

# USB-1149.1/1E™

High-Performance USB 2.0 Boundary-Scan Controller

**CORELIS**  
An EWA Company

Preferred JTAG Solutions—Acclaimed Technical Support



## Features

- High-performance JTAG controller with I<sup>2</sup>C and SPI interfaces.
- User programmable JTAG TCK rate up to 100 MHz, SPI SCK rate up to 50 MHz, and I<sup>2</sup>C SCL rate up to 5 MHz.
- Variable output voltage and configurable input voltage threshold.
- Automatic signal delay compensation for long cable lengths.
- Three general purpose I/O channels.
- High-speed bus-powered USB 2.0 interface ideal for the bench and desktop; no external power supply required.
- Scan Function Library software supports Windows® XP, Windows Vista®, and Windows® 7 operating systems (32-bit and 64-bit).

## Benefits

- **Save time** at test stations with high performance—up to 100 MHz for lightning fast test and in-system-programming.
- **Increase programming rate** for in-system-programming; the advanced architecture provides persistent scan vector output and extraction, ensuring that throughput remains high at all times.
- **Reduce costs** associated with fixtures; the single TAP controller connects directly to the UUT and fits easily anywhere.
- **Compatible** with the complete ScanExpress™ family of boundary-scan and JTAG embedded test products.

The USB-1149.1/1E High-Speed single-TAP boundary-scan controller is designed for performance, convenience, and value—a powerful, portable USB instrument for all JTAG applications and life cycle phases.

When we say high-performance, we mean it—the USB-1149.1/1E doesn't just boast 100 MHz JTAG speeds, it backs it up with Corelis' proprietary scan control architecture to ensure that boundary-scan tests, JTAG embedded tests, and in-system-programming operations can be run at the fastest possible speeds.

The USB-1149.1/1E controller works with the complete Corelis ScanExpress™ family of software, enabling comprehensive test coverage at a fraction of the cost of traditional bed-of-nails testers and without the inconvenience of fixtures.

Why trade speed for convenience, when you can have both?

## Applications

- **Boundary-Scan Test** - Use boundary-scan to test, debug, and verify hardware through all phases of the product life cycle—from development to production to the field.
- **JTAG Embedded Test** - Control a microprocessor through the JTAG debug port to run functional tests, without requiring boot code.
- **In-System Programming** - Read, erase, program, and verify Flash Memories, serial PROMs, CPLDs, FPGAs, and other programmable devices directly within a circuit or system design.

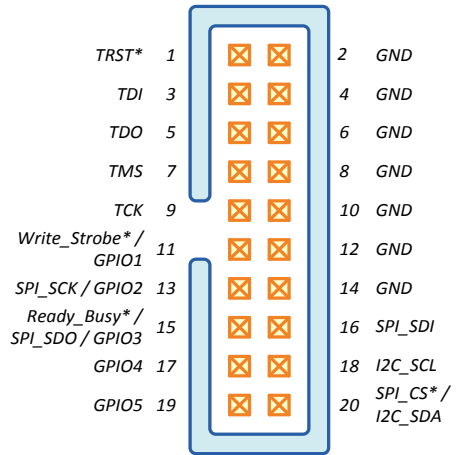
**Learn More:** For more information about Corelis products, please visit [www.corelis.com](http://www.corelis.com)

## High Performance, Convenient Package

The Corelis USB-1149.1/1E JTAG controller is fully compliant with the IEEE Standard 1149.1 for test access. The USB-1149.1/1E connects effortlessly between the host PC high-speed USB port and any JTAG-based target system. Integrated SPI and I<sup>2</sup>C interfaces make the USB-1149.1/1E a highly versatile single-TAP controller and Corelis' advanced architecture guarantees the highest possible performance.

## Scan Function Library

For applications that require a low level interface or integration with third party software, Corelis offers a Scan Function Library (SFL). The SFL is provided as a 32-bit DLL for Microsoft Windows and provides all functions necessary to operate the JTAG port and send or receive JTAG instructions and data to the target system. Users can incorporate the drivers in their own application software or integrate the SFL with third party systems such as National Instruments LabVIEW, National Instruments TestStand, and Agilent VEE.



USB-1149.1/1E Pin Assignments

## USB-1149.1/1E Hardware Specifications

### General

|                       |   |
|-----------------------|---|
| Mechanical Dimensions | 2.30 inches x 3.25 inches x 0.80 inches |
| Certifications        | RoHS Compliant                          |

### USB Interface

|                   |  |
|-------------------|--|
| USB Transfer Rate | High-speed USB 2.0                       |
| USB Cable         | Ships with a 6 foot USB 2.0 A to B cable |

### Target Interface

|                                       |   |
|---------------------------------------|---|
| Connector (connects to target)        | 20-pin (2x10) IDC header (0.100 x 0.100 inches)<br>3M part no. N3428-5302RB   |
| Recommended TAP Connector (on target) | 20-pin (2x10) IDC receptacle (0.100 x 0.100 inches)<br>3M part no. 3421-6620  |
| TAP Cable Length                      | 20-pin to 10-pin (12"), Corelis P/N 15310-2<br>20-pin to 16-pin (12"), Corelis P/N 15311-2<br>20-pin to 20-pin (12"), Corelis P/N 15312-2<br>(all standard). Other options are available. |
| Output Voltage                        | Programmable from 1.25V to 3.30V in 0.05V steps   |
| Threshold Voltage                     | Programmable from 0.00V to 3.30V in 0.05V steps   |

### JTAG Interface

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

### I<sup>2</sup>C Interface

|                        |       |
|------------------------|-------|
| Maximum SCL Clock Rate | 5 MHz |
|------------------------|-------|

### SPI Interface

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

## Ordering Information:

**Part Number—10380R**

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 compatible with the USB-1149.1/1E advanced features.

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

**Email: sales@corelis.com**

## CORELIS

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