



## NANOANALYSIS

### Oxford Instruments select the J-Testr functional test platform with XJTAG and WATs integration to test their UUT at multiple production locations

Oxford Instruments NanoAnalysis is a leading provider of high technology products and services to the world's leading industrial companies and scientific research communities. As part of Oxford Instruments, their specialist instruments and equipment are used in renewable energy generation, aerospace, advanced manufacturing, pharma, semiconductors and many other applications. Their leading-edge tools enable materials characterisation and sample manipulation at the nanometre scale, used on electron microscopes and ion-beam systems. The Oxford Instrument's core purpose is to support our customers to address some of the world's most pressing challenges, enabling a greener economy, increased connectivity, improved health and leaps in scientific understanding and has provided technical innovation for over 60 years.

Oxford Instruments NanoAnalysis (OINA) worked closely with Eiger Design and Telexsus, their UK partner, to define a universal test solution that enabled them to satisfy their strict and robust test requirements that could be standardized across their whole product range. They required a solution that could integrate multiple test elements whilst maintaining the compact portable size of the current available J-Testr solutions. The supplied solution had a key focus on enabling OINA to deploy the same test solution across multiple offshore production locations as well as their own headquarters in the UK.

The technology inside the advanced products produced by OINA contains a mixture of precision analogue, high/low speed digital, timing, motor control, comms, power, and modern-day ARM powered processing. The J-Testr platform provides OINA with all the stimulation and measurements resources needed to test multi discipline electronic cards all included in an industry leading compact footprint. This includes the ability to make sophisticated power testing using the advanced power supply modes and internal electronic load channels.

However, given the cutting-edge technology being used in OINA high technology products, much of the circuitry is very specific in its functionality and require very specific stimulation and measurement conditioning in and out of the UUT. Using standard PCB design work flows, including 3D modelling of the UUTs within the J-Testr system, allows addition UUT specific conditioning and test circuitry to be situated very close to the UUT. The same methodology also provides the perfect platform to provide sacrificial interconnects for delicate 'low plugging' cycle connectors such as 0.5mm FPC interconnects used within OINA products.

#### XJTAG Integration

JTAG Boundary scan is key part of the test strategy at Oxford Instruments allowing them to test deeper inside their UUT designs without the complication of coding and maintaining special test firmware. As such it was an essential that the supplied J-Testr solution included the XJTAG boundary scan solution which was already widely adopted within the company's existing testing procedures. The overall solution offers OINA the ability to test UUTs with high boundary scan coverage using XJTAG's advanced tools for testing and programming complex electronic boards with FPGAs, DSPs, microprocessors and other JTAG devices – whilst also allowing non-JTAG boards to be thoroughly tested using the J-Testr's other capabilities too, all within one test platform.



Oxford Instruments customised J-Testr System

The electronic systems produced by OINA control a wide range of instrumentation and hence vary significantly in terms of power requirements, analogue and digital circuitry and also the physical connectors on the boards. The ability of the J-Testr test solutions to accommodate both 'manual plugging' and 'bed-of-nails' exchangeable units meant that both their lower volume and higher volume Units Under Test (UUT) could be accommodated. This UUT mounting flexibility allows Oxford Instruments to select the appropriate connection method based on UUT TAKT time needs and target test implementation costs.



Customised Exchangeable



Fully Integrated XJTAG at rear of J-Testr Solution

#### WATs Integration

As a provider of high-quality research equipment, maintaining production quality is essential to OINA testing methodology. To help achieve this goal WATs online data management system was used to allow them to see their production and test data from multiple global locations in real-time, directly via a web browser. The WATs platform provides OINA with all the tools to transform their data into actionable insights through statistical and qualitative analysis. This helps them maintain the high-quality products using pre-emptive actions and providing invaluable data for their continuous product and operational improvements.



#### Quote

Eiger Design worked closely with our test development team to adapt the J-Testr to our specific requirements, integrating existing XJTAG and WATs tools into a single, compact functional test system. This caters for our current and planned future products and will help us refine our manufacturing test processes at both our UK operations and offshore manufacturing.  
**Gary Brightman, Senior Manufacturing Engineer - Oxford Instruments - UK**