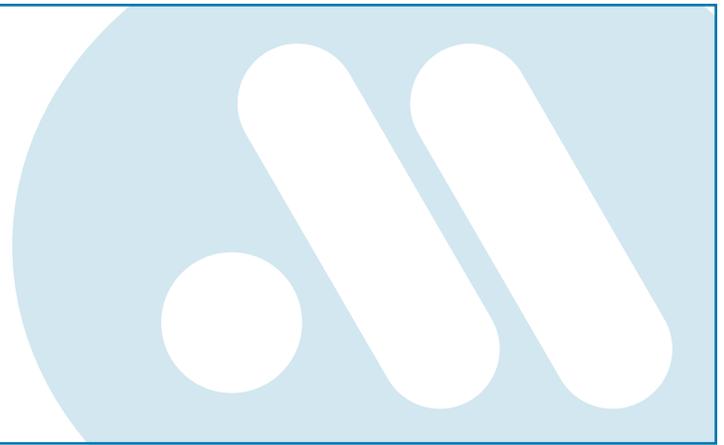




microcross

one source. one solution.™



Microcross Clearwater provides extensive 3D scanning capabilities coupled with technical expertise, state-of-the-art equipment and unsurpassed capacity while maintaining an ISO 9001 Quality System. In addition, Microcross is an ITAR Registered Facility and ANSI/ESD-S20:20. Microcross Clearwater provides a quick turn and cost effective alternative to expensive in-house processing.

Automated Lead Inspection

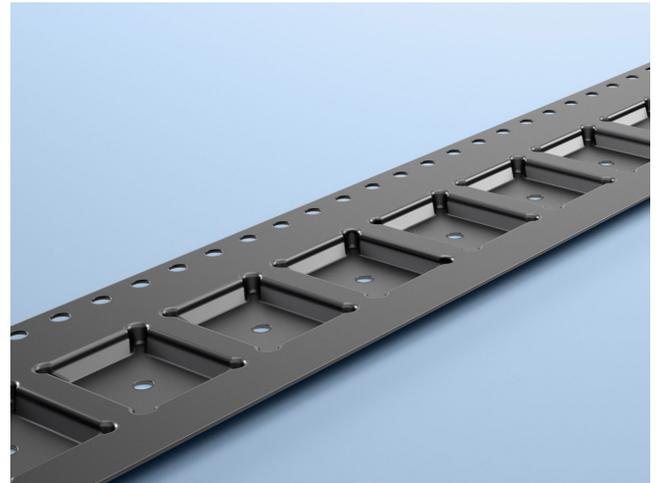
Microcross is the benchmark for Automated Lead Inspection - T&R that allows for minimum handling and maximizing 3-D in-line vision inspection for tray-to-tray, tray-to-tube, tube-to-tube and tube-to-tape. Microcross utilizes state-of-the-art quality systems to meet or exceed EIA-481. Microcross' Lead Inspection Services ensure component integrity. Inspection capabilities include: co-planarity, bent leads, sweep, pitch, standoff, ball height, ball diameter and true position for most package types. Reconditioning is done per the JEDEC specification dimensional product outlines.

Manual Tape & Reel (T&R) & Detape

Microcross can handle your T&R requirements no matter the size of your job and has a huge selection of in-stock carrier tape and extensive experience with SOIC, QFN, TSOP, SSOP, MSOP, SOJ, PLCC, QFP and BGA package types. In addition, Microcross also offers automated detaping.

Lead Conditioning / Straightening

Microcross has multiple platforms to perform automated lead conditioning for any leaded product from both tray and tube that fail lead scan. These parts can be conditioned and re-scanned to virtually eliminate your scrap. Microcross can even pull parts off a board and re-condition them. Reconditioning is done per the JEDEC specification dimensional product outlines.



Automated Radial & Axial Taping & Straightening (with Optional Lead Trim & Form)

Microcross offers radial package type Tape & Reel taping and straightening services that meet or exceed EIA-468. Requirements with capabilities for: TO-126, TO-263, TO-92, LED and electrolytic capacitors utilizing in-line 2D vision inspection to ensure the highest quality standards. Microcross' axial package type Tape & Reel services meet or exceed EIA-296 for rectifiers, resistors, diodes and capacitors.

Bake & Dry Pack

Microcross' Bake and Dry Pack services ensure that moisture sensitive components are protected and quality assured throughout the packaging process. Our specially designed equipment will ensure that your components are not damaged as they are transferred from plastic tubes to metal tubes as part of the baking process. Our procedures and processes meet or exceed EIA-583 and are JEDEC MS level compliant.

May 25, 2018 REV 1.2

Microcross Clearwater evaluates each component and develops a testing protocol that ensures that we're performing only relevant tests. Microcross possesses the expertise, processes and has the advanced equipment in place to offer a comprehensive **IC Counterfeit Detection Program**. Multiple detection methods are utilized including but not limited to:

Advance & Investigate Visual Inspection

Microcross inspects the component & packaging using the IDEA 1010 methodology and checklist to identify non-conformances on the IC body, leads and markings. High-powered inspection equipment and trained lab technicians combined with Microcross' Counterfeit database are all factors that help to ensure that any external issues are identified & documented.

Resistance to Solvents (Mark Permanency)

Mark Permanency Tests are used to detect any attempts to resurface remark or disguise the original part markings/identity. These tests include: MIL-STD-883 Testing & other accelerated testing methods such as 1M2 & Dynasolve.

X-Ray / XRF

Microcross utilizes state-of-the-art X-Ray Technology techniques including in-tape inspection utilizing Reel-to-Reel Technology to inspect for peppering of Counterfeit ICs. Elemental analysis (XRF) is used to determine ROHS compliance and plating thickness.

Scanning Acoustic Microscopy (SAM)

SAM Analysis helps to identify internal dimensions, cracks, voids, delaminations and interface quality issues that are characteristic of reused components.

Scanning Electron Microscopy (SEM)

SEM analysis measures and evaluates the surface of materials, surface pitting, failure analysis and contaminants.

Decapsulation

Microcross Decapsulation/Delidding Process will expose the die for any IC. This process will allow us to view the die and verify such things as the manufacturer's logo, part number, mask and unique die markings that are associated with the component.

Electrical Authenticity Testing

Electrical Authenticity Testing is used to ensure that a component is still functioning & meets the manufacturer's specified parameters for its intended purpose. Our highly-experienced Engineers will design a series of tested based primarily on our customer's requirements and specifications that may include both DC and AC parameters.

DNA Marking

Microcross is a proud provider of Applied DNA Marking Services. We're able to perform the marking and all verification testing prior to marking. Furthermore, Microcross can perform all other value-added services required in connection with the marking such as De-Taping, Baking, 3D Component Scanning-Tape & Reel, plus others.

