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# FJVTS Test Reference Manual

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## Preface

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.

The primary audience of this manual is hardware testing and verification personnel, qualified service-trained maintenance providers, and advanced system end users.

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# Operation of FJVTS

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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"

## Software Requirements

You must meet the following requirements to install FJVTS.

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

FJVTS syntax is shown below.

Table. FJVTS Syntax

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```
/opt/FJSVvts/bin/fjvts [-v] [-g] [-F FJVTS_bin_directory] [-S SUNVTS_bin_directory] [-tqpsel] [-o options_file] [-f logfile_directory] [-h hostname]
```

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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_directory	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.

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## Set up of FJVTS

The syntax of setting up FJVTS is shown below.

Table. Set up of FJVTS Syntax

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**/opt/FJSVvts/bin/testgenfj [-f] [-S SUNVTS\_bin\_directory] [-F FJVTS\_bin\_directory]**

---

<b>Arguments</b>	<b>Description</b>
-f	The Setup is forced to execute.
-S SUNVTS_bin_directory	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".

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## FJVTS version display

The syntax to see the FJVTS version is shown below.

Table. FJVTS version display Command Line Syntax

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**/opt/FJSVvts/bin/testinfofj [-F FJVTS\_bin\_dir]**

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<b>Argument</b>	<b>Description</b>
-F FJVTS_bin_dir	The directory in which FJVTS is installed is specified. The default is "/opt/FJSVvts/bin".

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## 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/FJSVvts/bin/testname*
- 64-bit tests-*/opt/FJSVvts/bin/sparcv9/testname*

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### 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.

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## Notice about running FJVTS

the notes about running FJVTS is shown below.

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### Notes Description

1. Don't use the ampersand(&) to run FJVTS in the background.

2. 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'
```

3. 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.
4. 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.
5. 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.
6. 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.
7. 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 + I".
8. It's no problem that the following message is displayed when you use FJVTS5.1.

```
Sep 15 15:14:25 plato-os2 SunVTS5.1: entry = .customtest
Sep 15 15:14:25 plato-os2 SunVTS5.1: entry = .customtest_OtherDevices
ses dev /dev/es/ses0 open failed
ses dev /dev/es/ses1 open failed
```

9. 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.
10. 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.

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## Notice about invoking via Machine Administration

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

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### **Notes Description**

1. 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.
  2. 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`
  3. If OpenWindows was installed besides /usr/openwin, it is need to change "OPENWINHOME" variable described in "fvts" command.
  4. 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.
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# Basic communication adapter test (fjbcdrttest)

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The fjbcdrttest diagnoses PC4B adapter(GP7B8BA1). This test program executes 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 "fjbcdrttest", is available to run the test program.

But now, PC4B adapter is supported for Japan only.

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**Note -** The BC driver must be stopped before the test runs.

**1.**

- 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.)

**Note -** You may attach the appropriate connector for loopback test at connector, and modem and cable as well for the loopback test at modem.

**2.**

**Note -** The below packages are required for this test program.

- 3.**
- FSUNnet
  - FSUNbcdr

**Note -** The FJVTS option, [intervention], should be "Enable" when you use the FJVTS user interface.

**4.**

**Note -** Multiple initiation of the test is inhibited. It may cause an unpredictable result. You have to reset the card to recover it.

**5.**

- 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.

**Note -** The elapsed time at default for one cycle test respectively are;  
about 50 seconds at one adapter.

**6.**

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

**7.**

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# fjbcdrtest Test Options

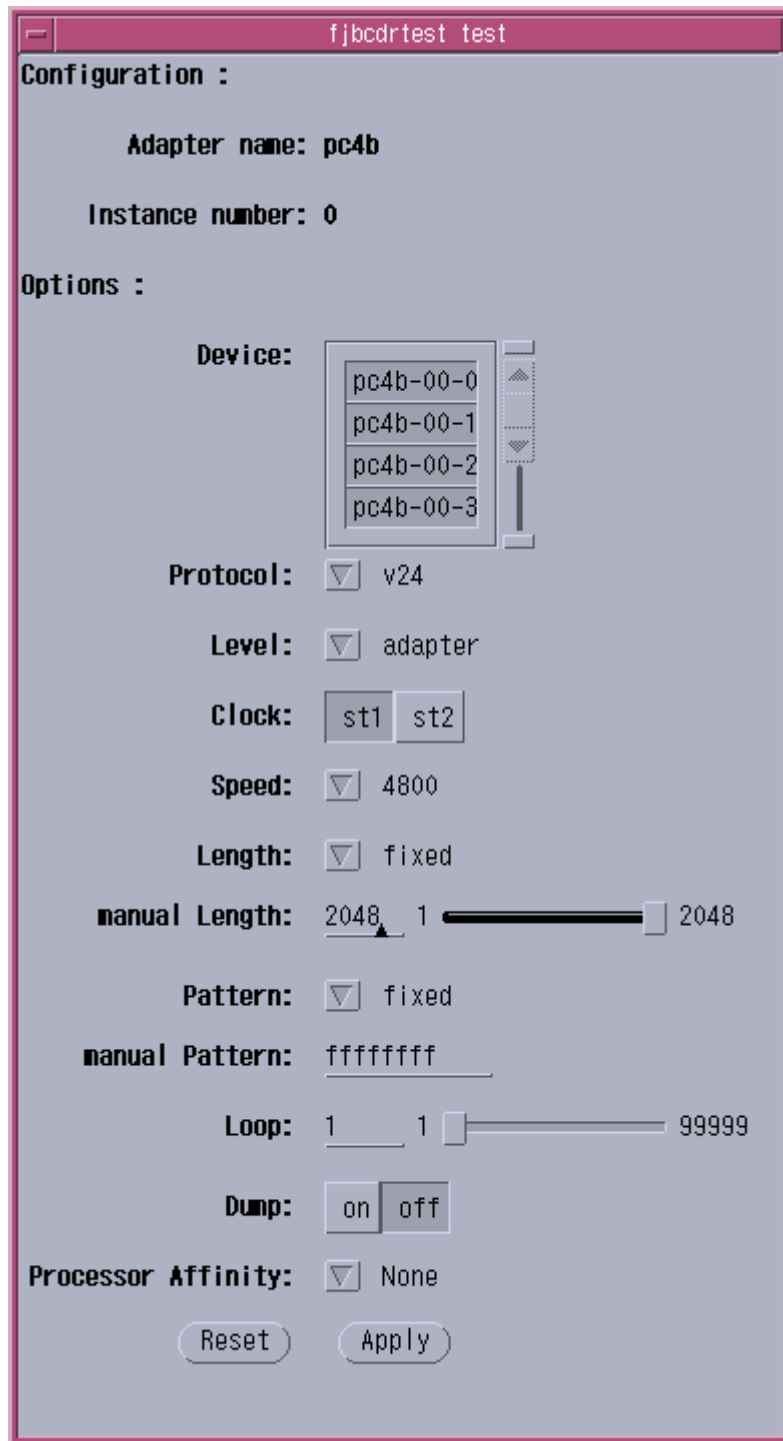


Figure. fjbcdrtest Test Options

Table. fjbcdrtest Test Options

Options	Description
Device	The examined line name is selected. More than one line could be diagnosed at the same time.



The optional number of lines	Default
4 lines can be selected. Select one or more line.	4 lines are selected.

---

Protocol The examined protocol is selected. This option cannot be changed.

Optional Protocol	Default
V24	V24

---

Level The level of the loopback test is selected, but only one level.

Optional Level	Default
adapter,connector,modem	adapter

Note: The description of Optional Level

adapter: Internal loopback(loopback at MPC860 chip)

connector: Loopback at connector

modem: Loopback at modem

---

Clock The clock used is selected. Either can be selected.

Optional Clock	Default
st1,st2	st1

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.

---

Speed Data-transfer speed(Baud rate) is selected. Only one can be selected.

Protocol	Optional Speed	Default
V24	1200,2400,4800,9600,19200,all	4800

Note: With "all" specified, all optional baud rate are specified.

Note: "all" cannot be specified when option "Clock" is "st2".

---

Length The transfer size of the test data is selected. Only one can be selected.

Optional Length pattern	Default
fixed,sequential,random,manual,all	fixed

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.

manual Length When "manual" is selected for option "Length", the data length is specified. You can set the value to 1-2048.  
 Default is 2048.  
 Note: To examine effectively when option "Pattern" is "fixed", you had better set the value to 2048.

Pattern Transfer data pattern is selected. Only one can be selected.

Optional Pattern data	Default
fixed,sequential,random,manual,all	fixed

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.

manual Pattern 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".

Loop How many times this program diagnoses the devices by using the same setting is specified by decimal integer (1-99999).  
 Default is 1.

Dump 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".

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".

## fjbcdrtest Test Modes

Table. fjbcdrtest Test Modes

Modes	Description
Connection Test	fjbcdrtest does not support Connection Test mode.

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**Functional Test** In this mode, fjbcdrtst 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.

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## fjbcdrtst Command Line Syntax

`/opt/FJSVvts/bin/fjbcdrtst 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. fjbcdrtst Test Options" for every parameter's content. And please refer to the SunVTS test reference for "standard\_arguments".

Table. fjbcdrtst 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</i> (2 or 3 digits)- <i>Line_number</i> (1 digit)". 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</i> (2 or 3 digits)".	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=512k
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=ff0055aa
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

## fjbcdrtest Error Messages

Table. fjbcdrtest Error Messages

ID	Error Message	Probable Cause(s)	Recommended Action
6000	Hard ware error: linenoame=[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: linenoame=[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: linenoame=[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: linenoame=[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: linenoame=[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.
6009	Abnormal error: linenoame=[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: lineno=[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. lineno=[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-1.
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 bcd 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.

# CPU cache stress test (fj cachetest)

---

The fj cachetest 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. FJVTS user interface or command "fj cachetest", is available to run the test program.

---

**Note -** The elapsed time at default for one cycle test respectively are;

**1.**

- "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.

**Note -** The fj cachetest is a scalable test. The maximum number of instances (processes) is 16.

**2.**

**Note -** When the mode is "large" and the loop is default value "100", it may take hours to increase the pass count.

**3.**

---

## fj cachetest Test Options

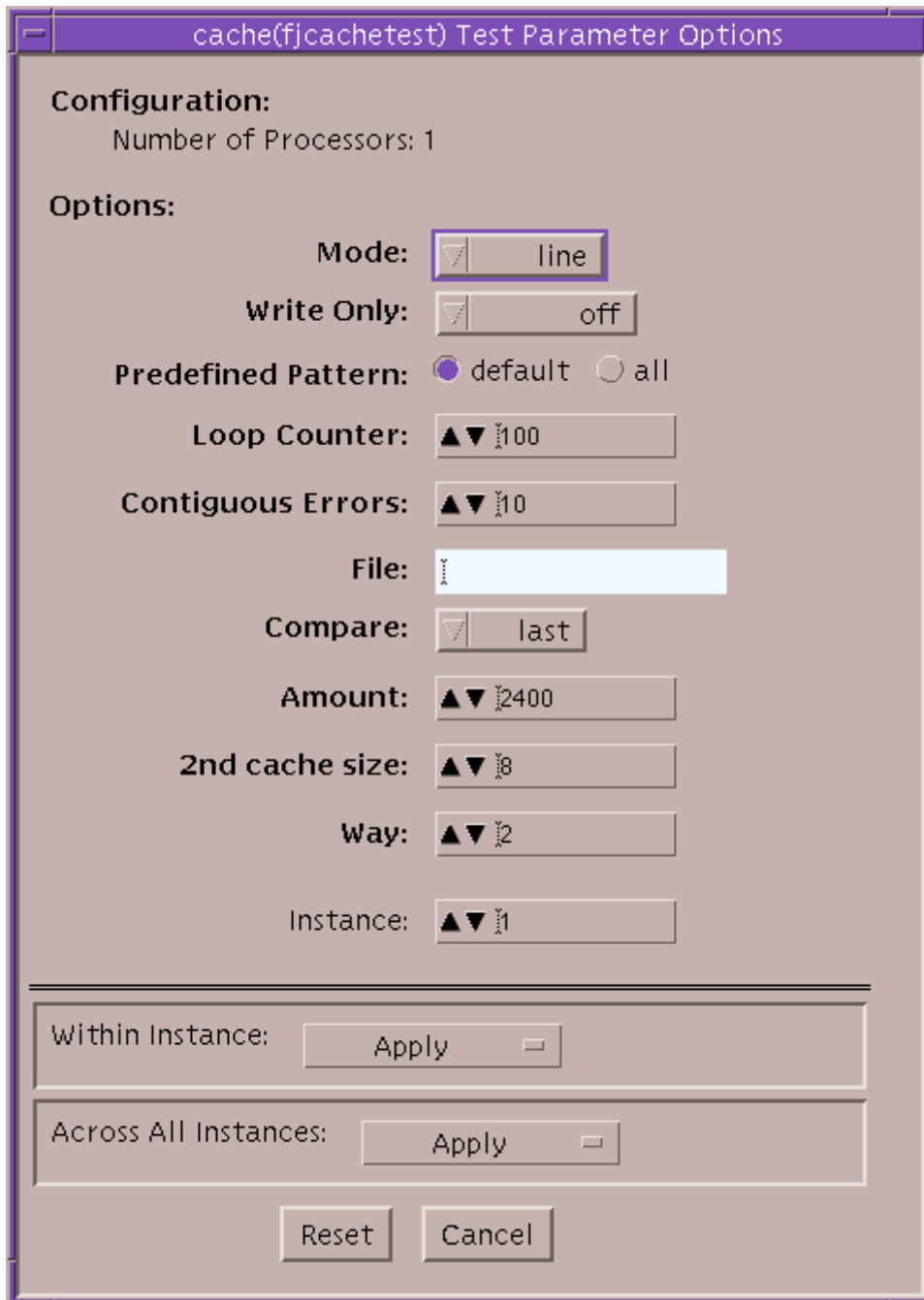


Figure. fjccachetest Test Options

Table. fjccachetest Test Options

Options	Description
Mode	This is used to select the test mode. Please choose one from among the following.
Optional mode	Default
line, byte, share, share2, large, random, all	line

Note: The description of Optional mode

line: Access by a E-cache line size

byte: Access by a byte

share: Synchronous access to the shared memory



share2: Asynchronous access to the shared memory

large: Access to the swap memory

random: Random access

- 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.
- "share" or "share2" is not selectable on the uniprocessor system.
- "random" is write access only.

---

**Write Only** 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.

Option	Default
on,off,read_only	off

---

**Predefined Pattern** This is used to select the test pattern. Please choose one from among the following.

Optional Pattern data	Default
default,all	default

---

**Loop Counter** How many times this program diagnoses the devices by using the same setting is specified by decimal integer (1-99999).  
Default is 100.

---

**Contiguous Errors** How many errors the fjcachetest print out is specified by decimal integer (1-500).  
Default is 10.

---

**File** The data pattern file can be specified. You can set the maximum 20 characters. The fjcachetest gets the data pattern from the file. The available data is a character string which shows the hexadecimal number.  
Default is not specified.

---

**Compare** This is used to select the timing of data comparison. Please choose one from among the following.

Optional compare pattern	Default
last,order,switch	last

Note: Description of Optional compare pattern

last: After sequentially writing the test pattern, the program compares the test area to the test pattern.

order: The writing and the comparing are alternately repeated by each E-cache line size.

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.

---

**Amount** 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.

- 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	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.
Way	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.
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".

## fj cachetest Test Modes

Table. fj cachetest 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.

## fj cachetest Command Line Syntax

*/opt/FJSVvts/bin/fj cachetest 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. fj cachetest Test Options" for every parameter's content. And please refer to the SunVTS test reference for "standard\_arguments".

Table. fj cachetest 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	bind=0+2+5 bind=all

	are specified, it is specifiable with "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/hogehoge
amount	The size of the examination object at "Mode=large" is specified. The unit is Mbyte.	amount=0,amount=1000,amount=max
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

## fjcachetest Error Messages

Table. fjcachetest Error Messages

ID	Error Message	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 [Option].	Please specify a 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.

# 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.

---

## fjcpustest Test Options

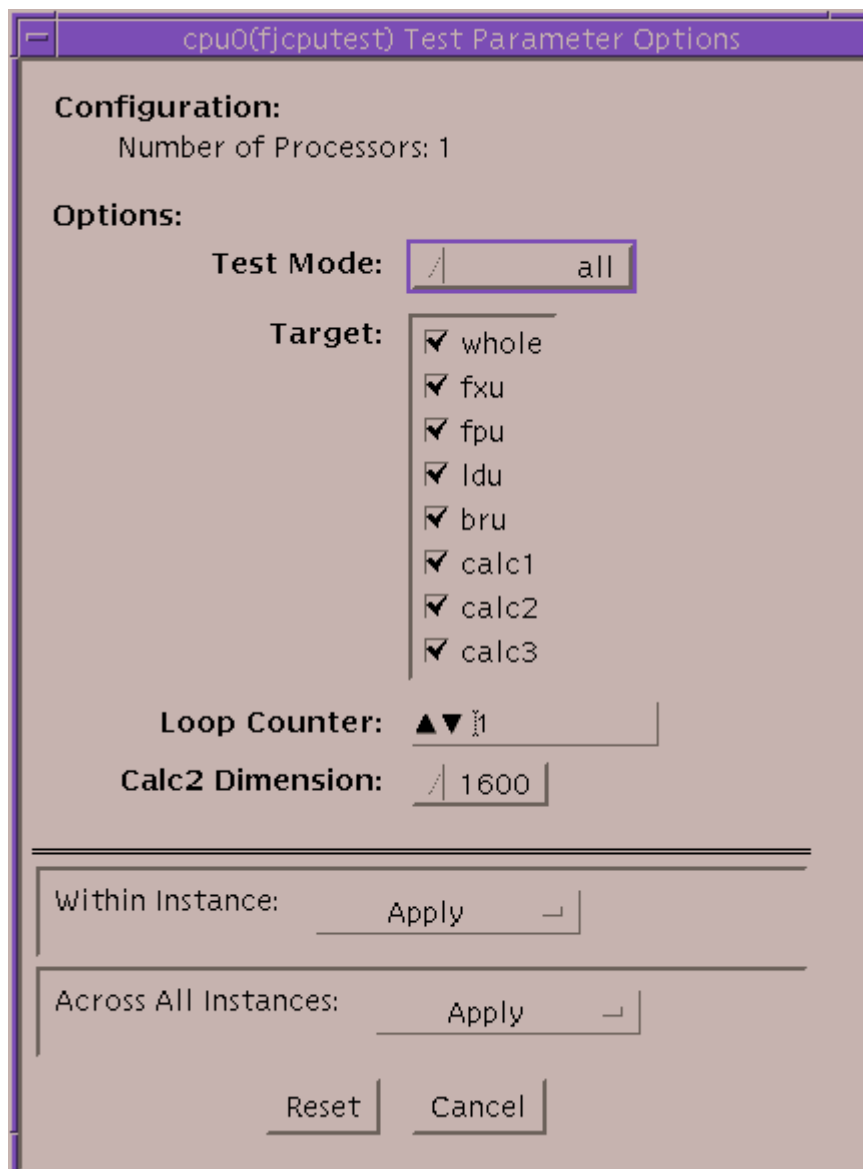


Figure. fjcpustest Option Menu

Table. fjcputest Test Options

Option	Description
--------	-------------

**Test Mode** This option determines the test level.  
You can select one of the following parameters.

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.

Default value is "all"

**Target** 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.

Selectable target	Default
whole,fxu,fpu,ldu,bru,calc1,calc2,calc3,calc4	whole+fxu+fpu+ldu+bru+calc1+calc2+calc3+calc4

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

When the OS is running under 32bit kernel, calc4 can be selected.

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.

The execution time depends on other running programs and 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** This option specifies the dimension of the array which is used by calculate test-2. You can choose Dimension 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".

## fjcpptest Test Modes

Table. fjcpptest 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 stale 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.

## fjcpptest Command-Line Syntax

`/opt/FJSVvts/bin/fjcpptest standard_arguments`

`-f -o [dev=CPU]`

`number,mode=instruction|unitstress|all,target=whole+fxu+fpu+ldu+bru+calc1+calc2+calc3+calc4,`

`loop=n,dim=200|400|800|1600|3200|4800]`

For detail, please refer to "Table. fjcpptest Test Options". About "standard\_arguments", please refer to the SunVTS test reference.

Argument	Description	Example
dev	Specify the test CPU module name. Only one module is specifiable. Please invoke two or more fjcpptest 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.	loop=100

	Default is "loop=10".	
dim	Specifies the dimension of array. It is used by the calculate test-2. Default is "dim=1600".	dim=400

## fjcuputest Error Messages

Table. fjcuputest 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, xxxxxxx FR7 xxxxxxxx, xxxxxxx 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, xxxxxxx FR15 xxxxxxxx, xxxxxxx continue 6002	This is continued message from message ID6000.	Please refer to message ID6000.
6002	GR16 xxxxxxxx, xxxxxxxx FR16 xxxxxxxx, xxxxxxxx ..... GR23 xxxxxxxx, xxxxxxx FR23 xxxxxxxx, xxxxxxx continue 6003	This is continued message from message ID6000.	Please refer to message ID6000.
6003	GR24 xxxxxxxx, xxxxxxxx FR24 xxxxxxxx, xxxxxxxx ..... GR31 xxxxxxxx, xxxxxxx FR31 xxxxxxxx, xxxxxxx	This is continued message from message ID6000.	Please refer to message ID6000.
6004	Failed CPU core (load/store)	The data compare	Please replace the CPU module.



	unit) Test Address Expect Result xxxxxxxx xxxxxxxx xxxxxxxx	error occurred by the LD unit test.	
6005	Failed CPU core (calc3) Test Expect VE00 VE11 VE13 xxxxxxxx xxxxxxxx xxxxxxxx VE14 VE21 xxxxxxxx xxxxxxxx VE23 VE24 VE31 xxxxxxxx xxxxxxxx xxxxxxxx VE33 VE34 xxxxxxxx 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 xxxxxxxx xxxxxxxx xxxxxxxx VE14 VE21 xxxxxxxx xxxxxxxx VE23 VE24 VE31 xxxxxxxx xxxxxxxx xxxxxxxx VE33 VE34 xxxxxxxx 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,	Please replace the CPU module.

		interrupt did not occur.	
6306	FPU Trap should not occur, but occurred.	The not expected interrupt occurred.	Please replace the CPU module.
6307	Bus Error did not occur.	The expected bus error interrupt did not occur.	Please replace the CPU module.
6308	Did not create correct IEEE exception (Inexact): expected = 1, observed = "Observation value"	The expected inaccurate interruption did not occur.	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 occur.	Please replace the CPU module.
6310	Did not create correct IEEE exception (Overflow) : expected = 8, observed = "Observation value"	The expected overflow interruption did not occur.	Please replace the CPU module.
6311	Did not create correct IEEE exception (Invalid) : expected = 10, observed = "Observation value"	The expected invalid interruption did not occur.	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 the floating point arithmetic test.	Please replace the CPU module.
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	Please refer to message ID6000.

		error occurred in executing the test item.	
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.

# 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.

- Notes:**
- 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.\*\*"

---

Table. fjswutest Subtests

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)	Visually check that the Connect-LED goes on and off. Time required for testing is about 40 seconds. This test should be run in the following order: <ul style="list-style-type: none"><li>• Connect all the LSUs to be tested to 1, and display the following message (20-second wait):<div style="border: 1px solid black; padding: 2px; display: inline-block;">CONNECT-LED : Make sure that all LSU are "1" within 20 seconds.</div> Visually check that both the LED (1) on the LSU to be tested and the LED (1) on</li></ul>

the panel stay on for this duration.

- Then, connect all the LSUs to be tested to 0, and display the following message (20-second wait):

**CONNECT-LED : Make sure that all LSU are "0" within 20 seconds.**

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.

---

#### Check-LED (Check-LED Test)

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.

This test should be run in the following order:

- First, make the CHECK-LEDs go on, and display the following message (20-second wait):

**CHECK-LED : ON (Please check within 20 seconds)**

Visually check that the CHECK-LEDs stay on for this duration.

- Then, make the CHECK-LEDs blink, and display the following message (20-second wait):

**CHECK-LED : BLINK (Please check within 20 seconds)**

Visually check that the CHECK-LEDs stay blinking for this duration.

- Last, make the CHECK-LEDs go off, and display the following message (20-second wait):

**CHECK-LED : OFF (Please check within 20 seconds)**

Visually check that the CHECK-LEDs stay off for this duration.

---

#### Switch (Forced Change-over Switch Test)

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.

This test should be run in the following order:

- Connect all the LSUs to be tested to 0, and display the following message (30-second wait):

**Please connect all LSU to "1" within 30 seconds.**

Control the forced change-over switch to change all the LSUs to be tested to 1 for this duration.

Then, the fjswutest will check that the connection is successfully made, and determine whether the LSU passes or fails the test.

- If the expected connection is not made, the following message will be displayed:

**All LSU are not "1". Please retry.**

After this message appears, display the operational message again, and then retry the above operation. Up to 2 times of retry is possible.

- If the expected connection is made, proceed to display the following message (30-second wait):

**Please connect all LSU to "0" within 30 seconds.**

Control the forced change-over switch to change all the LSUs to be tested to 0 for this duration.

Then, the fjswutest will check that the connection is successfully made, and determine whether the LSU passes or fails the test.

- If the expected connection is made, the test will be terminated. If the expected connection is not made, the following message will be displayed:

All LSU are not "0". Please retry.

After this message appears, display the operational message again, and then retry the above operation. Up to 2 times of retry is possible.

## fjswutest Options

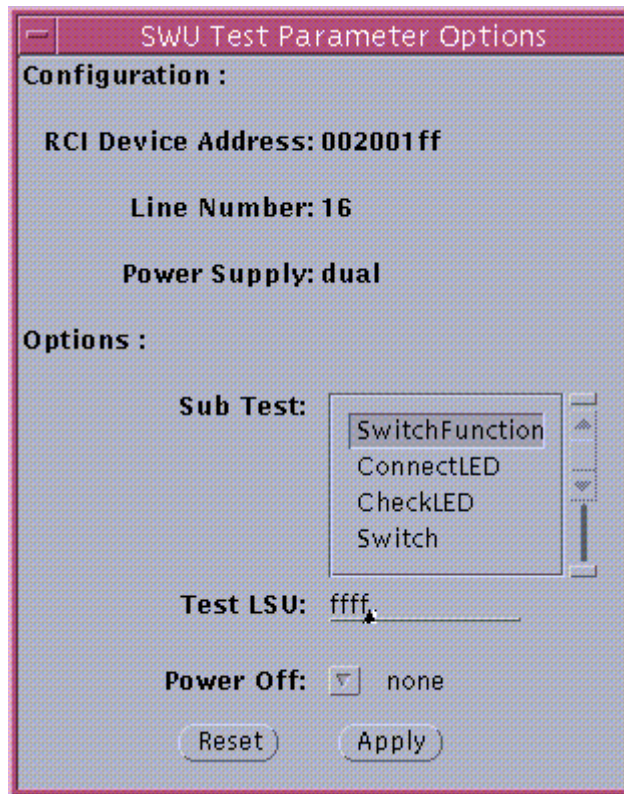


Figure. fjswutest Option Screen

Table. fjswutest Options

Option	Description
Sub Test	Specify the subtests.  SwitchFunction ConnectLED CheckLED Switch
Test LSU	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.  bit:   15 14 -----   1 0 X  X -----   X  X      -----







*number*  
*send data*  
*send data*

---

Hardware error:  
The ioctl ends abnormally.

Check that the power is turned on.

---

6003 ERROR: power unit  
error  
sense data  
*sense data*

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  
*sense data*

Hardware error:  
There is an error with the QSC on the  
line switch device.

---

6005 ERROR: LSU unit  
error  
sense data  
*sense data*

Hardware error:  
There is an error with the LSU on the  
line switch device.

---

6006 ERROR: LSU  
connections error  
result LSU = *actual*  
*value for LSU*  
*connection status*  
expect LSU =  
*expected value for*  
*LSU connection status*  
sense data  
*sense data*

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 = *the*  
*LSU specified,*  
detected LSU = *the*  
*LSU contained*

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.

---

# 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.

Table. fjvfytest Subtests

---

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"><li>• Read with data transfer (READ EXTENDED)</li><li>• Read without data transfer (VERIFY)</li></ul> Time required for testing is about 2 or 3 minutes/GB.

---

---

**Note-** 1)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.  
2)In case the partition 2 of IDE-device can not open, fjvfytest for its IDE-device can not execute.  
3)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.  
[Fj]VTS 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

---

# About the device under the Volume Management software

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

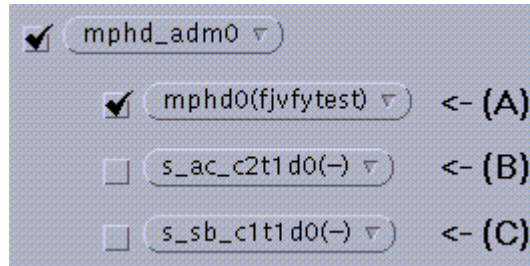


Figure. Test Selection Panel(MPHD)

---

## 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.

<status>	Status
ac	active
sb	standby
st	stop
fa	fail

These are not tested device. If these are selected, a window pops up (see the following).

**ERROR: This device is placed under control of the volume management driver.**

---

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

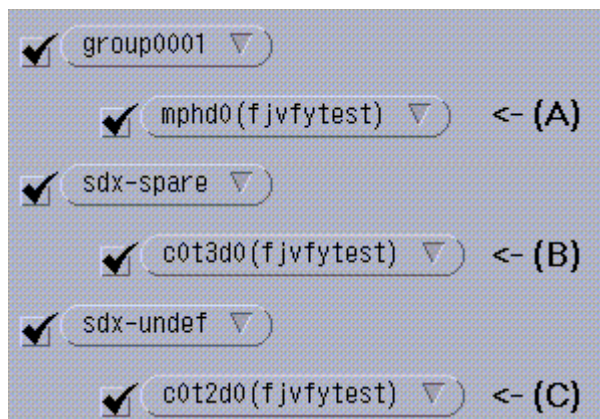


Figure. Test Selection Panel(SafeDISK)

---

**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.

---

## fjvfytest Test Options

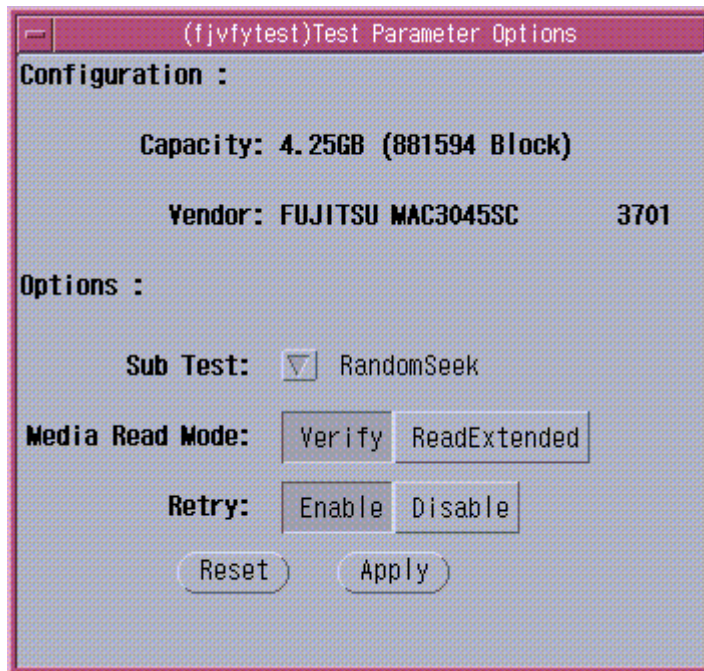


Figure. fjvfytest Option Menu

Table. 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. Verify : 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.

## fjvfytest Test Modes

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

Table. fjvfytest Test Modes

Test Mode	Description
Connection Test	The fjevfytest 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.

## fjevfytest Command Line Syntax

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

Table. fjevfytest Command Line Syntax

Argument	Explanation
<code>dev=device_name</code>	Specify the name of the device to be tested. For example: <code>dev=c0t3d0</code> or <code>dev=mphd3</code> (device under the control of MPHD) The argument "dev" cannot be omitted.
<code>testno=0/1/2</code>	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.
<code>verify=0/1</code>	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.
<code>retry=Enable/Disable</code>	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".

## fjevfytest Error Messages

Table. fjevfytest Error Messages

ID	Error Message	Probable Cause(s)	Recommended 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 = xxxxxxxxxxxxxx STATUS = xx SENSE DATA xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx	Hardware error. An error occurred while executing TEST UNIT READY command (checking the status of the disk drive).	
6003 ERROR: Inquiry error CDB DATA = xxxxxxxxxxxxxx STATUS = xx SENSE DATA xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx	Hardware error. An error occurred while executing INQUIRY command (obtaining INQUIRY data).	
6005 ERROR: Read capacity error CDB DATA = xxxxxxxxxxxxxxxxxxxxxxxxxxx STATUS = xx SENSE DATA xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx	Hardware error. An error occurred while executing READ CAPACITY command (obtaining the disk drive capacity and the block size of data).	
6006 ERROR: Read Error Error Block xxxxxxxx CDB DATA = xxxxxxxxxxxxxxxxxxxxxxxxxxx INQUIRY DATA = cccccccccccccccc cccccccccccccccc	Hardware error. Any error other than a media error is detected (for example: a disk error).	



```

STATUS = xx
SENSE DATA
XXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXX

```

---

<p>6007 ERROR: Medium Error Block  Address  XXXXXXXXXX XXXXXXXXXXXX  XXXXXXXXXX XXXXXXXXXXXX  XXXXXXXXXX  :  XXXXXXXXXX XXXXXXXXXXXX  XXXXXXXXXX XXXXXXXXXXXX  XXXXXXXXXX</p>	<p>Media error.  A media error is detected during read operation.</p>	
<p>6008 ERROR: Read Error  CDB DATA =  XXXXXXXXXXXXXXXXXXXXXX  INQUIRY DATA =  cccccccccccccccccc  cccccccccccccccccc  STATUS = xx</p>	<p>Hardware error.  An error occurred during read operation.</p>	
<p>6011 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>
<p>6012 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>
<p>6013 ERROR: Seek error. errno = number  Error Block  XXXXXXXXXX</p>	<p>System error.  An error occurred while seeking the device.</p>	<p>If the error still exists after retrying, check the system.</p>
<p>6014 ERROR: Read error. errno = number  Error Block  XXXXXXXXXX</p>	<p>System error.  An error occurred while reading the device.</p>	<p>If the error still exists after retrying, check the system.</p>
<p>8000 FATAL: Open error. errno = number</p>	<p>Parameter error.</p> <hr/> <p>System error.  An error occurred while opening the device.</p>	<p>Specify correct data in the command line (for example: dev=c0t3d0).   If the error still exists after retrying, check the system.</p>
<p>8001 FATAL: Close error. errno = number</p>	<p>System error.  An error occurred while closing the</p>	<p>If the error still exists after retrying, check the system.</p>

device.

---

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: DKIOCGGEOM ioctl error. errno = number	System error. An error occurred while executing the DKIOCGGEOM ioctl.	If the error still exists after retrying, check the system.

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# Fujitsu/PFU - WAN adapter test (fjwpcdtest)

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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 - 1.** 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.)

**Note - 2.** You may attach the appropriate connector for loopback test at connector, and modem and cable as well for the loopback test at modem.

**Note - 3.** The packages of driver below are required for the test program.

- FSUNnet
- FJSVwancm
- FJSVwan

**Note - 4.** The FJVTS option, [intervention], should be enabled when you use the FJVTS user interface.

**Note - 5.** 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"`.

(When you install the package of FJSVwancm in "/opt").  
Please refer to "WAN control manual" for details.

**Note - 6.** The elapsed time at default for one cycle test respectively are;  
PC4A: about 45 seconds  
PC2C: about 20 seconds  
PIBB: about 1 minute

**Note - 7.** With "all" specified in the test option, it may take more than one hour.

---

## fjwpcdtest Test Options

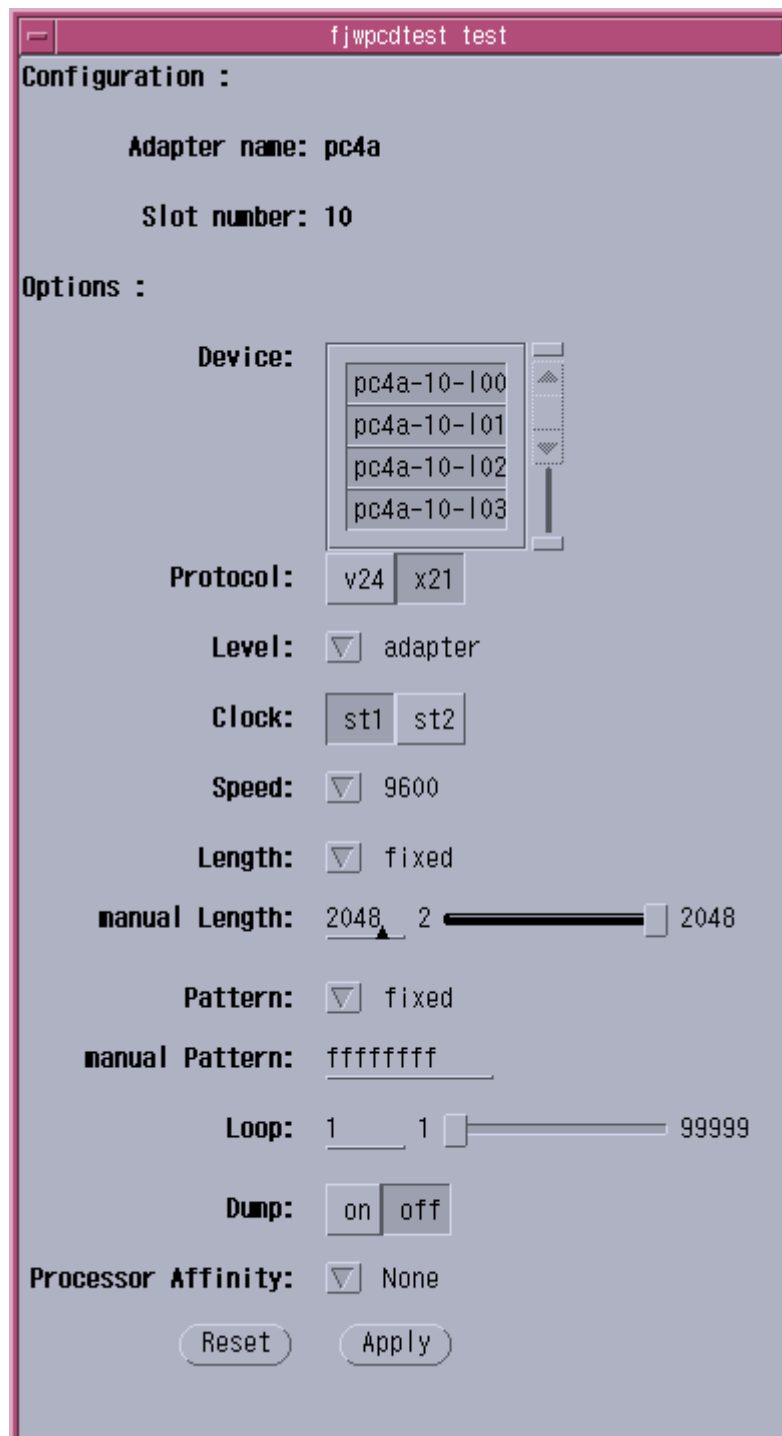


Figure. fjwpcdtest Test Options (For PC4A)

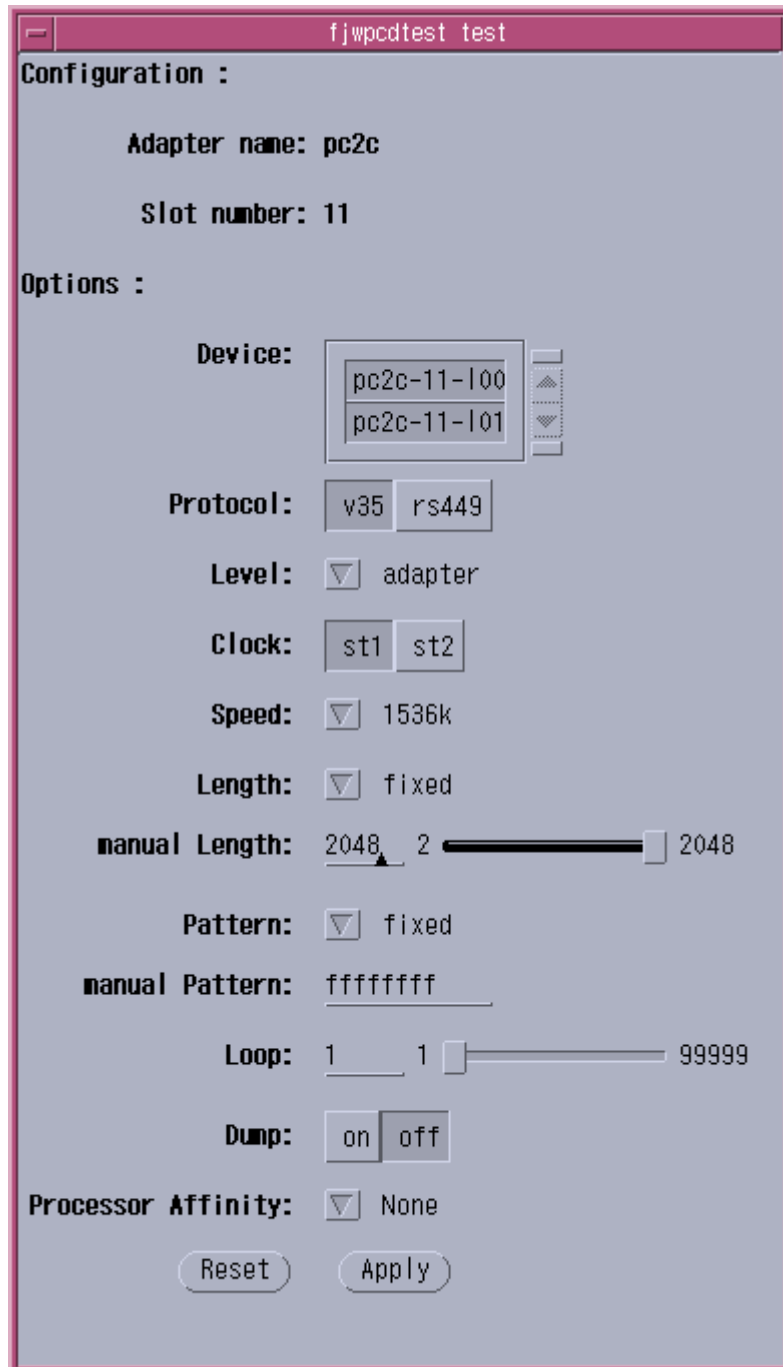


Figure. fjwpcdtest Test Options (For PC2C)

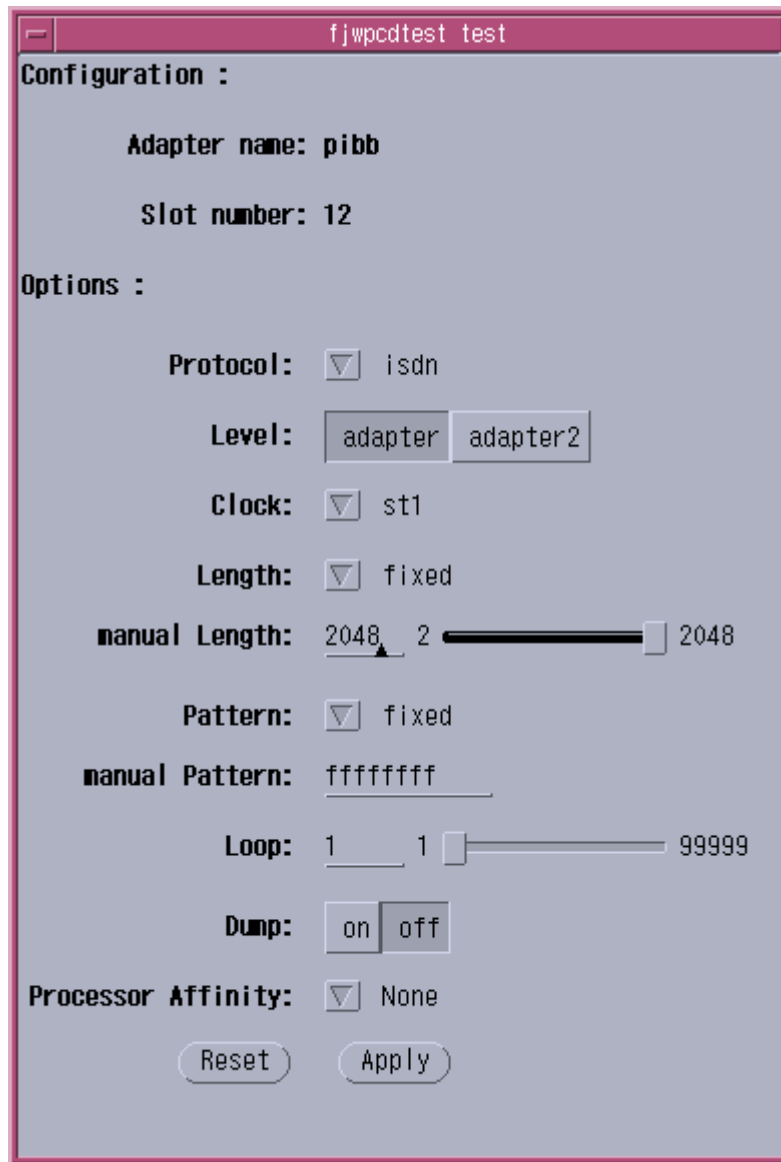


Figure. fjwpcdtest Test Options (For PIBB)

Table. fjwpcdtest Test Options

Options	Description												
Device	The examined line name is selected. More than one line could be diagnosed at the same time.												
	<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 The examined protocol is selected. Either can be selected.

Adapter name	Optional Protocol	Default

PC4A	V24,X21	X21
PC2C	V35,RS449	V35
PIBB	ISDN	ISDN

Level The level of the loopback test is selected, but only one level.

Adapter name	Optional Level	Default
PC4A	adapter,connector,modem	adapter
PC2C	adapter,connector,modem	adapter
PIBB	adapter,adapter2	adapter

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

Clock The clock used is selected. Either can be selected.

Adapter name	Optional Clock	Default
PC4A	st1,st2	st1
PC2C	st1,st2	st1
PIBB	Have no choice.	st1

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.

Speed Data-transfer speed(Baud rate) is selected. Only one can be selected.

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

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.)

Length

The transfer size of the test data is selected. Only one can be selected.

Adapter name	Optional Length pattern	Default
PC4A,PC2C,PIBB	fixed,sequential,random,manual,all	fixed

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)

all: All patterns of fixed, sequential and random are executed.

**manual Length** When "manual" is selected for option "Length", the data length is specified. You can set the value to 2-2048.  
Default is 2048.  
Note: To examine effectively when option "Pattern" is "fixed", you had better set the value to 2048.

**Pattern** Transfer data pattern is selected. Only one can be selected.

Adapter name	Optional Pattern data	Default
PC4A,PC2C,PIBB	fixed,sequential,random,manual,all	fixed

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.

**manual Pattern** 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 "ffffff".

**Loop** How many times this program diagnoses the devices by using the same setting is specified by decimal integer (1-99999).  
Default is 1.

**Dump** 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".

**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".

## fjwpcdtest Test Modes



Table. fjwpcdtest Test Modes

Modes	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.

## fjwpcdtest Command Line Syntax

```
/opt/FJSVvts/bin/fjwpcdtest standard_arguments
-o dev=deviece_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".

Table. fjwpcdtest Command Line Syntax

Arguments	Description	Example	Note
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)-Line_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+pc2c-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=ff0055aa	
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	

## fjwpcdtest Error Messages

Table. 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]	The modem or cable connected with [line_name] is abnormal.	Check the modem and cable.

	Parameter: speed=[baud rate], data_length=[data_length], data_pattern=[data_pattern]		
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 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 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 reseting 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.

