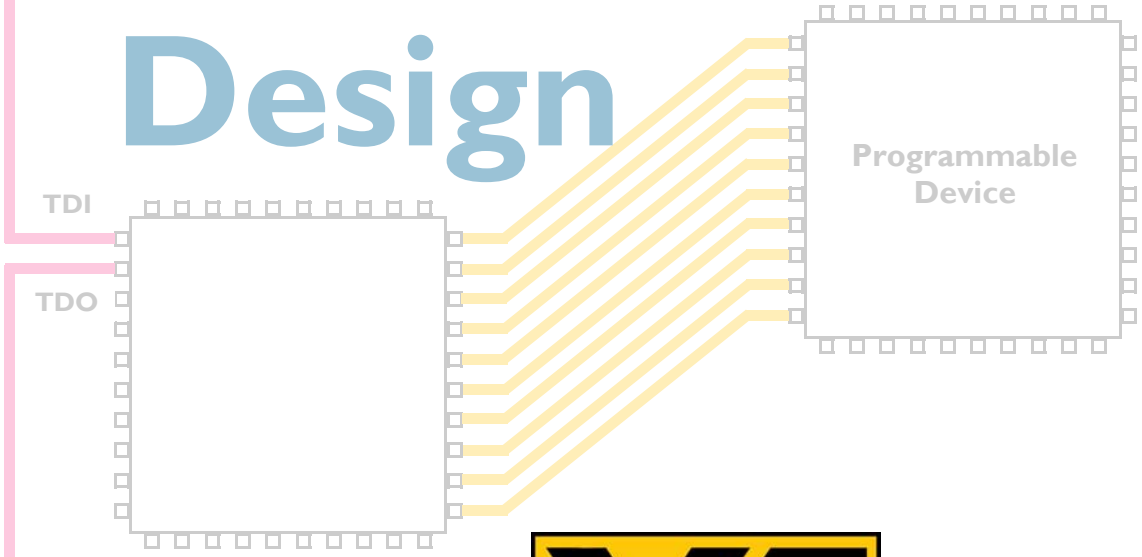
Design

Prototyping



XJ TAG

The New Cost Effective Tool Enabling Rapid Hardware Development

The revolutionary test environment, designed by engineers for engineers.

Graphical Circuit Interaction

Knowledge of the current state of devices in a circuit is vital to anybody involved in the process of electronic circuit development.

XJTAG's XJAnalyser offers a solution that allows you to gain this knowledge and overcome the problems that the emergence of BGA devices and very high pin density on conventionally packaged devices have caused.

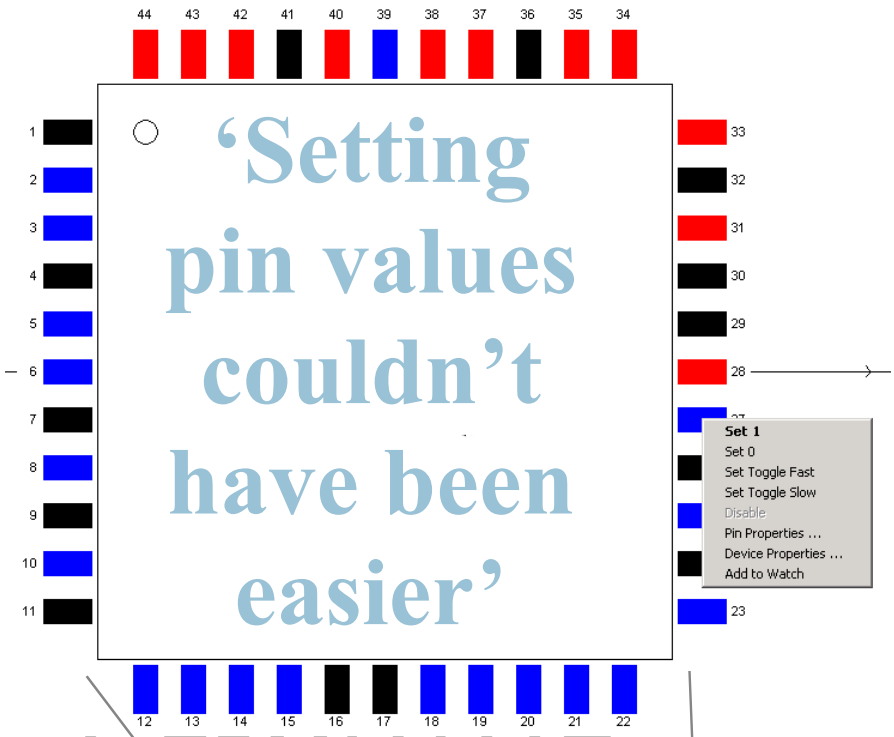
See the state of your circuit

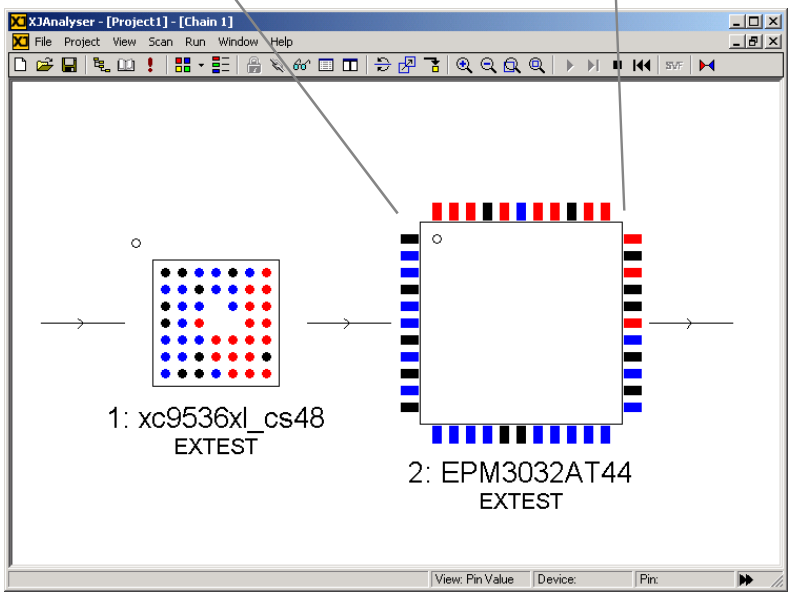
XJAnalyser produces a graphical representation of all of the devices in the JTAG chains in your circuit. Colour is used to display the current state of pins.

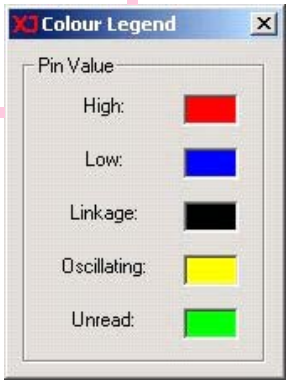
Set the state of your circuit

Setting pin values for any purpose, from lighting an LED to driving circuit nodes to desired states, is an important function in the debugging of circuits.

XJAnalyser allows you to set pin values using a simple point and click interface.







XJAnalyser displaying a two device JTAG chain including one BGA device.

Testing With JTAG

Processor Code not Required

XJTAG test systems do not use any embedded software. This overcomes the need for a circuit to contain a working processor and working memory and allows you to start the process of testing earlier in the development cycle.

The logic required to implement the tests is provided by the XJTAG test engine, under the control of the high-level XJEase test description language.

Test Elements of your Circuit.

Varying lead times often mean that some elements of a circuit can be populated before others. Traditionally such delays would preclude the early testing of any of the circuit; however, XJTAG allows you to begin the testing process as soon as you have a completed JTAG chain.

Testing Non-JTAG Devices

XJTAG allows you to broaden the scope of a JTAG testing system by using the interconnecting nets of the circuit to test non-JTAG devices.

ISP and Connection Testing

In System Programming (ISP)

XJTAG provides a manufacturer-independent platform for programming flash devices, CPLD's and FPGA's.

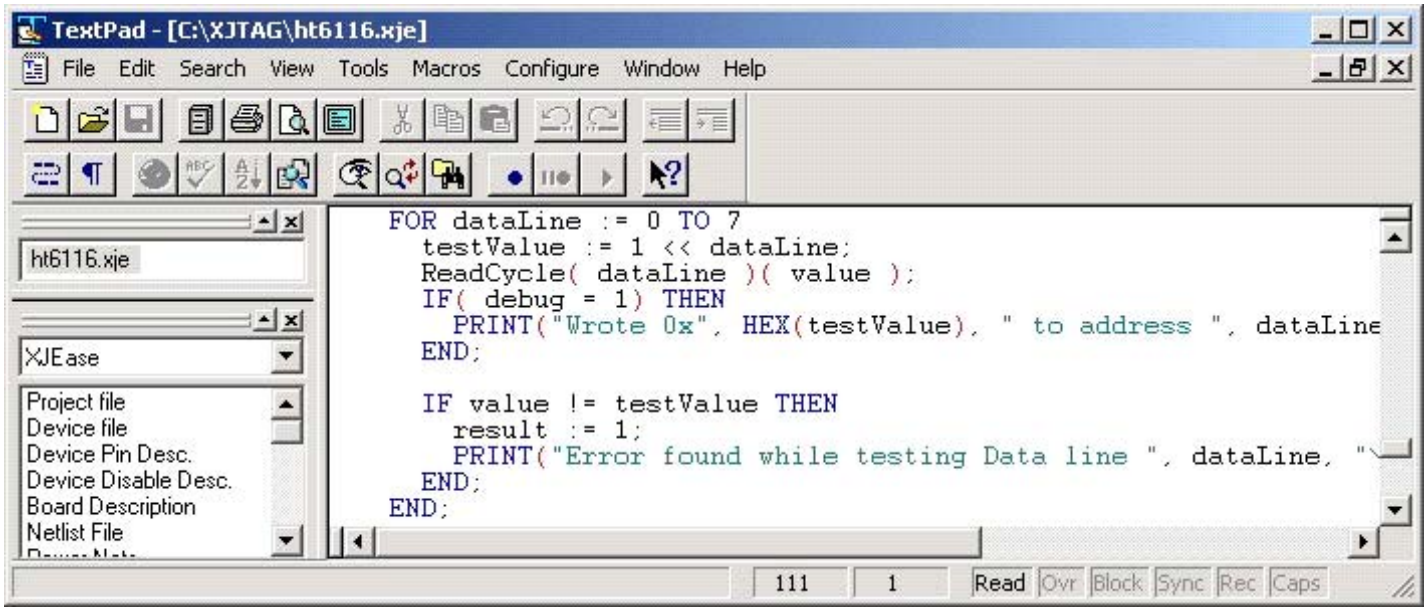
By programming devices 'in system', you avoid the need to buy expensive programmers and socketed parts; you also gain the advantage of being easily able to update the image held on the device.

Intelligent Connection Testing

The XJTAG connection test, used to check the integrity of connections between devices, exceeds the performance of other JTAG solutions both in terms of the proportion of the circuit that can be tested and the precision with which the nature and location of any faults are reported.

Coverage has been improved through the ability to test the interconnection between devices in the JTAG chain and non-JTAG devices.

Precision of reporting has been improved by including feedback from the specific circuit under test in the process of test pattern generation.



Example of an XJEase program that controls testing.

XJTAG development system

The XJTAG development system offers a low cost, integrated solution that revolutionises the process of circuit development.

To get the most from XJTAG see our design-for-test guidelines, available from the XJTAG web site.

The **XJTAG Test Engine** sits at the core of the XJTAG product suite and produces the test patterns required to implement the testing system . The test engine differs from other ATP (automatic test pattern) applications as the test patterns it creates are generated as the test system is running. This allows the test system access to a significant extra source of information, the circuit under test.

By incorporating information fed back from the circuit under test, XJTAG is able to extended the functionality of test systems. Tests that require functionality that would otherwise be impossible, for example waiting for a device to change state before proceeding, are made possible with XJTAG.

The test engine can also produce the test patterns required to perform In System Programming. Given a standard SVF file, XJTAG is able to program devices from any manufacturer.

XJEase is the high-level, BASIC-like test description language of XJTAG. By providing access to normal programming concepts such as variables, looping and flow control, XJEase allows you to create complex tests that would not be possible with other JTAG solutions. The high-level nature of the language makes the process of test development relatively 'quick and easy', by abstracting the detail of how the test is to implemented in a particular circuit from the programmatic description of the logic of the test.

All tests developed in XJEase are circuit independent — they only specify what has to happen on and to the device for it to be tested; the implementation of that test in the current circuit is the responsibility of the test engine. This circuit independence means that all tests developed are completely reusable; whenever you use that device in any circuit, the tests that you develop can be reused without modification.

XTAG is distributed with a shareware version of the industry standard TextPad editor that has been configured to offer full XJEase syntax highlighting and a clip library of XJEase code elements.

The **XJLibrary** is a library of device files that contain predefined tests for certain common devices. This library is available for XJTAG users to download from the XJTAG web site.

XJLink is a hardware module that allows you to connect your computer with your circuit. The simple USB connection allows you to take your XJTAG test system with you wherever you go.

XJAnalyser is a graphical JTAG analysis and debugging tool. Providing instant JTAG chain verification and allowing you to check and set the values of pins or busses on devices in your JTAG chains, XJAnalyser is a powerful resource that can be used when debugging elements of circuit design. XJAnalyser can also be used for In System Programming.

XJDebug is a single step debugger that is a valuable tool in the rapid development of device tests.

XJDemo is a circuit board that has been designed to allow a fully interactive tutorial. By providing demonstration hardware and instructions for developing its test system, XJTAG eases you through the process of developing your first test system.

Whatever your organisation, if you interact with the design, manufacture or support of electronic circuits, XJTAG can provide you with a source of competitive advantage.