Manufacturing Services

Providing Individual Services Through to Full Turnkey Solutions.

Rochester Electronics®

About Rochester Electronics

Rochester Electronics is the world's largest continuous source of semiconductors–100% Authorized by over 70 leading semiconductor manufacturers.

As a licensed semiconductor manufacturer, Rochester has manufactured over 20,000 device types. With over 12 billion die in stock, Rochester has the capability to manufacture over 70,000 device types.

Rochester offers a full range of manufacturing services including Design, Wafer Processing, Assembly, Test, Reliability, and IP Archiving providing single solutions through to full turnkey manufacturing, enabling faster time-to-market.

Rochester Electronics is registered to manufacture ITAR products.

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![Rochester Electronics logo]

Wafer Processing and Storage

Rochester offers a range of services at our Newburyport facility including:

Wafer Processing

- Wafer back-side grind
- Wafer dicing
- Die pick and place
- Die inspection

Die Banking

Proven reliable long-term storage of wafer and die

Long-Term Storage

- Long-term storage and managed logistics manufacturing programs
- Parts management
- Usage reporting

Next Generation Storage Option

- ISO-7/10K certified
- Enhanced ESD controls
- ISO-5 Inspection areas
- Relative humidity control
- Real-time monitoring of temperature and humidity
- Auto-purge on power fail
- Secure room and individual cabinets
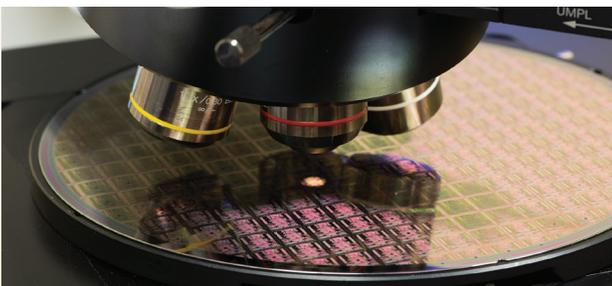
Assembly

Open Cavity Packages

We offer a broad range of Open Cavity Packages (OCPs) for quick-turn IC prototyping, enabling a quicker time-to-market for new product introductions.

OCPs are ideal for R&D or pre-production environments and represent a very cost-effective solution for low volume prototypes.

Available IC package types include:

- QFN – from 3x3 mm to 8x8 mm
- LCC
- PGA
- QFP
- DIP
- TO
- Custom solutions also available
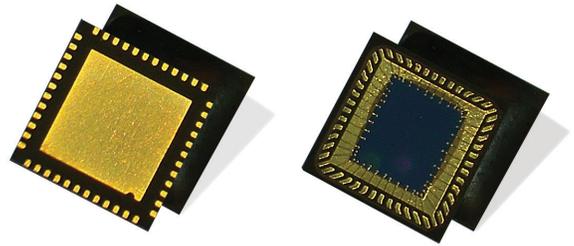
Hermetic Assembly

Flexible hermetic assembly line supporting high mix of products with low minimum run requirements.

- Automated and semi-automated assembly equipment
- Eutectic, Silver Glass and Epoxy Die Attach
- Frit, Solder Seal and Metal Can Sealing
- Quick-turn prototyping capability with OCPs
- Package replications including leadframes
- DLA certified
- Multiple lead finishes available including Sn, SnPb, and RoHS

- Flexible equipment to handle mix of
  - Sidebraze DIPs
  - Cerdips (includes replicated frames)
  - Metal cans
  - PGA
  - Cerpacks
  - CQFP
  - Custom/other
- Commercial and military flows
- In-house reliability testing
- Qualification services available

Assembly

Plastic Assembly

Implementing plastic assembly solutions for internal and external customer needs

- Automated saw, die attach and wire bond equipment
- Full automold and semi-automated mold equipment
- Flexible manufacturing space supporting business plans from low volume/high mix to full high volume, dedicated line manufacturing
- Lead finish operations supporting SnPb, Matte Sn and RoHS
- Leadframe options including: design/replication, pre-plated, spot plated
- Gold ball bond
- Epoxy die attach
- Custom assembly solutions
- Multiple lead finishes available including Sn, SnPb, RoHS
- Qualification services available

In addition to our in-house facilities, we have strong relationships with a number of the world's leading Off Shore Assembly and Test (OSATs) houses. Leveraging their capabilities, we can manage your assembly requirements in a cost-effective manner from low volume, high mix product portfolios to high volume production.

Component Lead Finishing

Lead finish, or "leadfinish," is the process of applying a coat of metal over the leads of an integrated circuit to protect the leads against corrosion and abrasion, and to improve solderability.

Rochester Electronics offers a range of solutions to meet the requirements of a wide variety of applications.

- SnPb plating
- Matte Sn plating
- Ni Plating
- Flexible rack plating system supports plating of leadframes and other electronic components
- Configurable for other plating solutions
- Pre-plated RoHs frames
- Solder dip options

Zero Discharge Waste Water Treatment

Environmentally-responsible zero discharge waste water treatment facility provides re-use of all waste water without discharging materials to city drains.

Package, Substrate and Leadframe Replication

- Ability to re-introduce most package technologies
- ROHS/SnPb lead finishes available
- JEDEC and custom package outlines
- Substrate and leadframe design services available
- Qualification services available

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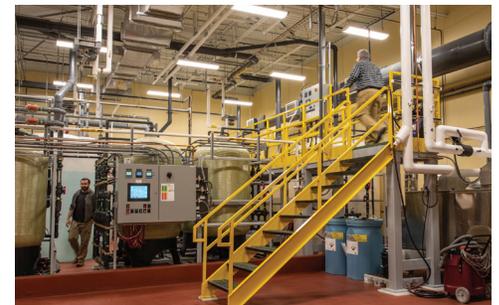
Test

Overview:

- 100% Authorized test services are traceable and guaranteed
- Original OCM approved test software when available
- Current and legacy ATE platforms
- Flexible equipment utilization

Test services include:

- Military
- Special screening
- Up-screening
- Selected item drawings
- Source Control Documents (SCDs)
- Tier-2 automotive testing

Test/Component Engineering Overview and Capabilities

Over 30,000 square foot Test, program and burn-in facility

- 22 Major ATE platforms
- Handlers and kits to support over 100 package types
- BP Microsystems and Data I/O programmers

Test capabilities

- Digital, Analog, RF, Memory, ECL, Mixed Signal, Gate Arrays, ASICs, PLDs, FPGAs
- Tri-temp automation for package and wafer
- Creation of custom high-quality test solutions
- Temperature profiling: -60° C to +200° C

Test development

ATE platform conversions

Component programming

- BP microsystems, Data I/O, OCM specific

Electrical and mechanical interface design

- Custom DUT load boards and mechanical interfaces
- Probe interfaces

Full CAD design

Device burn-in

- MIL-STD-883 methods 1005 & 1015 (Conditions A, B, C, D)
- Static, dynamic and custom burn-in circuits

![Rochester Electronics logo]

Design Service

Developing solutions for long-term support

Rochester can replicate the original device avoiding lengthy expensive system re-qualification, recertification, or redesign. The end-product is a form, fit, and functional replacement guaranteed to the original data sheet performance. **No software changes required. 100% software compatibility with no errata.**

- Design centers located in North America - Rockville, MD and Minneapolis, MN
- DO-254 minor change classification
- Physical design replication from the original archive or die
- Physical process replication through device analysis and selection
- Reverse engineering opportunities
- Over 200 products successfully put back into manufacturing

- Electrical performance replication
- ITAR designs
- Drop-in replacement
- Extensive ASIC background

Design (Physical Clone) Porting Experts

- Industry standard design tools in-house for complete flow
- Design team has direct design experience through 28nm technology nodes
- Majority of current activities are in 250nm to .8um geometries
- Extensive analog and digital background
- Low touch solution: original component manufacturer (OCM) engineering once archive is transferred
- Extensive experience decoding unique archives from 100% authorized OCMs

Design Capabilities

- Design closure
- Database forensics
- Test generation
- Layout, DRC, LVS
- Spice analysis
- Signal integrity
- IO edge-rate matching
- Legacy voltage (3v/5v) ASIC
- Analog and Digital design

Full authorization with OCM archives provide the lowest risk and highest quality product.
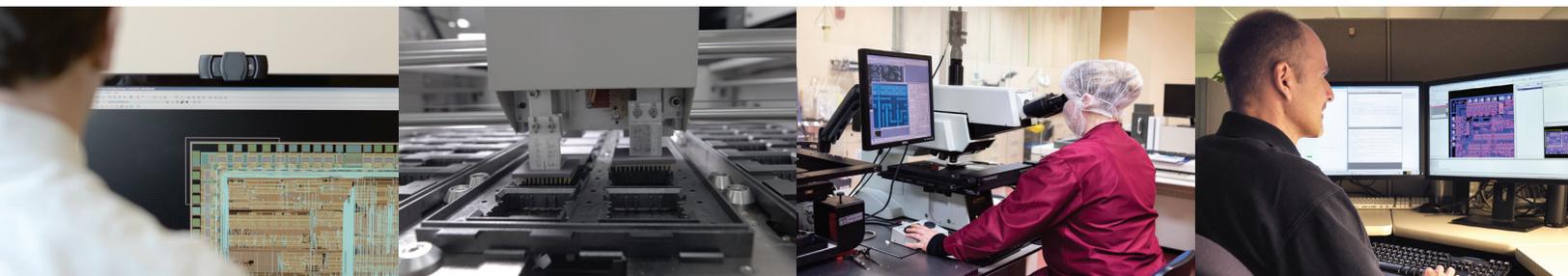
Design and Product Replication

Replicated Products - For Critical Applications Demanding Lower Risks than an Emulation

Replication Overview

Rochester's replication process results in a minimally modified source GDS2 that is DRC clean for a target fab where a commercially available close process node has been targeted using spice analysis and cross-sectional analysis on the OCM product.

Replication/Porting/Cloning is NOT any of the following:

- Netlist-based new layout, new technology, or new timing
- Synthesis from RTL re-targeting
- Emulation of a product

Rochester Replication is Porting or Cloning:

- Identical die size with same physical structures on the die
- Same edge rates, same power, same voltage, same package
- 100% software compatibility with no errata
- Authorized and enabled by the original semiconductor company
- A drop-in replacement for the customer

Reliability Services and IP Archiving

Reliability

Rochester Electronics has significant expertise in stress testing which enables our customers to accelerate potential failure mechanisms, help identify root cause and take actions to prevent failure mode. Our in-house equipment includes thermal, mechanical, moisture and bond testing for a wide variety of tests.

- MIL-STD-883 TM 5004 & 5005 for Levels B, Q and V
- In-House DLA lab certified for Group A, B, C and D
- Reliability testing to JEDEC standards

Archive Services

Data Storage, Recovery and Content Management

- Media restoration, translations, conversions and data recovery
- Content Management System, which is organized, searchable, with easy deposit
- Secure - controlled access, RAID Storage, fireproof off-site backup

Vintage and modern file formats supported:

- Rubylith, 9-Track, Floppy Disks, QIC, 8mm, 4mm, CD, DVD, DAT, DLT, CD, DVD, LTO, film/paper

Contact us with your requirements today.

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