Micross is the global one-source provider of Bare Die & Wafers, Advanced Interconnect Technology, Custom Packaging & Assembly, Component Modification Services, Electrical & Environmental Testing and Hi-Rel Products to manufacturers and users of semiconductor devices. In business for more than 40 years, our extensive hi-reliability capabilities serve the Aerospace & Defense, Space, Medical and Industrial markets. Micross possesses the sourcing, packaging, assembly, engineering, test and logistics expertise needed to support an application throughout its entire program cycle.

www.micross.com

Micross Americas
1.855.426.6766

sales@micross.com

Micross EMEA & ROW
+44(0) 1603788967
QUALITY ACCREDITATIONS

Our goal is to continually provide customers with a one-source solution, while upholding our long-tenured reputation and tradition of strict standards for quality and reliability.

Quality Management Systems

DoD Accreditations
- DLA Lab Suitability (MIL-STD-883 & MIL-STD-750)
- MIL-PRF-38535 Q and V
- MIL-PRF-38534 Class H
- SMD, Levels Q & M
- MIL-PRF-38535 Q, V, Y for CGA/Column Attach
  - Raleigh & Crewe UK

Trusted Source (DMEA)
- Milpitas plus Raleigh (pending)

ITAR Registered

FLOWS:
- Customer-specific, Source Control Drawing (SCD)
- COTS/PEMS Plastic Flow
- JEDEC Standard for Plastics
DIÉ DISTRIBUTION & WAFER PROCESSING

Leading Global Source for Bare Die, Wafer & Value-Added Services

FULL TURNKEY WAFER PROCESSING

DICING
- Wafer sizes up to 12”/300mm
- Multi-project wafer dicing
- Step-cutting & advanced dicing techniques

DIE SORT/PICK & PLACE
- Automated, virtually contactless handling of singulated die
- Multiple bin/grade die picking

DIE INSPECTION
- Commercial, military, space grades & custom
- Automated Optical Inspection

PROBE
- Direct dock 12”/300mm wafer probers
- Elevated & low temperature
- Full parametric testing, functional test
- Speed or trim binning
- Multi-site

WAFFER BUMPING
- Solder, gold & copper pillar bump

WAFFER THINNING
- Wafers thinned down to 100 μm

CARRIER OPTIONS
- Sawn wafer on film-frame and ring-frame
- Waffle pack; Gel-Pak®, Tape & Reel
- Reconstructed wafer

VALUE-ADDED SERVICES

- Lot Acceptance Testing: Class H & Class K
- Kitting, KANBAN and VMI Programs
- Extensive Die-specific Failure Analysis
- Part parametric search & cross-reference
- Systematic wafer lot traceability
- Mechanical & electrical verification of capacitors
- BOM analysis & logistics management

DIE BANKING & OBSOLESCENCE MANAGEMENT

- Die and finished product banking (multiple global storage sites)
- Production continuation
- Long-term risk mitigation and logistics

BRAND PARTNERS

- Linear Technology
- Fairchild
- Atmel
- Vishay
- IDT
- Central Semiconductor Corp.
- Diodes
- ISSI
- Everspin Technologies
- International Rectifier - HiRel
- Sensitron Semiconductor
- Micron
- Samsung
- Alliance Memory
- Semicoa
- Macom
- Microsemi
- Novacap
- NXP
- Linear Systems
- Analog Power
- Interfet
- Cymbet
- USci
- Texas Instruments
- Intersil
- Microchip
- Analog Devices
- ON Semiconductor
- Cypress
- Linear Systems
- Analog Power
- Interfet
- Cymbet
- USci
Micross Advanced Interconnect Technology offers advanced packaging and 3D integration solutions that enable higher-performance systems with decreased size, weight and power (SWaP). We provide a wide variety of advanced interconnect technologies for realizing your next-generation electronic systems.

Our integration and packaging technologies include:

- 3D integration technology: TSV, TGV, Si interposers, 3D IC
- Advanced interconnect and packaging technologies: Solder bumping, Cu pillar, Cu-based microbumps, IIC Quilt Packaging™ interconnect fabrication
- Flip-chip & Multi-chip module assembly, including patented PADS fluxless assembly process
- Novel microfabricated devices, including IR sensor and thin film thermoelectric solutions
- Microstructure fabrication and packaging: Monolithic integration, vacuum microelectronics, wafer-level vacuum/hermetic packaging
- Microfabrication facility offering development, custom (flexible) prototyping & small-volume production services for our customers
COMPLETE PACKAGING CAPABILITIES

- Hermetic Packaging: Ceramic & Metal Can
- Wafer-level Vacuum/Hermitec Packaging
- Plastic Packaging: CSP/BGA/LGA/QFN
- Flip-Chip/MCM/SiP
- Die Stacking 2.5D/3D
- Custom Packaging
- Customer-specific Package Solutions for standard OEM Devices

PLASTIC PACKAGING CAPABILITIES

- Extended Temperature (-55°C to 125°C)
- CSP (Chip Scale Package)
- BGA (Ball Grid Array)
- LGA (Land Grid Array)
- MCM (Multi-Chip Module)
- QFN (Quad Flat No-Leads)
- SiP (System in Package)

COMPLETE ASSEMBLY SERVICES

Providing full assembly services as well as the one source for all of your packaging needs.

- Precision Die Attach: Epoxy, Eutectic, Lead & Lead-free Solder
- Flip-Chip
- Die Stacking
- Thermal Compression Banding
- Wire Bond: Au & Al Wire, Ball/Wedge Bonding, Wedge/Wedge, Heavy Gauge Wedge/Wedge
- Lid Seal/Encapsulation
  - Material: Ceramic, Metal, Plastic
  - Epoxy, Solder, Resistance Weld, Parallel Seam Seal
- Marking
- Lead Finishing
- Precise die attach for < 5.0 micron optical transceiver
COMPONENT MODIFICATION

SERVICES
- BGA Reballing
- Lead Attach & Form
- Tape & Reel, 3D Scan
- Lead Conditioning
- Axial & Radial Straightening
- SMT Lead Alignment
- PIND Testing
- XRF Screening
- Hermeticity (Fine & Gross Leak)
- Solderability
- Balance Wetting Testing
- Ionic Cleanliness
- Ball Shear
- Lead Integrity
- Bond Pull

BGA/LGA MODIFICATIONS
- BGA re-ball for conversion from Pb free (RoHS) to leaded (SnPb) or reverse
- Ball attach to LGA components/BGA re-work
- Ball pitch from 0.4mm min/Ball diameter from 0.3mm min
- Component size from 4mm x 4mm to 52mm x 52mm
- CTE Mismatch Mitigation
  Options include: HMPS spheres, BTCE Micross patent, Non-collapsible spheres

PACKAGING TRIM & FORM COMPONENTS
- Trim & Form for J-Leaded, SOIC, SOJ, DIP, PSOP, TSOP, FP, QFP & other package outlines;
  Compliant to J-STD-001

LEAD ATTACH & FORM
- Thermo-compression bond/High-temperature solder (5/95)
- Lead Material: CDA 102 Copper, ASTM B-170 Grade 2
- Final lead forms available to meet design and operational requirements:
  Standard - J, Flat - J, Gullwing, Spider Gullwig

ROBOTIC HOT SOLDER DIPPING & SOLDER EXCHANGE
THE GEIA-STD-0006 COMPLIANT PROCESS INCLUDES:
- Robotic-controlled six-axis dipping
- Solder dipping under a nitrogen blanket
- Solder-level sensing for accurate solder dipping
- Integral component wash and dry facility
- Preheating of components to negate thermal shock
- Solder exchange from Pb free (RoHS) SnPb
- Conversion of leadless and bottom terminated components

CGA ATTACH
- IBM Legacy Process
- 2,500+ Column Placement Capable
- 1mm/1.27mm pitch tooling available
- Level 2 process re-workable column
LEADING EDGE TEST SOLUTIONS

- Device Characterization Testing: FPGA, ASIC, RF
- High-Speed Digital
- Element Evaluation
- Failure Analysis: Engineering & Analytical Services
- Leading-edge Sub 28nm Test

EXTENSIVE IN-HOUSE TEST CAPABILITIES

- High Speed and RF Testing
- Testing for Memory, Analog, Logic, ASICs, Processor, Mixed Signal & Discrete
- Full Static & Dynamic Burn-in
- Controlled Chamber Testing
- Capability to -65°C to +320°C forced air
- 300mm Wafer Probe over Temp (-55°C to 125°C)
- Probe of partial wafers & singulated die

TEST PLATFORMS

- Verigy 93K, Pin Scale, Smart Scale
- LTX ASLX Mixed Signal Test/ LTX TS80 Linear/Mixed Signal Test
- ATS 8256 High Voltage CMOS
- Teradyne J937-50/100 MHz, 361/O’s
- Credence Diamond D10
- Testronics 201C Discrete Component Test

RF TEST SOLUTIONS

- 24-48 RF Ports on ATE
- ATE Hybrid testing platform based on best-of-breed equipment
- Higher throughput and less device damage compared to rack-and-stack systems
- RF 6-110 GHz

PEMS (Plastic Encapsulated Microcircuits)

One Complete Turnkey Solution

Screening and Qualification services of COTS (Commercial Off-The-Shelf) and PEMS (Plastic Encapsulated Microcircuits) devices are part of our comprehensive approach to designing for high demanding environments.

- Comprehensive Knowledge of All EEE Parts: Discretes, Passives, Linears, Memory, FPGA, Microcontrollers, ADC/DAC
- Extensive Test Expertise including HAST, Temp Cycle, Dynamic Burn-in and Complete Electrical Testing of devices
- Full DPA / Failure Analysis Capabilities for Both Military and Space Applications
- Laser Ablation for Advanced Decapsulation of Copper Bond Wire ICs
KEY RELIABILITY TEST SERVICES

- Environmental Reliability Tests
- Life Test/Burn-in (HTOL/LTOL), Junction Regulated
- HTOL – Dynamic/Static/DC/RF, Junction Controlled
- Pre-Conditioning/MRT
- Temperature & Power Cycling
- Temperature Humidity Bias (THB)
- HAST, Thermal Shock
- Autoclave
- Mechanical Shock, Vibration, Acceleration
- Fine/Gross Leak — Kr85
- Temperature/Power Cycle Operating Life
- Thermal Shock
- EFR Analysis
- ESD/Latch-up
- Acoustic Microscopy
- X-Ray
- Shadow Moiré/Warpage Analysis
- Solderability
- Salt Atmosphere
- Particle Impact Noise Detection
- Other Level III & Sub System

RELIABILITY ANALYSIS
Evaluate parts with a wide array of environmental and mechanical stresses

LEVEL I & LEVEL II
Comprehensive suite of board-level, package-level reliability

QUALIFICATION REGIME
ESD, EFR, IME, Smart Burn-in, ACBITM

RESEARCH-BASED RELIABILITY
Customized qualification plans. Specialized set-ups, real-time monitoring and data-logging capabilities

FAILURE ANALYSIS
In-depth investigation of process, field failures and elemental analysis

RELIABILITY UPSCREENING
Evaluate and perform upscreening devices for Hi-rel Applications
HI-REL PRODUCTS

- SMD/5962
- Memory
- Analog & Power
- COTS/Retail+

HI-REL MEMORY

SRAM 256Kb to 16Mb Mono, 16Mb MCM, 5V & 3.3V, 10ns to 100ns, x8/x16/x32
SDRAM SDR – 64Mb, 128Mb, 256Mb, 512Mb, PC100 or PC133
   iPEM SDR – 1.2Gb, 25mm x 32mm
   iPEM DDR – 1.2Gb, 2.4Gb, 25mm x 32mm & 16mm x 23mm
   iPEM DDR2 – 2.1Gb, 2.4Gb, 4.2Gb, 4.8Gb, 25mm x 32mm
   & 16mm x 23mm
   iPEM DDR3 – 1GB, 4GB, 21mm x 19mm
Sync SRAM 4.0Mb to 36Mb, 100-250MHZ, 3.3V, Pipeline, Flow-Through & ZBL
Legacy DRAM 256Kb to 64Mb, 5V, x1 and x4 LCC, Flatpack and DIP
DRAM DDR2 & DDR3
EEPROM 1Mb Mono, 4Mb MCM, 5V, in Flatpack, LCC, CSQJ, PGA, and CQFP
Flash 1Mb & 4Mb Mono, 16Mb to 64Mb MCM, 5V & 3V, 60ns to 150ns, multiple packages including DIP, Flatpack, LCC and CQFP
UVEPROM 256Kb to 1Mb Mono, 55ns to 200ns, in LCC, DIP
VRAM 1Mb/4Mb, 100ns to 200ns, in LCC, DIP and CSQJ

MRAM, FRAM, & Radiation Tolerant Devices

RETAIL+ PRODUCT LINE

Micross Retail+ Product Line enables customers to use industry-leading components that were not previously available for their hi-rel, long-life applications. Micross purchases COTS components and enhances them for use in military, aerospace, transportation, industrial and medical applications.

Retail+ Products are converted from RoHS Pb-free solder metallurgies to tin-lead (SnPb 63/37) based metallurgies. Pb-free BGA packages are reballed and Pb-free leaded and non-leaded packages go through a solder dip exchange using our established processes that brings them up to standards for use in hi-rel applications.

Available Products: DDR Memory, Flash Memory, Processors, Power Management Integrated Circuits (PMIC)
Eleven operating and sales locations across the U.S., Europe & Asia