SunVTS™ 5.1 Patch Set 1 Test Reference Manual Supplement

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Contents

1. Introduction 1

2. Blade Support Chip Test (`bsctest`) 3

`bsctest` Options 3

`bsctest` Test Modes 5

`bsctest` Command-Line Syntax 5

3. Environmental Test (`env6test`) 7

`env6test` Options 7

`env6test` Test Modes 9

`env6test` Command-Line Syntax 9

4. I2C Inter-Integrated Circuit Test (`i2c2test`) 11

`i2c2test` Options 11

`i2c2test` Test Modes 13

`i2c2test` Command-Line Syntax 13

5. Integer Unit Test (`iutest`) 15

`iutest` Options 15

`iutest` Test Modes 17

`iutest` Command-Line Syntax 17

6. System Service Processor Test (`ssptest`) **19**

`ssptest` Subtests 19

`ssptest` Options 21

`ssptest` Test Modes 24

`ssptest` Command-Line Syntax 25

CHAPTER 1

Introduction

This manual is a supplement to the *SunVTS™ 5.1 Test Reference Manual* and describes new tests and test enhancements that are released with the SunVTS 5.1 Patch Set releases. The new tests and test enhancements included in this document are provided in the SunVTS 5.1 Patch Set 1 (PS1) software that is distributed on the Solaris Software Supplement CD.

SunVTS 5.1 PS1 was introduced and designed to run in the Solaris 8 HW 12/02 operating environment. However, the SunVTS 5.1 PS1 software is compatible with Solaris 8 2/02, Solaris 9, and Solaris 9 9/02 operating environments. It is recommended that you run SunVTS 5.1 PS1 software in either of these operating environments.

Refer to the *SunVTS 5.1 Test Reference Manual* for detailed information on SunVTS software and the full collection of tests released in SunVTS 5.1. For overall test configuration modes, interfaces, and options refer to the *SunVTS 5.1 User's Guide*.

The following new tests were introduced in this release:

- Blade Support Chip Test (`bsctest`), described in Chapter 2.
- Environmental Test (`env6test`), described in Chapter 3.
- I2C Inter-Integrated Circuit Test (`i2c2test`), described in Chapter 4.

The following previously released tests were enhanced in this release:

- Integer Unit Test (`iutest`), described in Chapter 5.
- System Service Processor Test (`ssptest`), described in Chapter 6.

Note – The System Service Processor test (`ssptest`) was previously titled the Remote System Control test (`rsctest`) in SunVTS 5.1. The reason for this change is that this test now supports Advanced Lights-Out Management hardware in addition to both Remote System Control 1.0 and 2.0 hardware.

CHAPTER 2

Blade Support Chip Test (bsctest)

The bsctest exercises the Blade Support Chip and supporting hardware used in Sun Fire™ B100 blade systems. This includes the Open Boot Prom (OBP) and Time of Day (ToD) Prom chips.

Caution – If the LED subtest is selected, please be aware that LEDs on the blade will change. They will return to their correct state when the test is completed.

bsctest Options

To reach the dialog box below, right-click on the test name in the System Map and select Test Parameter Options. If you do not see this test in the System Map, you might need to expand the collapsed groups, or your system may not include the device appropriate to this test. Refer to the *SunVTS User's Guide* for more details.

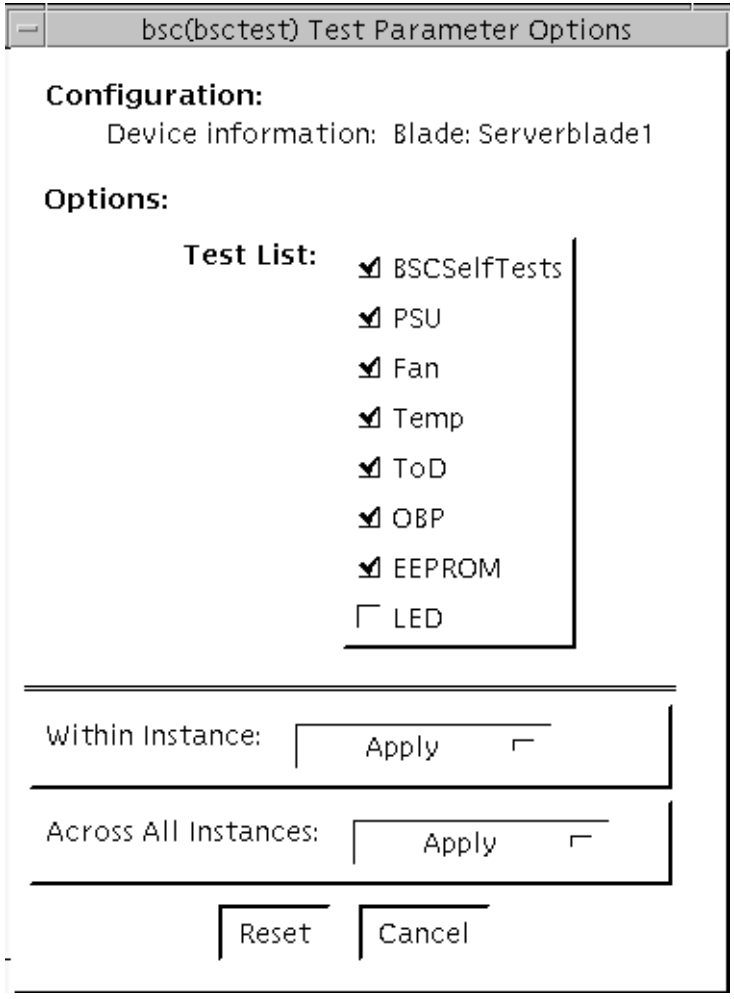

FIGURE 2-1 `bsctest` Test Parameter Options Dialog Box

TABLE 2-1 `bsctest` Options

`bsctest` **Options**	**Description**
BSCSelfTests	Calls on the BSC to execute its built-in self tests.
PSU	Performs read-only checks of Power Supply status.
Fan	Performs read-only checks of Fan status.
Temp	Performs read-only checks of Temperature Monitor status.
ToD	Performs read-only checks of Time of Day chip.

TABLE 2-1 `bsctest` Options *(Continued)*

`bsctest` **Options**	**Description**
OBP	Performs read-only checks of platform specific Open Boot properties.
EEPROM	Performs read-only check of EEPROM.
LED	Performs read-only check of Service Required LED status and performs a test in which all three LEDs (Power, Service Required, and Ready to Remove) are flashed simultaneously at 4Hz and then returned to their original state.

`bsctest` Test Modes

TABLE 2-2 `bsctest` Supported Test Modes

Test Mode	**Description**
Connection	Opens the BSC, OBP, and ToD devices.
Functional	Performs all tests with the LED testing off by default.
Online	Performs all tests except BSCSelfTests and LED *Flashing* test.

`bsctest` Command-Line Syntax

`/opt/SUNWvts/bin/bsctest` *standard_arguments* **`[-o dev`**=*device_name* **`test`**=<*test_list*>**`]]`**

TABLE 2-3 `bsctest` Command-Line Syntax

Argument	**Description**
`dev=`*device_name*	*device_name* is the device to be tested, for example, `bsc`
`test`=*test_list*	*testlist* is the list of subtests, for example: `BSCSelfTests`, `PSU`, `Fan`, `Temp`, `ToD`, `OBP`, `EEPROM`, `LED`

Note – 64-bit tests are located in the `sparcv9` subdirectory: `/opt/SUNWvts/bin/sparcv9/`*testname*. If the test is not present in this directory, then it may only be available as a 32-bit test. For more information refer to the "32-Bit and 64-Bit Tests" section of the *SunVTS 5.1 Test Reference Manual* (816-5145-10).

CHAPTER 3

Environmental Test (env6test)

env6test exercises and validates environmental subsytems. This test contains subtests to exercise a system's fans, keyswitch, LEDs, power supplies, and temperature sensors.

This test is not scalable.

env6test Options

To reach the dialog box below, right-click on the test name in the System Map and select Test Parameter Options. If you do not see this test in the System Map, you might need to expand the collapsed groups, or your system may not include the device appropriate to this test. Refer to the *SunVTS User's Guide* for more details.

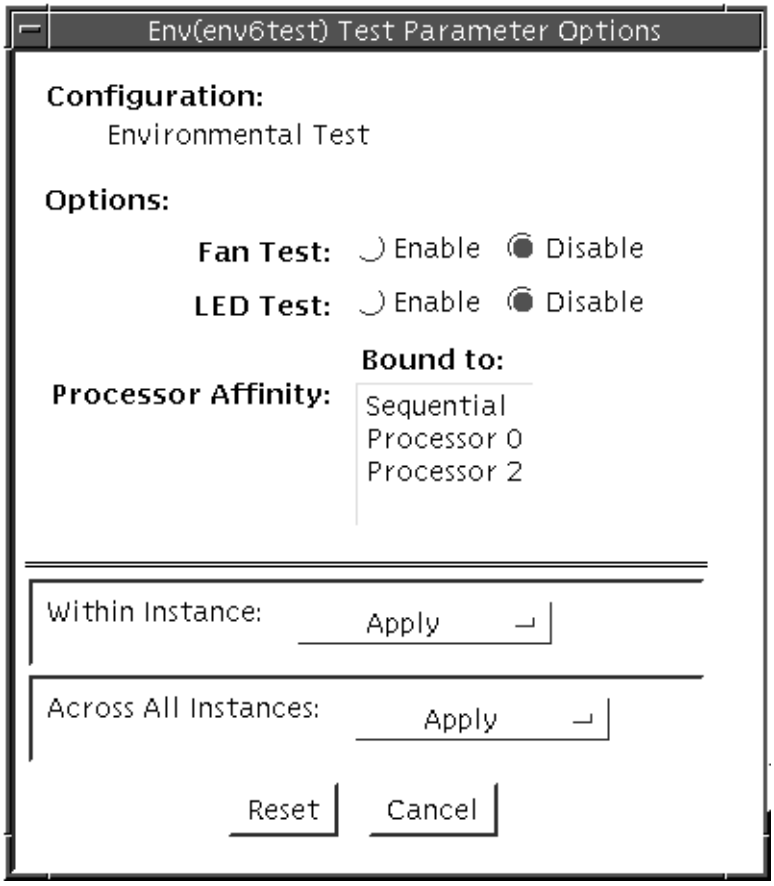

FIGURE 3-1 `env6test` Parameter Options Dialog Box

TABLE 3-1 `env6test` Options

`env6test` **Options**	**Description**
Fan Test	Checks the status, tolerance, and speed of the system's fans. Default is Disable.
LED Test	Checks overall status of system's LEDs by switching them ON and OFF. Default is Disable.

env6test Test Modes

TABLE 3-2 env6test Supported Test Modes

Test Mode	Description
Connection	Reports current state of devices.
Functional	Performs all tests including the Fan and LED subtests if they are enabled.

env6test Command-Line Syntax

/opt/SUNWvts/bin/env6test *standard_arguments*
-o dev=*raw_device_name*,**led=***Enable* | *Disable*,**fan=***Enable* | *Disable*

TABLE 3-3 env6test Command-Line Syntax

Argument	Description
dev=*raw_device_name*	Specifies the name of the raw device to test. Default is /dev/env
led=*Enable*	*Disable*	Enables or disables the LEDS subtest. Default is Disable.
fan=*Enable*	*Disable*	Enables or disables the Fans subtest. Default is Disable.

Note – 64-bit tests are located in the sparcv9 subdirectory: /opt/SUNWvts/bin/sparcv9/testname. If a test is not present in this directory, then it may only be available as a 32-bit test. For more information refer to the "32-Bit and 64-Bit Tests" section of the *SunVTS 5.1 Test Reference Manual* (816-5145-10).

CHAPTER 4

I2C Inter-Integrated Circuit Test (`i2c2test`)

The `i2c2test` is designed to verify the proper placement, operation, and data integrity on the various I2C devices.

This test is not scalable.

`i2c2test` Options

To reach the dialog box below, right-click on the test name in the System Map and select Test Parameter Options. If you do not see this test in the System Map, you might need to expand the collapsed groups, or your system may not include the device appropriate to this test. Refer to the *SunVTS User's Guide* for more details.

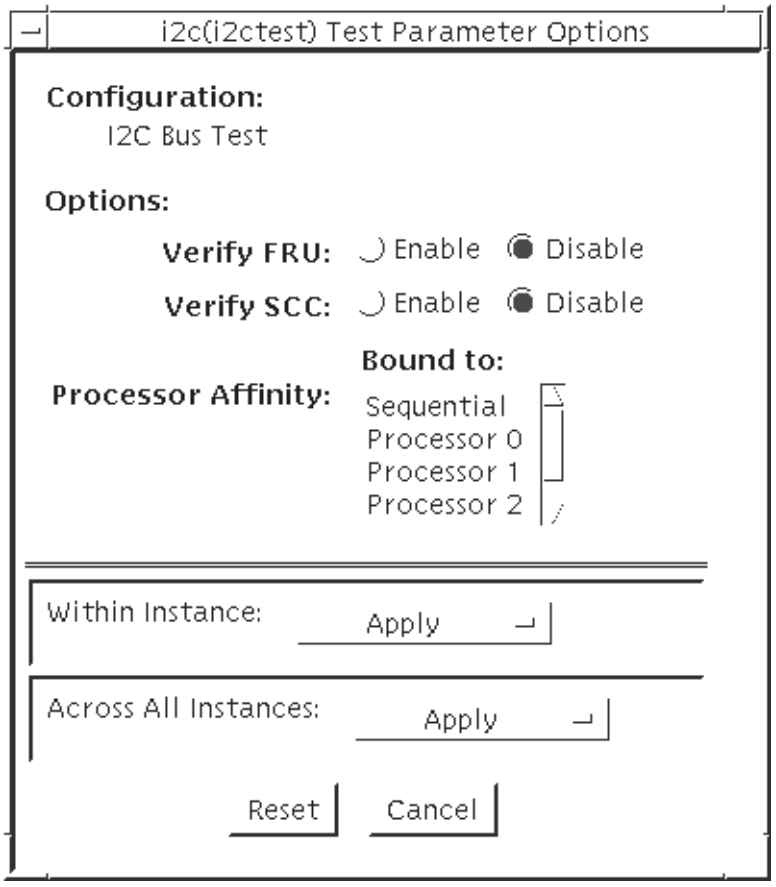

FIGURE 4-1 `i2c2test` Test Parameter Options Dialog Box

TABLE 4-1 `i2c2test` Options

`i2c2test` **Options**	**Description**
Verify FRU	Verifies the status of the FRU. Default is Disable.
Verify SCC	Verifies the status of the SCC. Default is Disable.
Processor Affinity	Specifies the processors to be tested in sequential order.

i2c2test Test Modes

TABLE 4-2 i2c2test Supported Test Modes

Test Mode	Description
Connection	Performs a test to verify connection to all I2C devices.
Functional	Performs a test to verify connection to all I2C devices, and also performs a test to verify that the fru and scc content is consistent with the user's selection.

i2c2test Command-Line Syntax

/opt/SUNWvts/bin/i2c2test *standard_arguments*
-o dev=*raw_device_name*,**chkfru**=*Enable* | *Disable*,**chkscc**=*Enable* | *Disable*

TABLE 4-3 i2c2test Command-Line Syntax

Argument	Description
dev=*raw_device_name*	Specifies the name of the raw device to test.
chkfru=*Enable* | *Disable*	Verifies the status of the FRU. Default is Disable.
chkscc=*Enable* | *Disable*	Verifies the status of the SCC. Default is Disable.

Note – 64-bit tests are located in the sparcv9 subdirectory: /opt/SUNWvts/bin/sparcv9/testname. If a test is not present in this directory, then it may only be available as a 32-bit test. For more information refer to the "32-Bit and 64-Bit Tests" section of the *SunVTS 5.1 Test Reference Manual* (816-5145-10).

CHAPTER 5

Integer Unit Test (iutest)

The Integer Unit Test (iutest) tests the resident integer unit in Sun SPARC CPUs. It exercises all of the register windows present in the Integer Unit of the CPU. The successful completion of the test implies that all of the register windows are functioning properly and failure implies a faulty register.

iutest Options

To reach the dialog box below, right-click on the test name in the System Map and select Test Parameter Options. If you do not see this test in the System Map, you might need to expand the collapsed groups, or your system may not include the device appropriate to this test. Refer to the *SunVTS User's Guide* for more details.

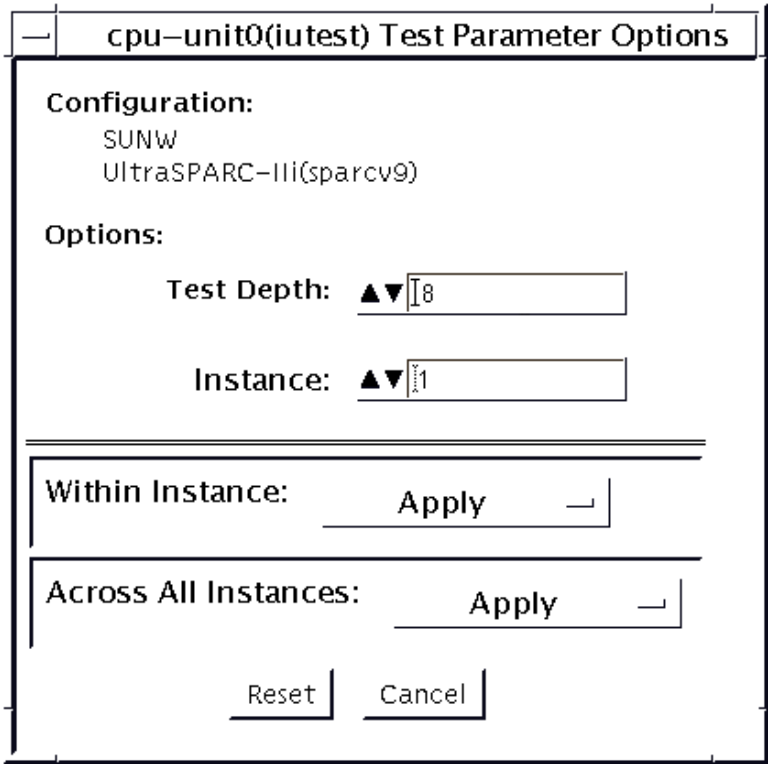

FIGURE 5-1 `iutest` Test Parameter Options Dialog Box

For the test options in the `iutest` Test Parameter Options dialog box, Test Depth is the only required option. Test Depth corresponds to the number of times that *all the register windows* are getting tested. The default, maximum and minimum values of the Test Depth are 8, 64, and 1 respectively.

iutest Test Modes

TABLE 5-1 iutest Supported Test Modes

Test Mode	Description
Connection	Displays the type of CPU implementation (for example, sparcv7 or sparcv9, etc.), the operating frequency, and CPU status (online, offline, etc.).
Functional (Offline)	Verifies all of the register windows and returns the appropriate error message if there is a faulty register. Otherwise, displays a successful test message.

iutest Command-Line Syntax

/opt/SUNWvts/bin/iutest *standard_arguments* **-o depth=***val*,**dev=cpu-unit***N*

In the iutest command-line syntax, *val* is the value of the Test_Depth parameter option as described in the preceding iutest options section. *N* is the CPU unit number (0,1,2, etc.). The test behavior is unpredictable if options other than those described in this section are entered.

Note – 64-bit tests are located in the sparcv9 subdirectory: /opt/SUNWvts/bin/sparcv9/*testname*. If a test is not present in this directory, then it may only be available as a 32-bit test. For more information refer to the “32-Bit and 64-Bit Tests” section of the *SunVTS 5.1 Test Reference Manual* (816-5145-10).

CHAPTER 6

System Service Processor Test (ssptest)

The ssptest exercises the Remote System Control (RSC) feature, which is integrated on the Sun Enterprise 250 as well as the next-generation RSC 2.0 plug-in card introduced with the Sun Fire 280R line, and Advanced Lights-Out Management (ALOM) feature. The ALOM feature is integrated into the Sun Fire V210 and Sun Fire V240.

The RSC or ALOM provides secure remote access for system monitoring, firmware updates, and failure recovery. The RSC or ALOM communicates with the host through two internal serial lines, the I2C bus, and reset lines.

The RSC 1.0 hardware consists of the controller, flash, SEEPROM, 10MB Ethernet port, and an external console serial port.

The RSC 2.0 plug-in card hardware consists of the controller, flash, SEEPROM, 10MB Ethernet port, FRUSEEPROM, Time of Day (ToD) device, internal PCMCIA modem card, and battery backup.

The ALOM hardware consists of a Motorola MPC850 processor, flash, SEEPROM, 10MB/100MB Ethernet Port, Time of Day (ToD) device, Serial Transceiver, and battery backup.

ssptest is not scalable.

ssptest Subtests

The ssptest will present different subtests and options based on which type of hardware (RSC or ALOM) and which version of RSC hardware (1.0 or 2.0) it is testing.

The subtests common to RSC 1.0, RSC 2.0, and ALOM include:

TABLE 6-1 Subtests for Both RSC 1.0, RSC 2.0, and ALOM

Subtest	Description
Ethernet	Allows for internal loopback testing, on the Ethernet device with user specified data, size, and number of packets.
	Allows for external loopback testing with user-specified data, size, and number of packets. This requires a connection to a 10MB hub or switch for RSC 1.0, or a passive loopback connector for RSC 2.0, and ALOM.
	Allows for a ping to be sent to a specified host and checks the response.
Flash CRC	Performs a checksum test on the flash device.
SEEPROM CRC	Performs a checksum test on the SEEPROM device.
Serial	Allows internal loopback testing with user-specified data and size on the two internal serial ports.
	Allows for internal and/or external testing on the external `ttyu` port. The external test requires a passive loopback connector.

`ssptest` also presents the following subtests when running on the RSC 2.0 hardware:

TABLE 6-2 Subtests for RSC 2.0 Only

Subtest	Description
FRU SEEPROM CRC	Performs a checksum test on the SEEPROM device.
I2C	Tests the i2c bus connection between the host and the RSC.
ToD	Performs multiple reads to the ToD device and verifies that the time is incrementing.
Modem	Verifies that the modem is installed. Displays the manufacture information, in Verbose mode. Performs AT inquiry commands.

`ssptest` presents the following subtests when running on the ALOM hardware:

TABLE 6-3 Subtests for ALOM Only

Subtest	Description
I2C	Tests the i2c bus connection between the host and the ALOM.
ToD	Performs multiple reads to the ToD device and verifies that the time is incrementing.

The subtests call test modlets that are written in the native Real Time Operating System (RTOS) that resides in the RSC firmware. The `ssptest` subtests execute the test modlets, pass parameters, and retrieve results from the RSC or ALOM using a test protocol on the host to RSC or ALOM internal serial lines.

`ssptest` Options

To reach the dialog box below, right-click on the test name in the System Map and select Test Parameter Options. If you do not see this test in the System Map, you might need to expand the collapsed groups, or your system may not include the device appropriate to this test. Refer to the *SunVTS User's Guide* for more details.

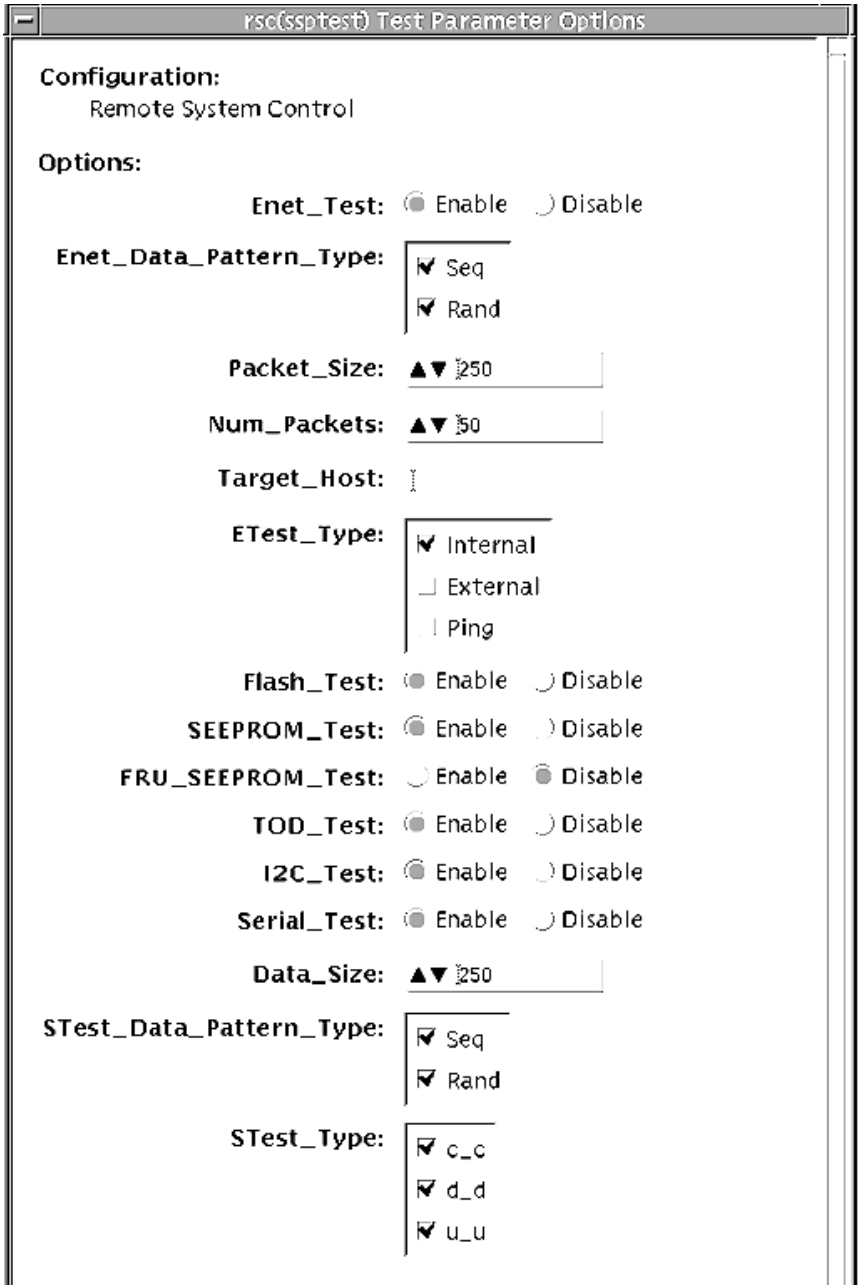

FIGURE 6-1 `ssptest` Test Parameter Options Dialog Box (Top Section)

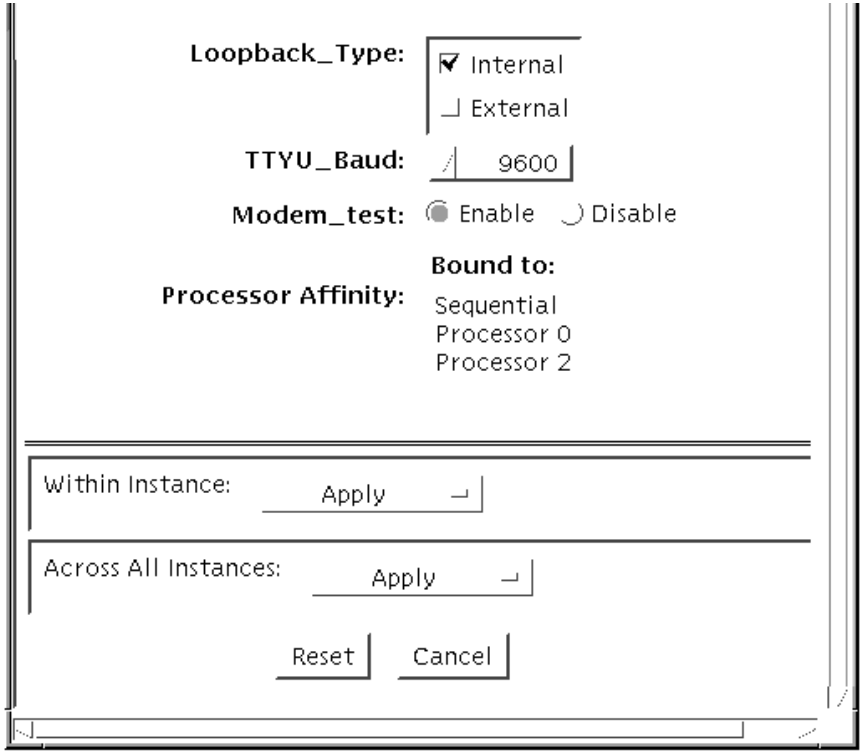

FIGURE 6-2 `ssptest` Test Parameter Options Dialog Box (Bottom Section)

Note – The Configuration field in the `ssptest` Test Parameter Options dialog box displays the which type of hardware (RSC or ALOM) is being tested. For RSC 1.0 and 2.0, *Remote System Control* is displayed. For ALOM, *Advanced Lights-Out Management* is displayed.

TABLE 6-4 `ssptest` Options

`ssptest` **Options**	**Description**
Enet test	Enables or disables RSC or ALOM Ethernet testing.
Data Pattern Type	Selects Sequential, Random, or both types of data patterns.
Packet Size	Defines the size of each data packet to be sent for all tests.
Num Packets	Specifies the number of data packets to send in one test loop.
Target Host	Specifies the IP address of a host to use for the ping test.
Enet Test Type	Selects any or all Internal, External, or ping tests.

TABLE 6-4 `ssptest` Options

`ssptest` **Options**	**Description**
Flash test	Enables or disables the flash checksum test.
SEEPROM test	Enables or disables the SEEPROM checksum test.
FRU SEEPROM test	Enables or disables the FRU SEEPROM checksum test (RSC 2.0 only).
TOD test	Enables or disables the Time Of Day test.
I2C test	Enables or disables the I2C test (RSC 2.0 and ALOM only).
Serial test	Enables or disables the RSC or ALOM serial test.
Data Size	Defines the data size to be sent.
Loopback Type	Selects Internal, External, or both. External requires a loopback plug.
Data Pattern Type	Selects Sequential, Random, or both types of data patterns.
Serial Test Type	Selects serial ports to be tested, u to u, c to c, or d to d.
TTYU_Baud	Select a fixed baud rate or all baud rates for testing the ttyu port. The valid baud rates under TTYU_Baud are: ALL, 300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200. The default is 9600.
Modem Test	Used to Enable or Disable the RSC PCMCIA modem test (RSC 2.0 only).

`ssptest` Test Modes

`ssptest` supports Connection and Functional tests as described in the table below.

TABLE 6-5 `ssptest` Supported Test Modes

Test Mode	**Description**
Connection	Reports the status of the RSC or ALOM.
Functional	Tests the RSC's and ALOM's Ethernet, flash, SEEPROM, ToD, I2C, and serial devices. All tests use the internal modes as defaults. The `ssptest` will not run the serial test on `ttyc` if the console has been redirected to the RSC. The `ttu` tests will not run if there is an open login on the `ttyu`.

ssptest Command-Line Syntax

RSC 1.0: **/opt/SUNWvts/bin/ssptest** *standard_arguments* **-o enet=***E/D*, **epattype=***seq+rand*,**esize=***packet_size*,**epkts=***number_packets*,**target=***IP_address*, **etest=***I+E+P*,**flash=***E/D*,**seeprom=***E/D*,**serial=***E/D*,**sdatsize=***data_size*, **slb=***I+E*,**spattype=***seq+rand*,**stest=***u_u+c_c+d_d*,**ttyubaud=***baud_rate* | *all*

RSC 2.0: **/opt/SUNWvts/bin/ssptest** *standard_arguments* **-o enet=***E/D*, **epattype=***seq+rand*,**esize=***packet_size*,**epkts=***number_packets*,**target=***IP_address*, **etest=***I+E+P*,**flash=***E/D*,**seeprom=***E/D*,**fruseeprom=***E/D*,**tod=***E/D*, **i2c=** *E/D*,**serial=***E* | *D*,**sdatsize=***data_size*,**slb=***I+E*,**spattype=***seq+rand*, **stest=** *u_u+c_c+d_d*,**ttyubaud=***baud_rate* | *all*,**rscmodem=***E/D*

ALOM: **/opt/SUNWvts/bin/ssptest** *standard_arguments* **-o enet=***E/D*, **epattype=***seq+rand*,**esize=***packet_size*,**epkts=***number_packets*,**target=***IP_address*, **etest=***I+E+P*, **flash=***E/D*,**seeprom=***E/D*,**tod=***E/D*,**i2c=***E/D*,**serial=** *E/D*,**sdatsize=***data_size*,**slb=***I*, **spattype**=*seq+rand*, **stest=***d_d*

TABLE 6-6 ssptest Command-Line Syntax

Argument	Description
enet=*enable*	*disable*	Enables or disables RSC or ALOM Ethernet test.
epattype=*seq+rand*	Predefined pattern options used for Enet test.
esize=*packet_size*	Data size for each packet in the Enet test.
epkts=*number_packets*	Number of packets to send for Enet test.
target=*IP_address*	IP address of target system for Enet ping test.
etest=*Internal+External+Ping*	Selects any or all Internal, External, or ping tests.
flash=*enable*	*disable*	Enables or disables RSC or ALOM Flash checksum test.
seeprom=*enable*	*disable*	Enables or disables RSC or ALOM SEEPROM checksum test.
fruseeprom=*E/D (RSC 2.0 ONLY)*	Enables or disables RSC FRU SEEPROM checksum test.
tod=*E/D (RSC 2.0 and ALOM ONLY)*	Enables or disables RSC or ALOM Time of Day test.
i2c=*E/D (RSC 2.0 and ALOM ONLY)*	Enables or disables RSC or ALOM i2c test.
serial=*enable*	*disable*	Enables or disables RSC or ALOM serial test.
sdatsize=*data_size*	Data size for the `rsc` or `alom` serial tests.
slb=*Internal+External*	Loopback type. External N/A on ports C and D.

TABLE 6-6 `ssptest` Command-Line Syntax

Argument	Description
`spattype=`*seq+rand*	Predefined pattern options used for RSC or ALOM serial test.
`stest=`*u_u+c_c+d_d*	Defines port and configuration to use for RSC or ALOM serial test.
`ttyu_baud=`*ALL* | *specific_baud*	Defines baud rates to be used in testing the RSC's console port. The valid baud rates under `ttu_baud` are: ALL, 300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200. The default is 9600.
`rscmodem=`*E/D*	Enables or disables the RSC PCMCIA modem test.

Note – 64-bit tests are located in the `sparcv9` subdirectory: `/opt/SUNWvts/bin/sparcv9/`*testname*. If a test is not present in this directory, then it may only be available as a 32-bit test. For more information refer to the "32-Bit and 64-Bit Tests" section of the *SunVTS 5.1 Test Reference Manual* (816-5145-10).