

## Boundary-Scan Upgrade for Digitaltest Flying Probe

- ❑ Increases test coverage of inaccessible nets and pins such as BGAs
- ❑ Reduces overall test time
- ❑ Complies with IEEE Std 1149.1 and BSDL industry standards
- ❑ Fault detection and isolation down to the net and pin levels
- ❑ High-performance In-System Programming (ISP) of CPLDs, FPGAs, and Flash
- ❑ Automatic generation of test patterns for Infrastructure, Interconnect, Clusters, Memories, FIFOs, and Resistors, using proven, mature boundary-scan test algorithms
- ❑ High-level debugger including waveform representation of applied, expected, and actual test data including go from breakpoints, looping, and single-step
- ❑ Supports more than 60 industry standard CAD and netlist formats
- ❑ High-performance boundary-scan controllers
- ❑ Built-in test sequencer for automatic execution of independent tests with user specified order
- ❑ Summary and Comprehensive reports of board test coverage
- ❑ Provides a test-statistics and results-report for each test run



### Overview

With the rapidly increasing complexity of printed circuit board assemblies and the drive for reduced time to market, Flying Probes such as Digitaltest Condor MTS 500 are quickly becoming the test solution of choice.

The low cost and short test program development time are two major reasons for making the Flying Probe an ideal tool for prototypes, new product introductions, and low volume (high analog/digital mix signal) production applications where the cost of test fixtures cannot be justified.

The Flying Probe does not require complex test fixtures thus reducing cost and increasing flexibility to incorporate design changes.

Boundary-scan operates as the perfect companion to the Flying Probe. Boundary-scan is capable of increasing the fault coverage by testing, for example, opens on BGA connections that are connected to inaccessible nets internal to the circuit board. These 'buried' nets do not appear on the top or bottom of the circuit board, nor are they connected to any vias, where they could be accessed by the moving probes. Without boundary-scan integrated with the moving probe system, open solder connections to the BGAs, with such 'buried' nets, cannot be detected.

Integrating the Corelis ScanExpress boundary-scan tools with the Digitaltest MTS 500 Flying Probe

into a single tester forms a powerful and cost effective solution that virtually eliminates each of the obstacles that are presented to the individual test technologies. By utilizing the benefits of both boundary-scan and the Flying Probe, complete test procedures can be created in a minimal time frame that provide outstanding test coverage of the entire printed circuit board assembly.

### General Description

The integration of the Corelis Scan-Express boundary-scan tools with the Digitaltest Flying Probe is performed via the Digitaltest Computer Integrated Test Environment (CITE).

By including the Corelis ScanPlus Runner DLL into a CITE test plan, a complete boundary-scan test or Flash Programming step can be incorporated into any given Flying Probe test program.

When faults are detected by the boundary-scan portion of the test, the output of the ScanPlus Advanced Diagnostic is displayed from within the interface, clearly specifying the cause of the fault down to the net and pin level. The Digitaltest user interface, with included boundary-scan test, is shown in Figure 1.

ScanPlus Runner must be installed on the Digitaltest Tester in order to utilize the ScanPlus Runner DLL. The Corelis NetUSB-1149.1/E is the preferred JTAG controller, although other controllers may also suffice. The NetUSB-1149.1/E is the easiest and most flexible controller to use because it does not require physical access other than an Ethernet or USB 2.0 connection to the Digitaltest hardware.

The NetUSB-1149.1/E Boundary-Scan Controller is depicted in Figure 2.

Contact Corelis to request an application note (No. 02-726) that explains in detail, including an example, how to integrate Corelis Scan-Express System with Digitaltest Flying Probe.



Figure 1. Successful production test using boundary-scan



Figure 2. NetUSB-1149.1/E Boundary-Scan Controller

Windows®, WindowsNT®, WindowsXP®, Windows2000®, are trade-marks of Microsoft Inc.  
 ScanPlus Runner is a trademark of Corelis Inc.  
 CITE, Condor MTS 500 are trademarks of Digitaltest  
 © Copyright 2010 by Corelis Inc. All rights reserved.  
 CORELIS Inc., reserves the right to make changes in design or specification at any time without notice.

**CORELIS**  
 13100 Alondra Blvd.  
 Cerritos, California 90703  
 Tel: (562) 926-6727  
 Fax: (562) 404-6196  
 sales@corelis.com www.corelis.com