QuadTAP/CFM™



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



Features

- High-performance multi-TAP JTAG controller and expander cards with I²C and SPI interfaces.
- Fully integrated JTAG controller—no additional hardware necessary.
- Custom Function Module (CFM) form factor for easy integration with a Multi-Function Application Board on the Teradyne tester.
- 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.
- Variable output voltage and configurable input voltage threshold.
- Versatile configuration allows up to two partial TAPs with a single CFM or up to 4 full JTAG TAPs using expander modules.
- Configurable pin-out with three general purpose I/O channels per TAP.
- Pin protection prevents TAP damage from shorts to power or ground.
- 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 multi-TAP boundary-scan tests into Teradyne ICT systems 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.

Circuit board complexity continues to increase. As physical test access recedes, non-intrusive test methods such as boundary-scan and JTAG embedded test are positioned to close the test coverage gaps, ensuring that test technology keeps pace with design advances such as multi-TAP systems.

The Corelis QuadTAP/CFM™ high-speed multi-TAP boundary-scan system makes advanced, multi-TAP boundary-scan testing within ICT systems a reality. By combining ICT and boundary-scan, test engineers gain benefits from both technologies for the highest possible test coverage, speed, and capability.

Specifically designed for integration into Teradyne TestStation™ and GR228x testers, the QuadTAP/CFM and QuadTAP/CFM Expander enable a clean, convenient multi-TAP boundary-scan solution.

Benefits

- Save time at test stations with high performance JTAG, SPI, and I²C features—up to 100 MHz for lightning fast test and in-systemprogramming speeds.
- Add multi-TAP capability by integrating Corelis boundaryscan 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.



QuadTAP/CFM™

Maximum Versatility, Tight Integration

The Corelis QuadTAP/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 QuadTAP/CFM provides support for up to two TAPs with a single unit or up to four TAPs using QuadTAP/CFM Expander cards. Integrated SPI and I²C programming features on each TAP make the QuadTAP/CFM an ideal and universal solution for combined boundary-scan, JTAG embedded test, and ISP.

Designed for TestStation™



The QuadTAP/CFM system was designed specifically for use with Teradyne TestStation and GR228x series Testers. Each board fits directly into one of four CFM slots on a Teradyne Multi-Function Application Board, offering versatility for up to four TAPs. The JTAG, GPIO, I²C, and SPI signals from the installed modules are available directly to test fixtures and the tester backplane.

Teradyne Tester Test Fixture 4 direct 4 direct Backplane 4/8* muxed CFM Interface CFM Interface Mux Mux Mux TAP1 JTAG TAP2 JTAG & GPIO & GPIO TAP3 JTAG Four TAP JTAG, SPI, and I²C Interface. TAP4 JTAG & GPIO QuadTAP/CFM QuadTAP/CFM Expander *Four (4) muxed interface lines are available to share between

*Four (4) muxed interface lines are available to share between each pair of CFM modules(1,2) and (3,4). Eight (8) MUX lines are available to each module when one CFM is installed in slot 1 or 2 and the other is installed in slot 3 or 4.

Typical QuadTAP/CFM configuration with QuadTAP/CFM Expander for 4 TAPs.

QuadTAP/CFM (Main Card) Hardware Specifications

General	
Mechanical Dimensions	3.780 x 11.468 x 0.390 (+/- 0.010) inches
USB Interface	
USB Transfer Rate	High-speed USB 2.0
USB Cable	Includes attached 6 foot USB 2.0 cable
CFM & Expander Interface	
CFM Connection	Teradyne CFM interface (up to two TAPs)
Expander Connection	Three expander output ports for additional TAPs using QuadTAP/CFM Expander cards
JTAG Interface	
JTAG Interface Compliance	IEEE-1149.1 compliant interface
	IEEE-1149.1 compliant interface 100 MHz
Compliance	·
Compliance Maximum TCK Clock Rate	·
Compliance Maximum TCK Clock Rate I2C Interface	100 MHz
Compliance Maximum TCK Clock Rate I2C Interface Maximum SCL Clock Rate	100 MHz

Ordering Information:

- Part Number—10411 Multi-TAP Integration Bundle for Teradyne ICTs. Includes QuadTAP/CFM and two QuadTAP/CFM Expander cards.
- Part Number—10412 Individual QuadTAP/CFM Expander card.

For more information about this product, please contact the Corelis Sales Department:

Email: sales@corelis.com

QuadTAP/CFM Expander Hardware Specifications

General

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

CFM & Expander Interface

CFM Connection Teradyne CFM interface (up to two additional TAPs)

Expander Connection Two expander input ports from QuadTAP/CFM

Expander Cables Includes two 20-pin expander cables

Additional Information:

- QuadTAP/CFM User's Manual
- App Note 12-0312: Using Corelis Custom Function Modules with Teradyne ICTs.

CORELIS

13100 Alondra Blvd. Cerritos, CA 90703, USA

Phone: +1 888-808-2380 (US & Canada) Phone: +1 562-926-6727 (International)

Fax: +1 562-404-6196

www.corelis.com

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