

Motorola Built-In Test (MBIT) Diagnostic Software

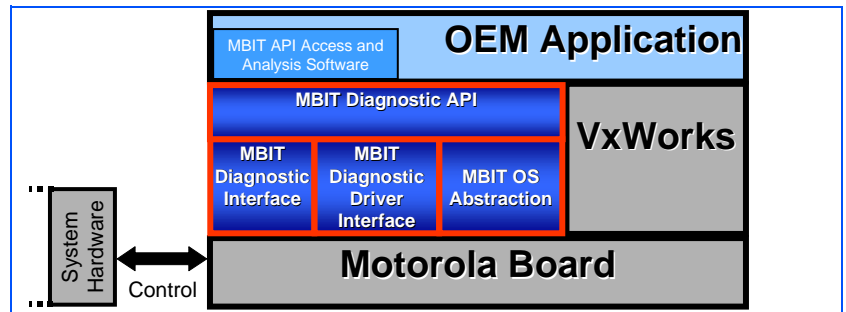


- As a leading manufacturer of computing platforms, Motorola now introduces hardware diagnostics and system diagnostic software infrastructure.
- Totally new concept for easy development of board and system-wide diagnostics and performance analysis.
- Saves thousands of hours of engineering effort for a surprisingly affordable deployment cost.
- Innovative software architecture provides board-level component tests, a test control interface, background processing and enables inclusion of custom, system-test software.
- Provides OEMs the essential ingredients for satisfying equipment end-user maintenance and repair requirements.

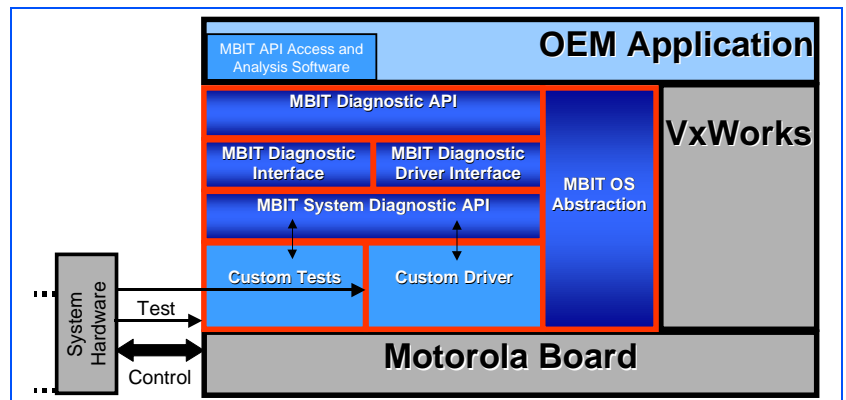
Motorola Built-In Test (MBIT) is an off-the-shelf software infrastructure designed to verify the correct operation of Motorola Computer Group hardware and enable the incorporation of system-level diagnostics. MBIT executes on the MVME51xx family of boards running the WindRiver Systems, Inc. VxWorks real-time operating system. It also depends on the use of the Tornado 2.1 development environment. MBIT is available in two versions—board-level MBIT and system-level MBIT.

The board-level MBIT is a comprehensive diagnostic software package designed to verify the correct operation of board-mounted logical devices. All tests can execute at boot-up and selected tests can run continuously in the background of user applications. An application programming interface (API) is included to provide access to test results and to control the operation of device tests.

The system-level MBIT includes all of the functionality and API function calls of the board-level version and enables system-wide testing. It provides a framework and additional API function calls to support the inclusion of software designed to test custom hardware and/or system components.



Board-Level MBIT



System-Level MBIT

SOFTWARE VERSIONS AND FUNCTIONALITY

Board-Level MBIT

The board-level MBIT consists of hardware diagnostics and an API to control operation of the test driver suite. Functionality includes response testing and internal operation testing of all discrete addressable board-mounted devices. Many subtests can be run in the background repetitively and all tests can be run at system boot-up. Examples of tested devices are: processor, L2 cache, VMEbus ASIC, ECC RAM, serial EPROM, Flash, NVRAM and real-time clock.

Internal operation tests include:

- Register stuck-at conditions
- Register manipulations
- Device setup instructions
- Others – see user's manual

The quantity of internal operation tests vary with device. Some examples are:

- MPC7400 processor – 12 different tests
- Ethernet – six different tests
- SCSI – six different tests
- L2 cache – seven different tests
- Universe II PCI/VMEbus bridge – eight different tests
- Others – see user's manual

API commands include:

- Reset initial state and instantiate MBIT software
- Execute a list of subtests
- Obtain test results
- Abort a subtest or group of subtests
- Get faults for a specific device
- Obtain a list of test entries for a given device
- Obtain a test entry for a given subtest and device
- Get the number of subtests available
- Get the number of devices tested
- Get the size of the fault list
- Terminate MBIT

System-Level MBIT

The system-level MBIT includes the complete board-level version capability and in addition provides the capability to build in custom hardware diagnostics. The additional API functionality provides a framework for inclusion of software designed to test custom hardware and/or system components.

Additional API function calls include:

- Detailed control of read and write to memory, bit change tracking
- Interrupt controls
- Location of device access pointer
- Cache operation controls
- Read data from devices
- Add subtest, device and fault nodes
- Associate device, subtest and test driver
- Install driver routines
- Open a device for I/O operations
- Read/write data to a device
- Others – see user's manual

DOCUMENTATION, SERVICES AND ORDERING INFORMATION

Documentation

A user's manual and test reference guide is available for both versions of the MBIT software package to help use and design custom test drivers.

Services

Motorola is aware that not all customers have the resources available to configure and design, or write custom test drivers for their system-level hardware tests. Motorola can provide resources to assist in this area. Please contact your local Motorola sales representative for more information.

Ordering Information

Part Number	Description
MBIT-BRD-51XX	Board-level MBIT
MBIT-SYS-51XX	System-level MBIT
Documentation	
MBITA/UM	MBIT User's Manual
MBITA/RM	MBIT Test Reference Guide
Documentation is available for online viewing and ordering at http://www.motorola.com/computer/literature	

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