Company Profile

- EICO Inc. established in 1984
  - Burn-in, board design and manufacturing
  - Qualification Test Services
- Golden Altos Corporation established in 1991
  - Hermetic IC Assembly
- Consolidation of Operations in 1997
- Onshore Assembly and Lab Testing
  - Located in Silicon Valley — Milpitas, California
  - Class 1000 Cleanroom
  - Class 100 under LF Hoods
- **Hermetic Assembly**
  - High reliability - Onshore - Monolithic - Hybrid
  - Quick turn prototype or engineering lots and volume production
  - Commercial, Military or Space level builds

- **Burn-in Services**
  - Board Design and Manufacturing
  - Complete Burn-in with all standard environmental conditions
  - Low volume qualification and high volume production

- **Laboratory Qualification Services**
  - MIL-STD-883
  - JEDEC-STD-22
  - MIL-PRF-19500
  - MIL-STD-750
  - MIL-STD-202
• DLA Laboratory Suitability
• MIL-PRF-38535 (Class V & Q)
• ISO 9001 Certified
• ITAR Registered
• DoD (DMEA) Trusted Certification (Pending)
Quality System and Documentation
- Compliant to all applicable ISO-9001 and MIL-PRF-38535 quality requirements. AS9100 Certification in process.

Process/Operations/Manufacturing Lines
- All operators are certified to all applicable test methods for their operation to the requirements of MIL-STD-883 and MIL-PRF-38535

In-house testing meets all applicable technical requirements of industry accepted standards such as:

Test, Inspection & Measuring Equipment
- Compliant to ANSI/NCSL Z540-3
- All standards traceable to NIST
Assembly Capabilities

Hybrids / Multi-Chip Modules — Multiple Die

- Large square die attached to package cavity
- Long narrow die attached to lower die
- Diodes attached inside cavity
- Triple stitch 2.0 mil Al wire bonding
- 1.25 mil Al wire bonding
Assembly Capabilities

Hybrids / Multi-Chip Modules
Assembly Capabilities

Hybrids / Multi-Chip Modules

- **1ST Conductive**
- **2ND Conductive**
- **1ST Non-Conductive**
- **Combination**
Hybrids / Multi-Chip Modules – Substrate Support

- Multi-Layer Low Temperature Co-fired Ceramics (LTCC)
- Aluminum Nitride (ALN)
  - High thermal conductivity
  - High electrical resistivity
- Alumina
  - Cost-effective performance
  - Excellent mechanical and electrical properties
Assembly Testing

- Die Shear Strength
- Bond Strength
- Constant Acceleration
- Particle Impact Noise Detection
- External Visual
- Substrate Attach Strength
- Temperature Cycling
- Solderability
- Non-Destructive Bond Pull
- Lid Torque

- Resistance to Solvents
  - Seal
    - Fine Leak
    - Gross Leak
Other Services Offered

- Saw & Plate
  - Wafer sizes up to 12 inches
  - Sticky film frame
  - Waffle packs
- 2ND Optical Visual Inspection
  - Military / Commercial
- Non-Destructive Analysis
  - Radiography (X-ray)
  - Acoustic (CSAM)

- Mark, Remark & Add Mark
  - Add on marking
  - Serialization
- Internal Gas Analysis (IGA)
Burn-In Board Designs

- Standard Burn-In
  - Kineticon
  - REL Inc.
  - Aehr Test
  - Microtest
  - Custom
- HAST (Highly Accelerated Stress Test)
  - Single Wide
  - Double Wide
  - Custom
- 85/85 (High Moisture Environment)
- Specialty Applications

Specialized Board Types

- Interface Boards
- Program Cards
- Probe Cards
- Test Boards
- Load Boards
- Demo Boards
- Custom

Board Material

- Polyimide
- Risholite
- FR4
- G-TEK200
- BT Material
MIL-STD-883 Qualification Testing - Hermetic Packaging

- Environmental Tests
  - Moisture Resistance (Method 1004)
  - Steady State Life (Method 1005)
  - Salt Atmosphere Corrosion (Method 1009)
  - Temperature Cycling (Method 1010)
  - Thermal Shock (Method 1011)
  - Seal, Fine and Gross Leak Test (Method 1014)
  - Burn-In Test (Method 1015)
  - Internal Water Vapor Content (Method 1018)

- Mechanical Tests
  - Constant Acceleration (Method 2001)
  - Mechanical Shock (Method 2002)
  - Solderability (Method 2003)
  - Lead Integrity (Method 2004)
  - Vibration Variable Frequency (Method 2007)
  - Bond Strength Destructive Bond Pull Test (Method 2011)
  - Resistance to Solvents (Method 2015)
  - Physical Dimensions (Method 2016)
  - Die Shear Strength (Method 2019)
  - Particle Impact Noise Detection Test (Method 2020)
  - Lid Torque for Glass-Frit-Sealed Packages (Method 2024)
  - Adhesion of Lead Finish (Method 2025)
  - Random Vibration (Method 2026)
Testing Capabilities: COM

JEDEC Std. 22 Qualification Testing - Plastic Packaging

- Environmental Tests
  - Steady State Temperature Humidity Bias Life (Method A101)
  - Accelerated Moisture Resistance - Unbiased Autoclave (Method A102)
  - Temperature Cycling (Method A104)
  - Thermal Shock (Method A106)
  - Salt Atmosphere (Method A107)
  - Bias Life (Method A108)
  - Highly Accelerated Temperature and Humidity Stress Test - HAST (Method A110)
  - Moisture Induced Stress Sensitivity for Plastic Surface Mount Devices (Method A112)
  - Preconditioning of Plastic Surface Mount Devices Prior to Reliability Testing (Method A113)

- Mechanical Tests
  - Physical Dimensions (Method B100)
  - Solderability (Method B102)
  - Vibration, Variable Frequency (Method B103)
  - Mechanical Shock (Method B104)
  - Lead Integrity (Method B105)
  - Resistance to Soldering Heat (Method B106 — Conditions A and B)
  - Resistance to Solvents (Method B107)
COTS Qualification / DPA

NASA Qualification
- EEE-INST-001 (Electrical, Electronic, and Electromechanical parts)
- PEM-INST-002 (Plastic Encapsulated Microcircuits)

SAE PEMs Qualification – New Industry Standards
- SAE AS6294/1 (PEMs Space)
- SAE AS6294/2 (PEMs Military)

DPA Per MIL-STD-1580
- External Visual
- Hermeticity Testing
- Radiographic Examination (X-ray)
- PIND Testing
- Internal Gas Analysis (IGA)
- Internal Visual Examination
- Bond Pull Testing
- SEM Examination
- Die Shear Testing
Project Management

- Initial Product Assembly and Qualification
  - Wafer/Die Procurement
  - Package/Lid Procurement
  - Environmental Testing
  - ESD and Latch-up Testing

- Upscreening/PEM Testing

- On-going Production

- Electrical Test

- End-Of-Life and Discontinued Products
  - Long term die banking
  - Obsolete die management
Golden Altos Corporation can handle your:

- Material Procurement
  - Wafers, Dice, Packages, Lids, Pre-assembled Parts
- Wafer Preparation
  - Backgrinding, Inspection, Saw, Plating
- Monolithic and Hybrid Hermetic Assemble
  - Engineering Samples
  - Space Flight Units
- Qualification Testing
  - Groups A, B, C & D
- Electrical Testing
- Upscreening
- Construction Analysis
Request for Quote and Contact Information:

- **Telephone Number:** 1-408-956-1010
- **Fax Number:** 1-408-956-1212
- **Email us at:** sales@goldenaltos.com
- **Our website:** www.goldenaltos.com