



## XJTAG Boundary Scan Boosts Speed and Efficiency in High-Tech R&D

**“Ankara-based Research & Development specialist Anova adopted boundary scan to save test-cycle time and increase test coverage. Choosing XJTAG delivered a solution that is not only fast, easy to understand, and gets results, but that helps build productivity continuously by allowing easy custom test development and re-use.”**

**Anova is a provider of R&D services with expertise in disciplines such as human-machine interfaces, control systems and thermal management, serving industry sectors such as defence, aerospace, automotive, home appliances, energy, environment, construction and machine manufacturing. Based in Ankara, Turkey, and with offices in Istanbul and Izmir, the company employs over 100 mechanical, hardware and software engineers engaged in activities from prototyping to production engineering.**

Typical projects call for extensive testing of electronic modules, to assist design validation and verification and to help prepare for production to commence. On the one hand, it is important to test as many connections and devices on each board as possible, to identify errors that need to be rectified. On the other, engineers need to setup boards and execute test routines quickly to maximise productivity and deliver fast turnaround for customers.

Anova’s engineers have chosen XJTAG boundary scan to be sure of meeting both objectives. Electronics System Engineering Team Leader, Mr. Nurettin Yilmaz states, “Introducing XJTAG boundary scan to our test regimes has cut the time we spend testing devices on our boards by about 50%.”

The team is also achieving high test coverage with XJTAG. Anova’s designs usually have an FPGA as the main JTAG-compatible device on the boundary scan chain, and with XJTAG, connected non-JTAG devices can be manipulated just as

easily as those in the chain. Hence components such as ADCs, buffers, sensors, CAN transceivers, RS422 drivers and RTC chips can all be tested with XJTAG.

The XJTAG system comprises modular software and hardware products that support the whole lifecycle, from early development, to volume production, field diagnostics, as well as repair. Anova is using XJDeveloper, the comprehensive

test development environment, and XJRunner, the production-focused runtime environment for executing pre-compiled projects.

XJDeveloper provides full access to XJTAG’s test capabilities. Automatic tests such as the basic interconnection test are built in, and hardware teams can start testing boards before any application code is ready. A library of ready-to-use tests for standard logic components is built-in, which lets engineers start running boundary scan tests almost immediately.

A unique feature of XJTAG, which helps get results fast, is the powerful test-development language, XJEase. As a fully featured programming language, XJEase enables tests to be written as device-specific routines

that can check that connections are correct using the device’s own functionality. A library of tests for a large number of devices is supplied with XJTAG, though users can also write their own custom scripts, using the XJEase software debugger to step through code, set breakpoints and examine variable values, and re-use the tests in other projects without modification. “The XJEase syntax is so intuitive that we were quickly able to create quite complicated tests. The test results are also easy to understand, which helps diagnose any flaws quickly,” Mr. Yilmaz adds.

“The longer we use XJTAG, the greater the advantages we expect to gain through building up our custom test library and extending our programming expertise.”

### opinion

**Mr. Nurettin Yilmaz**  
Electronics System Engineering  
Team Leader  
Anova

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### Data Bank



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| Company            | Anova Arge Teknolojileri A.Ş.<br>HQ Turkey   |
| Nature of business | R&D and Manufacturing Services<br>Provider for the defence and other R&D related sectors |
| Main products      | Weapon Systems, Environmental Air Conditioning, Turbo Machinery, Cabin Console Systems   |
| Customers          | Serving the domestic defence, automotive and industrial markets                          |
| Founded            | 2003   |
| Employees          | 100+   |
| Location           | Ankara, Izmir and Istanbul, Turkey   |
| Web site           | <a href="http://anova.com.tr">anova.com.tr</a>   |