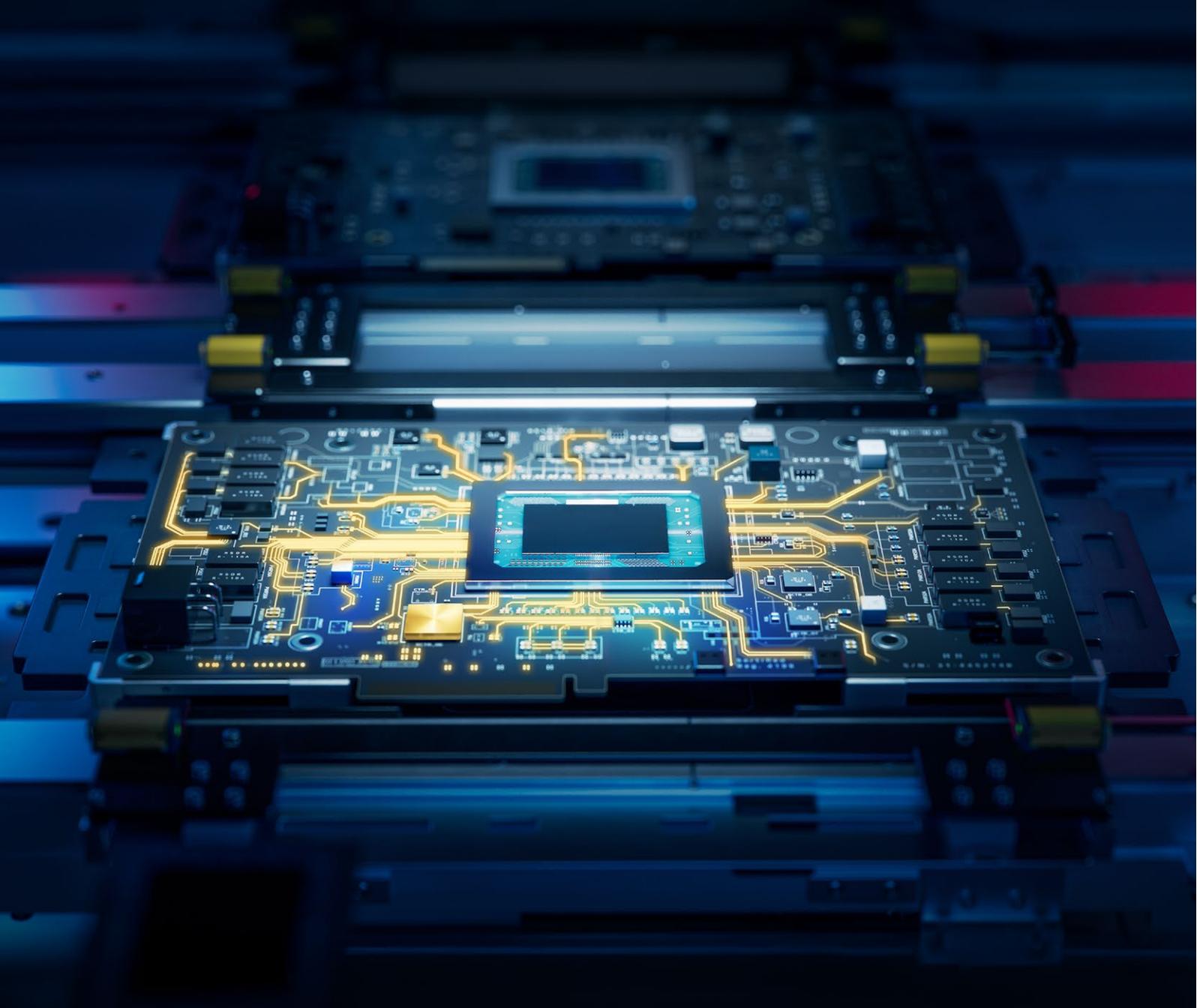




# Comprehensive PCBA Testing



**XJTAG**

Fault Finding | Diagnosis | In-System Programming



# Faster, Smarter Testing with XJTAG



## Test your complex development boards

*Quickly and easily design and develop your own tests, improve test coverage and get detailed reports on any failures*

XJTAG allows you to test your prototype hardware with no firmware, making it ideal for debugging during development. It enables you to identify both design and assembly issues, as well as to maximise test coverage by highlighting areas with limitations.

With XJTAG you can achieve superior test coverage by leveraging boundary scan to access otherwise unreachable pins, reducing the need for complex fixtures.

The intuitive IDE simplifies PCB test creation and execution, offering a vast library of pre-built device models and supporting both JTAG and non-JTAG components, including LEDs and DDR5 memory. The system quickly isolates faults, pinpointing shorts and missing resistors with detailed diagnostics.

XJTAG requires no prior coding experience, offering a user-friendly interface and customisable test scripts. You can develop test scripts that interact with your board in real time, offering full control of your testing.



### Scan for more details

For more information on all our products, hardware and software, scan the QR code to be taken to the XJTAG website.

## Test on your production line with speed and precision

*Integrate XJTAG into your manufacturing process to streamline your testing and produce detailed test logs*

Fast and accurate testing offers you increased coverage even for pins hidden under BGAs and for nets without test points. Save time by testing multiple boards simultaneously. Pinpoint the problem device when assembly faults are found.

Integrating XJTAG into your production line improves efficiency by automating and optimising multi-chain boundary scan tests, and enables adaptive testing with minimal operator input.

XJRunner provides pass/fail results with detailed audit logs, allowing you to investigate issues using layout and schematic viewers. XJTAG's flexible software supports rapid updates for different board variants, while portable XJLink test controllers simplify licence management.

Designed for seamless integration with test executives and ATE machines, XJTAG provides test controllers in multiple form factors, including PXI for LabVIEW. Expert support provided by real engineers, as well as video tutorials and library updates ensure smooth implementation.



## Program flash memories at high-speed

*Use an FPGA or processor on your board to carry out accelerated flash programming as part of your test process*

XJTAG offers world-class flash memory programming speeds using FPGA or CPU-based acceleration: its intelligent algorithms can make the erase-program-verify process over 10 times quicker using FPGA acceleration than with traditional boundary scan, making it useful for reimagining boards during development.

Flash programming is seamlessly integrated into the test process, allowing for automatic data customisation based on serial number or hardware configuration. With extensive experience supporting thousands of flash memory devices, FPGAs, and CPUs, XJTAG continuously expands its compatibility.

XJTAG supports both stand-alone flash chips and on-board flash in SoC devices, ensuring a flexible and efficient programming solution tailored to your needs.

## Try XJTAG Remotely



Remotely access our hardware to explore XJTAG with no limitations. Follow our step-by-step video tutorials or join a live session with one of our applications engineers. Plus, watch a collection of videos showcasing our latest features. Go to [xjtag.com/workshop](http://xjtag.com/workshop)

## Get a Test Coverage Report



If you can share data for your design, XJTAG engineers will briefly review your circuit to verify its testability, and will generate a report indicating likely test coverage so you can assess the economic benefits of using XJTAG.

## Integrate into your test system



You can integrate XJTAG with ATE machines, test executives such as NI LabVIEW™, NI LabWindows™ or custom applications written in Visual Basic and C#.

All of this functionality is included as standard for you to use.

## Bespoke Development



We can provide everything you need, from individual device models (if they are not already in the included libraries) to cabling and adaptors, all the way to full turnkey test systems to meet your testing and programming requirements.

Use XJDirect to program the internal flash of your processors or SoCs, and carry out non-boundary scan, at-speed functional test of connected devices – all from tests within XJRunner.

## Start your Free Trial



Try the full XJTAG system with no limitations with hardware shipped straight to you to explore our capabilities for yourself. Contact your local distributor to organise a trial.

## Get a free Board Setup



After providing a test coverage report, our applications engineers will set up a simple test project for your board, so that you can see the project setup, and evaluate the tests in action. We will work with you to achieve the test coverage you need, even before a commitment to purchase.

## Book a Demo



Join a call with our experienced sales engineers and see a demonstration of the capabilities that are important to you. Contact your local distributor to arrange a call.

## Explore a range of Accessories



XJTAG provides a variety of accessories from simple adaptor boards to more complex, active boards which can extend test coverage by carrying out more complex tests or adding additional I/O to the system.



## XJRunner

Run-time Manufacturing Test & Programming Environment

### RUN-0010

- ✓ 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

### DEV-0010

- ✓ 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

### DEV-0011

- ✓ 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.

### ANA-0010

\*XJAnalyser is also available as a standalone application at the same price.



## Network Licensing

Network licensing lets you access any of your software from a connected PC anywhere in the world. Add this to each software product you want to share across your network.

### NKL-0010

For each network license server, there is a one-off setup charge. This charge is the same for both virtual and physical servers.

### NSS-0100



## XJFlash Module

Using the XJFlash module, you can program flash connected to an FPGA at speeds limited only by the flash device itself. You can improve flash programming speeds up to 50-fold with certain flash/FPGA configurations.

### FLS-0010



## 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 – Yellow

**XRL-0010**

USB – Black

**XRL-0011**

PXI

**RXX-0030**

Keysight – i3070

**AGS-0060**

SPEA – 3030

**SPS-0061**



## 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

**XQS-0040**

ENHANCED ROBUSTNESS



## 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
- ✗ Button to Start Tests
- ✓ Visual Indication of Test Status
- ✓ Mounting Kits Available

Connection

USB

**XPF-0040**



## XJLink-PF20

- ±30 V** Voltage Protection
- 1** JTAG Controller
- 4** TAPs
- 20** GPIO on Pins
- 2** Voltage Banks
- 20** Dedicated GND pins
- ✓ All other features as for XJLink-PF40

Connection

USB

**XPF-0020**



## Support & Maintenance

Included for free for the first year with all Test Software and Controllers:

- Technical support from our expert applications engineers by email, phone, live support.
- Free hardware repair or replacement for failures in reasonable use.
- Regular library updates expanding our supported devices across all of our products.
- Discounted product upgrades if your needs change.
- Immediate access to new software releases with new features at no extra cost.

20% of hardware and software price charged yearly. For XJRunner and Auxiliary Controllers, POA (price on application) after the first unit – contact XJTAG / Distributor for price.



## Auxiliary Controllers

Additional controllers can be used to increase capacity without requiring additional software licenses. Simply connect extra controllers to a PC that already has one license, and the functionality of that license can be used with all connected controllers. Just buy the controller, without any need for a software license.



## XJBoardExplorer

Complete Electronics Project Explorer of Layouts, Netlists, Schematics & BOMs

### SFW-0017

- ✓ Easy-to-use, intuitive tools
- ✓ Collaborative, complex project sharing
- ✓ Layout, Schematic and BOM import
- ✓ Fast, powerful search functionality
- ✓ Board variant handling
- ✓ Multi-board support
- ✓ Secure control of information
- ✓ Network licensed

#### OPTIONAL

Cloud-based Licensing available via [xjtag.com/shop](http://xjtag.com/shop)



## XJExpress

Standalone Fast SPI Flash Programmer for Development & Manufacture

### FLS-0020

- ✓ Easy-to-use interface for production
- ✓ Fully configurable erase, program and verify cycles
- ✓ Fast, helps minimise cycle times
- ✓ Wide SPI NOR flash device support
- ✓ Serial, dual and quad modes
- ✓ Multi-image capability
- ✓ Adaptable: GUI and command-line
- ✓ Flexible connection options
- ✓ Read-only "deployment" projects
- ✓ XJLink can power flash device

#### INCLUDED HARDWARE



**XJLink-FE18 Controller**  
Small, USB powered. Can be mounted.



## XJExpress-FPGA

Standalone Fast FPGA-Accelerated Flash Programmer

### FLS-0030

- ✓ Easy-to-use, configurable
- ✓ Supports one combination of FPGA + memory from the available options
- ✓ Ultra-fast programming
- ✓ Wide range of FPGAs/SoCs supported from major manufacturers
- ✓ Multi-image capability
- ✓ No FPGA development required
- ✓ Powered by XJFlash

#### INCLUDED HARDWARE



**XJLink-FE18 Controller**  
Small, USB powered. Can be mounted.



## Maintenance

Included with all Explore and Program products for one year:

- Free hardware repair or replacement for failures in reasonable use.
- Regular library updates expanding our supported devices across all of our products.
- Immediate access to new software releases with new features at no extra cost.

# Accessories

## Additional I/O

XJIO Board + RS232 / UART	IOC-0012
XJIO Board without RS232	IOC-0001
XJComms	COM-0010

## XJAccelerator

XJAccelerator, SODIMM	ACS-0010
XJAccelerator v2	ACC-0020
XJAccelerator v2 Active Protector	ACP-0022

## Connection & Protection

XJXDP	XDP-0010
XJExtender, Controller+Target Pair	XEX-0010
XJExtender, Controller Unit	ETX-0010
XJExtender, Target unit	ERX-0010
XJIsolator	ISO-0010
Surge Protection Board	SPB-0010
ICT Relay Board	ICT-0010

## Adapters



### 0.1" to 1.27 mm Adapter

20-way 0.1" connector to 20-way 1.27 mm connector.

**XJA-0060**



### 0.1" to 2 mm Adapter

20-way 0.1" connector to 20-way 2 mm connector.

**XJA-0050**



### 2 x 10-way 0.1" Adapter

20-way 0.1" connector into 2 x 10-way 0.1" connectors.

**XJA-0100**



### 2 x 10-way 2 mm Adapter

20-way 0.1" connector into 2 x 10-way 2 mm connectors.

**XJA-0010**



### Coresight 10 Adapter

20-way 0.1" connector to a standard Coresight 10 10-way 1.27mm connector.

**XJA-0015**



### Coresight 20 Adapter

20-way 0.1" connector to a standard Coresight 20 20-way 1.27mm connector.

**XJA-0016**



### Tag-Connect Adapter, 10-way

Plugs into XJExpress to enable programming with a 10-way Tag-Connect cable.

**XJA-0001**



### Termination & Protection Board v2

Provides series termination for increased speed, reliability and higher transient protection.

**XJA-0021**



### Splitter, Signal Integrity Board, Elbow

20-way 0.1" into 2 x 20-way 20.1" connectors. 'Hard grounds' between active signals improve signal integrity.

**XJA-0030**



### Splitter, Signal Integrity Board, SFF

20-way 0.1" into 2 x 20-way 20.1" connectors. 'Hard grounds' between active signals. Small Form Factor. Fits XJQuad.

**XJA-0031**



### Splitter, Signal Integrity Board, PXI

20-way 0.1" into 2 x 20-way 20.1" connectors. 'Hard grounds' between active signals. Fits PXI-XJLink2.

**XJA-0032**



### Splitter, Signal Integrity Board, Standard

20-way 0.1" into 2 x 20-way 20.1" connectors. 'Hard grounds' between active signals improve signal integrity.

**XJA-0033**



### Signal Breakout Board

Allows oscilloscope or test meter access to signals when connecting controller to DUT.

**XJA-0080**



### Xilinx Adapter

20-way 0.1" connector to a standard Xilinx 14-way 2 mm connector.

**XJA-0040**



### USB-C Female to USB-A Male Adapter

Enables XJLink-PF series controllers to be used from a USB-A Host port.

**MSC-0018**

## Cables & Mounting Kits

20-way straight ribbon cable 200mm (0.1")	CAB-0002
20-way twisted ribbon cable 220mm (0.1")	CAB-0014
20-way twisted ribbon cable 1000mm (0.1")	CAB-0021
20-way IDC breakout cable 200mm (0.1")	CAB-0033
XJLink-PF40 Mounting Kit	FXK-0001
XJLink-PF20 Mounting Kit	FXK-0002

USB cable 1m C-C locking	CAB-0011
USB cable 1m C-C	CAB-0012
USB cable 2m C-C	CAB-0013
Blue USB cable 1.8m A-B	CAB-0009

# Seven reasons why you should use XJTAG

## Three simple letters – BGA

An increasing number of devices are supplied in Ball Grid Array (BGA) packaging. Each BGA device on a board imposes severe restrictions on the testing that can be done using traditional bed-of-nails or flying probe machines.

Using a simple four-pin interface, JTAG boundary scan allows the signals on enabled devices to be controlled and monitored without any direct physical access.

## Lower test development & NRE costs

As different processors and FPGAs interact with peripherals in different ways, traditional functional test requires costly custom development for each board. JTAG boundary scan significantly reduces such development costs because it provides a simplified interface to control the I/O pins used for peripheral interactions.

This standard interface is the same for all JTAG-enabled devices, allowing the use of a generic set of reusable test models when building test systems.

The non-recurring engineering (NRE) expenses of building test fixtures can be prohibitively high. In many cases, using JTAG boundary scan will remove the need for such a fixture, in other cases the fixture can be dramatically simplified resulting in significant cost savings.

## Shorter test times

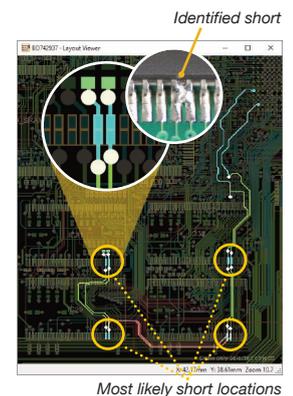
For boards with low production volumes it has always been difficult to justify the cost of test fixture development. Flying probe testing can be one alternative, however, the test cycle times tend to be high. JTAG boundary scan testing gives fast test times with no need for a costly fixture.

## Production-level benchtop tests for prototypes

Traditional test technologies require very large and expensive equipment. The only test equipment required for JTAG boundary scan testing is a JTAG controller – XJTAG's XJLink2 controller is a similar size to a PC mouse.

## Excellent fault diagnostics

JTAG boundary scan, unlike functional test, provides high precision fault information to help with rapid repair. XJTAG also provides the capability to view both the physical location of a fault on the layout of the board and the logical design of the area of the circuit in which the fault exists on the schematic.



## One tool for test and programming

JTAG is often already used as one step in production: programming. By also using JTAG for boundary scan test it is possible to reduce the number of steps and handling operations in the production process.

## Recover boards that are 'dead' to functional test

XJTAG boundary scan tests can be run on any board with a working JTAG interface. Traditional functional tests cannot be run if the board does not boot; simple faults on key peripherals, such as RAM or clocks, would be found using JTAG but would prevent functional tests from providing any diagnostic information.

“XJTAG offers incredible power, performance and versatility...”

**ARM** – Andy Evans,  
Sr Product Engineer, Platforms,  
Development Systems

“We selected the XJTAG system due to its price, the speed and accuracy of fault diagnosis...”

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

“XJTAG has features that are vastly superior to other systems I know...”

**Eaton** – James Diem,  
Test Engineering Manager

“XJTAG is easy to use, highly effective and flexible... The reuse of tests is a big time-saver.”

**Saab** – Eduard Stander, Controllers  
Group, Electronic Defence Systems