Online Diagnostic Tests

This appendix describes the online diagnostic tests and provides recommendations for how to use them.

Note

- For information about configuring online diagnostic tests refer to Chapter 55, "Configuring Generic Online Diagnostics."
- We recommend that before you enable any online diagnostics tests that you enable the logging console/monitor to see all warning messages.
- We recommend that when you are running disruptive tests that you only run the tests when connected through console. When disruptive tests are complete a warning message on the console recommends that that you reload the system to return to normal operation: Strictly follow this warning.
- While tests are running, all ports are shut down as a stress test is being performed with looping ports internally and external traffic might skew the test results. The entire switch must be rebooted to bring the switch to normal operation. When you issure the command to reload the switch, the system will ask you if the configuration should be saved.
- Do not save the configuration.
- If you are running the tests on a supervisor engine, after the test is initiated and complete, you must reload or power down and then power up the entire system.
- If you are running the tests on a module that is not the supervisor engine, after the test is initiated and complete, you must reset the module.

The online diagnostic tests are included in these categories:

Tip For additional information (including configuration examples and troubleshooting information), see the documents listed on this page:

http://www.cisco.com/en/US/products/hw/routers/ps368/tsd_products_support_series_home.html

Global Health-Monitoring Tests

The global health monitoring tests consist of the following tests:

TestSPRPInbandPing

The TestSPRPInbandPing test detects most runtime software driver and hardware problems on supervisor engines by running diagnostic packet tests using the Layer 2 forwarding engine, the Layer 3 and 4 forwarding engine, and the replication engine on the path from the switch processor to the route processor. Packets are sent at 15-second intervals. Ten consecutive failures of the test results in failover to the redundant supervisor engine (default) or reload of the supervisor engine if a redundant supervisor engine is not installed.

Table A-1 TestSPRPInbandPing Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Nondisruptive.
Recommendation	Do not disable. Test is automatically disabled during CPU-usage spikes in order to maintain accuracy.
Default	On.
Release	12.1(13)E, 12.2(14)SX to12.2(17d)SXB5, and 12.2(18)SXD.
Corrective action	Reset the active supervisor engine.
Hardware support	Active and standby supervisor engine.

TestScratchRegister

The TestScratchRegister test monitors the health of application-specific integrated circuits (ASICs) by writing values into registers and reading back the values from these registers. The test runs every 30 seconds. Five consecutive failures causes a supervisor engine to switchover (or reset), if you are testing the supervisor engine, or in the module powering down when testing a module.

Table A-2 TestScratchRegister Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Nondisruptive.
Recommendation	Do not disable.
Default	On.
Release	12.2(14)SX.
Corrective action	Reset the malfunctioning supervisor engine or power down the module.
Hardware support	Supervisor Engine 720, DFC-equipped modules, WS-X6148-FE-SFP, WS-X6148A-GE-TX, and WS-X6148A-RJ-45 .

TestMacNotification

The TestMacNotification test verifies that the data and control path between DFC modules and supervisor engines is working properly. This test also ensures Layer 2 MAC address consistency across Layer 2 MAC address tables. The test runs every six seconds. Ten consecutive failures causes the module to reset during bootup or runtime (default). After three consecutive resets, the module powers down.

Table A-3 TestMacNotification Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Nondisruptive.
Recommendation	Do not disable.
Default	On.
Release	12.2(14)SX.
Corrective action	Reset the module. After the module has ten consecutive failures or three consecutive resets, it powers down.
Hardware support	DFC-equipped modules.

Per-Port Tests

The per-port tests consist of the following tests:

TestNonDisruptiveLoopback, page A-4

TestLoopback, page A-4

TestActiveToStandbyLoopback, page A-5

TestTransceiverIntegrity, page A-5

TestNetflowInlineRewrite, page A-5

TestNonDisruptiveLoopback

The TestNonDisruptiveLoopback test verifies the data path between the supervisor engine and the network ports of a module. In this test, a Layer 2 packet is flooded onto VLAN that contains a group of test ports. The test port group consists of one port per port ASIC channel. Each port in the test port group nondisruptively loops back the packet and directs it back to the supervisor engine's inband port. The ports in the test port group are tested in parallel.

Table A-4 TestNonDisruptiveLoopback Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Nondisruptive.
Recommendation	Do not disable.
Default	On.
Release	12.2(18)SXF.
Corrective action	Error disable a port after 10 consecutive failures. Error disable a channel if all of its ports failed the test in one test cycle. Reset the module after a failure of all channels.
Hardware support	WS-X6148-FE-SFP, WS-X6148A-GE-TX and WS-X6148A-RJ-45.

TestLoopback

The TestLoopback test verifies the data path between the supervisor engine and the network ports of a module. In this test, a Layer 2 packet is flooded onto a VLAN that consists of only the test port and the supervisor engine's inband port. The packet loops back in the port and returns to the supervisor engine on that same VLAN.

Table A-5 TestLoopback Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped-back ports. Disruption is typically less than one second. Duration of the disruption depends on the configuration of looped-back port (for example, Spanning Tree Protocol).
Recommendation	Schedule during downtime.
Default	Runs at bootup or after online insertion and removal (OIR).
Release	12.1(13)E, 12.2(14)SX.
Corrective action	Error disable a port if the loopback test fails on the port. Reset the module if all of the ports fail.
Hardware support	All modules including supervisor engines.

TestActiveToStandbyLoopback

The TestActiveToStandbyLoopback test verifies the data path between the active supervisor engine and the network ports of the standby supervisor engine. In this test, a Layer 2 packet is flooded onto a VLAN that consists of only the test port and the supervisor engine's inband port. The test packets are looped back in the targeted port and are flooded back onto the bus with only the active supervisor engines's inband port listening in on the flooded VLAN.

Table A-6 TestActiveToStandbyLoopback Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped-back ports. Disruption is typically less than one second. Duration of the disruption depends on the configuration of loopback port (for example, Spanning Tree Protocol.).
Recommendation	Schedule during downtime.
Default	Runs at bootup or after OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	Error disable a port if the loopback test fails on the port. Reset the supervisor engine if all of the ports fail.
Hardware support	Standby supervisor engine only.

TestTransceiverIntegrity

The TestTransceiverIntegrity test is a security test performed on the transceiver during transceiver online insertion and removal (OIR) or module bootup to make sure that the transceiver is supported.

Table A-7 TestTransceiverIntegrity Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Nondisruptive.
Recommendation	Not applicable.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	Error disable the port.
Hardware support	All modules with transceivers.

TestNetflowInlineRewrite

The TestNetflowInlineRewrite test verifies the NetFlow lookup operation, the ACL permit and deny functionality, and the inline rewrite capabilities of the port ASIC. The test packet will undergo a NetFlow table lookup to obtain the rewrite information. The VLAN and the source and destination MAC addresses are rewritten when the packet reaches the targeted port.

Table A-8 TestNetflowInlineRewrite Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped-back ports. Disruption is typically less than one second. Duration of the disruption depends on configuration of loopback port (for example, Spanning Tree Protocol).
Recommendation	Schedule during downtime. Run this test during bootup only.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	All modules including supervisor engines.

PFC Layer 2 Forwarding Engine Tests

The PFC Layer 2 Forwarding Engine tests consist of the following tests:

TestNewIndexLearn

The TestNewIndexLearn test is a combination of the TestNewLearn and the TestIndexLearn tests, which are described in the "DFC Layer 2 Forwarding Engine Tests" section on page A-9.

Table A-9 TestNewIndexLearn Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Nondisruptive.
Recommendation	If you experience problems with the Layer 2 forwarding engine learning capability, run this test on-demand to verify the Layer 2 learning functionality. This test can also be used as a health-monitoring test.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines only.

TestDontConditionalLearn

The TestDontConditionalLearn test is a combination of the TestDontLearn and the TestConditionalLearn tests, which are described in the "DFC Layer 2 Forwarding Engine Tests" section on page A-9.

Table A-10 TestDontConditionalLearn Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Nondisruptive.
Recommendation	If you experience problems with the Layer 2 forwarding engine learning capability, run this test on-demand to verify the Layer 2 learning functionality. This test can also be used as a health monitoring test.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.

Table A-10 TestDontConditionalLearn Test Attributes (continued)

Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines only.

TestBadBpduTrap

The TestBadBpduTrap test is a combination of the TestTrap and the TestBadBpdu tests, which are described in the "DFC Layer 2 Forwarding Engine Tests" section on page A-9.

Table A-11 TestBadBpduTrap Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive.
Recommendation	If you experience problems with the Layer 2 forwarding engine learning capability, run this test on-demand to verify the Layer 2 learning functionality. This test can also be used as a health-monitoring test.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines only.

TestMatchCapture

The TestMatchCapture test is a combination of the TestProtocolMatchChannel and the TestCapture tests, which are described in the "DFC Layer 2 Forwarding Engine Tests" section on page A-9.

Table A-12 TestMatchCapture Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive.
Recommendation	If you experience problems with the Layer 2 forwarding engine learning capability, run this test on-demand to verify the Layer 2 learning functionality. This test can also be used as a health-monitoring test.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines only.

TestStaticEntry

The TestStaticEntry test verifies that static entries are populated in the Layer 2 MAC address table. This functionality is verified during diagnostic packet lookup by the Layer 2 forwarding engine.

Table A-13 TestStaticEntry Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped-back ports. Disruption is typically less than one second. Duration of the disruption depends on the configuration of looped-back port (for example, Spanning Tree Protocol).
Recommendation	If you experience problems with the Layer 2 forwarding engine learning capability, run this test on-demand to verify the Layer 2 learning functionality. This test can also be used as a health-monitoring test.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and DFC-enabled modules.

DFC Layer 2 Forwarding Engine Tests

The DFC Layer 2 Forwarding Engine tests consists of the following tests:

TestDontLearn

The TestDontLearn test verifies that new source MAC addresses are not populated in the MAC address table when they should not be learned. This test verifies that the “don't learn” feature of the Layer 2 forwarding engine is working properly. For DFC-enabled modules, the diagnostic packet is sent from the supervisor engine inband port through the switch fabric and looped back from one of the ports on the DFC-enabled module. The “don't learn” feature is verified during diagnostic packet lookup by the Layer 2 forwarding engine.

Table A-14 TestDontLearn Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped back ports. Disruption is typically less than one second. Duration of the disruption depends on the configuration of the looped-back port (for example, Spanning Tree Protocol).
Recommendation	Schedule during downtime.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	DFC-enabled modules.

TestNewLearn

The TestNewLearn test verifies the Layer 2 source MAC address learning functionality of the Layer 2 forwarding engine. For supervisor engines, a diagnostic packet is sent from the supervisor engine inband port to verify that the Layer 2 forwarding engine is learning the new source MAC address from the diagnostic packet. For DFC-enabled modules, a diagnostic packet is sent from the supervisor engine inband port through the switch fabric and looped backed from one of the ports on the DFC-enabled module. The Layer 2 learning functionality is verified during the diagnostic packet lookup by the Layer 2 forwarding engine.

Table A-15 TestNewLearn Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped-back ports. Disruption is typically less than one second. Duration of the disruption depends on the configuration of the looped-back port (for example, Spanning Tree Protocol).
Recommendation	This test runs by default during bootup or after a reset or OIR.
Default	Off.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	DFC-enabled modules.

TestIndexLearn

The TestIndexLearn test ensures that existing MAC address table entries can be updated. This test verifies the Index Learn feature of the Layer 2 forwarding engine is working properly. When running the test on the supervisor engine, the diagnostic packet is sent from the supervisor engine's inband port and performs a packet lookup using the supervisor engine Layer 2 forwarding engine. For DFC-enabled

modules, the diagnostic packet is sent from the supervisor engine's inband port through the switch fabric and looped back from one of the DFC ports. The Index Learn feature is verified during the diagnostic packet lookup by the Layer 2 forwarding engine.

Table A-16 TestIndexLearn Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped-back ports. Disruption is typically less than one second. Duration of the disruption depends on the configuration of the looped-back port (for example, Spanning Tree Protocol).
Recommendation	This test runs by default during bootup or after a reset or OIR.
Default	Off.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	DFC-enabled modules.

TestConditionalLearn

The TestConditionalLearn test verifies the ability to learn a Layer 2 source MAC address under specific conditions. When running the test on the supervisor engine, the diagnostic packet is sent from the supervisor engine's inband port and performs a packet lookup using the supervisor engine Layer 2 forwarding engine. For DFC-enabled modules, the diagnostic packet is sent from the supervisor engine's inband port through the switch fabric and looped back from one of the DFC ports. The Conditional Learn feature is verified during the diagnostic packet lookup by the Layer 2 forwarding engine.

Table A-17 TestConditionalLearn Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped back ports. Disruption is typically less than one second. Duration of the disruption depends on the configuration of the looped-back port (for example, Spanning Tree Protocol).
Recommendation	This test runs by default during bootup or after a reset or OIR.
Default	Off.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	DFC-enabled modules.

TestTrap

The TestTrap test verifies the ability to trap or redirect packets to the switch processor. This test verifies that the Trap feature of the Layer 2 forwarding engine is working properly. When running the test on the supervisor engine, the diagnostic packet is sent from the supervisor engine's inband port and performs

a packet lookup using the supervisor engine's Layer 2 forwarding engine. For DFC-enabled modules, the diagnostic packet is sent from the supervisor engine's inband port through the switch fabric and looped back from one of the DFC ports. The Trap feature is verified during the diagnostic packet lookup by the Layer 2 forwarding engine.

Table A-18 TestTrap Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped-back ports. Disruption is typically less than one second. Duration of the disruption depends on the configuration of the looped-back port (for example, Spanning Tree Protocol).
Recommendation	This test runs by default during bootup or after a reset or OIR.
Default	Off.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	DFC-enabled modules.

TestBadBpdu

The TestBadBpdu test verifies the ability to trap or redirect packets to the switch processor. This test verifies that the Trap feature of the Layer 2 forwarding engine is working properly. When running the test on the supervisor engine, the diagnostic packet is sent from the supervisor engine's inband port and performs a packet lookup using the supervisor engine's Layer 2 forwarding engine. For DFC-enabled modules, the diagnostic packet is sent from the supervisor engine's inband port through the switch fabric and looped back from one of the DFC ports. The BPDU feature is verified during the diagnostic packet lookup by the Layer 2 forwarding engine.

Table A-19 TestBadBpdu Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped-back ports. Disruption is typically less than one second. Duration of the disruption depends on the configuration of the looped-back port (for example, Spanning Tree Protocol).
Recommendation	This test runs by default during bootup or after a reset or OIR.
Default	Off.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	DFC-enabled modules.

TestProtocolMatchChannel

The TestProtocolMatchChannel test verifies the ability to match specific Layer 2 protocols in the Layer 2 forwarding engine. When running the test on the supervisor engine, the diagnostic packet is sent from the supervisor engine's inband port and performs a packet lookup using the supervisor engine's Layer 2 forwarding engine. For DFC-enabled modules, the diagnostic packet is sent from the supervisor engine's inband port through the switch fabric and looped back from one of the DFC ports. T he Match feature is verified during the diagnostic packet lookup by the Layer 2 forwarding engine.

Table A-20 TestProtocolMatchChannel Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped-back ports. Disruption is typically less than one second. Duration of the disruption depends on the configuration of the looped-back port (for example, Spanning Tree Protocol).
Recommendation	This test runs by default during bootup or after a reset or OIR.
Default	Off.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	DFC-enabled modules.

TestCapture

The TestCapture test verifies that the capture feature of Layer 2 forwarding engine is working properly. The capture functionality is used for multicast replication. When running the test on the supervisor engine, the diagnostic packet is sent from the supervisor engine's inband port and performs a packet lookup using the supervisor engine's Layer 2 forwarding engine. For DFC-enabled modules, the diagnostic packet is sent from the supervisor engine's inband port through the switch fabric and looped back from one of the DFC ports. The Capture feature is verified during the diagnostic packet lookup by the Layer 2 forwarding engine.

Table A-21 TestCapture Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped-back ports. Disruption is typically less than one second. Duration of the disruption depends on the configuration of the looped-back port (for example, Spanning Tree Protocol).
Recommendation	Schedule during downtime.
Default	Off.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	DFC-enabled modules.

TestStaticEntry

The TestStaticEntry test verifies the ability to populate static entries in the Layer 2 MAC address table. When running the test on the supervisor engine, the diagnostic packet is sent from the supervisor engine's inband port and performs a packet lookup using the supervisor engine's Layer 2 forwarding engine. For DFC-enabled modules, the diagnostic packet is sent from the supervisor engine's inband port through the switch fabric and looped back from one of the DFC ports. The Static Entry feature is verified during the diagnostic packet lookup by the Layer 2 forwarding engine.

Table A-22 TestStaticEntry Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped-back ports. Disruption is typically less than one second. Duration of the disruption depends on the configuration of the looped-back port (for example, Spanning Tree Protocol).
Recommendation	This test runs by default during bootup or after a reset or OIR.
Default	Off.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	DFC-enabled modules.

PFC Layer 3 Forwarding Engine Tests

The PFC Layer 3 Forwarding Engine tests consists of the following tests:

TestFibDevices

The TestFibDevices test verifies whether the FIB TCAM and adjacency devices are functional. One FIB entry is installed on each FIB TCAM device. A diagnostic packet is sent to make sure that the diagnostic packet is switched by the FIB TCAM entry installed on the TCAM device. This is not an exhaustive TCAM device test; only one entry is installed on each TCAM device.

Note Compared to the IPv4FibShortcut and IPv6FibShortcut tests, this test tests all FIB and adjacency devices using IPv4 or IPv6 packets, depending on your configuration.

Table A-23 TestFibDevices Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Nondisruptive.
Recommendation	Run this test on-demand to verify the Layer 3 forwarding functionality if you experience problems with the routing capability. This test can also be used as a health-monitoring test.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and DFC-enabled modules.

TestIPv4FibShortcut

The TestIPv4FibShortcut test verifies the IPV4 FIB forwarding of the Layer 3 forwarding engine is working properly. One diagnostic IPV4 FIB and adjacency entry is installed and a diagnostic packet is sent to make sure that the diagnostic packet is forwarded according to rewritten MAC and VLAN information.

Table A-24 TestIPv4FibShortcut Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Nondisruptive.
Recommendation	Run this test on-demand to verify the Layer 3 forwarding functionality if you experience problems with the routing capability. This test can also be used as a health-monitoring test.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and DFC-enabled modules.

TestIPv6FibShortcut

The TestIPv6FibShortcut test verifies that the IPV6 FIB forwarding of the Layer 3 forwarding engine is working properly. One diagnostic IPV6 FIB and adjacency entry is installed and a diagnostic IPv6 packet is sent to make sure the diagnostic packet is forwarded according to rewritten MAC and VLAN information.

Table A-25 TestIPv6FibShortcut Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Nondisruptive.
Recommendation	Run this test on-demand to verify the Layer 3 forwarding functionality if you experience problems with the routing capability. This test can also be used as a health-monitoring test.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and DFC-enabled modules.

TestMPLSFibShortcut

The TestMPLSFibShortcut test verifies that the MPLS forwarding of the Layer 3 forwarding engine is working properly. One diagnostic MPLS FIB and adjacency entry is installed and a diagnostic MPLS packet is sent to make sure that the diagnostic packet is forwarded according to the MPLS label from the adjacency entry.

Table A-26 TestMPLSFibShortcut Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Nondisruptive.
Recommendation	This test can also be used as a health-monitoring test. Use as a health-monitoring test if you are routing MPLS traffic.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and DFC-enabled modules.

TestNATFibShortcut

The TestNATFibShortcut test verifies the ability to rewrite a packet based on the NAT adjacency information (rewrite destination IP address). One diagnostic NAT FIB and adjacency entry is installed and the diagnostic packet is sent to make sure that the diagnostic packet is forwarded according to the rewritten IP address.

Table A-27 TestNATFibShortcut Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Nondisruptive.

Table A-27 TestNATFibShortcut Test Attributes (continued)

Recommendation	This test can also be used as a health-monitoring test. Use as a health-monitoring test if the destination IP address is being rewritten (for example, if you are using NAT).
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and DFC-enabled modules.

TestL3Capture2

The TestL3Capture2 test verifies that the Layer 3 capture (capture 2) feature of the Layer 3 forwarding engine is working properly. This capture feature is used for ACL logging and VACL logging. One diagnostic FIB and adjacency entry with a capture 2 bit set is installed and a diagnostic packet is sent to make sure that the diagnostic packet is forwarded according to the capture bit information.

Table A-28 TestL3Capture2 Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive.
Recommendation	This test can not be used as a health-monitoring test.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and DFC-enabled modules.

TestAclPermit

The TestAclPermit test verifies that the ACL permit functionality is working properly. An ACL entry permitting a specific diagnostics packet is installed in the ACL TCAM. The corresponding diagnostic packet is sent from the supervisor engine and looked up by the Layer 3 forwarding engine to make sure that it hits the ACL TCAM entry and gets permitted and forwarded appropriately.

Table A-29 TestACLPermit Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive.
Recommendation	This test can not be used as a health-monitoring test.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and DFC-enabled modules.

TestAclDeny

The TestAclDeny test verifies that the ACL deny feature of the Layer 2 and Layer 3 forwarding engine is working properly. The test uses different ACL deny scenarios such as input, output, Layer 2 redirect, Layer 3 redirect, and Layer 3 bridges to determine whether or not the ACL deny feature is working properly.

Table A-30 TestACLDeny Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive.
Recommendation	Do not disable.
Default	On.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	Automatic ASIC reset for recovery.
Hardware support	Supervisor engines and DFC-enabled modules.

TestNetflowShortcut

The TestNetflowShortcut test verifies that the NetFlow forwarding functionality of the Layer 3 forwarding engine is working properly. One diagnostic NetFlow entry and adjacency entry is installed, and a diagnostic packet is sent to make sure it is forwarded according to the rewritten MAC and VLAN information.

Table A-31 TestNetflowShortcut Test Attributes

Attributes	Description
Disruptive/Nondisruptive	Disruptive for looped back ports. The disruption is 500 ms.
Recommendation	Run this test on-demand if you suspect that NetFlow is not working properly.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and DFC-enabled modules.

TestQoS

The TestQoS test verifies whether or not the QoS input and output TCAM is functional by programming the QoS input and output TCAM so that the ToS value of the diagnostic packet is changed to reflect either input or output.

Table A-32 TestQoS Test Attributes

Attributes	Description
Disruptive/Nondisruptive	Disruptive for looped back ports. The disruption is 500 ms.
Recommendation	Schedule during downtime.
Default	This test runs by default during bootup or after a reset or OIR
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and DFC-enabled modules.

DFC Layer 3 Forwarding Engine Tests

The DFC Layer 3 Forwarding Engine tests consists of the following tests:

TestFibDevices

The TestFibDevices test verifies that the FIB TCAM and adjacency devices are functional. One FIB entry is installed on each FIBTCAM device and a diagnostic packet is sent to make sure that the diagnostic packet is switched by the FIB TCAM entry installed on the TCAM device. This is not an exhaustive TCAM device test. Only one entry is installed on each TCAM device.

Note Compared to the IPv4FibShortcut and IPv6FibShortcut tests, the TestFibDevices test tests all FIB and adjacency devices using IPv4 or IPv6 packets, depending on your configuration.

Table A-33 TestFibDevices Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped-back ports. Disruption is typically less than one second. Duration of the disruption depends on the configuration of the looped-back port (for example, Spanning Tree Protocol).
Recommendation	Schedule during downtime.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and DFC-enabled modules.

TestIPv4FibShortcut

The TestIPv4FibShortcut test verifies that the IPv4 FIB forwarding functionality of the Layer 3 forwarding engine is working properly. One diagnostic IPv4 FIB and adjacency entry is installed and a diagnostic packet is sent to make sure that the diagnostic packet is forwarded according to rewritten MAC and VLAN information.

Table A-34 TestIPv4FibShortcut Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped-back ports. Disruption is typically less than one second. Duration of the disruption depends on the configuration of the looped-back port (for example, Spanning Tree Protocol).
Recommendation	This test runs by default during bootup or after a reset or OIR.
Default	Off.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and DFC-enabled modules.

TestIPv6FibShortcut

The TestIPv6FibShortcut test verifies that the IPv6 FIB forwarding functionality of the Layer 3 forwarding engine is working properly. One diagnostic IPv6 FIB and adjacency entry is installed and a diagnostic IPv6 packet is sent to make sure that the diagnostic packet is forwarded according to rewritten MAC and VLAN information.

Table A-35 TestIPv6FibShortcut Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped-back ports. Disruption is typically less than one second. Duration of the disruption depends on the configuration of the looped-back port (for example, Spanning Tree Protocol).
Recommendation	This test runs by default during bootup or after a reset or OIR.
Default	Off.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and DFC-enabled modules.

TestMPLSFibShortcut

The TestMPLSFibShortcut test verifies that the MPLS forwarding functionality of the Layer 3 forwarding engine is working properly. One diagnostic MPLS FIB and adjacency entry is installed and a diagnostic MPLS packet is sent to make sure that the diagnostic packet is forwarded using the MPLS label from the adjacency entry.

Table A-36 TestMPLSFibShortcut Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped-back ports. Disruption is typically less than one second. Duration of the disruption depends on the configuration of the looped-back port (for example, Spanning Tree Protocol).
Recommendation	This test runs by default during bootup or after a reset or OIR.
Default	Off.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and DFC-enabled modules.

TestNATFibShortcut

The TestNATFibShortcut test verifies the ability to rewrite a packet based on NAT adjacency information, such as the rewrite destination IP address. One diagnostic NAT FIB and adjacency entry is installed and a diagnostic packet is sent to make sure the diagnostic packet is forwarded according to the rewritten IP address.

Table A-37 TestNATFibShortcut Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped-back ports. Disruption is typically less than one second. Duration of the disruption depends on the configuration of the looped-back port (for example, Spanning Tree Protocol).
Recommendation	This test runs by default during bootup or after a reset or OIR.
Default	Off.
Release	12.1(13)E, 12.2(14)SX
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and DFC-enabled modules.

TestL3Capture2

The TestL3Capture2 test verifies that the Layer 3 capture (capture 2) feature of the Layer 3 forwarding engine is working properly. This capture feature is used for ACL logging and VACL logging. One diagnostic FIB and adjacency entry with a capture 2-bit set is installed, and a diagnostic packet is sent to make sure that the diagnostic packet is forwarded according to capture bit information.

Table A-38 TestL3Capture2 Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped-back ports. Disruption is typically less than one second. Duration of the disruption depends on the configuration of the looped-back port (for example, Spanning Tree Protocol).
Recommendation	This test runs by default during bootup or after a reset or OIR.
Default	Off.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and DFC-enabled modules.

TestAclPermit

The TestAclPermit test verifies that the ACL permit functionality is working properly. An ACL entry permitting a specific diagnostics packet is installed in the ACL TCAM. The corresponding diagnostic packet is sent from the supervisor engine and is looked up by the Layer 3 forwarding engine to make sure it hits the ACL TCAM entry and gets permitted and forwarded correctly.

Table A-39 TestACLPermit Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped-back ports. Disruption is typically less than one second. Duration of the disruption depends on the configuration of the looped-back port (for example, Spanning Tree Protocol).
Recommendation	This test runs by default during bootup or after a reset or OIR.
Default	Off.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and DFC-enabled modules.

TestAclDeny

The TestAclDeny test verifies that the ACL deny feature of the Layer 2 and Layer 3 forwarding engine is working properly. The test uses different ACL deny scenarios such as input and output Layer 2 redirect, Layer 3 redirect, and Layer 3 bridges.

Table A-40 TestACLDeny Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped-back ports. Disruption is typically less than one second. Duration of the disruption depends on the configuration of the looped-back port (for example, Spanning Tree Protocol).
Recommendation	Schedule during downtime if you are using ACLs.
Default	Off.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and DFC-enabled modules.

TestQoS

The TestQoS test verifies whether or not the QoS input and output TCAM is functional by programming the QoS input and output TCAM so that the ToS value of the diagnostic packet is changed to reflect either input or output.

Table A-41 TestQoS Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped-back ports. The disruption is typically less than one second.

Table A-41 TestQoS Test Attributes (continued)

Recommendation	Schedule during downtime.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and DFC-enabled modules.

TestNetflowShortcut

The TestNetFlowShortcut test verifies that the NetFlow forwarding functionality of the Layer 3 forwarding engine is working properly. One diagnostic NetFlow entry and adjacency entry is installed and a diagnostic packet is sent to make sure it is forwarded according to the rewritten MAC and VLAN information.

Table A-42 TestNetflowShortcut Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for looped-back ports. Disruption is typically less than one second.
Recommendation	Run this test on-demand if you suspect that NetFlow is not working properly.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and DFC-enabled modules.

Replication Engine Tests

The Replication Engine tests consists of the following tests:

TestL3VlanMet, page A-24

TestIngressSpan, page A-25

TestEgressSpan, page A-25

TestL3VlanMet

The TestL3VlanMet test verifies that the multicast functionality of the replication engine is working properly. The replication engine is configured to perform multicast replication of a diagnostic packet onto two different VLANs. After the diagnostic packet is sent out from the supervisor engine's inband port, the test verifies that two packets are received back in the inband port on the two VLANs configured in the replication engine.

Table A-43 TestL3VlanMet Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for DFC-equipped modules. Disruption is typically less than one second on looped-back ports.
Recommendation	Run this test on-demand to test the multicast replication abilities of the replication engine.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and WS-65xx, WS-67xx, and WS-68xx modules.

TestIngressSpan

The TestIngressSpan test ensures that the port ASIC is able to tag packets for ingress SPAN. This test also verifies that the ingress SPAN operation of the rewrite engine for both SPAN queues is working properly.

Table A-44 TestIngressSpan Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for both SPAN sessions. Also disruptive for the loopback port on modules. Duration of the disruption depends on the configuration of the loopback port (for example, Spanning Tree Protocol).
Recommendation	Run this test on-demand.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and WS-65xx and WS-67xx modules.

TestEgressSpan

The TestEgressSpan test verifies that the egress SPAN replication functionality of the rewrite engine for both SPAN queues is working properly.

Table A-45 TestEgressSpan Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive for both SPAN sessions. Disruption is typically less than one second.

Table A-45 TestEgressSpan Test Attributes (continued)

Recommendation	Run this test on-demand.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	Supervisor engines and WS-65xx and WS-67xx modules.

Fabric Tests

The Fabric tests consists of the following tests:

TestFabricSnakeForward, page A-26
TestFabricSnakeBackward, page A-27
TestSynchedFabChannel, page A-27
TestFabricCh0Health, page A-28
TestFabricCh1Health, page A-28

TestFabricSnakeForward

The TestFabricSnakeForward test consists of two test cases: the internal snake test and the external snake test. The internal snake test generates the test packets inside the fabric ASIC and the test data path is limited so that it stays inside the fabric ASIC. The external snake test generates the test packet using the supervisor engine inband port; the test data path involves the port ASIC, the rewrite engine ASIC inside the supervisor engine, and the fabric ASIC. Whether or not the supervisor engine local channel is synchronized to the fabric ASIC determines which test is used. If it is synchronized, the external snake test is used; if it is not, the internal snake test is used. For both tests, only the channels that are not synchronized to any modules are involved in the test. The Forward direction indicates that the snaking direction is from the low-numbered channel to the high-numbered channel.

Table A-46 TestFabricSnakeForward Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Nondisruptive.
Recommendation	Run on-demand. This test can result in high CPU utilization.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	Supervisor engines crash to ROMMON; SFMs reset.
Hardware support	Supervisor Engine 720 and SFM.

TestFabricSnakeBackward

The TestFabricSnakeBackward test consists of two test cases: the internal snake test and the external snake test. The internal snake test generates the test packets inside the fabric ASIC, and the test data path is limited so that it stays inside the fabric ASIC. The external snake test generates the test packet using the supervisor engine inband port and the test data path involves the port ASIC, the rewrite engine ASIC inside the supervisor engine, and the fabric ASIC. Whether or not the supervisor engine local channel is synchronized to the fabric ASIC determines which test is used. If it is synchronized, the external snake test is used; if it is not, internal snake test is used. For both tests, only the channels that are not synchronized to any modules are involved in the test. The backward direction indicates that the snaking direction is from the high-numbered channel to the low-numbered channel.

Table A-47 TestFabricSnakeBackward Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Nondisruptive.
Recommendation	Run on-demand. This test can result in high CPU utilization.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	Supervisor engines crash to ROMMON; SFMs reset.
Hardware support	Supervisor Engine 720 and SFM.

TestSynchedFabChannel

The TestSynchedFabChannel test periodically checks the fabric synchronization status for both the module and the fabric. This test is available only for fabric-enabled modules. This test is not a packet-switching test so it does not involve the data path. This test sends an SCP control message to the module and fabric to query the synchronization status.

Table A-48 TestSynchedFabChannel Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Nondisruptive.
Recommendation	Do not turn this test off. Use as a health-monitoring test.
Default	On.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	The module resets after five consecutive failures. Three consecutive reset cycles results in the module powering down. A fabric switchover may be triggered, depending on the type of failure.
Hardware support	All fabric-enabled modules.

TestFabricCh0Health

The TestFabricCh0Health test constantly monitors the health of the ingress and egress data paths for fabric channel 0 on 10-gigabit modules. The test runs every five seconds. Ten consecutive failures are treated as fatal and the module resets; three consecutive reset cycles may result in a fabric switchover.

Table A-49 TestFabricSCh0Health Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Nondisruptive.
Recommendation	Do not turn this test off. Use as a health-monitoring test.
Default	On.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	The module resets after 10 consecutive failures. Three consecutive resets powers down the module.
Hardware support	WS-X6704-10GE and WS-6702-10GE.

TestFabricCh1Health

The TestFabricCh1Health test constantly monitors the health of the ingress and egress data paths for fabric channel 1 on 10-gigabit modules. The test runs every five seconds. Ten consecutive failures are treated as fatal and the module resets; three consecutive reset cycles may result in a fabric switchover.

Table A-50 TestFabricCh1Health Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Nondisruptive.
Recommendation	Do not turn this test off. Use as a health-monitoring test.
Default	On.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	The module resets after 10 consecutive failures. Three consecutive failures resets powers down the module.
Hardware support	WS-X6704-10GE module.

Exhaustive Memory Tests

The exhaustive memory tests include the following tests:

TestFibTcamSSRAM, page A-29

TestAsicMemory, page A-29

TestAclQosTcam, page A-30

TestNetflowTcam, page A-30

TestQoSTcam, page A-30

Note Because the supervisor engine must be rebooted after running memory tests, run memory tests on the other modules before running them on the supervisor engine. For more information about running on-demand online diagnostic tests see the "Configuring On-Demand Online Diagnostics" section on page 55-3.

TestFibTcamSSRAM

The TestFibTcamSSRAM test checks the FIB TCAM and Layer 3 Adjacency SSRAM memory.

Table A-51 TestFibTcamSSRAM Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive. Disruption is several hours.
Recommendation	Use this test only if you suspect a problem with the hardware or before putting the hardware into a live network. Do not run any traffic in the background on the module that you are testing. The supervisor engine must be rebooted after running this test.
Default	Off.
Release	12.1(20)E, 12.2(14)SX, 12.2(17a)SX.
Corrective action	Not applicable.
Hardware support	All modules including supervisor engines.

TestAsicMemory

The TestAsicMemory test uses an algorithm to test the memory on a module.

Table A-52 TestAsicMemory Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive. Disruption is approximately one hour.
Recommendation	Use this test only if you suspect a problem with the hardware or before putting the hardware into a live network. Do not run any traffic in the background on the module that you are testing. The supervisor engine must be rebooted after running this test.
Default	Off.
Release	12.2(17a)SX.
Corrective action	Not applicable.
Hardware support	All modules including supervisor engines.

TestAclQosTcam

The TestAclQosTcam test tests all the bits and checks the location of both ACL and QOS TCAMs on the PFC3BXL and PFC3B. It is not supported on the PFC3A.

Table A-53 TestAclQosTcam Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive. Disruption is approximately one hour.
Recommendation	Use this test only if you suspect a problem with the hardware or before putting the hardware into a live network. Do not run any traffic in the background on the module that you are testing. The supervisor engine must be rebooted after running this test.
Default	Off.
Release	12.2(18)SXD.
Corrective action	Not applicable.
Hardware support	All modules including supervisor engines.

TestNetflowTcam

The TestNetflowTcam test tests all the bits and checks the location of the Netflow TCAM.

Table A-54 TestNetflowTcam Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive. Disruption is several minutes and can vary depending on whether you are testing the PFC3A, PFC3BXL, or PFC3B.
Recommendation	Use this test only if you suspect a problem with the hardware or before putting the hardware into a live network. Do not run any traffic in the background on the module that you are testing. The supervisor engine must be rebooted after running this test.
Default	Off.
Release	12.2(18)SXD.
Corrective action	Not applicable.
Hardware support	All modules including supervisor engines.

TestQoSTcam

The TestQoSTcam test performs exhaustive memory tests for QoS TCAM devices.

Table A-55 TestQoSTcam Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive. Disruption is several minutes and can vary depending on whether you are testing the PFC3A, PFC3BXL, or PFC3B.
Recommendation	Use this test only if you suspect a problem with the hardware or before putting the hardware into a live network. Do not run any traffic in the background on the module that you are testing. The supervisor engine must be rebooted after running this test.
Default	Off.
Release	12.2(18)SXD.
Corrective action	Not applicable.
Hardware support	All modules including supervisor engines.

IPSEC Services Modules Tests

The IPSEC Services Modules Tests include the following tests:

TestIPSecClearPkt

The TestIPSecClearPkt test sends a packet through the switch fabric or bus from the supervisor engine inband port through to the crypto engine. The packet is sent back without encryption from the crypto engine to the supervisor engine in-band port. The packet is checked to verify that the encryption is not done and that the packet data fields are reserved. The Layer 2 lookup drives the packet between the supervisor in-band port and the crypto engine.

Table A-56 TestIPSecClearPkt Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Nondisruptive.
Recommendation	Run this test on-demand.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.2(18)SXE2.2.
Corrective action	None. See the system message guide for more information.
Hardware support	VPN service module.

TestHapiEchoPkt

The TestHapiEchoPkt test sends a Hapi Echo packet to the crypto engine using the control path. After the Hapi Echo packet is sent to the crypto engine, it is echoed back from the crypto engine. The packet is sent from the supervisor engine inband port to the crypto engine using index-direct and is sent back using broadcast to a diagnostic VLAN.

Table A-57 TestHapiEchoPkt Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive.
Recommendation	Run this test on-demand. This test cannot be run from on-demand CLI.
Default	On.
Release	12.2(18)SXE2.
Corrective action	None. See the system message guide for more information.
Hardware support	VPN service module.

TestIPSecEncryptDecryptPkt

The TestIPSecEncryptDecryptPkt test checks the encryption functionality by exchanging a packet between the supervisor engine in-band port and the crypto engine of the IPSec services modules (WS-SVC-IPSEC, SPA-IPSEC) using the switch fabric or bus (whichever is applicable). After several exchanges, the packet is checked to verify that the original data is preserved after the encryption and decryption process performed by the crypto engine. The Layer 2 lookup drives the packet between the supervisor in-band port and the crypto engine.

Table A-58 TestIPSecEncryptDecryptPkt Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Nondisruptive. Test runs every minute by default.
Recommendation	This test can only be run at bootup.
Default	This test runs by default during bootup or after a reset or OIR.
Release	12.2(18)SXE2.2.
Corrective action	None. See the system message guide for more information.
Hardware support	VPN services module.

Stress Tests

The stress tests consist of the following tests:

TestTrafficStress, page A-33

TestEobcStressPing, page A-34

TestTrafficStress

The TestTrafficStress test stress tests the switch and the installed modules by configuring all of the ports on the modules into pairs, which then pass packets between each other. After allowing the packets to pass through the switch for a predetermined period, the test verifies that the packets are not dropped.

Table A-59 TestTrafficStress Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive. Disruption is several minutes.
Recommendation	Use this test to qualify hardware before installing it in your network.
Default	Off.
Release	12.2(18)SXF.
Corrective action	Not applicable.
Hardware support	Supervisor Engine 720 and Supervisor Engine 32.

TestEobcStressPing

The TestEobcStressPing test stress tests a module's EOBC link with the supervisor engine. The test is started when the supervisor engine initiates a number of sweep-ping processes (the default is one). The sweep-ping process pings the module with 20,000 SCP-ping packets. The test passes if all 20,000 packets respond before each packet-ping timeout, which is two seconds. If unsuccessful, the test allows five retries to account for traffic bursts on the EOBC bus during the test.

Table A-60 TestEobcStressPing Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive. Disruption is several minutes.
Recommendation	Use this test to qualify hardware before installing it in your network.
Default	Off.
Release	12.2(18)SXD.
Corrective action	Not applicable.
Hardware support	Supervisor Engine 720 and Supervisor Engine 32.

Critical Recovery Tests

The critical recovery tests consist of the following tests:

- TestL3HealthMonitoring, page A-34
- TestTxPathMonitoring, page A-35
- TestSynchedFabChannel, page A-35

The TestFabricCh0Health and TestFabricCh1Health tests are also considered critical recovery tests. See the "Fabric Tests" section on page A-26 for a description of these tests.

TestL3HealthMonitoring

The TestL3HealthMonitoring test triggers a set of diagnostic tests involving IPv4 and IPv6 packet switching on a local DFC whenever the system tries to self-recover from a detected hardware fault. The tests shut down the front panel port (usually port 1) for testing purposes. If the diagnostic tests are not passing, it is an indication that the hardware fault cannot be fixed and a self-recovery sequence will be applied again

Table A-61 TestL3HealthMonitoring Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive. Disruption is typically less than one second. Duration of the disruption depends on the configuration of looped-back port (for example, Spanning Tree Protocol). Forwarding and port functions are disrupted during the test.

Table A-61 TestL3HealthMonitoring Test Attributes (continued)

Recommendation	Do not disable.
Default	On.
Release	12.2(14)SX.
Corrective action	Not applicable.
Hardware support	DFC-equipped modules

TestTxPathMonitoring

The TestTxPathMonitoring test sends index-directed packets periodically to each port on the Supervisor Engine 720 and WS-X67xx series modules to verify ASIC synchronization and correct any related problems. The test runs every two seconds.

Table A-62 TestTxPathMonitoring Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Nondisruptive.
Recommendation	Do not change the default settings.
Default	On.
Release	12.2(14)SX.
Corrective action	Not applicable (self-recovering).
Hardware support	Supervisor Engine 720 and WS-67xx series modules.

TestSynchedFabChannel

The TestSynchedFabChannel test periodically checks the fabric synchronization status for both the module and the fabric. This test is available only for fabric-enabled modules. This test is not a packet-switching test so it does not involve the data path. This test sends an SCP control message to the module and fabric to query the synchronization status.

Table A-63 TestSynchedFabChannel Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Nondisruptive.
Recommendation	Do not turn off. Use as a health-monitoring test.
Default	On.
Release	12.1(13)E, 12.2(14)SX.
Corrective action	None. See the system message guide for more information.
Hardware support	All fabric-enabled modules.

General Tests

The general tests consist of the following tests:

ScheduleSwitchover

The ScheduleSwitchover test allows you to trigger a switchover at any time using the online diagnostics scheduling capability.

Table A-64 ScheduleSwitchover Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Disruptive.
Recommendation	Schedule this test during downtime to test the ability of the standby supervisor engine to take over after a switchover.
Default	Off.
Release	12.2(17B)SXA
Corrective action	None
Hardware support	Supervisor engines only.

TestFirmwareDiagStatus

The TestFirmwareDiagStatus test displays the results of the power-on diagnostic tests run by the firmware during the module bootup.

Table A-65 TestFirmwareDiagStatus Test Attributes

Attribute	Description
Disruptive/Nondisruptive	Nondisruptive.
Recommendation	This test can only be run at bootup.
Default	This test runs by default during bootup or after a reset or OIR
Release	12.2(18)SXD
Corrective action	None. See the system message guide.
Hardware support	All modules, including supervisor engines.

Tip For additional information (including configuration examples and troubleshooting information), see the documents listed on this page:

http://www.cisco.com/en/US/products/hw/routers/ps368/tsd_products_support_series_home.html