



# Using Cisco UCS Blade Server Diagnostics Test Components

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## About the Cisco UCS Blade Server Diagnostics Test Components

The diagnostics tool provides several options for you to run and review the diagnostics tests for your Cisco UCS Blade Servers. The following table describes the various diagnostics options. The table also outlines the test components by their functions.

**Table 1: Diagnostics Test Components and Functions**

<b>Diagnostic Test Component</b>	<b>Function</b>
Memtest 86	Runs memory tests when the server is booting up. The components that are tested are multiple CPU caches and memory DIMMs.
Quick Tests	Quickly checks the status of a server or runs sanity checks on the status of individual subsystems of a server. The components that you can test using this option are CIMC, CPU, storage, and memory.
Comprehensive Tests	Runs exhaustive tests on a server or an independent subsystem of a server. Use these tests to stress the subsystems and report errors. You can run comprehensive tests on CIMC, CPU, memory, and video.
Quickmem Tests	Runs diagnostics of your server memory with different patterns, chunk sizes, and loops. Each pmem2 test in Quickmem Test has its own parameters (patterns, chunk size, loops and size of memory).

Diagnostic Test Component	Function
Test Suite	Creates a suite of tests using tests from the comprehensive test options to customize per your requirements. You can choose any combination of tests as you like (using a check box).
Tests Log Summary	Displays an error log and analysis of all the tests that you have run. You can use four filters to sort the logs: Name, Test Suite, Status, and Result.

The following table lists the tests by their functional areas.

**Table 2: Diagnostics Tests by Functional Area**

Functional Area	Test Name	Description
CIMC	CIMC Selftest	Uses the <code>ipmitool</code> to verify that CIMC is operating and is able to provide IPMI data.
CPU	CPU Stress	Stress tests the CPUs.
	CPU Stream	Stress tests the CPU using the stream benchmark.
	CPU Cache	Stress tests the cache in-parallel on all processors.
	CPU Register	Tests the CPU register access.
Memory	Memory Noise	Checks the susceptibility of memory cells that are being affected by signal transactions and cell content changes in the memory array.
	Memory Random	Sequentially writes random data to memory, verifies, writes a complement, verifies, and increments seed for the next loop.
	Memory March	For each loop, writes 0, reads 0/writes 1 (up direction), reads 1, writes 0/reads 0 (down direction) .
	Memory Walk	For each loop, walks ones, and then walks zeros (64-bit data).
	Memory Address	Based on the memory range that you selected for the test, writes the 32-bit or 64-bit address for each single-word or double-word memory block for each loop.
	Memory Pattern	Uses an 8-bit pattern, which is a random number and its complement, to detect data sensitive errors. The random number sequence is different with each pass, which increases effectiveness with multiple passes.

Functional Area	Test Name	Description
	Memory Butterfly	For each loop, writes and then verifies the address and address complement in the next address (64-bit data).
	Memory Pmem2	Writes or verifies the various patterns including butterfly, prbs, and killer patterns. It supports DDR3 and DDR4 memory types.
Video	Video Memory Stress <b>Note</b> This test is not available in Quick test mode.	Runs stress tests on the video memory. The test stresses the graphics card by drawing different graphical patterns on the screen. This test is available in the GUI mode only.
Storage	Storage S.M.A.R.T	Reports the storage Self-Monitoring Analysis and Reporting Technology (S.M.A.R.T) status.
	Storage Selftest	Runs the storage controller self-test. <b>Note</b> This test is available on all servers with MegaRAID controllers. This test is not available for B200M2 and B250M2, because these two servers do not come with MegaRAID controllers.

