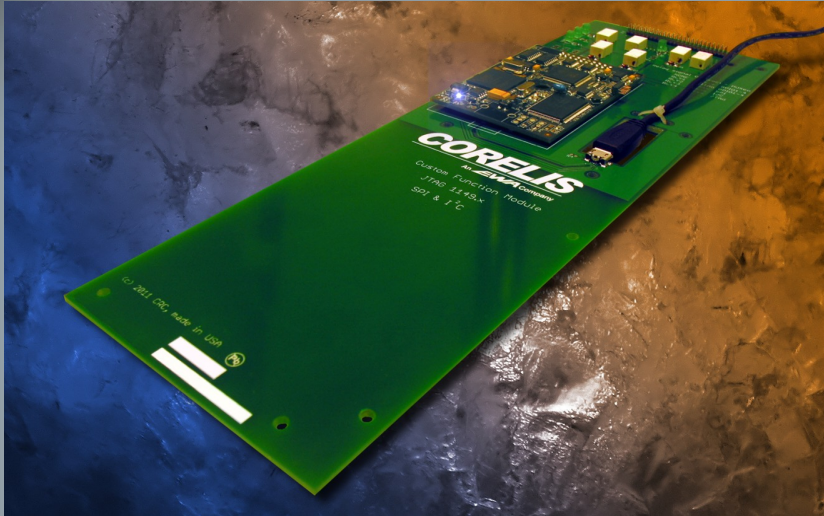


# USB-1149.1/CFM™

**CORELIS**  
An EWA Company

High-Performance Boundary-Scan Controller  
for Teradyne In-Circuit-Testers

Preferred JTAG Solutions—Acclaimed Technical Support



## Features

- High-performance JTAG controller with I<sup>2</sup>C and SPI interfaces
- Supports IEEE-1149.1 and IEEE-1149.6 for advanced digital networks
- User programmable JTAG TCK rate up to 100 MHz, SPI SCK rate up to 50 MHz, and I2C SCL rate up to 5 MHz
- Custom Function Module (CFM) form factor fits in a single slot of a Custom Function Board (CFB) on the Teradyne tester
- Variable output voltage and configurable input voltage threshold
- On-board relays completely isolate JTAG and ICT operations
- Three general purpose I/O channels
- High-speed bus-powered USB 2.0 interface
- Scan Function Library software supports Windows® XP, Windows Vista®, and Windows 7 operating systems

## Applications

- **Boundary-Scan Test** - Integrate boundary-scan testing with Teradyne ICTs, complete with support for IEEE-1149.6 AC-coupled tests.
- **JTAG Embedded Test** - Add at-speed functional tests by taking control of a CPU JTAG debug port, without requiring boot code.
- **In-System Programming (ISP)** - Directly erase, program, and verify Flash, EEPROMs, CPLDs, FPGAs, and other programmable devices.

As circuit and system complexities increase, test point access for in-circuit test (ICT) continues to decrease at a rapid rate; new design features such as buried vias and ball-grid-arrays (BGA) present a difficult, if not impossible situation for any ICT system to gain access to system nets.

Adding boundary-scan without losing the ICT investment is an attractive prospect—by combining ICT and boundary-scan, test engineers are achieving the benefits of these complementary technologies and the highest possible test coverage.

The USB-1149.1/CFM™ High-Speed single-TAP boundary-scan controller makes adding JTAG test to Teradyne ICTs a snap. Designed specifically for integration into Teradyne TestStation™ and GR228x testers, the USB-1149.1/CFM offers a clean, convenient boundary-scan solution.

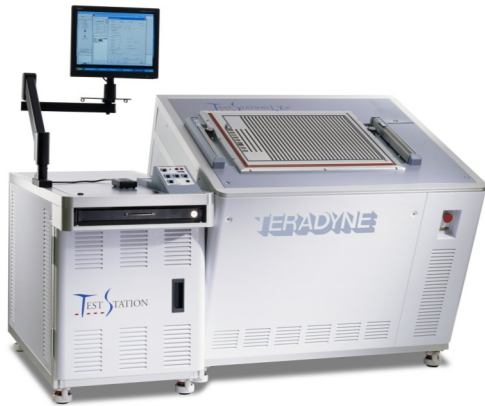
## Benefits

- **Save time** at test stations with high performance JTAG features—up to 100 MHz for lightning fast test and in-system-programming speeds.
- **Increase system capability** by integrating Corelis boundary-scan hardware and software directly into the Teradyne ICT.
- **Reduce costs** associated with fixtures; adding boundary-scan test coverage reduces the amount of test points required.
- **Compatible** with the complete ScanExpress™ family of boundary-scan, ISP, and JTAG embedded test software.

**Learn More:** For more information about Corelis products, please visit [www.corelis.com](http://www.corelis.com)

## High Performance, Tight Integration

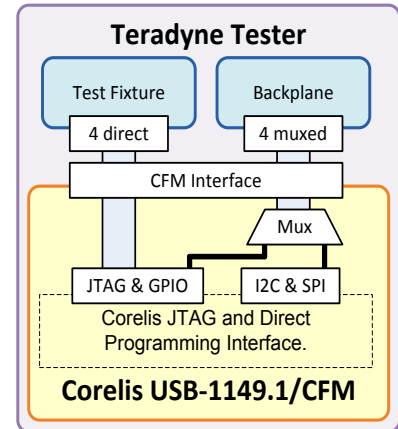
The Corelis USB-1149.1/CFM™ JTAG controller is compliant with the IEEE Standard 1149.1 for test access and is fully capable of executing 1149.1 and 1149.6 tests. The USB-1149.1/CFM integrates effortlessly within the Teradyne system and interfaces with Corelis ScanExpress software. Integrated SPI and I2C programming features make the USB-1149.1/CFM an ideal and universal solution for combined boundary-scan, JTAG embedded test, and ISP.



Supports Teradyne TestStation™ and legacy GR288x In-Circuit Test systems.  
Requires one Custom Function Module slot on a Teradyne Custom Function Board.

## Designed for TestStation™

The USB-1149.1/CFM was designed specifically for use with Teradyne TestStation and GR228x series Testers. The CFM form factor boards fits directly into one of four slots in a Teradyne CFB. Integration is simple and transparent; once installed in the system, the USB-1149.1/CFM JTAG, GPIO, I2C, and SPI signals are available to test fixtures and the tester backplane.



USB-1149.1/CFM System Diagram. JTAG signals can use the CFM direct or muxed interface pins.

## Ordering Information

**Part Number—10410**

For more information about Corelis hardware and software products, please visit our website at <http://www.corelis.com>

## Software Support

### ScanExpress Tools

Corelis offers a complete family of boundary-scan test, JTAG embedded test, and in-system-programming tools—all fully compatible and with the USB-1149.1/CFM advanced features.

For more information about ScanExpress products, please contact the Corelis sales department.

Email: [sales@corelis.com](mailto:sales@corelis.com)

## CORELIS

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## USB-1149.1/CFM Hardware Specifications

### General

Mechanical Dimensions	3.780 x 11.468 x 0.390 (+/- 0.010) inches
Certifications	RoHS Compliant

### USB Interface

USB Transfer Rate	High-speed USB 2.0
USB Cable	Includes attached 6 foot USB 2.0 cable

### Target Interface

TAP Connection	Teradyne CFM Interface
Output Voltage	Programmable from 1.25V to 3.30V in 0.05V steps

### JTAG Interface

Compliance	IEEE-1149.1 Compliant Interface
Maximum TCK Clock Rate	100 MHz

### I2C Interface

Maximum SCL Clock Rate	5 MHz
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### SPI Interface

Supported Chip Selects	Up to 2
Maximum SCK Clock Rate	50 MHz