



OnCore Test Services Overview



Why Test?: At OnCore we want every product we manufacture for you to be right every time. However there are numerous ways that errors are introduced into a product's manufacture including:

Humans, who introduce errors through schedule changes, mislabeled parts, material inspection, storage and kitting mistakes. SMT machine setup;

Low volume, high complexity products inherently introduce more errors due to frequent change-over cycles and high ECO count;

Board layouts that have design weaknesses that create assembly faults, usually caused by lack of upfront DFM;

Increased circuit densities introduce errors as more and smaller components are placed on larger boards and;

Basic tool capabilities – SMT machines are not perfect and can create errors.

OnCore provides customers with a wide array of standard and custom test tools and solutions to address these and other possible points of error introduction.

OnCore Test Services: OnCore offers an array of test services designed to ensure consistent product quality and minimize total cost of ownership. Services include:

Advanced test engineering – our test engineers will train your engineers in DFT (design for test) and test development strategies which will reduce time-to-yield;

Test development our test engineers create process designs, prototype and preproduction builds, manufacturing test development, process through-put analysis and gap/coverage analysis models all of which increase product quality consistency;

Full test suite ATE (AOI, 3D X-Ray, Flying-probe, ICT), Boundary scan (OnCore is an industry leader in boundary scan), Functional, Digital/Analog/RF test (boards through systems) and HALT/HASS/ESS, Burn-in and/or Run-in;

Custom test development and execution

Lexicon of Test Terms:

FPY – First Pass Yield

MVI – Manual Visual Inspection

AOI – Automated Optical Inspection

AXI – Automated X-Ray Inspection sometimes referred to as 2D or 3D X-Ray or 5DX, an Agilent product name)

FP – Flying Probe

ICT – In-Circuit Test

SICT – Simplified In-Circuit Test

Extended ICT – Combination of ICT, BScan, Cluster and/or Functional Test

Bead Probe – Probe Technique for High-speed RF

BScan – Boundary Scan

Extended BScan – BScan plus control and visibility through connectors, traces, non-compliant digital logic and simple analog devices

FVT – Functional Validation Testing

NFSA – Near Field Signature Analysis RF Test

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OnCore Test Solutions and Tools:

At OnCore we invest considerable time in developing a test model for your product that ensures consistent quality and which helps to reduce product costs through increased yields and higher through-puts.

Because component quality has improved over the last decade and board density levels have increased our basic test models rely more on ATE and less on traditional board-level functional tests. Figure 1

Density Verses Test Methods

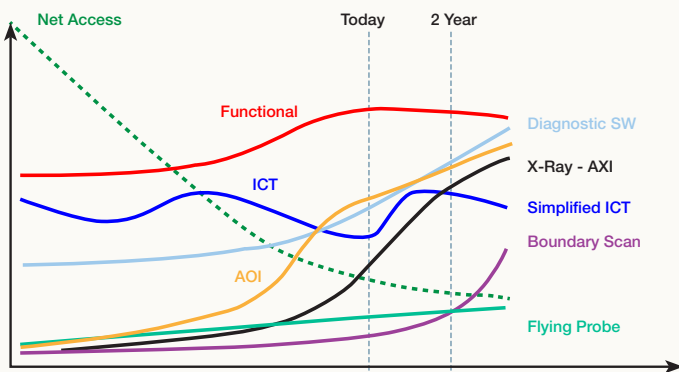


Figure 1 - Design Density

Increasing Electrical Performance Requirements.

New ATE details

(automated test equipment):

AOI (automated optical inspection)

AXI (automated x-ray inspection)

FP (flying probe)

ICT Simplified (in-circuit test)

ICT Extended (combination of ICT, BScan, cluster and functional test on an ICT platform)

BScan (boundary scan, “virtual nails” techniques)

ATE is our primary test set. Between AOI, AXI and Flying-probe, ICT and Boundary Scan we provide customers with 100% inspection of all their board products. The following diagram depicts the interactions of the ATE tools and processes for and how the errors they each remediate: Figure 2

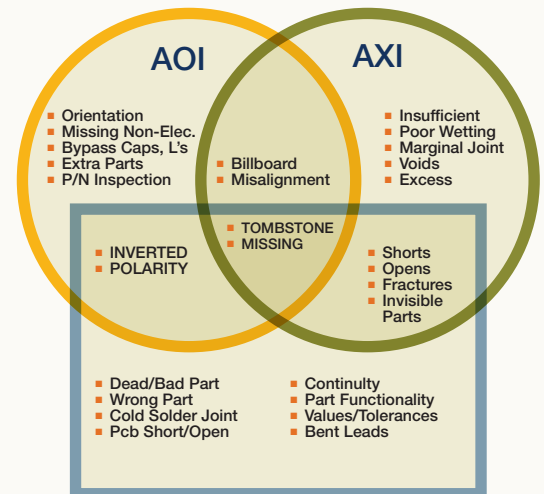


Figure 2

Conclusion: OnCore provides a comprehensive set of test services to assure customers’ products consistently meet quality targets. In addition to our extensive ATE tools and capabilities, OnCore offers custom test development services individually designed for your product.



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