



AXI PRODUCT Portfolio

Automated X-ray Inspection

www.nordson.com/TestInspect


Nordson
TEST & INSPECTION

Nordson TEST & INSPECTION

Founded in 1954, Nordson Corporation is a market leading industrial technology company with annual revenues of over \$2.1 billion and more than 7,500 employees worldwide.

Nordson TEST & INSPECTION offers its SMT & Semiconductor customers a robust product portfolio, including Acoustic, Optical and both Manual and Automated X-ray Inspection systems, X-ray Component Counting systems and Semiconductor measurement sensors. Nordson TEST & INSPECTION is uniquely positioned to serve its customers with best-in-class precision technologies, passionate sales and support teams, global reach, and unmatched consultative applications expertise.

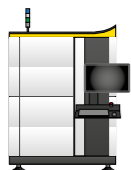
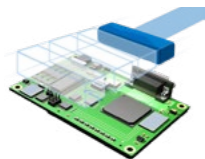


Exceptional support
from Nordson's worldwide network

AXI Products

**High Speed
High Flexibility**

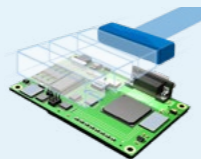
Automated
X-ray Inspection



MXI Products

**Making the
Invisible, Visible**

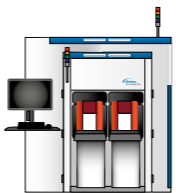
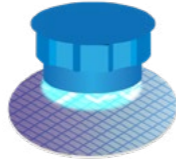
Manual
X-ray Inspection



AXM Products

**Measuring the
Invisible**

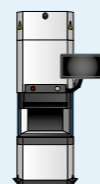
Automated
X-ray Metrology



CC Products

Count On Us™

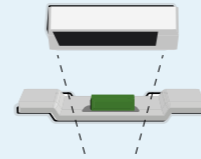
X-ray Component
Counting



XRT Products

**High Speed
High Resolution**

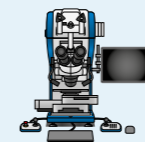
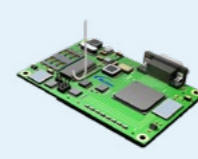
X-ray
Technologies



BT Products

**Test Your
Design**

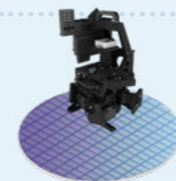
Bondtesters



AOI Products

**Proprietary
Advanced
Technology**

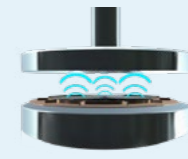
Optical Inspection
& Metrology



WS Products

**Improve Your
Yields**

Semiconductor
Metrology Sensors



AMI Products

**Qualify Your
Design**

Acoustic
Inspection



XS-Series

High Resolution Automated X-ray

The XS-platform series is a small-footprint high-resolution automated X-ray inspection system concept designed for sophisticated high-speed inspection of semiconductor samples, wire bonds/flip chips and PCB-assembly boards for single/ multipanel or samples in trays. The inspectable applications range from component level inspection to mid-sized SMT boards.

Characteristics

- Ultra-High Resolution High speed AXI system with minimum footprint for inline setups
- Microfocus / submicron X-ray tube (sealed tube / maintenance free)
- Resolution down to $<1 \mu\text{m}$
- Multiple programmable motion system with linear drives
- Digital CMOS flatpanel detector
- Automatic grey-scale and geometrical calibration
- Full product traceability via SECS/GEM and customized MES-Interface
- IPC-CFX and IPC-Hermes support



Standard configurations

- SMT setup for component and solder-joint inspection on PCB, hybrid or chip level assembly processes
- Ultra-High Resolution Semi-Backend setup for semiconductor applications, wire-bond test (pre & post), light & complex PCB's and flex circuits

Technologies

- Transmission X-ray imaging (2D) with patented Slice-Filter-Technique™
- Off-axis technology (2.5D)
- 3D SART (Simultaneous Algebraic Reconstruction Technique)
- Dynamic Planar CT

Models

Depending on the type of product & inspection task

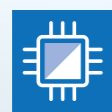
- XS-2.5 Transmission (2D) + SFT™ + Off-axis (2.5D)
- XS-3 Transmission (2D) + SFT™ + Off-axis (2.5D) + 3D SART/DPCT

Additional options

- Same-side load/unload configuration
- Barcode scanner for serial number and product type selection
- Auto BCR scanning station (x-y gantry)
- Low dose radiation filter



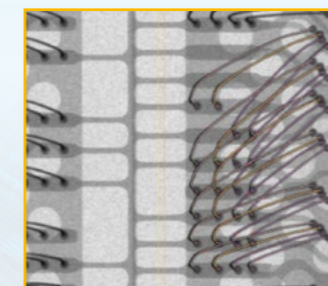
LED

Wire-Sweep
BondtestSolder
Joint
Inspection

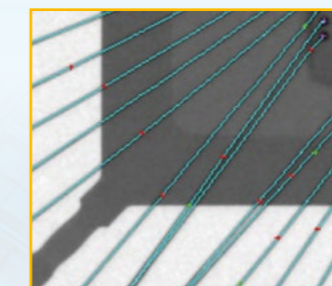
Flip Chip

Power Device
Cooling
Plates

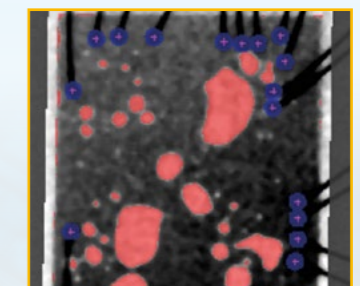
Sensors



Overlapping wires in 2D



Wire tracing



Voiding under bonding ball

X-Series

High Speed Automated X-ray

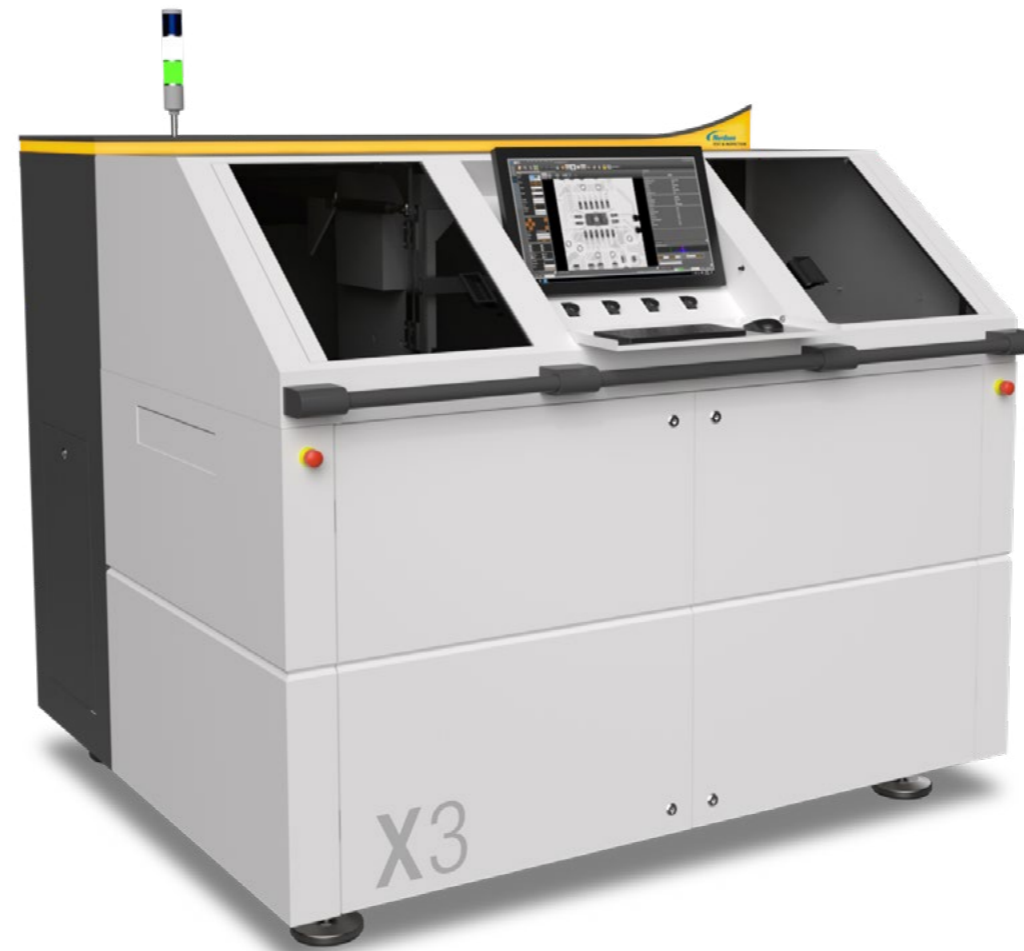
The X-platform series is a dedicated high speed inline automated X-ray inspection system for the inspection of PCB-assembly boards for single/ multipanel or samples in trays. The system offers market leading inspection speed and is ideal for low-mix high-volume production environment.

Characteristics

- High speed AXI system for inline configurations
- Microfocus X-ray tube (sealed tube / maintenance free)
- Multiple programmable motion system with servo drives
- Digital CMOS flatpanel detector
- Automatic grey-scale and geometrical calibration
- Barcode scanner for serial number and product type selection
- Full product traceability via customized MES-Interface
- IPC-CFX and IPC-Hermes support

Highlights

- Hardware setup dedicated to PCB inspection
- High speed setup for inline pass through configuration
- High oblique angle



Standard configurations

SMT setup for component and solder-joint inspection on PCB, hybrid or chip level assembly processes

Technologies

- Transmission X-ray imaging (2D) with patented Slice-Filter-Technique™
- Off-axis technology (2.5D)
- 3D SART (Simultaneous Algebraic Reconstruction Technique)
- Dynamic Planar CT

Models

Depending on the type of product & inspection task

- X2 Transmission (2D) + SFT™
- X2.5 Transmission (2D) + SFT™ + Off-axis (2.5D)
- X3 Transmission (2D) + SFT™ + Off-axis (2.5D) + 3D SART/DPCT

Additional options

- Barcode scanner for serial number and product type selection
- Auto BCR scanning station (x-y gantry)
- Low dose radiation filter



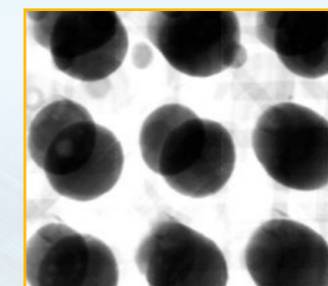
Solder
Joint
Inspection



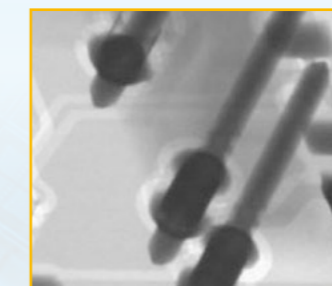
Power
Devices
Cooling Plates



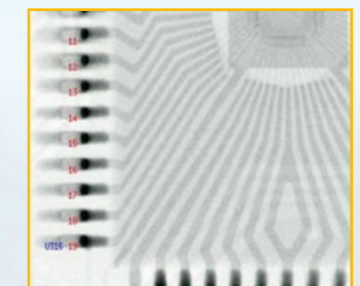
PTH



BGA HiP in 2.5D



PTH inspection



QFN inspection

X#-Series

Flexible, Automated X-ray

The X#-platform series is an inline automated X-ray system which covers a wide range of AXI applications. It is a flexible platform with very versatile fields of use depending on the application requirements. The inspectable applications range from component level inspection, large SMT boards, high-power electronic modules, IGBTs up to fully assembled modules.

Characteristics

- Flexible AXI system for inline and island of automation configurations
- Microfocus X-ray tube (sealed tube / maintenance free)
- Multiple programmable motion system with servo drives
- Digital CMOS flatpanel detector
- Automatic grey-scale and geometrical calibration
- Barcode scanner for serial number and product type selection
- Full product traceability via customized SECS/GEM and MES-Interface
- IPC-CFX and IPC-Hermes support



Standard configurations

- SMT setup for component and solder-joint inspection on PCB
- Final Assembly and Test (FATP) setup for complete modules and consumer products
- Ultra-High Power setup for power hybrid/IGBT devices and battery

Technologies

- Transmission X-ray imaging (2D) with patented Slice-Filter-Technique™
- Off-axis technology (2.5D)
- 3D SART (Simultaneous Algebraic Reconstruction Technique)
- Dynamic Planar CT

Models

Depending on the type of product & inspection task

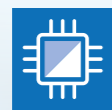
- X2# Transmission (2D) + SFT™
- X2.5# Transmission (2D) + SFT™ + Off-axis (2.5D)
- X3# Transmission (2D) + SFT™ + Off-axis (2.5D) + 3D SART

Additional options

- Flexible setup for inline pass through or same-side in/out configuration
- Combination with line scan camera for high throughput
- Auto BCR scanning station (x-y gantry)
- Low dose radiation filter



LED



Component Test



Sensors



Solder Joint Inspection



Power Device Cooling Plates



PTH



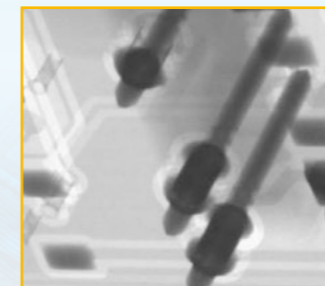
Subassemblies (automotive)



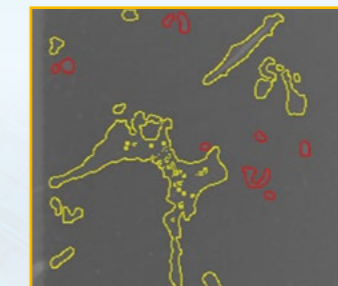
Final Assembly Test (Consumer)



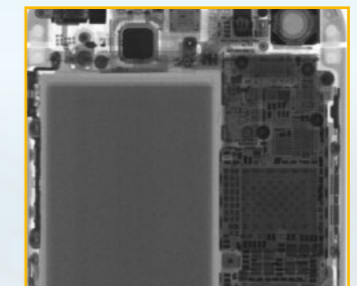
Batteries



PTH inspection



Multi layer void inspection (IGBT)



Final product inspection

Technologies

2D - Transmission

High speed inspection technique with up-to 5-6 images/sec. and with best high-resolution capability. Transmission is two-dimensional image capturing with a fixed detector position. Movable sample tray and movable X-ray tube for different magnifications.



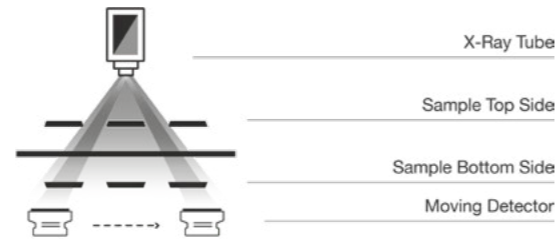
SFT™ - Slice Filter Technique

Nordson's patented inspection technique to separate top and bottom side for double-sided PCB-assembly applications. High speed technique using first side image to filter out from double-side image.



2.5D - Off-axis

AXI on programmable angle-shots up to 60 dgr(used for high performance BGA and PTH inspection).



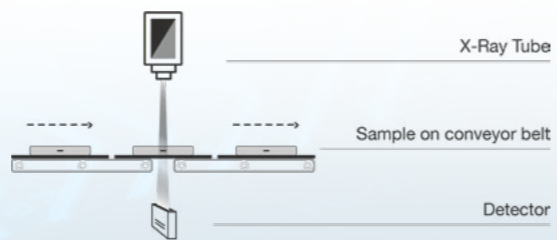
3D - SART

3D-Tomosynthesis to generate multiple horizontal slices used for high-dense doublesided and multi-chip-modules (e.g.: MCM,LGA).



Line Scan

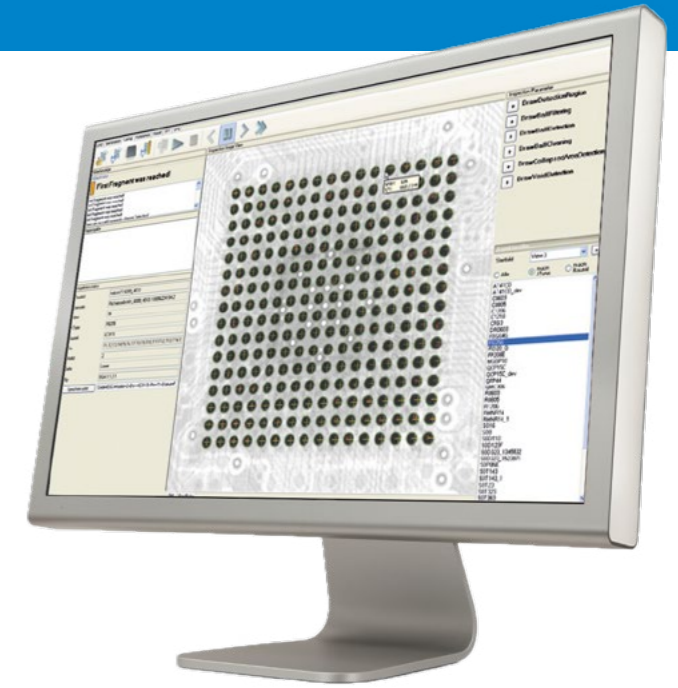
Fastest inspection technique using continuous scan via line scan detector to generate a large area X-ray image.



MIPS Software Suite

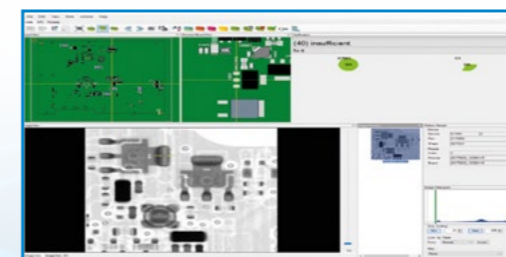
The MIPS software suite provides a complete and overall solution for a wide variety of X-ray applications.

MIPS software lineup contains specific components for different tasks from the very beginning of the inspection process (CAD creation and import) to the very end (statistical data analysis). This approach leads to a flexible and effective software environment which aligns perfectly with the outstanding capabilities of the Nordson's AXI product portfolio.

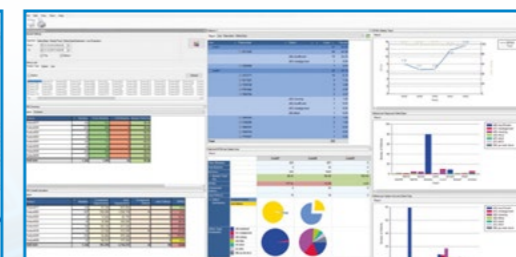


Highlights

- Modular and easy-to-handle software environment for quick program generation and new product introduction both on-the-fly and offline
- Unique and automated calibration procedures ensuring machine-to-machine program portability and a working global library structure
- Highly customizable algorithm library for full defect coverage and minimal false calls rate
- Full palette and combination of inspection techniques from simple transmission imaging to highly complex inline and offline 3D inspection
- Comprehensive statistical tools for process control and feedback, but also for good/bad sorting optimization
- Smart factory integration through comprehensive and customized traceability implementation
- Closed loop communication between inspection, verification, repair and fine-tuning process
- Custom solutions for handling, bad-part sorting and marking
- Operator training tools to grant audit save end-of-line decisions



MIPS Verify - Defect verification and repair suite



MIPS DPMO - Statistical software tool



MIPS Verify trainer

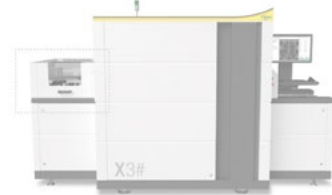
Accessories

When using a programmable bar code scanning station the system can adjust the position of the scan avoiding the need to change the position of the rigidly mounted scanners. This increases the flexibility especially for pallet changes with different products. The system is no longer limited by the speed that the bar code reader can recognize the bar codes and therefore the input speed can be increased turning out in a higher throughput.

BCR-1000

Handling option for the X#-series

The BCR-1000 is an upgrade kit to the standard input conveyor for the X#-series systems that allows automated scanning of product bar codes.



BCR-1100

Handling option for the XS-series

The BCR-1100 is a standalone barcode reader station with a multi-position barcode reading capability and clean room grade gantry solution.



For more information, speak with your Nordson representative or contact your Nordson regional office

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