

Functional Integrity Testing Lab (FIT Lab)

Comprehensive Compatibility Testing for all Western Digital Hard Drives

Compatibility and quality issues with a hard drive product can delay qualification cycles. Western Digital's FIT Labs make the critical difference in reducing customer time-to-market by providing a reliable, fully tested, hard drive.

Functional Integrity Testing (FIT) is the term Western Digital uses to describe the compatibility testing it performs on all of our hard drive products. We have one FIT Lab™ to test our SCSI drive family and another to test our EIDE drive family. The FIT process tests for compatibility with different host systems, peripherals, host adapters, operating systems, application programs, and application systems as well as providing benchmark performance data. Before Western Digital releases a drive to manufacturing, it must be FIT certified. We submit the drive for FIT testing to ensure data integrity and verify overall functionality of the product. This comprehensive approach to testing ensures that you get a drive that is of the highest quality and FIT-certified for its intended application.

Pre-FIT Testing

Prior to compatibility testing with host systems, Western Digital drives are submitted to a suite of engineering-level tests. These tests verify functionality by subjecting drive commands, features, performance, and interface protocol to maximum stress conditions. Error injection hardware is used to ensure that the drive recovers from errors (randomly injected or time-specific) that occur on the interface, the servo system, and the data path.

Tests for the SCSI drive family are C++ programs written by FIT engineers to run on both a host-emulator test card and an off-the-shelf host adapter. The primary extended test program simulates customer environments by exercising all drive features in a multi-threaded, multi-host environment.

Tests for the EIDE drive family consist mostly of batch files written for Western Digital's ATTF proprietary disk exerciser. The Pre-FIT test suite exercises all areas of functionality in the drive.

New tests are implemented as new features are added to the hard drive. When the FIT teams identify a problem that affects performance or quality, they add a test for that issue to the Pre-FIT test suite. The Pre-FIT test matrix becomes more and more rigorous and allows regression testing to help design engineering address problems before any new or enhanced product reaches formal FIT testing. This unique Pre-FIT testing process results in faster customer time-to-market, reduced qualification cost to our customers, and further underscores Western Digital's commitment to continuous process improvement.

FIT Matrix

Before beginning FIT testing, Western Digital constructs a matrix of operating environments in which to run the drive in order to evaluate:

- Host system compatibility
- Operating system compatibility
- Host adapter compatibility (SCSI family)

BENEFITS

- **Highly compatible, trouble-free, Western Digital products.**
- **Comprehensive testing in a controlled environment that ensures:**
 - Product specification compliance
 - Operating system compatibility
 - "Real life" benchmark performance data
 - Shorter customer qualification cycles
 - Faster time-to-market
 - Host system/peripheral compatibility
 - Host adapter compatibility
- **A FIT report containing:**
 - A description of Pre-FIT testing
 - A FIT matrix defining which systems were tested as well as which operating systems, application programs and host adapters were tested in various specified host systems
 - Benchmark data
 - Summary of results

- Peripheral compatibility
- Performance.

Host System Testing

Western Digital's FIT Labs are comprehensive testing facilities supporting the integration of our hard drives into mobile, desktop, workstations, servers, and multi-user systems. Western Digital has developed strategic relationships with leading computer manufacturers to obtain systems and test software to enhance our FIT test matrix. The problems discovered and fixed during FIT reduce the number of problems found by customers during their own qualification testing.

SCSI Host System and Host Adapter Compatibility Testing

Western Digital's SCSI FIT Lab houses a wide variety of enterprise class systems and host adapters that are used in FIT testing. Western Digital hard drives are exercised in these systems with a variety of third-party tests as well as tests written to simulate customer environments. Because Western Digital serves as a beta test site for the newest host adapters, it is always at the forefront of technology developments and constantly expanding its compatibility testing capabilities. Compatibility testing with these various systems and host adapters gives customers who use Western Digital hard drives the assurance that the drives will work in their system.

Operating System Compatibility Testing

Operating system compatibility is verified by installing today's most popular operating systems on the test drive in different host systems with various peripheral combinations. Western Digital works with each major operating system company to obtain certification for our hard drives.

Benchmark Testing

Benchmark testing consists of:

- Running the Western Digital developed Pre-FIT performance suite.
- Running industry-standard benchmarks for drive products.
- Evaluating performance with customer supplied benchmarks in their systems. A baseline comparison is drawn between Western Digital and our competitors in each of these environments.

Certified FIT

We do all the testing so we can provide our customers a quality hard drive that functions reliably in a "real life" environment. Upon completion of FIT, Western Digital delivers an in-depth FIT report that contains the matrix and test results.

Faster Time-to-Market

Western Digital's FIT Labs are the most comprehensive testing facilities in the industry. Choose a FIT-certified hard drive and get to market faster.



For service and literature:

714.932.4900 USA
 714.932.5000 Outside USA
 714.932.4300 DocuFAX
 www.wdc.com Internet

Western Digital and Caviar are registered trademarks and WD Caviar, CacheFlow, FIT Lab, and The World's Most Recommended Hard Drive are trademarks of Western Digital Corporation. Other marks may be mentioned herein that belong to other companies. Product specifications subject to change without notice.
 © 1997 Western Digital Corporation.
 All rights reserved.

Western Digital Corporation
 8105 Irvine Center Drive
 Irvine, California 92618

79-880103-0 H0103 8/96