Lower middle: SCS Concept laboratory reached accreditation for angle calibration

# SCS Concept achieves full system test with no additional hardware

**"XJTAG boundary scan gives SCS Concept full test coverage of its PCBAs through the existing JTAG connector without needing to develop any additional hardware or software tools. Adding XJTAG to the production line has allowed SCS Concept to increase test coverage, reduce testing time to under a minute, and recover failed boards."**

**SCS Concept has been developing and manufacturing advanced quality control and production equipment in Italy since 2006, with its first electronic torque and angle wrenches being launched in 2007. Since then, the product range has expanded to include high precision measurement equipment for production, quality testing and data collection. SCS Concept's range includes dynamometric electronic wrenches, Freedom 4 electronic torque wrenches, power tools and calibration benches which are supplied to many industries worldwide, including automotive and aerospace.**

SCS Concept's journey started off with a free trial. "XJTAG was selected due to the impressive support provided during the trial period, through which they helped us to devise a tailor made solution that fitted our production needs perfectly," said Fahri Ayberk Bagci, SCS's hardware manager. "We were able to test and repair more than 60 of our boards, during the trial alone and now we are using the system to test all the circuit boards on our production line. Not only did XJTAG give us an improved level of test coverage, it also reduced the duration of the tests to less than one minute per board."

Mr Bagci and his colleagues also used the XJTAG hands-on webinar to learn about the capabilities of XJTAG and how to use it. As well as video instruction, the webinar gives users remote control of a computer connected to an XJLink2 JTAG controller and an example test board, allowing them to use the software themselves to follow the tutorial.

This arrangement allows for many of the advantages of a personal training session with the flexibility to complete the course from anywhere at any time.

The systems on test include multi-board stack PCBAs with microcontrollers, SDRAM, $I^2C$ connections and LED drivers in variety of form factors including BGAs, and so having a system which can access the hidden pins is extremely useful. The XJLink2 JTAG controller was simple to incorporate into the existing testing and calibration tools: "XJTAG gave us the ability to perform a full system test of our circuit boards without having to develop any extra hardware or special tools to connect with our boards. Just using the existing JTAG connector on the boards, we were able to detect and diagnose any faulty devices, missing connections or short circuits."

SCS Concept has taken full advantage of XJTAG's built in test file library, covering thousands of different devices, to quickly set up their tests. The library includes files to handle non-JTAG devices which, combined with manufacturer-supplied BSDL files, allows testing of resistors, $I^2C$ bus controllers, RAM chips, processors and much more.

SCS Concept has found the XJTAG toolset so useful and easy to use that they've been talking to their suppliers about adding it to their workflows. "We are collaborating with our PCBA manufacturer to fully integrate the XJTAG system, which would allow us to be sure the boards are working before they are even delivered," Mr Bagci continued. Because XJRunner is so simple for the operator to use and provides complete test reports, SCS has no concerns with allowing pre-testing to be performed by an outside company.

"In short, implementing XJTAG as a test system has allowed us to improve our test coverage, reduce test times and find specific problems with faulty boards with no design changes and minimal work", concluded Mr Bagci.

## opinion
**Fahri Ayberk Bagci
Hardware Manager
SCS Concept**

**"SCS Concept selected XJTAG due to impressive support provided during the trial period and the tailor made solution that was proposed for our production needs at hand."**

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