random, manual, all | fixed | | | | |
| manual Pattern | <p>When "manual" is selected for option "Pattern", the data pattern can be specified. You can set 4 byte code with the hexadecimal number. Default is "ffffffff".</p> | | | | |
| Loop | <p>How many times this program diagnoses the devices by using the same setting is specified by decimal integer (1-99999). Default is 1.</p> | | | | |
| Dump | <p>Either "on" or "off" is selected. When the diagnosis result is ERROR, the firm dump of the adapter is obtained with option "Dump" being "on". (Dump file will be created in "/var/opt/FSUNnet/bcdr/dump/.") Default is "off".</p> | | | | |
| Processor Affinity | <p>This can be specified on multiprocessor systems. Only one</p> | | | | |

| | |
|--|---|
| | processor can be bound to an instance of the test. When "No Selections" is specified, migrating is usual. Default is "No Selections". |
|--|---|

3.1.2 fjbcdrttest Test Modes

fjbcdrttest Test Modes

| option | Description |
|-----------------|---|
| Connection Test | fjbcdrttest does not support Connection Test mode. |
| Functional Test | In this mode, fjbcdrttest diagnoses Basic communication cards by using the diagnosis interface of the adapter. The diagnosis interface accesses the hardware as well as "active" status. The internal loopback, the loopback at connector and the loopback at modem can be executed. When the error is detected, the cause will be pointed out. |

3.1.3 fjbcdrttest Command Line Syntax

fjbcdrttest command line syntax is as follow.

```
/opt/FJSVvts/bin/fjbcdrttest standard_arguments
-o dev=device_name [, level=adapter|connector|modem, clock=st1|st2,
speed=baud_rate (bps), length=fixed|sequential|random|data_size (byte),
pattern=fixed|sequential|random|hexadecimal_number_pattern, loop=n, dump=on|off]
```

Please refer to "Table. fjbcdrttest Test Options" for every parameter's content. And please refer to the SunVTS test reference for "standard_arguments".

fjbcdrttest Command Line Syntax

| Arguments | Description | Example |
|-----------|--|--|
| dev | The adapter name or the line name to be diagnosed is specified. It is mandatory parameter, and the syntax is "pc4b- <i>Instance_number (2 or 3 digits)</i> - <i>Line_number (1 digit)</i> ". When more than one line are specified, "+" sign is put. Each lines must be on the same adapter. When all the lines are specified, the syntax is "pc4b- <i>Instance_number (2 or 3 digits)</i> ". | dev=pc4b-00-0+pc4b-00-2 dev=pc4b-120-1 dev=pc4b-01 |
| level | The loopback level is specified. | level=modem |
| clock | The clock used is specified. | clock=st1 |
| speed | Data-transfer baud rate is specified. | speed=19200 speed=all |

| | | |
|---------|--|--|
| length | The transfer data size is specified. To specify "manual", the value of transfer data size is input directly by a decimal integer. | length=fixed length=1024 |
| pattern | The test data pattern is specified. To specify "manual", the test data pattern is input directly by the hexadecimal number(4byte). | pattern=random pattern=ff0055a a |
| loop | The frequency diagnosed by the pattern of the same setting is specified. | loop=100 |
| dump | It is specified whether to dump the firm of the adapter when the hard error is detected. | dump=on |

3.1.4 fjbcdrttest Error Messages

fjbcdrttest Error Messages

| ID | Error Message | Probable Cause(s) | Recommended Action |
|------|---|--|-------------------------------------|
| 6000 | Hard ware error: linename=[line_name], loop_result=[diagnosis_result], loop_ecode=[error_code], loop_detail1=[detail_data1], loop_detail2=[detail_data2] Parameter: speed=[baud rate], data_length=[data_length], data_pattern=[data_pattern] | Hardware error was detected in [line_name]. | Replace the adapter. |
| 6001 | Line error: linename=[line_name], loop_result=[diagnosis_result], loop_ecode=[error_code], loop_detail1=[detail_data1], loop_detail2=[detail_data2] Parameter: speed=[baud rate], data_length=[data_length], data_pattern=[data_pattern] | The modem or cable connected with [line_name] is abnormal. | Check the modem and cable. |
| 6002 | Receive data error: linename=[line_name], loop_result=[diagnosis_result], loop_ecode=[error_code], loop_detail1=[detail_data1], loop_detail2=[detail_data2] Parameter: speed=[baud rate], data_length=[data_length], data_pattern=[data_pattern] | The received data error was detected in [line_name]. | Check the adapter, modem and cable. |
| 6006 | Time out error: linename=[line_name] Parameter: speed=[baud rate], data_length=[data_length], data_pattern=[data_pattern] | The diagnosis did not end in [line_name] though passed time or more. | Replace the adapter. |
| 6007 | Data compare error: linename=[line_name], [compared_byte_size]/[transfer_byte_size]] byte | Received data is not an expectaion | Replace the adapter. |

| | | | |
|------|---|---|---|
| | Send_data = [send_data] Receive_data = [receive_data] Parameter: speed=[baud rate], data_length=[data_length], data_pattern=[data_pattern] | value. | |
| 6009 | Abnormal error: linename=[line_name], loop_result=[diagnosis_result], loop_ecode=[error_code], loop_detail1=[detail_data1], loop_detail2=[detail_data2] Parameter: speed=[baud rate], data_length=[data_length], data_pattern=[data_pattern] | Diagnoses ended abnormally. | Check the system. |
| 6010 | Unexpected error: linename=[line_name], loop_result=[diagnosis_result], loop_ecode=[error_code], loop_detail1=[detail_data1], loop_detail2=[detail_data2] Parameter: speed=[baud rate], data_length=[data_length], data_pattern=[data_pattern] | The result of diagnoses is unexpected value. | Check the system. |
| 8001 | Ioctl failed. [command]: [reason] | System error | Check the system. |
| 8003 | Ioctl failed. linename=[line_name] [command]: [reason] | System error | Check the system. |
| 8004 | This program run on root ID. | Not be a super user | Become a super user. |
| 8005 | Can't diagnose because the device is active. | BC driver is active. | Stop BC driver. Refer to Note. |
| 8006 | Can't diagnose because the firmware is not downloaded. | The firmware is not down-loaded to the adapter. | Reboot, or Reset the adapter. Refer to Note-5. |
| 8009 | [command_name] failed. [reason] | System error | Check the system. |
| 8010 | Can't find [command_name]. | System error | Check whether the command exists. |
| 8011 | Can't find bcdr driver. | System error | Install the BC driver. |
| 8012 | Set dev parameter. | "dev" parameter is not input. | Input "dev" parameter. |
| 8013 | Please enter an appropriate value, [input_value]=? | [input_value] is invalid. | Input the valid value. |
| 8014 | Bad test option: [option] | The specified option does not exist. | Specify the correct option. |

| | | | |
|------|--|--|-------------------------------------|
| 8015 | Can't find [adapter_name] adapter. | Can't find the specified adapter. | Check the adapter. |
| 8016 | [adapter_name] adapter is resetting now. | Device failure | Reset the adapter. Refer to Note-5. |
| 8017 | [adapter_name] adapter is error status now. | Device failure | Reset the adapter. Refer to Note-5. |
| 8018 | "Can't open [file_name]. [reason] | System error | Check the system. |
| 8019 | Failed to close [file_name]. [reason] | System error | Check the system. |
| 8020 | Child Process Illegal failed. [reason] | System error | Check the system. |
| 8021 | Not matching your option parameters. | The combination of the specified parameter is invalid. | Check the parameter. |
| 8022 | Device busy. ([command_name]: retry=[frequency]) | System error | Check the system. |
| 8023 | [adapter_name] adapter is not ready. | System error | Check the system. |

3.2 CPU cache stress test (fjccachetest)

The fjccachetest diagnoses CPU module cache (I/D-cache, E-cache) and the data-path between CPU-core, CPU-cache, memories and the system disk.

It will give you a fault cpu at error detected. FJVT user interface or command "fjccachetest", is available to run the test program.

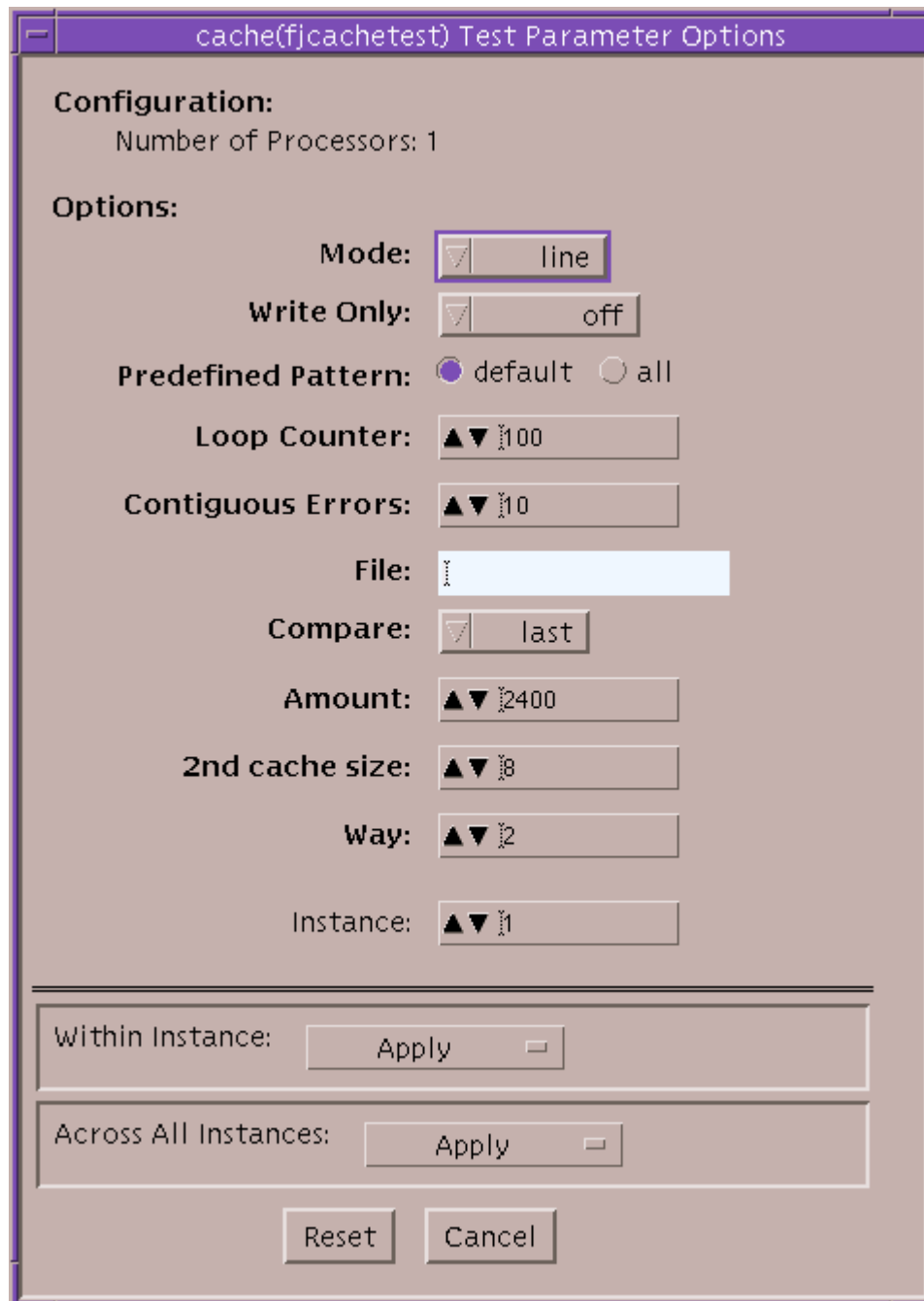
Note

- The elapsed time at default for one cycle test respectively are:
 - "mode=line" : about 4 minutes
 - "mode=byte" : about 11 minutes
 - "mode=share" : about 2 minutes
 - "mode=share2" : about 5 seconds
 - "mode=large" : about 30 seconds
(At "loop=1", Virtual memory size=1280MB, Physical memory size=1280MB)
 - "mode=random" : about 1.5 minutes
 - "mode=all" : about 18 minutes

When the mode is "large", the elapsed time will depend on the virtual memory size and the physical memory size.

- The fjccachetest is a scalable test. The maximum number of instances (processes) is 16.
- When the mode is "large" and the loop is default value "100", it may take hours to increase the pass count.

3.2.1 fjcachetest Test Option



fjcachetest options

| Options | Description | | | | |
|---|--|---------------|---------|---|------|
| Mode | This is used to select the test mode. Please choose one from among the following. | | | | |
| | <table border="1"> <tr> <td>Optional mode</td> <td>Default</td> </tr> <tr> <td>line, byte, share, share2, large, random, all</td> <td>line</td> </tr> </table> | Optional mode | Default | line, byte, share, share2, large, random, all | line |
| Optional mode | Default | | | | |
| line, byte, share, share2, large, random, all | line | | | | |

| | <p>Note: The description of Optional mode</p> <p>line : Access by a E-cache line size</p> <p>byte : Access by a byte</p> <p>share : Synchronous access to the shared memory</p> <p>share2 : Asynchronous access to the shared memory</p> <p>large : Access to the swap memory</p> <p>random : Random access</p> <p>- When "all" is specified, the test executes "line", "byte", "share", "share2" and "random". And, when the machine is uniprocessor system, "share" and "share2" are skipped.</p> <p>- "share" or "share2" is not selectable on the uniprocessor system.</p> <p>- "random" is write access only.</p> | | | | |
|--------------------------|--|--------------------------|---------|---------------------|---------|
| Write Only | <p>When "on" is selected, the test executes writing only. When "read_only" is selected, the first access is writing, and the next access is to read/compare during the time of "loop". And if you select "read_only", you must select "compare=last", too.</p> <table border="1" data-bbox="695 1014 1358 1088"> <tr> <th>Option</th> <th>Default</th> </tr> <tr> <td>on, off, read_only</td> <td>off</td> </tr> </table> | Option | Default | on, off, read_only | off |
| Option | Default | | | | |
| on, off, read_only | off | | | | |
| Predefined Pattern | <p>This is used to select the test pattern. Please choose one from among the following.</p> <table border="1" data-bbox="695 1270 1358 1344"> <tr> <th>Optional Pattern data</th> <th>Default</th> </tr> <tr> <td>default, all</td> <td>default</td> </tr> </table> | Optional Pattern data | Default | default, all | default |
| Optional Pattern data | Default | | | | |
| default, all | default | | | | |
| Loop Counter | <p>How many times this program diagnoses the devices by using the same setting is specified by decimal integer (1-99999).</p> <p>Default is 100.</p> | | | | |
| Contiguous Errors | <p>How many errors the fjccachetest print out is specified by decimal integer (1-500).</p> <p>Default is 10.</p> | | | | |
| File | <p>The data pattern file can be specified. You can set the maximum 20 characters. The fjccachetest gets the data pattern from the file. The available data is a character string which shows the hexadecimal number.</p> <p>Default is not specified.</p> | | | | |
| Compare | <p>This is used to select the timing of data comparison. Please choose one from among the following.</p> <table border="1" data-bbox="695 1957 1358 2031"> <tr> <th>Optional compare pattern</th> <th>default</th> </tr> <tr> <td>last, order, switch</td> <td>last</td> </tr> </table> | Optional compare pattern | default | last, order, switch | last |
| Optional compare pattern | default | | | | |
| last, order, switch | last | | | | |

| | |
|--------------------|--|
| | <p>Note: Description of Optional compare pattern</p> <p>last : After sequentially writing the test pattern, the program compares the test area to the test pattern.</p> <p>order : The writing and the comparing are alternately repeated by each E-cache line size.</p> <p>switch: After the writing to the test area is alternately changed between upper and lower address, the comparison with the test area is done in the same access order.</p> |
| Amount | <p>When "mode=large" is selected, the test memory size is specified by megabytes. "0" means the maximum virtual memory size. Default is specified as the maximum virtual memory size.</p> <ul style="list-style-type: none"> - When the "stress" is enable, this test alloc the virtual memory at 80% of the specified size. - When the "stress" is disable, this test alloc the whole specified virtual memory. |
| 2nd cache size | <p>The memory size for this test is specifiable (0 - twice E-cache size) by the mega bytes. It is effective except "Mode=large". When "0" is specified, the E-cache size is automatically specified by probing. The default value is a E-cache size.</p> |
| Way | <p>The number of E-cache-associativity is specifiable (0-2). When "0" is specified, the number of E-cache-associativity is automatically specified by probing. The default value is a probed value of E-cache-associativity.</p> |
| Processor Affinity | <p>This can be specified on multiprocessor systems. Only one processor can be bound to an instance of the test. When "No Selections" is specified, migrating is usual. Default is "No Selections".</p> |

3. 2. 2 fjcachetest Test Modes

fjcachetest Test Modes

| Modes | Description |
|-----------------|--|
| Connection Test | The E-cache size, the E-cache line size, the number of E-cache Way of each CPU modules, and sizes of the virtual memory which can be used are displayed when to be executed in this mode. |
| Functional Test | When the "Mode" option is "Line", "Byte", or "Random", the operation by which it aims at E-cache Write Back and Copy Back is done. When this option is "Share" or "Share2", the operation by which it aims at the data |

| | |
|--|--|
| | transfer in plural CPU-to-CPU is done. When this option is "Large", the operation by which it aims at the data transfer between Cache Memory I/O by Page In/Out is done. Moreover, Write/Read/Compare of the data is done and the CPU cache control is verified. |
|--|--|

3.2.3 fjcatchetest Command Line Syntax

fjcatchetest command line syntax is as follow.

```
/opt/FJSVvts/bin/fjcatchetest standard_arguments  
-f -o [bind=CPU_ID,mode=line|byte|share|share2|large|random|all,wo=on|off|read_only,  
pp=default|all,  
loop=n,cerr=n,file=file_name,amount=memory_size (byte)|max,compare=last|order|switch,  
2ndcsize=n (MBytes),way=n
```

Please refer to "Table. fjcatchetest Test Options" for every parameter's content. And please refer to the SunVTS test reference for "standard_arguments".

fjcatchetest Command Line Syntax

| Arguments | Description | Example |
|-----------|---|---|
| bind | The examined CPU module is specified by the identification number. This specification is to do, like " <i>CPU_ID+CPU_ID+...</i> ". Moreover, when all CPUs are specified, it is specifiable with "All". | bind=0+2+5 bind=all |
| mode | The content of the examination is specified. | mode=line |
| wo | Whether to make mode to Write Only is specified. | wo=on |
| pp | The test data pattern is specified. | pp=default pp=all |
| loop | The frequency which loops by the same test data pattern is specified. | loop=100 |
| cerr | Whether error information are output in loop of one time up to how many is specified. | cerr=100 |
| file | The file name by which the test data pattern is read is specified. | file=/tmp/hogeh oge |
| amount | The size of the examination object at "Mode=large" is specified. The unit is Mbyte. | amount=0, amount =1000, amount=ma x |
| compare | The data comparison timing is specified. | compare=last |
| 2ndcsize | The E-cache size is specified. | 2ndcsize=4 |
| way | The number of E-cache-associativity is specified. | way=2 |

3.2.4 fjcachetest Error Messages

fjcachetest Error Messages

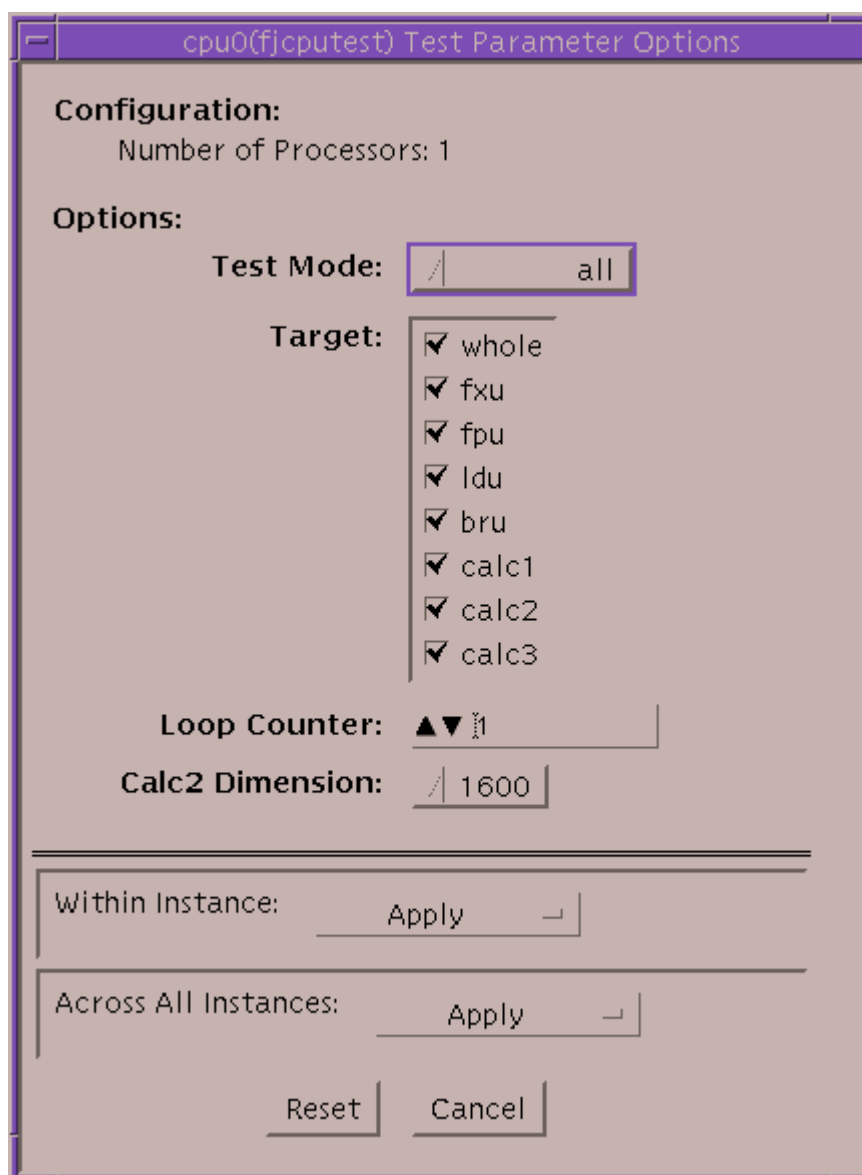
| ID | Error Messages | Probable Cause(s) | Recommended Action |
|------|--|---|--|
| 6000 | Data compare error ([CPU ID]): [Numbers of bytes which have been compared]/[Number of bytes of the entire comparison] byte, Physical_addr= [Physical address] Write_data = [Write Data(64byte)] Read_data = [Read Data(64byte)] Parameter: Mode=[Content of examination], Pattern=[Test data pattern] | The data comparison error occurred by [CPU ID]. | Please exchange the module of [CPU ID]. |
| 8000 | [Issue command] failed. [Reason] | System failure | Please confirm whether the [Issue command] is executable. |
| 8001 | valloc failed (size= [Acquisition request size]): [Reason] | valloc() failed. | The virtual memory is insufficient. Please increase the size of the virtual memory or decrease the number of execution of test programs. |
| 8002 | Ioctl failed. [Issue command]: [Reason] | System failure | Please confirm whether the devicedriver which executes the [Issue command] works normally. |
| 8003 | Please enter an appropriate value, [Input value]=? | Parameter value of the [Input value] is an invalid value. | Please input an effective value. |
| 8004 | Bad test option: [Option] | There is no specified | Please specify a |

| | | [Option]. | correct option. |
|------|---|----------------|---|
| 8005 | Child Process Illegal failed. [Reason] | System failure | The program terminated abnormally. Please reexecute the program because an external factor is thought. Still, when it becomes a similar phenomenon again, please contact to us. |
| 8006 | Child Process Illegal failed. exit code = [exit:signal] | System failure | The program terminated abnormally. Please reexecute the program because an external factor is thought. Still, when it becomes a similar phenomenon again, please contact to us. |

3.3 CPU Core Stress test (fjcpustest)

The fjcpustest increases the execution times of instruction sets for a processor. This program checks that the processor is valid by many various instruction sets for the processor core. When the result of execution is abnormal, it points out the defective processor module. This program can be invoked from the FJVTs menu and command line.

3.3.1 fjcpustest Test Options



fjcpustest Test Options

| Option | Description | | | | | | | | |
|---|---|-----------------------|-------------|---|---|------------|---|-----|-------------------------------|
| Test Mode | <p>This option determines the test level. You can select one of the following parameters.</p> <table border="1" data-bbox="699 423 1361 927"> <thead> <tr> <th>Selectable test level</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>instruction</td> <td>The floating point arithmetic tests are executed. It takes about one second for the completion.</td> </tr> <tr> <td>unitstress</td> <td>The stress test which aims at each execution units of a processor and the various instruction test are executed. The load to the processor can be adjusted by specifying Target.</td> </tr> <tr> <td>all</td> <td>Above two tests are executed.</td> </tr> </tbody> </table> <p>Default value is "all"</p> | Selectable test level | Description | instruction | The floating point arithmetic tests are executed. It takes about one second for the completion. | unitstress | The stress test which aims at each execution units of a processor and the various instruction test are executed. The load to the processor can be adjusted by specifying Target. | all | Above two tests are executed. |
| Selectable test level | Description | | | | | | | | |
| instruction | The floating point arithmetic tests are executed. It takes about one second for the completion. | | | | | | | | |
| unitstress | The stress test which aims at each execution units of a processor and the various instruction test are executed. The load to the processor can be adjusted by specifying Target. | | | | | | | | |
| all | Above two tests are executed. | | | | | | | | |
| Target | <p>These parameters are applied to the "unitstress" test. The plural can be selected at the same time. When "unitstress" or "all" is selected as TestMode, these are effective.</p> <table border="1" data-bbox="699 1218 1361 1328"> <thead> <tr> <th>Selectable target</th> <th>Default</th> </tr> </thead> <tbody> <tr> <td>whole, fxu, fpu, ldu, bru, ca lc1, calc2, calc3, calc4</td> <td>whole+fxu+fpu+ldu+bru+ca lc1+calc2+calc3+calc4</td> </tr> </tbody> </table> <p>Selectable Test explanation: whole : CPU core overall test fxu : Integer execution unit test fpu : Floating point unit test ldu : Load/Store unit test bru : Branch unit test calc1 : Arithmetic calculate test-1 calc2 : Arithmetic calculate test-2 calc3 : Arithmetic calculate test-3 calc4 : Arithmetic calculate test-4</p> <p>When the OS is running under 32bit kernel, calc4 can be selected.</p> <p>Note: About the test execution time This program passes once at about 5 minutes, when the "Loop Counter" is "1", a processor's frequency is 300MHz and the physical memory size is 512Mbytes. And then it is run alone.</p> <p>The execution time depends on other running programs and</p> | Selectable target | Default | whole, fxu, fpu, ldu, bru, ca lc1, calc2, calc3, calc4 | whole+fxu+fpu+ldu+bru+ca lc1+calc2+calc3+calc4 | | | | |
| Selectable target | Default | | | | | | | | |
| whole, fxu, fpu, ldu, bru, ca lc1, calc2, calc3, calc4 | whole+fxu+fpu+ldu+bru+ca lc1+calc2+calc3+calc4 | | | | | | | | |

| | |
|--------------------|---|
| | the processor's frequency. In addition, this program allocates the 32MBytes memory, so it is recommended the physical memory size is larger than 128Mbytes. |
| Loop Counter | This option specifies the test repeat count. It is specified by a decimal integer from 1 to 99999. Default value is 1. |
| Calc2 Dimension | This option specifies the dimension of the array which is used by calculate test-2. You can choose among "200, 400, 800, 1600, 3200, 4800". Default value is 1600. |
| Processor Affinity | This can be specified on multiprocessor systems. Only one processor can be bound to an instance of the test. When "No Selections" is specified, migrating is usual. Default is "No Selections". |

3.3.2 fjcputest Test Modes

fjcputest Test Modes

| Test Mode | Description |
|-----------------|--|
| Connection Test | Not supported. |
| Functional Test | The operation is executed with the unit which each test targets and the result is verified. This test's instruction sets aim at decreasing the count of stole and increasing the throughput. In addition, the following circumstances are recommended for margin verification -- the CPU's frequency is high, the CPU's voltage is low or high, running under the high or low temperature. |

3.3.3 fjcputest Command Line Syntax

fjcputest command line syntax is as follow.

```
/opt/FJSVvts/bin/fjcputest standard_arguments  
-f -o [dev=CPU  
number, mode=instruction|unitstress|all, target=whole+fxu+fpu+ldu+bru+calc1+calc2+calc  
3+calc4, loop=n, dim=200|400
```

For detail, please refer to "Table. fjcputest Test options". About "standard_arguments", please refer to the SunVTS test reference.

fjcpustest Command Line Syntax

| Argument | Description | Example |
|----------|--|------------------|
| dev | Specify the test CPU module name. Only one module is specifiable. Please invoke two or more fjcpustest to execute with each processor. Default is "cpu0". | dev=cpu3 |
| mode | This option specifies the test level. Default value is "all". | mode=instruction |
| target | This option specifies the content of unitstress test. The plural can be specified by "+" like "whole+fxu+...". Default is "whole+fxu+fpu+ldu+bru+calc1+calc2+calc3+calc4". For 32bit module, calc4 can be selected. | target=fpu+calc1 |
| loop | Specifies the test repeat count. Default is "loop=10". | loop=100 |
| dim | Specifies the dimension of array. It is used by the calculate test-2. Default is "dim=1600". | dim=400 |

3.3.4 fjcpustest Error Messages**fjcpustest Error Messages**

| ID | Error Message | Probable Cause(s) | Recommended Action |
|------|--|--|---------------------------------|
| 6000 | Failed CPU core (Reliability) Test Discord Register : [Error generation register number] Expect Result Expect Result GR0 xxxxxxxx, xxxxxxxx FR0 xxxxxxxx, xxxxxxxx GR1 xxxxxxxx, xxxxxxxx FR1 xxxxxxxx, xxxxxxxx GR7 xxxxxxxx, xxxxxxxx FR7 xxxxxxxx, xxxxxxxx continue 6001 | The data compare error occurred by the [Error generation register number]. | Please replace the CPU module. |
| 6001 | GR8 xxxxxxxx, xxxxxxxx FR8 xxxxxxxx, xxxxxxxx GR15 xxxxxxxx, xxxxxxxx FR15 xxxxxxxx, xxxxxxxx continue 6002 | This is continued message from message ID6000. | Please refer to message ID6000. |
| 6002 | GR16 xxxxxxxx, xxxxxxxx FR16 xxxxxxxx, xxxxxxxx GR23 xxxxxxxx, xxxxxxxx FR23 xxxxxxxx, xxxxxxxx continue 6003 | This is continued message from message ID6000. | Please refer to message ID6000. |

| | | | |
|-------------------|---|--|---------------------------------|
| 6003 | GR24 xxxxxxxx, xxxxxxxx FR24 xxxxxxxx, xxxxxxx GR31 xxxxxxxx, xxxxxxxx FR31 xxxxxxxx, xxxxxxx | This is continued message from message ID6000. | Please refer to message ID6000. |
| 6004 | Failed CPU core (load/store unit) Test Address Expect Result xxxxxxx xxxxxxxx xxxxxxxx | The data compare error occurred by the LD unit test. | Please replace the CPU module. |
| 6005 | Failed CPU core (calc3) Test Expect VE00 VE11 VE13 xxxxxxx xxxxxxxx xxxxxxxx VE14 VE21 xxxxxxx xxxxxxxx VE23 VE24 VE31 xxxxxxx xxxxxxxx xxxxxxxx VE33 VE34 xxxxxxx xxxxxxxx | The error occurred by the calculate test-3 operation. The value is an expectation value. | Please replace the CPU module. |
| 6006 | Result VE00 VE11 VE13 xxxxxxx xxxxxxxx xxxxxxxx VE14 VE21 xxxxxxx xxxxxxxx VE23 VE24 VE31 xxxxxxx xxxxxxxx xxxxxxxx VE33 VE34 xxxxxxx xxxxxxxx | The error occurred by the calculate test-3 operation. The value is a result value. | Please replace the CPU module. |
| 6100 | Failed [accuracy] precision calc2. | The data compare error occurred by the calculate test-2 operation. | Please replace the CPU module. |
| 6110 | Failed single precision calc1 test. | The error occurred by the single-precision calculate test-1. | Please replace the CPU module. |
| 6111 | Failed double precision calc1 test. | The error occurred by the double-precision calculate test-1. | Please replace the CPU module. |
| 6112 ~ 6212 | Error: Operation expression Expected: "Expectation value" Actual: "Actual value" | The compare error occurred by the calculate test. | Please replace the CPU module. |

| | | | |
|-------------------|---|---|--------------------------------------|
| 6213 ~ 6303 | Error: Operation code expected / observed = "Expectation value / Observation value" | The compare error occurred by the floating test operation. | Please replace the CPU module. |
| 6305 | FPU Trap did not occur , i ="Number of Times". | When the interruption test was executed, interrupt did not occurred. | Please replace the CPU module. |
| 6306 | FPU Trap Should not occur but occurred. | The not expected interrupt occured. | Please replace the CPU module. |
| 6307 | Bus Error did not occur. | The expected bus error interrupt did not occurred. | Please replace the CPU module. |
| 6308 | Did not create correct IEEE exception (Inexact): expected = 1, observed = "Observation value" | The expected inaccurate interruption did not occured. | Please replace the CPU module. |
| 6309 | Did not create correct IEEE exception (Divide By zero) : expected = 2, observed = "Observation value" | The expected 0 division interruption did not occured. | Please replace the CPU module. |
| 6310 | Did not create correct IEEE exception (Overflow) : expected = 8, observed = "Observation value" | The expected overflow interruption did not occured. | Please replace the CPU module. |
| 6311 | Did not create correct IEEE exception (Invalid) : expected = 10, observed = "Observation value" | The expected invalid interruption did not occured. | Please replace the CPU module. |
| 6322 | FPU Reliability Test Failed due to floating point exception error. | The interruption error occurred by the floating point arithmetic test. | Please replace the CPU module. |
| 6323 | FPU Reliability Test Failed due to illegal instruction error. | The invalid instruction error occurred by | Please replace the CPU module. |

| | | | |
|------|---|---|---|
| | | the floating point arithmetic test. | |
| 6324 | Error: instruction Register: "register" Expected: "value" Actual: "value" | The compare error occurred by the floating point arithmetic test. | Please replace the CPU module. |
| 6401 | Failed systest for VIS. VIS1 instruction Reg Expect Result "register" "value" "value" | The comparison error occurred by the VIS1 instruction test. | Please replace the CPU module. |
| 6900 | Failed test : target=[test item] | It is continued from message ID6000. The error occurred in executing the test item. | Please refer to message ID6000. |
| 8001 | CPU initialization failure. | System Error. | The program terminated abnormally. Please reexecute the program because an external factor is thought. Still, when it becomes a similar phenomenon again, please contact to us. |
| 8200 | processor_bind failed. | The error occurred by the processor bind. | Please confirm that the CPU for the test exists and the state of it isn't off-line. |

| | | | |
|------|--|---|--|
| | | | When this phenomenon still reproduces again, please contact us. |
| 8201 | kvm_open() failed | The error occurred by the kvm_open() function. | Please execute this program again after confirming the OS operates normally. When this phenomenon still reproduces again, please contact us. |
| 8202 | kvm_nlist() failed | The error occurred by the kvm_nlist() function. | Please execute this program again after confirming the OS operates normally. When this phenomenon still reproduces again, please contact us. |
| 8300 | Please enter an appropriate value, [input value]=? | Parameter value of the input value is an invalid value. | Please input an effective value. |
| 8301 | Bad test option: [option] | There is no specified [option]. | Please specify a correct option. |

3.4 Line Switch Device Test (fjswutest)

The fjswutest is a program running a test through the use of the RCI interface. This test is run to check that the line switch device can properly perform input/output or switch line interface. This program can be run on the SunVTS.

Note

- Before starting the fjswutest, the System Control Facility (which is called the SCF for short) driver must be installed.
- The fjswutest switches line connections, so the operation of this program must be isolated from the actual operation.
- The line switch device to be tested by the fjswutest must be installed in the RCI node. To install the device in the RCI node, follow the procedure shown below;
 - The "ok" prompt appears, then execute "ok rci-configio-init". This command causes the line switch device to be installed in the RCI node. Then, execute "ok rci-config" to check that the device has been successfully installed. This command causes all the devices currently installed in the RCI node to be listed
- Before running the fjswutest, the intervention mode must be enabled.
- More than one fjswutest must not be run at the same time, and neither must an fjswutest be run with any other test program at the same time.
- CHECK LED TEST can not execute on the equipment that does not support CHECK LED command. If it executes, the following message appears on the sunvts console window.

WARNING: "CHECK-LED TEST SKIP!! ** Command(SCFIOCSETRCILED) not support.**"

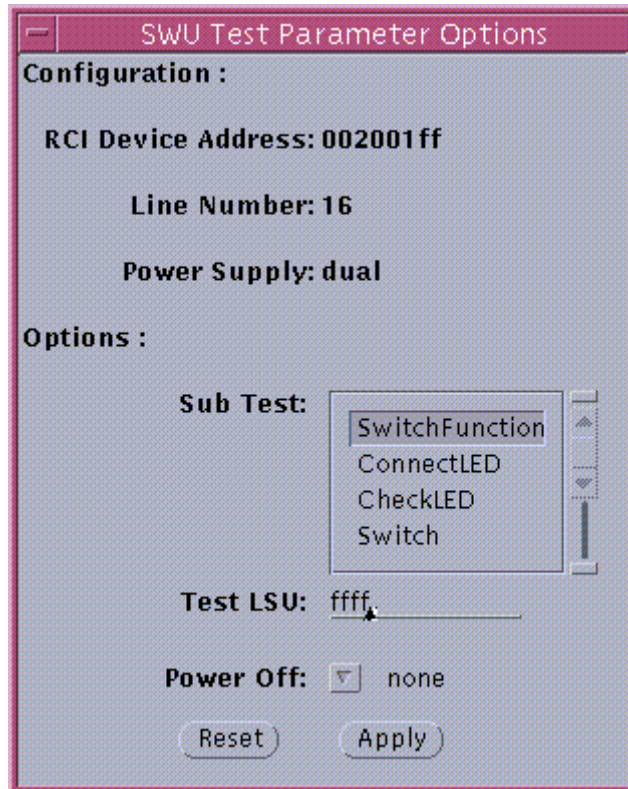
3.4.1 fjswutest subtest

fjswutest subtest

| Subtest | Description |
|--|--|
| SwitchFunction (Switch Function Test) | Connect the specified LSU (Line Switch Unit) to 0 or 1, and then check that the line switch device properly works and that the LSU to be tested is connected as expected. Time required for testing is about 50 seconds in the case where the LSU to be tested is set to ffff for 16-line switch devices. |
| Connect-LED (Connect-LED Test) | <p>Visually check that the Connect-LED goes on and off. Time required for testing is about 40 seconds.</p> <p>This test should be run in the following order:</p> <ul style="list-style-type: none"> • Connect all the LSUs to be tested to 1, and display the following message (20-second wait): <div data-bbox="699 824 1358 898" style="border: 1px solid black; padding: 2px;">CONNECT-LED : Make sure that all LSU are "1" within 20 seconds.</div> <p>Visually check that both the LED (1) on the LSU to be tested and the LED (1) on the panel stay on for this duration.</p> <ul style="list-style-type: none"> • Then, connect all the LSUs to be tested to 0, and display the following message (20-second wait): <div data-bbox="699 1077 1358 1151" style="border: 1px solid black; padding: 2px;">CONNECT-LED : Make sure that all LSU are "0" within 20 seconds.</div> <p>Visually check that both the LED (0) on the LSU to be tested and the LED (0) on the panel stay on for this duration.</p> |
| Check-LED (Check-LED Test) | <p>Visually check that both the CHECK-LED on the panel and the CHECK-LED on the QSC (Switch Control Unit) go on, blink, and go off successfully. Time required for testing is about 60 seconds.</p> <p>This test should be run in the following order:</p> <ul style="list-style-type: none"> • First, make the CHECK-LEDs go on, and display the following message (20-second wait): <div data-bbox="699 1585 1358 1619" style="border: 1px solid black; padding: 2px;">CHECK-LED : ON (Please check within 20 seconds)</div> <p>Visually check that the CHECK-LEDs stay on for this duration.</p> <ul style="list-style-type: none"> • Then, make the CHECK-LEDs blink, and display the following message (20-second wait): <div data-bbox="699 1800 1358 1834" style="border: 1px solid black; padding: 2px;">CHECK-LED : BLINK (Please check within 20 seconds)</div> <p>Visually check that the CHECK-LEDs stay blinking for this duration.</p> <ul style="list-style-type: none"> • Last, make the CHECK-LEDs go off, and display the following message (20-second wait): <div data-bbox="699 2016 1358 2049" style="border: 1px solid black; padding: 2px;">CHECK-LED : OFF (Please check within 20 seconds)</div> |

| | |
|--|--|
| | <p>Visually check that the CHECK-LEDs stay off for this duration.</p> |
| <p>Switch (Forced Change-over Switch Test)</p> | <p>Check that the forced change-over switch on the LSU properly works. Time required for testing is about 60 seconds. During this test, you should control the forced change-over switch.</p> <p>This test should be run in the following order:</p> <ul style="list-style-type: none"> • Connect all the LSUs to be tested to 0, and display the following message (30-second wait): <div style="border: 1px solid black; padding: 2px; width: fit-content;">Please connect all LSU to "1" within 30 seconds.</div> <p>Control the forced change-over switch to change all the LSUs to be tested to 1 for this duration.</p> <p>Then, the fjswutest will check that the connection is successfully made, and determine whether the LSU passes or fails the test.</p> <ul style="list-style-type: none"> • If the expected connection is not made, the following message will be displayed: <div style="border: 1px solid black; padding: 2px; width: fit-content;">All LSU are not "1". Please retry.</div> <p>After this message appears, display the operational message again, and then retry the above operation. Up to 2 times of retry is possible.</p> <ul style="list-style-type: none"> • If the expected connection is made, proceed to display the following message (30-second wait): <div style="border: 1px solid black; padding: 2px; width: fit-content;">Please connect all LSU to "0" within 30 seconds.</div> <p>Control the forced change-over switch to change all the LSUs to be tested to 0 for this duration.</p> <p>Then, the fjswutest will check that the connection is successfully made, and determine whether the LSU passes or fails the test.</p> <ul style="list-style-type: none"> • If the expected connection is made, the test will be terminated. If the expected connection is not made, the following message will be displayed: <div style="border: 1px solid black; padding: 2px; width: fit-content;">All LSU are not "0". Please retry.</div> <p>After this message appears, display the operational message again, and then retry the above operation. Up to 2 times of retry is possible.</p> |

3.4.2 fjswutest Options



fjswutest Options

| Option | Description |
|----------|---|
| Sub Test | <p>Specify the subtests.</p> <ul style="list-style-type: none"> • SwitchFunction • ConnectLED • CheckLED • Switch |
| Test LSU | <p>Specify the LSU to be tested in four hexadecimal digits (0001-ffff).</p> <p>Specify the LSUs 0 to 15 in one-to-one correspondence with the bits.</p> <pre> bit: 15 14 ----- 1 0 X X ----- X X LSU0 LSU1 LSU14 LSU15 X→0 : LSU not to be tested 1 : LSU to be tested </pre> <p>By default, this option is set to 000f for 4-line switch</p> |

| | |
|-----------|--|
| | devices and ffff for 16-line switch devices. |
| Power Off | <p>This option should be specified when testing a device with either one of two power supplies turned off. Specify the unit with power supply turned off.</p> <p>none : With both 0 and 1 turned on 0 : With 0 turned off 1 : With 1 turned off</p> <p>By default, this option is set to "none". Also, for any units other than duplicate power supply units, specifying 0 and 1 is invalid.</p> |

3.4.3 fjswutest Test Modes

The fjswutest can be run only in the functional test mode.

fjswutest Test Modes

| Test Mode | Description |
|----------------------|---|
| Connection test mode | The fjswutest cannot be run in the connection test mode. |
| Functional test mode | The 4 subtests (Switch Function, Connect-LED, Check-LED, and Forced Change-over Switch tests) can be run in the functional test mode. |

3.4.4 fjswutest Command Line Syntax

fjswutest command line syntax is as follow.

```
/opt/FJSVvts/bin/fjswutest standard argument -o dev=device address[,testno=test number][,testlsu=LSU to be tested][,poweroff=none|0|1]
```

fjswutest Command Line Syntax

| Argument | Description |
|--------------------|---|
| dev=device name | Specify the address of the line switch device to be tested in eight hexadecimal digits. By default, an error message appears. |
| testno=test number | <p>Specify the test number of the subtest to be run.</p> <p>1 : Switch Function test 2 : Cnnect-LED test 3 : CHECK-LED test 4 : Forced Change-over Switch test</p> |

| | |
|---|---|
| | <p>By default, the Switch Function test, numbered 1, is run.</p> |
| testLSU= LSU to be tested | <p>Specify the LSU to be tested in four hexadecimal digits (0001-ffff). Specify the LSUs 0 to 15 in one-to-one correspondence with the bits.</p> <pre> bit: 15 14 ----- 1 0 X X ----- X X LSU0 LSU1 LSU14 LSU15 X→0 : LSU not to be tested 1 : LSU to be tested </pre> <p>By default, this argument is set to 000f for 4-line switch devices and ffff for 16-line switch devices.</p> |
| poweroff=LS U with power supply turned off | <p>This argument should be specified when testing a device with either one of two power supplies turned off. Specify the unit with power supply turned off.</p> <pre> none : With both 0 and 1 turned on 0 : With 0 turned off 1 : With 1 turned off </pre> <p>By default, this argument is set to "none". Also, for any units other than duplicate power supply units, specifying 0 and 1 is invalid.</p> |

3.4.5 fjswutest Error Messages

fjswutest Error Messages

| ID | Error Message | Probable Cause(s) | Recommended Action |
|------|--|---|--|
| 6000 | ERROR: open() error, errno = <i>error number</i> device name = <i>special file name</i> | System error: An error occurred while opening /dev/FJSVhwr device. | If the error still exists after retrying, it could indicate a problem with the operating system or the SCF driver. Check the contents of the system. |
| 6001 | ERROR: close() error, errno = error number | System error: An error | If the error still exist |

| | | | |
|------|---|--|--|
| | | occurred while closing /dev/FJSVhwr device. | after retrying, it could indicate a problem with the operating system or the SCF driver. Check the contents of the system. |
| 6002 | ERROR: ioctl(<i>command name</i>) error, errno = <i>error number</i> send data <i>send data</i> | System error: The ioctl ends abnormall | Check that the line switch device is successfull y installed in the RCI node. |
| | | Hardware error: The ioctl ends abnormally. | Check that the power is turned on. |
| 6003 | ERROR: power unit error sense data <i>sense data</i> | System error: There is a power failure with the line switch device (in the case of duplicate power supply devices). | Check that both power supplies on the line switch device are turned on. |
| | | Parameter error: Incorrect data is specified in "poweroff". (in the case of duplicate power supply devices) | Specify correct data in "poweroff" |
| | | Hardware error: There is a power failure with the line switch device. | |

| | | | |
|------|---|--|---|
| 6004 | ERROR: QSC unit error sense data <i>sense data</i> | Hardware error: There is an error with the QSC on the line switch device. | |
| 6005 | ERROR: LSU unit error sense data <i>sense data</i> | Hardware error: There is an error with the LSU on the line switch device. | |
| 6006 | ERROR: LSU connections error result LSU = <i>actual value for LSU connection status</i> expect LSU = <i>expected value for LSU connection status</i> sense data <i>sense data</i> | Hardware error: There is no match between the actual value and the expected value for connection status of the LSU on the line switch device. | |
| 6007 | ERROR: LSU not detected specified LSU = <i>the LSU specified</i> , detected LSU = <i>the LSU contained</i> | System error: The specified LSU is not contained. | Check that the LSU is properly contained on the line switch device. |
| | | Parameter error: Incorrect data is specified in "testlsu". | Specify correct data in "testlsu". |
| | | Hardware error: The specified LSU is not contained. | |
| 8000 | FATAL: option parameter error [dev=] [testno=] [testLSU=] [poweroff=] | parameter error: Incorrect data is specified in the parameter. | Specify correct data in the command line. |

3.5 Disk Device Media Test(fjvfytest)

The fjvfytest is a test program that checks the disk media and the head operation through the use of the subtests (Random Seek, Target Seek, and Verification). Random Seek and Target Seek are run to check that the head of the disk device properly works. Verification is run to read data from the disk device media and detect any read error or media error. This program can be run on the SunVTS.

3.5.1 fjvfytest Subtest

fjvfytest subtest

| Subtest | Description |
|-------------------------------------|---|
| RandomSeek (Random Seek Test) | Read a block of data 1000 times in a random position within the disk user area, and then check that the read function of the disk device properly works, that a read operation can be performed in the random position within the user area, and whether any media error exists. Time required for testing is about 20 seconds. |
| TargetSeek (Target Seek Test) | Read a block of data with changing seek data in the target mode (moving the address by 1000 blocks alternately from the start address and the end address), and then check that the head of the disk device is placed in each cylinder. Time required for testing is about 1 minute/GB. |
| Verification (Verification Test) | Seek and read data in all blocks within the disk user area, and then check that the read function of the disk device properly works, that a read operation can be performed in all blocks within the user area, and whether any media error exists. There are two types of test mode shown below <ul style="list-style-type: none"> • Read with data transfer (READ EXTENDED) • Read without data transfer (VERIFY) Time required for testing is about 2 or 3 minutes/GB. |

Note

- If the number of media errors exceeds 100, suspend the read operation, display the addresses of the blocks with any media error detected, and terminate the program.
- In case the partition 2 of IDE-device can not open, fjvfytest for its IDE-device can not execute.
- The number of this test program which is selected so as to test the disk array unit (PW-D5L1A1, PW-D500B1, PW-D500C1) installing the raid controller option (PW-D5ZF11, PW-D59F21, PW-D59F31) must be under 50 per one controller. Because the results of some tests become fail if the number of this test program which is selected is 50 and over per one controller.

【FjVTS error message】

```
SUNWvts.fjvfytest.8003 MM/DD/YY HH:MM:SS fjvfytest cXtXdX FATAL: ioctl error. errno = 5
```

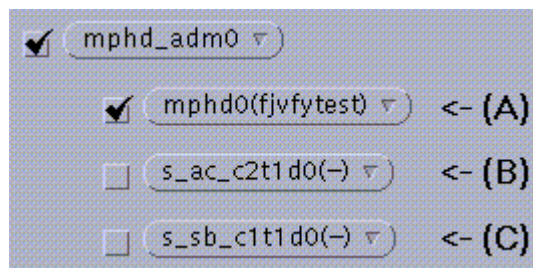
【OS messages】

```
WARNING: /pci@1c,4000/fibre-channel@2/sd@0,3b (sd606):
SCSI transport failed: reason 'timeout': retrying command
```

3.5.2 About device under the Volume Management software

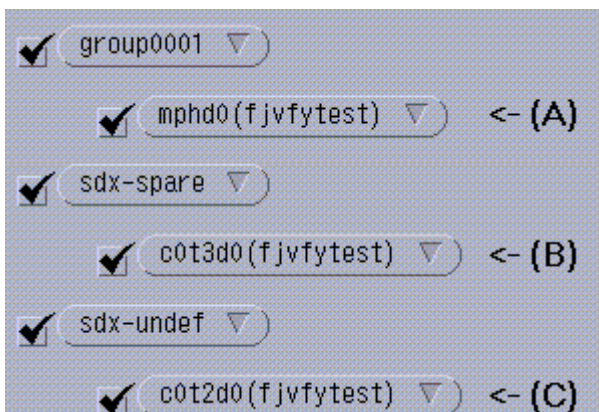
Running the MPHD, the following is displayed in the test selection panel.

Test Selection Panel (MPHD)



| | Description | | | | | | | | | | |
|----------|--|----------|--------|----|--------|----|---------|----|------|----|------|
| (A) | User access node. Access path to the device to be tested. | | | | | | | | | | |
| (B) (C) | Element status. "s_<status>cXtXdX" shows element status of user access node. <status> can be any one of the following. <table border="1" data-bbox="699 1346 962 1532"> <thead> <tr> <th><status></th> <th>Status</th> </tr> </thead> <tbody> <tr> <td>ac</td> <td>active</td> </tr> <tr> <td>sb</td> <td>standby</td> </tr> <tr> <td>st</td> <td>stop</td> </tr> <tr> <td>fa</td> <td>fail</td> </tr> </tbody> </table> <p>These are not tested device. If these are selected, a window pops up (see the following).</p> <div data-bbox="699 1675 1358 1749" style="border: 1px solid black; padding: 5px;"> <p>ERROR: This device is placed under control of the volume management driver.</p> </div> | <status> | Status | ac | active | sb | standby | st | stop | fa | fail |
| <status> | Status | | | | | | | | | | |
| ac | active | | | | | | | | | | |
| sb | standby | | | | | | | | | | |
| st | stop | | | | | | | | | | |
| fa | fail | | | | | | | | | | |

Running the SafeDISK, the following is displayed in the test selection panel.

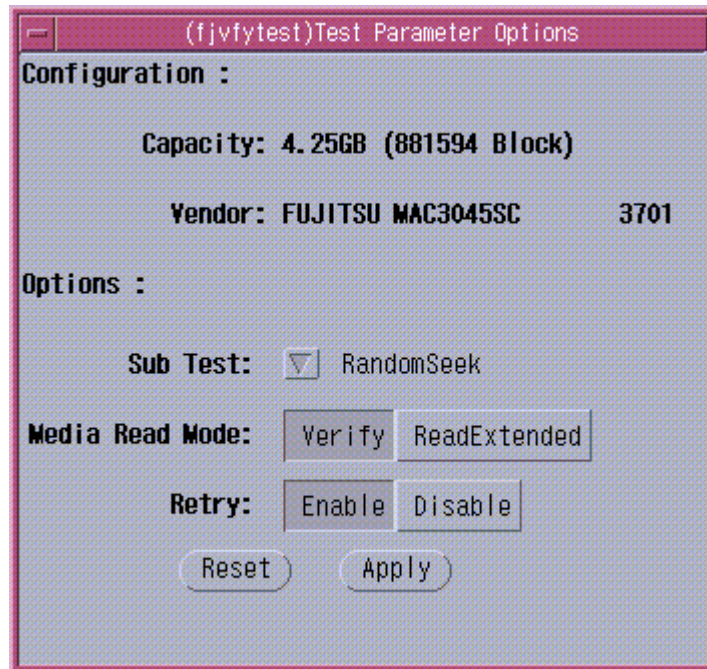


Note

- Set single-pass "enabled" if you run fjvfytest under SafeDISK.

| | Description |
|-----|--|
| (A) | mirror disk The name of the device connected to mirror disk group(ex. group0001). |
| (B) | spare disk The name of the device specified attribute type as "spare". All spare disks are displayed in "sdx-spare" test group. |
| (C) | undef disk The name of the device specified attribute type as "undef". All undef disks are displayed in "sdx-undef" test group. |

3.5.3 fjvfytest Test Options



fjvfytest Test Options

| Option | Description |
|-----------------|--|
| Sub Test | Specify the name of the subtest to be run. RandomSeek (Random Seek Test) TargetSeek (Target Seek Test) Verification (Verification Test) |
| Media Read Mode | Specify whether a read operation is performed with or without data transfer. Verifu : Without data transfer ReadExtended : With data transfer This option is valid only when Verification is specified in Sub Test option. This option is invalid for IDE-device. |
| Retry | Specify whether retry is performed when any error other than RECOVERED ERROR occurs during read operation. Enable : Retry will be performed. Disable : Retry will not be performed. |

3.5.4 fjvfytest Test Modes

The fjvfytest can be run only in the functional test mode.

fjvfytest Test Modes

| Test Mode | Description |
|-----------------|--|
| Connection Test | The fjvfytest cannot be run in the connection test mode. |
| Functional Test | The 3 subtests (Random Seek, Target Seek, and Verification) can be run in the functional test mode to check the disk media and the head operation. |

3.5.5 fjvfytest Command Line Syntax

fjvfytest command line syntax is as follow.

```
/opt/FJSVvts/bin/fjvfytest standard_argument -o
dev=device_name[, testno=0/1/2][, verify=0/1][, retry=Enable/Disable]
```

fjbcdrtest Command Line Syntax

| Argument | Explanation | Example |
|----------------------|---|---------|
| dev=device_name | Specify the name of the device to be tested. For example: dev=c0t3d0 or dev=mphd3 (device under the control of MPHD) The argument "dev" cannot be omitted. | |
| testno=0/1/2 | Specify the name of the subtest to be run. 0 : RandomSeek (Random Seek Test) 1 : TargetSeek (Target seek test) 2 : Verification (Verification test) By default, this argument is set to 0. | |
| verify=0/1 | Specify whether a read operation is performed with or without data transfer. 0 : Verify (without data transfer) 1 : ReadExtended (with data transfer) This argument is valid only when Verification is specified above. This option is invalid for IDE-device. By default, this argument is set to 0. | |
| retry=Enable/Disable | Specify whether retry is performed when any error other than RECOVERED ERROR occurs during read operation. Up to 3 times of retry is possible. Enable : Retry will be performed. Disable : Retry will not be performed. By default, this argument is set to "Enable". | |

3.5.6 fjvfytest Error Messages

fjvfytest Error Messages

| ID | Error Messages | Probable Cause(s) | Recommend Action |
|------|--|---|---|
| 6000 | ERROR: Option parameter error : parameter name | Parameter error. Incorrect data is specified in the parameter. | Specify correct data in the command line. |
| 6001 | ERROR: Bad test option : invalid parameter | Parameter error. Invalid data is specified in the parameter. | Specify correct data in the command line. |
| 6002 | ERROR: Test unit ready error CDB DATA = xxxxxxxxxxxx STATUS = xx SENSE DATA xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx | Hardware error. An error occurred while executing TEST UNIT READY command (checking the status of the disk drive). | |
| 6003 | ERROR: Inquiry error CDB DATA = xxxxxxxxxxxx STATUS = xx SENSE DATA xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx | Hardware error. An error occurred while executing INQUIRY command (obtaining INQUIRY data). | |
| 6005 | ERROR: Read capacity error CDB DATA = xxxxxxxxxxxxxxxxxxxxxx STATUS = xx SENSE DATA xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx | Hardware error. An error occurred while executing READ CAPACITY command (obtaining the disk drive capacity and the block | |

| | | | |
|------|--|---|--|
| | | size of data). | |
| 6006 | <p>ERROR: Read Error Error Block xxxxxxxx CDB DATA = xxxxxxxxxxxxxxxxxxxx INQUIRY DATA = ccccccccccccccccccccccccccc STATUS = xx SENSE DATA xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx</p> | <p>Hardware error. Any error other than a media error is detected (for example: a disk error).</p> | |
| 6007 | <p>ERROR: Medium Error Block Address xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx : xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx</p> | <p>Media error. A media error is detected during read operation.</p> | |
| 6008 | <p>ERROR: Read Error CDB DATA = xxxxxxxxxxxxxxxxxxxx INQUIRY DATA = ccccccccccccccccccccccccccc STATUS = xx</p> | <p>Hardware error. An error occurred during read operation.</p> | |
| 6011 | <p>ERROR: This instance does not have any paths</p> | <p>System error. This instance does not have any paths.</p> | <p>If the error still exists after retrying, check the system.</p> |
| 6012 | <p>ERROR: Stat error</p> | <p>System error. An error occurred while obtaining information about the device.</p> | <p>If the error still exists after retrying, check the system.</p> |
| 6013 | <p>ERROR: Seek error. errno = number Error Block xxxxxxxx</p> | <p>System error. An error occurred while seeking the device.</p> | <p>If the error still exists after retrying, check the system.</p> |
| 6014 | <p>ERROR: Read error. errno = number Error Block xxxxxxxx</p> | <p>System error. An error occurred while reading the device.</p> | <p>If the error still exists after retrying, check the system.</p> |

| | | | |
|------|--|--|---|
| 8000 | FATAL: Open error. errno = number | Parameter error. | Specify correct data in the command line (for example: dev=c0t3d0). |
| | | System error. An error occurred while opening the device. | If the error still exists after retrying, check the system. |
| 8001 | FATAL: Close error. errno = number | System error. An error occurred while closing the device. | If the error still exists after retrying, check the system. |
| 8002 | FATAL: Not enough memory | System error. The system is overloaded. | Decrease the load on the system by, for example, running a minimum of test programs at the same time. |
| | | System error. | If the error still exists after retrying, check the system. |
| 8003 | FATAL: ioctl error. errno = number | System error. An error occurred while executing the ioctl. | If the error still exists after retrying, check the system. |
| 8004 | FATAL: The number of paths are changed | System error. The number of instance paths are changed. | If the error still exists after retrying, check the system. |
| 8005 | FATAL: Not found active path | System error. An active path was not found. | If the error still exists after retrying, |

| | | | |
|------|--|--|---|
| | | | check the system. |
| 8006 | FATAL: DKIOCINFO ioctl error. errno = number | System error. An error occurred while executing the DKIOCINFO ioctl. | If the error still exists after retrying, check the system. |
| 8007 | FATAL: DKIOCGGEM ioctl error. errno = number | System error. An error occurred while executing the DKIOCGGEM ioctl. | If the error still exists after retrying, check the system. |

3.6 Fujitsu/PFU – WAN adapter test (fjwpcdtest)

The fjwpcdtest, WAN test program, diagnoses PC4A, PC2C, and PIBB. Those are all Fujitsu designed WAN cards. The test program will examine the connection and initiate the self-loop tests as follows.

- Chip internal loopback test
- Loopback test at connector
- Loopback test at modem

It will give you a fault-location at error detected. FJVTS user interface or command "fjwpcdtest", is available to run the test program.

But now, the WAN control is supported for Japan only.

Note

- The WAN control should be "non active" and be in "diag mode" before the test runs.
- The command `"/opt/FJSVwan/usr/bin/waninit stop"` will turn the WAN control to be "non active".
- The command `"/opt/FJSVwancm/usr/bin/wadptest start"` will turn the WAN control to be "diag mode".
- After the diagnostic has done, you should make the WAN control's status "operation mode" using the following commands.
`"/opt/FJSVwancm/usr/bin/wadptest stop"`
`"/opt/FJSVwan/usr/bin/waninit start"`

(When you install FJSVwan package and FJSVwancm package in `"/opt"` respectively).

- You may attach the appropriate connector for loopback test at connector, and modem and cable as well for the loopback test at modem
- The packages of driver below are required for the test program
 - FSUNnet
 - FJSVwancm
 - FJSVwan
- The FJVTS option, [intervention], should be enabled when you use the FJVTS user interface.
- Multiple initiation of the test is inhibited. It may cause an unpredictable result. You have to reset the card to recover it
 - The adapter reset command is
`"/opt/FJSVWANCm/usr/bin/adpctl -C adapter_name -restart"` です。

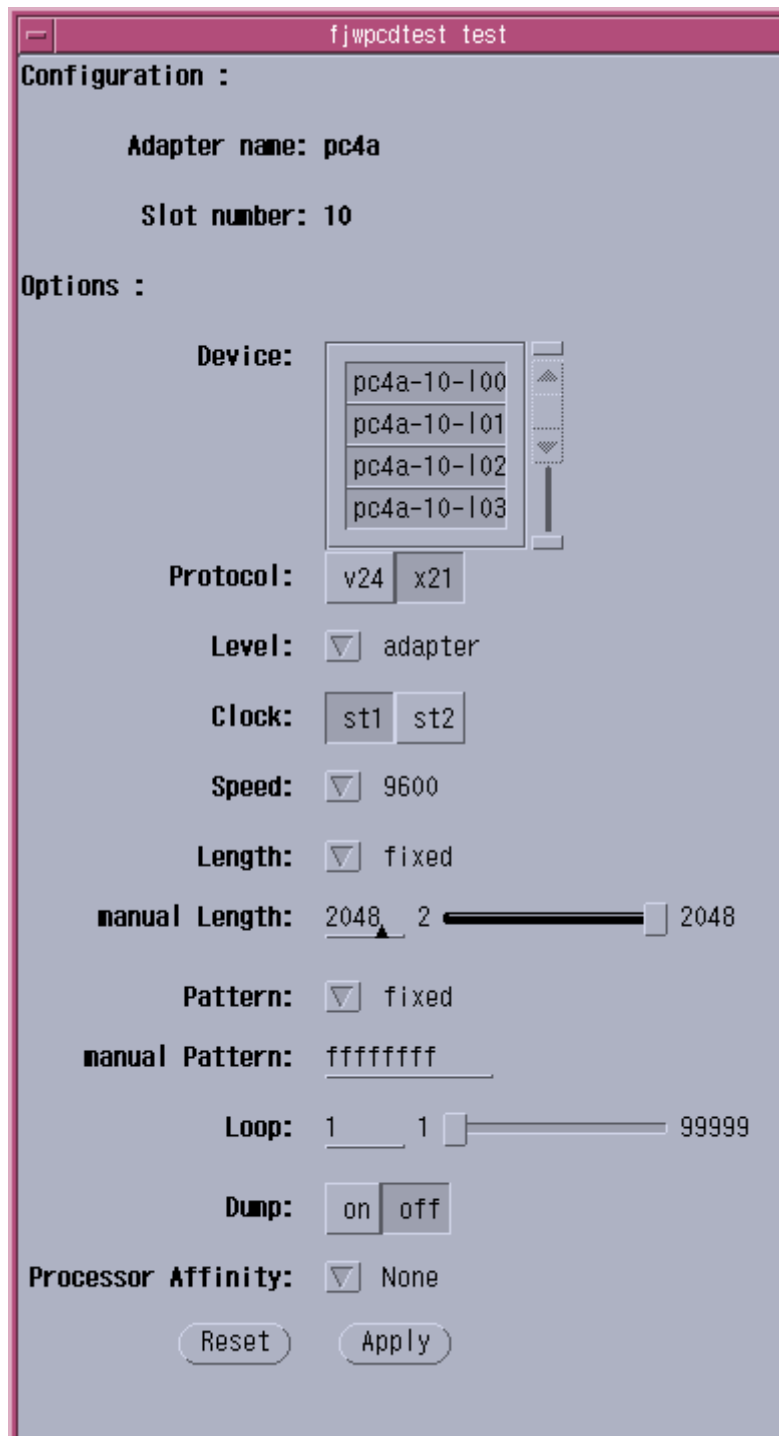
(When you install the package of FJSVwancm in `"/opt"`).

Please refer to "WAN control manual" for details.

- The elapsed time at default for one cycle test respectively are;
 - PC4A: about 45 seconds
 - PC2C: about 20 seconds
 - PIBB: about 1 minute

- With "all" specified in the test option, it may take more than one hour.

3.6.1 fjwpcdtest Test Options



fjwpcdtest Test Options

| Option | Description | | | | | | | | | | | | |
|--------------|---|-----------------------|------------------------------|---------|------|--|-----------------------|------|---|-----------------------|------|--|-------------------|
| Device | <p>The examined line name is selected. More than one line could be diagnosed at the same time</p> <table border="1"> <thead> <tr> <th>Adapter name</th> <th>The optional number of lines</th> <th>Default</th> </tr> </thead> <tbody> <tr> <td>PC4A</td> <td>4 lines can be selected. Select one or more line.</td> <td>4 lines are selected.</td> </tr> <tr> <td>PC2C</td> <td>2 lines can be selected. Select one or two line.</td> <td>2 lines are selected.</td> </tr> <tr> <td>PIBB</td> <td>Have no choice. 3 lines(B-channel x2 + D-channel) are selected.</td> <td>3 lines fixation.</td> </tr> </tbody> </table> | Adapter name | The optional number of lines | Default | PC4A | 4 lines can be selected. Select one or more line. | 4 lines are selected. | PC2C | 2 lines can be selected. Select one or two line. | 2 lines are selected. | PIBB | Have no choice. 3 lines(B-channel x2 + D-channel) are selected. | 3 lines fixation. |
| Adapter name | The optional number of lines | Default | | | | | | | | | | | |
| PC4A | 4 lines can be selected. Select one or more line. | 4 lines are selected. | | | | | | | | | | | |
| PC2C | 2 lines can be selected. Select one or two line. | 2 lines are selected. | | | | | | | | | | | |
| PIBB | Have no choice. 3 lines(B-channel x2 + D-channel) are selected. | 3 lines fixation. | | | | | | | | | | | |
| Protocol | <p>The examined protocol is selected. Either can be selected.</p> <table border="1"> <thead> <tr> <th>Adapter name</th> <th>Optional Protocol</th> <th>Default</th> </tr> </thead> <tbody> <tr> <td>PC4A</td> <td>V24 , X21</td> <td>X21</td> </tr> <tr> <td>PC2C</td> <td>V35 , RS449</td> <td>V35</td> </tr> <tr> <td>PIBB</td> <td>ISDN</td> <td>ISDN</td> </tr> </tbody> </table> | Adapter name | Optional Protocol | Default | PC4A | V24 , X21 | X21 | PC2C | V35 , RS449 | V35 | PIBB | ISDN | ISDN |
| Adapter name | Optional Protocol | Default | | | | | | | | | | | |
| PC4A | V24 , X21 | X21 | | | | | | | | | | | |
| PC2C | V35 , RS449 | V35 | | | | | | | | | | | |
| PIBB | ISDN | ISDN | | | | | | | | | | | |
| Level | <p>The level of the loopback test is selected, but only one level.</p> <table border="1"> <thead> <tr> <th>Adapter name</th> <th>Optional Level</th> <th>Default</th> </tr> </thead> <tbody> <tr> <td>PC4A</td> <td>adapter, connector, modem</td> <td>adapter</td> </tr> <tr> <td>PC2C</td> <td>adapter, connector, modem</td> <td>adapter</td> </tr> <tr> <td>PIBB</td> <td>adapter, adapter2</td> <td>adapter</td> </tr> </tbody> </table> <p>Note: The description of Optional Level adapter : Internal loopback(loopback at MPC860 chip for PC4A and PC2C, loopback at IST chip for PIBB.) adapter2 : Internal loopback only for PIBB (loopback at MPC860 chip) connector: Loopback at connector modem : Loopback at modem</p> | Adapter name | Optional Level | Default | PC4A | adapter, connector, modem | adapter | PC2C | adapter, connector, modem | adapter | PIBB | adapter, adapter2 | adapter |
| Adapter name | Optional Level | Default | | | | | | | | | | | |
| PC4A | adapter, connector, modem | adapter | | | | | | | | | | | |
| PC2C | adapter, connector, modem | adapter | | | | | | | | | | | |
| PIBB | adapter, adapter2 | adapter | | | | | | | | | | | |
| Clock | <p>The clock used is selected. Either can be selected.</p> <table border="1"> <thead> <tr> <th>Adapter name</th> <th>Optional Clock</th> <th>Default</th> </tr> </thead> <tbody> <tr> <td>PC4A</td> <td>st1, st2</td> <td>st1</td> </tr> <tr> <td>PC2C</td> <td>st1, st2</td> <td>st1</td> </tr> </tbody> </table> | Adapter name | Optional Clock | Default | PC4A | st1, st2 | st1 | PC2C | st1, st2 | st1 | | | |
| Adapter name | Optional Clock | Default | | | | | | | | | | | |
| PC4A | st1, st2 | st1 | | | | | | | | | | | |
| PC2C | st1, st2 | st1 | | | | | | | | | | | |

| | PIBB | Have no choice. | st1 | | | | | | | | | | | | | | | | | | | |
|------------------|---|--|--|--------------|-------------------------|----------------|------------------|--|-------|------------------------------------|------|-----|--|------|------|------------|---|-------|------|------|-----------------|--|
| | <p>Note: The description of "st1" and "st2" st1 : The clock of the adapter is used. st2 : The clock of the modem is used. "st2" requires a modem.</p> | | | | | | | | | | | | | | | | | | | | | |
| Speed | <p>Data-transfer speed(Baud rate) is selected. Only one can be selected.</p> <table border="1"> <thead> <tr> <th>Adapter name</th> <th>Protocol</th> <th>Optional Speed</th> <th>Default</th> </tr> </thead> <tbody> <tr> <td rowspan="2">PC4A</td> <td>V24</td> <td>1200, 2400, 4800, 9600, 19200, all</td> <td>9600</td> </tr> <tr> <td>X21</td> <td>1200, 2400, 4800, 9600, 19200, 24k, 38.4k, 48k, ※56k, 64k, 128k, 144k, 192k, 256k, 384k, 512k, 768k, 1024k, 1536k, all</td> <td>9600</td> </tr> <tr> <td>PC2C</td> <td>V35, RS449</td> <td>48k, ※56k, 64k, 128k, 144k, 192k, 256k, 384k, 512k, 768k, 1024k, 1536k, all</td> <td>1536k</td> </tr> <tr> <td>PIBB</td> <td>ISDN</td> <td>Have no choice.</td> <td>B-channel: 64k fixed D-channel: 16k fixed</td> </tr> </tbody> </table> <p>Note: Only when option "Clock" is "st2", 56Kbps can be selected. Note: With "all" specified, all optional baud rate are specified. (When option "Clock" is "st1", 56Kbps is excluded.)</p> | | | Adapter name | Protocol | Optional Speed | Default | PC4A | V24 | 1200, 2400, 4800, 9600, 19200, all | 9600 | X21 | 1200, 2400, 4800, 9600, 19200, 24k, 38.4k, 48k, ※56k, 64k, 128k, 144k, 192k, 256k, 384k, 512k, 768k, 1024k, 1536k, all | 9600 | PC2C | V35, RS449 | 48k, ※56k, 64k, 128k, 144k, 192k, 256k, 384k, 512k, 768k, 1024k, 1536k, all | 1536k | PIBB | ISDN | Have no choice. | B-channel: 64k fixed D-channel: 16k fixed |
| Adapter name | Protocol | Optional Speed | Default | | | | | | | | | | | | | | | | | | | |
| PC4A | V24 | 1200, 2400, 4800, 9600, 19200, all | 9600 | | | | | | | | | | | | | | | | | | | |
| | X21 | 1200, 2400, 4800, 9600, 19200, 24k, 38.4k, 48k, ※56k, 64k, 128k, 144k, 192k, 256k, 384k, 512k, 768k, 1024k, 1536k, all | 9600 | | | | | | | | | | | | | | | | | | | |
| PC2C | V35, RS449 | 48k, ※56k, 64k, 128k, 144k, 192k, 256k, 384k, 512k, 768k, 1024k, 1536k, all | 1536k | | | | | | | | | | | | | | | | | | | |
| PIBB | ISDN | Have no choice. | B-channel: 64k fixed D-channel: 16k fixed | | | | | | | | | | | | | | | | | | | |
| Length | <p>The transfer size of the test data is selected. Only one can be selected.</p> <table border="1"> <thead> <tr> <th>Adapter name</th> <th>Optional Length pattern</th> <th>Default</th> </tr> </thead> <tbody> <tr> <td>PC4A, PC2C, PIBB</td> <td>fixed, sequential, random, manual, all</td> <td>fixed</td> </tr> </tbody> </table> <p>Note: The description of the Optional Length pattern fixed : Fixed value(2, 2048) sequential : 2, 4, 8, 16, 32, , 1024, 2048 random : Random value(2-2048) manual : Specified value(by manual Length)</p> | | | Adapter name | Optional Length pattern | Default | PC4A, PC2C, PIBB | fixed, sequential, random, manual, all | fixed | | | | | | | | | | | | | |
| Adapter name | Optional Length pattern | Default | | | | | | | | | | | | | | | | | | | | |
| PC4A, PC2C, PIBB | fixed, sequential, random, manual, all | fixed | | | | | | | | | | | | | | | | | | | | |

| | <p>all : All patterns of fixed, sequential and random are executed.</p> | | | | | | |
|--------------------|--|--------------|-----------------------|---------|------------------|--|-------|
| manual Length | <p>When "manual" is selected for option "Length", the data length is specified. You can set the value to 2-2048. Default is 2048.</p> <p>Note: To examine effectively when option "Pattern" is "fixed", you had better set the value to 2048.</p> | | | | | | |
| Pattern | <p>Transfer data pattern is selected. Only one can be selected.</p> <table border="1"> <thead> <tr> <th>Adapter name</th> <th>Optional Pattern data</th> <th>default</th> </tr> </thead> <tbody> <tr> <td>PC4A, PC2C, PIBB</td> <td>fixed, sequential, random, manual, all</td> <td>fixed</td> </tr> </tbody> </table> <p>Note: Description of Optional Pattern data fixed : Fixed value (0xff, 0x00, 0x55, 0xaa 1byte pattern, 0xff-0x00 loop pattern, cross-talk data pattern) sequential : Increment value (0x000102030405...feff) random : Random value manual : Specified value (by manual Pattern) all : All patterns of fixed, sequential and random are executed.</p> | Adapter name | Optional Pattern data | default | PC4A, PC2C, PIBB | fixed, sequential, random, manual, all | fixed |
| Adapter name | Optional Pattern data | default | | | | | |
| PC4A, PC2C, PIBB | fixed, sequential, random, manual, all | fixed | | | | | |
| manual Pattern | <p>When "manual" is selected for option "Pattern", the data pattern can be specified. You can set 4 byte code with the hexadecimal number. Default is "ffffffff".</p> | | | | | | |
| Loop | <p>How many times this program diagnoses the devices by using the same setting is specified by decimal integer (1-99999). Default is 1.</p> | | | | | | |
| Dump | <p>Either "on" or "off" is selected. When the diagnosis result is ERROR, the firm dump of the adapter is obtained with option "Dump" being "on". (Dump file will be created in "/etc/opt/FJSVwancm/etc/dump/.") Default is "off".</p> | | | | | | |
| Processor Affinity | <p>This can be specified on multiprocessor systems. Only one processor can be bound to an instance of the test. When "No Selections" is specified, migrating is usual. Default is "No Selections".</p> | | | | | | |

3.6.2 fjwpcdtest Test Modes

fjwpcdtest Test Modes

| Mode | Description |
|-----------------|---|
| Connection Test | In this mode, fjwpcdtest diagnoses the connection of WAN card with open/close operation. No option can be set. |
| Functional Test | In this mode, fjwpcdtest diagnoses WAN cards by using the diagnosis interface of the adapter. The diagnosis interface accesses the hardware as well as "active" status. For PC4A/PC2C, the internal loopback, the loopback at connector and the loopback at modem can be executed. For PIBB, the internal loopback(two kinds) can be executed. When the error is detected, the cause will be pointed out. |

3.6.3 fjwpcdtest Command Line Syntax

fjwpcdtest command line syntax is as follow.

```
/opt/FJSVvts/bin/fjwpcdtest standard_arguments
-o dev=device_name [, protocol=v24|x21|v35|rs449|isdn,
level=adapter|connector|modem|adapter2, clock=st1|st2, speed=baud_rate (bps),
length=fixed|sequential|random|data_size (byte),
pattern=fixed|sequential|random|hexadecimal_number_pattern, loop=n, dump=on|off]
```

Please refer to "Table. fjwpcdtest Test Options" for every parameter's content. However, there is an option that default value is different in the SunVTS user interface and the command line, it is describe in the note column. And please refer to the SunVTS test reference for "standard_arguments".

fjwpcdtest Command Line Syntax

| Arguments | Description | Example |
|-----------|--|---|
| dev | The adapter name or the line name to be diagnosed is specified. It is mandatory parameter, and the syntax for PC4A and PC2C is " <i>Adapter_name-Slot_number(two digits)-lLine_number(two digits)</i> ". When more than one line are specified, "+" sign is put. Moreover, each lines must be on the same adapter. When all the lines are specified, the syntax is " <i>Adapter_name-Slot_number(two digits)</i> ". The syntax for PIBB is " <i>Adapter_name-Slot_number(two digits)</i> ". | dev=PC2C-00-100+P C2C-00-101 dev=PC4A-00 dev=PIBB-03 |
| protocol | The examined protocol is specified. | protocol=v24 |
| level | The loopback level is specified. | level=modem |

| | | |
|---------|--|---|
| clock | The clock used is specified. | clock=st1 |
| speed | Data-transfer baud rate is specified. | speed=512k The default value of x21 is 64k(It is 9600 in the SunVTS user interface). |
| length | The transfer data size is specified. To specify "manual", the value of transfer data size is input directly by a decimal integer. | length=fixed length=1024 |
| pattern | The test data pattern is specified. To specify "manual", the test data pattern is input directly by the hexadecimal number(4byte). | pattern=random pattern=ff0055a a |
| loop | The frequency diagnosed by the pattern of the same setting is specified. | loop=100 |
| dump | It is specified whether to dump the firm of the adapter when the hard error is detected. | dump=on |

3.6.4 fjwpcdtest Error Messages

fjwpcdtest Error Messages

| ID | Error Message | Probable Cause(s) | Recommended Action |
|------|---|--|-------------------------------------|
| 6000 | Hard ware error: linename=[line_name], loop_result=[diagnosis_result], loop_ecode=[error_code], loop_detail1=[detail_data1], loop_detail2=[detail_data2] Parameter: speed=[baud rate], data_length=[data_length], data_pattern=[data_pattern] | Hardware error was detected in [line_name]. | Replace the adapter. |
| 6001 | Line error: linename=[line_name], loop_result=[diagnosis_result], loop_ecode=[error_code], loop_detail1=[detail_data1], loop_detail2=[detail_data2] Parameter: speed=[baud rate], data_length=[data_length], data_pattern=[data_pattern] | The modem or cable connected with [line_name] is abnormal. | Check the modem and cable. |
| 6002 | Receive data error: linename=[line_name], loop_result=[diagnosis_result], loop_ecode=[error_code], loop_detail1=[detail_data1], loop_detail2=[detail_data2] Parameter: speed=[baud rate], data_length=[data_length], data_pattern=[data_pattern] | The received data error was detected in [line_name]. | Check the adapter, modem and cable. |

| | | | |
|------|---|--|--|
| 6003 | Resource allocate error on diag: linename=[line_name], loop_result=[diagnosis_result], loop_ecode=[error_code], loop_detail1=[detail_data1], loop_detail2=[detail_data2] Parameter: speed=[baud rate], data_length=[data_length], data_pattern=[data_pattern] | Resource allocation failed while diagnosing [line_name]. | Increase the free memory and the swap. |
| 6004 | Definition antilogy on diag: linename=[line_name], loop_result=[diagnosis_result], loop_ecode=[error_code], loop_detail1=[detail_data1], loop_detail2=[detail_data2] Parameter: speed=[baud rate], data_length=[data_length], data_pattern=[data_pattern] | System error | Check the system. |
| 6005 | Program antilogy on diag: linename=[line_name], loop_result=[diagnosis_result], loop_ecode=[error_code], loop_detail1=[detail_data1], loop_detail2=[detail_data2] Parameter: speed=[baud rate], data_length=[data_length], data_pattern=[data_pattern] | System error | Check the system. |
| 6006 | Time out error: linename=[line_name], time = [second] Parameter: speed=[baud rate], data_length=[data_length], data_pattern=[data_pattern] | The diagnosis did not end in [line_name] though passed time or more. | Replace the adapter. |
| 6007 | Data compare error: linename=[line_name], [compared_byte_size]/[transfer_byte_size] byte Send_data = [send_data] Receive_data = [receive_data] Parameter: speed=[baud rate], data_length=[data_length], data_pattern=[data_pattern] | Received data is not an expectaion value. | Replace the adapter. |
| 6008 | Undefined error: linename=[line_name], loop_result=[diagnosis_result], loop_ecode=[error_code], loop_detail1=[detail_data1], loop_detail2=[detail_data2] Parameter: speed=[baud rate], data_length=[data_length], data_pattern=[data_pattern] | It is an error not defined. | Replace the adapter. |
| 8000 | Memory allocate error. ([variable_name]) | Not enough memory | Check the system. |
| 8001 | Ioctl failed. [command]: [reason] | System error | Check the system. |

| | | | |
|------|---|--|--|
| 8003 | Ioctl failed. linename=[line_name] [command]: [reason] | System error | Check the system. |
| 8004 | This program run on root ID. | Not superuser | Become superuser. |
| 8005 | Can't diagnose because the device is active. | WAN control is active. | Make WAN-control deactivated. Refer to Note-1. |
| 8006 | Can't diagnose because the firmware is not downloaded. | The firmware is not downloaded to the adapter. | Reboot, or Reset the adapter. Refer to Note-5. |
| 8009 | [command_name] failed. [reason] | System error | Check the system. |
| 8010 | Can't find [command_name]. | System error | Check whether the command exists. |
| 8011 | Can't find wpcd driver. | System error | Install the WAN driver. |
| 8012 | Set dev parameter. | "dev" parameter is not input. | Input "dev" parameter. |
| 8013 | Please enter an appropriate value, [input_value]=? | [input_value] is invalid. | Input the valid value. |
| 8014 | Bad test option: [option] | The specified option does not exist. | Specify the correct option. |
| 8015 | Can't find [adapter_name] adapter. | Can't find the specified adapter. | Check the adapter. |
| 8016 | [adapter_name] adapter is resetting now. | Device failure | Reset the adapter. Refer to Note-5. |
| 8017 | [adapter_name] adapter is error status now. | Device failure | Reset the adapter. Refer to Note-5. |
| 8018 | "Can't open [file_name]. [reason] | System error | Check the system. |
| 8019 | Failed to close [file_name]. [reason] | System error | Check the system. |
| 8020 | Child Process Illegal failed. [reason] | System error | Check the system. |
| 8021 | Not matching your option parameters. | The combination of the specified parameter is | Check the parameter. |

| | | | |
|------|--|--------------|-------------------|
| | | invalid. | |
| 8022 | Device busy. ([command_name]: retry=[frequency]) | System error | Check the system. |