POWERFUL BOUNDARY SCAN SOLUTIONS

For testing, debugging and programming complex digital circuit boards

Comprehensive PCBA Testing

with XJTAG Boundary Scan

- ✓ BGA/PCBA Fault Diagnosis
- ✓ Rapid Prototype Bring-up & Debug
- ✓ Cost-effective Manufacturing Tests
- ✓ Flash / FPGA / CPLD Programming
- ✓ Turnkey JTAG Testing Services

Development Board

Boundary scan controls devices from the inside, via a simple 4-signal interface to the board. It is particularly useful for device packages such as Ball Grid Array (BGA), where the individual balls are inaccessible to conventional probes.

Design

XJTAG can help you achieve superior test coverage through early design verification. This allows you to eliminate potential issues before you commit to producing hardware.

Using XJTAG's Design-for-Test (DFT) analytics, you can optimise your design to ensure maximum test coverage for the JTAG devices and non-JTAG devices on your board.

Learn how to effectively use JTAG in your designs using our DFT guidelines. Enable boundary scan testing and JTAG based programming to make all phases of the product lifecycle more efficient and cost-effective.

Manufacture

You can get the best test coverage and program devices in-system in one easy-to-use application. It is quick and effective to test DSPs, processors, FPGAs and memories in BGAs, without adding test points.

XJTAG's precise, easy-to-read diagnostics enable you to use layout and schematic data to pinpoint faults down to the pin level for faster repair.

You can program not only the JTAG devices on the board, but also flash memory and configuration PROMs in-circuit. Using a PLD on the board, you can also program flash memories at very high speeds.

Use XJTAG boundary scan as a standalone test system or integrated into your existing test equipme

Locating hardware faults in dense, multi-layer boards can be expensive, time consuming and unreliable

- Debug BGA pins and embedded nets without firmware, start in minutes
- Quickly find & resolve faults with precise, automated diagnostics, no functional tests
- Automated test setup & free libraries of pre-written tests, re-useable for any board
- Reduce time & cost of your board development and manufacturing test

Prototype

Start testing s your prototypes long before firmware is complete to confirm the hardware has been correctly manufactured – without expensive test fixtures.

XJTAG's automated test setup and extensive library of ready-to-use test and programming files for thousands of devices allow you to get new boards up and running fast without having to write any code.

An intuitive graphical interface allows you to debug BGA pins and embedded nets in real time, without programming or booting any devices on your board.

To save time, you can reuse the same device tests and programming algorithms in any circuit.

"We selected the XJTAG boundary scan development system due to its price, the speed and accuracy of fault diagnosis, and because the re-usable device-centric test scripts can be ported from project to project..."

Curtiss-Wright – Alan McCormick, MD, Video and Graphics Group

Repair

Whether you're servicing boards on-site or back at base, XJTAG can help you rapidly locate a fault and verify the integrity of your repair.

With just a laptop and the XJLink2, you will have all the power of a full test and programming environment wherever you go.

Upgrading firmware is easy with XJTAG's range of in-system programming techniques for both JTAG and non-JTAG devices.

You can run the full connection test and JTAG functional tests developed for the system. Further debugging can be done with XJTAG's visualisation and control of enabled pins.

sales@embeddedindia.com
www.embeddedindia.com

EMBEDDED SYSTEMS SOLUTIONS

XJTAG Software

Diagnosis
Fault Finding
In-System Programming

XJRunner

Run-time Manufacturing Test & Programming Environment

- ✓ Execute Tests
- ✓ Short, open faults
- ✓ Automated connection test
- ✓ Parallel testing with auxiliary controllers
- ✓ JTAG chain debugger
- ✓ Layout viewer
- ✓ Schematic viewer
- ✓ Log files
- ✓ Fault dictionaries
- ✓ LabVIEW / TestStand integration

Optional

- XJAnalyser
- Network Licensing

XJDeveloper

IDE for Test & Programming Development & Debug

- ✓ Develop Test Projects
- ✓ Intelligent project setup
- ✓ Multi-board setups
- ✓ Huge test library of devices
- ✓ Hundreds of supported netlist formats
- ✓ Powerful XJEase scripting
- ✓ Integrated test debugger
- ✓ Test coverage reports

Included module

- **XJRunner** — Run-time manufacturing test & program

Optional

- XJAnalyser
- XJFlash
- Network Licensing

Best Value

XJDeveloper Plus

Extended IDE for Test & Programming Development & Debug

- ✓ Develop Test Projects
- ✓ Intelligent project setup
- ✓ Multi-board setups
- ✓ Huge test library of devices
- ✓ Hundreds of supported netlist formats
- ✓ Powerful XJEase scripting
- ✓ Integrated test debugger
- ✓ Test coverage reports

All modules included

- **XJRunner** — Run-time manufacturing test & program
- **XJAnalyser** — Real-time graphical board debug
- **XJFlash** — Industry-leading fast flash programmer

Optional

- Network Licensing

XJAnalyser Module

Using the graphical interface you can interact with devices in your JTAG chain to debug your boards. You simply click on a pin to control its state – no code required.

- ✓ Able to test BGAs and fine-pitch devices
- ✓ Only BSDL files required to get the board up and running
- ✓ Set up pin states — e.g. low, high, toggling
- ✓ Trace shorts, opens and other signals
- ✓ Easy low-level access to device pins/busses
- ✓ Clear display of the pins/balls with variable zoom levels and split screen
- ✓ View JTAG chain data as waveforms
- ✓ Quickly find and monitor changing pins
- ✓ Program devices with SVF and STAPL files
- ✓ Plug and play
- ✓ Real-time interaction

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EMBEDDED SYSTEMS SOLUTIONS

XJTAG Controllers

Diagnosis
Fault Finding
In-System Programming

XJQuad

+5 V	Voltage Protection
4	JTAG Controllers
4	TAPs per JTAG Controller
18	GPIO on Pins per Controller
2	Voltage Banks per Controller
2	Dedicated GND pins per Controller
✓	Up to 166 MHz TCK Frequencies
✓	Configurable Voltage
✓	Frequency Measurements
✓	Voltage Measurements
✓	Automatic Signal Skew Control
✓	Button to Start Tests
✓	Visual Indication of Test Status

Connection

USB

XJLink2

+5 V	Voltage Protection
1	JTAG Controller
4	TAPs
18	GPIO on Pins
2	Voltage Banks
2	Dedicated GND pins
✓	Up to 166 MHz TCK Frequencies
✓	Configurable Voltage
✓	Frequency Measurements
✓	Voltage Measurements
✓	Automatic Signal Skew Control
○	Button to Start Tests
○	Visual Indication of Test Status

Connection

USB / PXI / SPEA 3030 / Keysight i3070

XJLink-PF40

±30 V	Voltage Protection
1	JTAG Controller
8	TAPs
40	GPIO on Pins
4	Voltage Banks
40	Dedicated GND pins
✓	Up to 166 MHz TCK Frequencies
✓	Configurable Voltage
✓	Frequency Measurements
✓	Voltage Measurements
✓	Automatic Signal Skew Control
X	Button to Start Tests
✓	Visual Indication of Test Status

Connection

USB

Software Features

Software configurations		Test development	Test execution	Graphical pin display	Model library for non-JTAG devices	XJDemo board & tutorials	3rd party integration	JTAG chain debugger	Annual maintenance contract*	Interconnect / Connection test	Golden scan	Layout Viewer	Schematic Viewer	Flash programming	FPGA/CPLD programming	XJFlash/XJDirect compatible	External DLL calls	Test coverage analysis & reports	Netlist merging	Detailed fault description
XJDeveloper Plus	Extended IDE for test & programming development & debug	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
XJDeveloper	Test and programming development and debug	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓
XJRunner	Production test and programming		✓			✓	✓	✓	✓	✓		✓	✓	✓	✓		✓		✓	✓
Auxiliary controller †	Parallel production test and programming		✓			✓	✓	✓	✓	✓		✓	✓	✓	✓		✓		✓	
XJAnalyser Module	Prototype board bring-up, real-time BGA debug			✓		✓		✓	✓		✓				✓					

† Auxiliary controller: All XJRunner features. Only works with an XJRunner plugged into the same PC.

BANGALORE
Srikant S Nilugall
Manager (Technical)
M: +91 9845 099700
T: 080-6764 8888 Ext:36
E(Sales): sales@embeddedindia.com

CHENNAI
D. Kannan
Manager (Sales)
No.109 /59A , Ground Floor,
IV Avenue, Ashok Nagar,
Chennai - 600 083
Tamilnadu
T: 044-24715750
M: +91 98410 53251
E: chennai@embeddedindia.com

HYDERABAD
C.V.M. Sri Ram Murthy
Manager (Sales)
Manasa Apartments
Flat Number 3, Plot No 533/3
H. No 3-5-76/18
Vivekanandanagar Colony, Kukatpally,
Hyderabad- 500 072.
T: 040-23063346
M: 90084 76566 / 98486 55337 (C.V.M Sri Ram Murthy)
E: hyderabad@embeddedindia.com

PUNE
M.S. Vijendra Kumar
General Manager (Sales)
No.302, Vaidehi Saket, 3rd Floor, 132/1,
Baner Pashan Link Road, Pashan,
Pune - 411 021.
M: +91 98451 49926
E: pune@embeddedindia.com

DELHI
Arun Roy
Manager (Sales)
M: +91 98305 78843
E: delhi@embeddedindia.com

KERALA
D. Kannan
Manager (Sales)
M: +91 98410 53251
E: chennai@embeddedindia.com

KOLKATA
Arun Roy
Manager (Sales)
M: +91 98305 78843
E: kolkata@embeddedindia.com

CORPORATE HEAD QUARTERS
#S 606, 6th floor, World Trade Center
Brigade Gateway, 26/1, Dr. Rajkumar Road,
Malleshwaram(W), Bangalore-560055
Karnataka, India
T: 080-6764 8888/36
F: 080-67648841

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