Escape Communications selects Flynn Systems' onTAP® embedded JTAG solution.

The Challenge

Escape Communications of Torrance, CA (www.escapecom.com), a trusted provider of point-to-point microwave radio indoor units (IDUs) for commercial telecommunications OEMs and custom advanced signal processing designs for major space and defense contractors, sought to improve their physical user interface for testing, especially during the manufacturing process. Having already developed a test executive with an intuitive GUI, Escape then needed to eliminate proprietary third party test fixtures, some of which were outdated and unreliable, and integrate reliable, easy to use, and cost-effective test capabilities into their new Automated Test Board (ATB) design.

In previous projects, Escape had recognized the high value of comprehensive IEEE 1149.1 tests and had successfully used onTAP software for boundary scan test applications. The major test and development challenges for their current ATB project were limited physical access to the board and limited boundary scan access. "Some devices were not able to interface via boundary scan," said Ted Pascaru, Director of Operations for Escape Communications, "and other devices required proprietary test and programming methods…We needed a solution that would make it easier for us, our customers, and manufacturers to access the board and conduct the necessary tests."

Escape set out to develop a method that provided boundary scan access along with the needed access to the devices with special provisions. Such a strategy, Pascaru explained, "Would enable our customers, and subsequently our CMs, to implement reliable, user-friendly, cost-effective tests without the need to purchase suites of separate test tools and licenses."

The Solution

Escape Communications asked Flynn Systems to help them tackle the challenge of embedding boundary scan tests into their ATB design through the use of readily available, off-the-shelf firmware in order to minimize customization and engineering development costs. Escape selected the FTDI 2232D Dual USB UART/FIFO IC chip for the ATB test interface, the same chip Flynn Systems uses in their USB JTAG Test and Programming cable. Escape and Flynn have both had great success with this particular device due to its versatility and full range of capabilities for test and development purposes.

> "Some devices were not able to interface via boundary scan," said Ted Pascaru, Director of Operations for Escape Communications, "…We had pods and cables hanging all over the board for the variety of different tools required during test and development.
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> We needed something that would make it easier for us, our customers, and manufacturers to access the board and conduct the different tests necessary."
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> Ted Pascaru
> Director of Operations
> Escape Communications
> www.escapecom.com

The Escape Communications EXM-2L16 is their flagship product offering 16 native T1/E1 tributaries and offering optional built-in switched protection / receive diversity. The EXM-2L16 supports arbitrary bandwidths from 3.5 to 30 MHz and transport capacities from 5 Mbps to 170 Mbps (QPSK to 256 QAM).

The Solution (*continued from page 1*)

The Escape solution confines the necessary test equipment to little more than a common high speed A-A USB 2.0 cable, controlling the embedded FTDI chip through Escape's board design and its own test executive. The result: "Now we have created a way to easily access the board and perform all the necessary functions for the different devices on the board. Flynn was easy to work with and open to the idea of embedding a solution," Pascaru noted. Instead of having several cables and test and programming pods interfacing with the board, there is one embedded device connected to the test PC via a standard USB 2.0 port.

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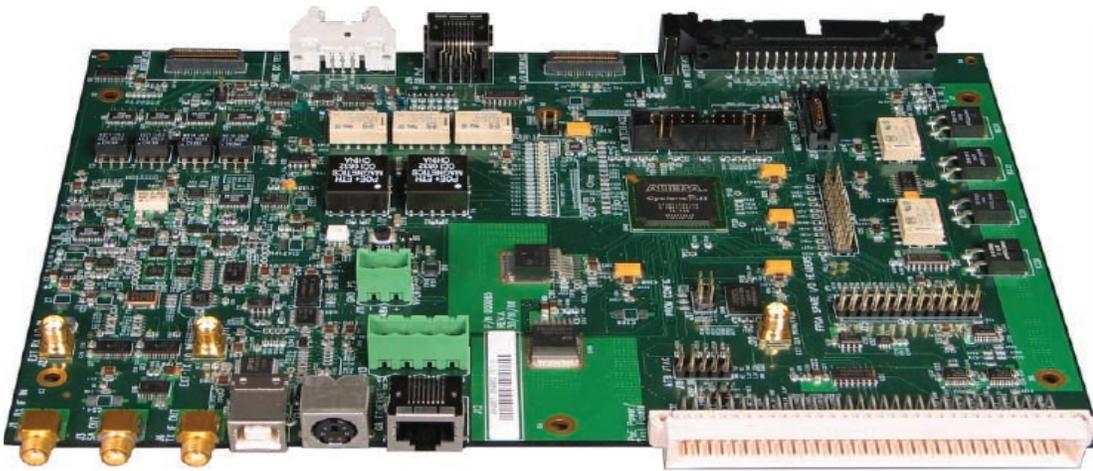
Escape Communications Automatic Test Board (ATB) with embedded onTAP JTAG test via USB port

How it works with onTAP

From a single test port, a design, test, or manufacturing test engineer can simply plug the board into an onTAP-enabled PC or laptop, and run a complete suite of pre-developed onTAP boundary scan tests. onTAP's automated test generation delivers the highest possible fault coverage with a graphical debugging environment that provides pin-level diagnostic messages and detailed test reports. Pascaru is pleased with the outcome of the seamless integration of onTAP with Escape's Automated Test Board. The comprehensive test results provided by onTAP enable users to identify and repair faults on boards under test more quickly and easily than ever before.

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About Escape Communications

Founded in 1998, Escape Communications provides indoor units (IDUs), high-speed modem modules, and Satcom terminals to commercial telecommunications equipment OEMs and major space and defense contractors. Escape has developed an extensive portfolio of communications, signal processing, mixed-signal and embedded processor IP that enables them to offer standard product solutions and custom turnkey design services that are both cost-effective and schedule-efficient. More details can be found at www.escapecom.com.