# sonix™

Collaboration. Insight. Advantage.

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# Partnership for Productivity

Every generation of devices demands denser, more complex semiconductor packages. Every generation of semiconductor packages demands a reliable supply of high-quality wafers and devices.

The wafers and devices you produce drive progress and profits. Delays, shortages and defects are simply unacceptable. Your customers demand perfection. Sonix can help.

### People = Collaboration
Sonix people work with you to fine-tune the results. We optimize systems to your product specifications, provide knowledge and support for your staff, and help increase your pace of innovation.

### Technology = Insight
Sonix technology finds smaller defects, faster, so you can eliminate them and accelerate production.

### Sonix = Advantage
Sonix knows your products and understands your challenges. Your customers expect excellence. We'll help you deliver.

Collaboration.

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# Quality and Throughput from Wafers to Semiconductor Packages.

Front-end wafer and back-end packaging processes are being put to the test with new materials, form factors and performance demands. Fabs and foundries need to demonstrate technology leadership, continuously advancing product design and production scale. We offer high-speed, high-resolution imaging solutions to keep front- and back-end innovations on track for quality and profitable production.

## Front-End Imaging

We were the first to offer an automated wafer system, and today our scanning acoustic microscopes are used in more front-end applications worldwide than all other systems combined.
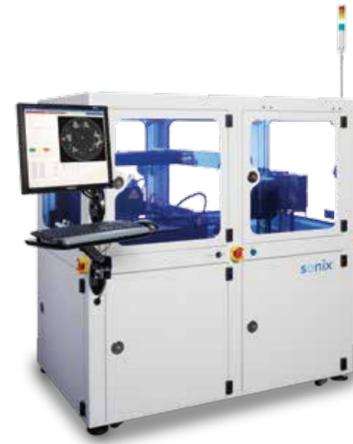


### AutoWafer™

- Ideal for detecting wafer-to-wafer bonding defects
- A fully automated, production-ready scanning solution for MEMS, CMOS, BSI sensors, memory, TSV, LED and other applications employing wafers 200mm and smaller
- Provides wafer map with die-level pass/fail indicators (optional)
- Provides analysis (optional)
- 200mm SECS/GEM
- TSV entrenched metrology



### AutoWafer Pro™

All features listed for the AutoWafer plus:

- Fast, high-resolution scanning of 200mm and 300mm wafers for production environments
- Fully automated robotics using open cassettes, SMIF Pod, FOUPs or FOSB handling
- Class 1 clean room compliant, with integrated HEPA filter
- 300mm SECS/GEMS (optional)
- KLARF compatible (optional)

## Back-End Imaging

Our ECHO™ scanning acoustic microscopes set the standard for uptime, speed and quality to help you keep pace with new materials, difficult form factors and exponential progress in semiconductor package design.



### ECHO™

- A robust, universal, inspection tool for overmolded single-die packages, bare flip chips and other standard applications
- Imaging of defects as small as 10 microns
- Transducers from 15MHz through 200MHz, designed and matched in-house to address all types of applications and materials
- Stacked Die Imaging (SDI) (optional)
- Molded Flip Chip Imaging (MFCI) (optional)



### ECHO VS™

- Image Enhancement Suite with heated water, waveform simulation and other innovations for industry-leading image quality in advanced packaging applications
- Image optimization for improved image quality in complex molded flip chips (MUF) and packages with polyimide layers
- Waveform averaging for improved signal-to-noise ratio
- Transducers from 15MHz through 300MHz, designed and matched in-house to address all types of applications and materials
- Stacked Die Imaging (SDI) (optional)
- Molded Flip Chip Imaging (MFCI)



### ECHO Pro™

- Next-generation solution with fully automated JEDEC tray handling for high-volume, low-mix production environments
- Industry-standard SMEMA input and output handlers
- Patent pending pick-and-place process designed for optimum part handling, decreased drying time and dramatically higher throughput
- Stacked Die Imaging (SDI)
- Molded Flip Chip Imaging (MFCI)

Insight.

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# Advantage.

**We can find an advantage.** Circuits keep getting smaller. So does the size at which air, debris and other defects can cause electrical error or failure. And so do production cycles.

To keep defects from reaching the customer, you need the visibility, speed and throughput to inspect 100 percent of production with confidence.

Look to Sonix for:

- **Industry-leading technology.** We offer scanners optimized for both front-end and back-end inspection, with transducers designed in-house and matched to give you seamless imaging of the smallest, most subtle defects.

- **Proactive research and development.** From new materials to increased production demands, we continuously advance our technologies to keep you ahead of a rapidly evolving industry.

- **Collaborative partnership.** Sonix is committed to understanding our customers as thoroughly as our own technology. We work with you to integrate processes, solve problems and increase your speed and accuracy.

- **Market advantage.** With affordable pricing, short lead times, tailored delivery and responsive support, we help accelerate your time to market and maximize your margins.™

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# We Listen, Collaborate and Act for Your Success.

You depend on the clarity and speed of your scanning system. Sonix solutions have always been your best choice. But you also want a solution provider who responds to your needs with clarity and speed. That's why we're completely committed to service and support.

### Systems optimized for your technical and business needs

The best system is one that works perfectly from day one. Sonix works with you to choose the right transducers, configure the right software, create the right scanning recipes and more. So your inspection system becomes a key driver of product quality and yield.

### Training and software to help you reach full productivity

We train your staff to get the best possible results, faster. And because our software presents scanning parameters in an intuitive graphical format, a brief training period builds enduring competence and confidence within your organization – from recipe creation to daily operation and maintenance.

### Consultation to advance your capabilities

The semiconductor industry requires constant innovation. We give you a head start through consultation and optimization to help you find virtually any defect. Because we know your requirements will change tomorrow, we're always ready with the expertise, parts and enhancements you need to stay precise and productive for years to come.

### Service levels and support throughout your solution lifecycle

From preventive maintenance to case management and resolution, from a global support network to hands-on local assistance and application support, Sonix is committed to responding to your needs quickly and effectively. We share knowledge and support resources worldwide, tailor service levels to your needs, and provide a centralized system for managing all support requests.
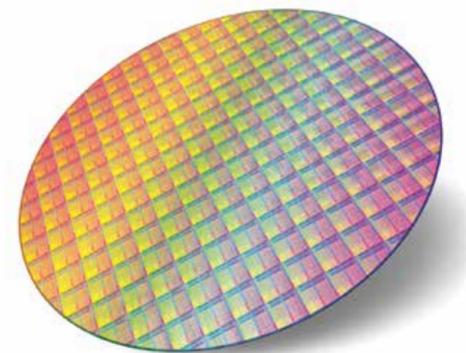
## We Put Your Needs First.

In an industry fueled by continuous innovation, your development and manufacturing processes can't wait. Keep us apprised of your needs for uptime and throughput today, and your plans for progress tomorrow. We'll be there to help you get where you're going.

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## About Sonix

Since 1986, Sonix has pioneered many of the breakthroughs in image quality, defect detection and process productivity that have helped wafer and chip manufacturers literally transform the world. Where others have failed, we have consistently found the right answers to the most difficult problems.

We make substantial R&D investments, discover what the future will require and take a quantum approach to getting there. We employ the brightest minds, training them to solve problems through a holistic view. We collaborate with our customers to address today's needs and tomorrow's innovations as a team.

Sonix is backed by the strength and stability of Danaher, a $16 billion science and technology leader with a portfolio of premier brands serving professional, medical, industrial, and commercial customers in more than 125 countries. We're proud of our contributions to Danaher's success, just as we're proud of helping you achieve your own success.

**1986**
Incorporation

**1987**
First digital non-destructive imaging system

**1989**
First Asia office

**1990**
First IC inspection system

**1996**
First automated JEDEC tray system

**1998**
Introduction of TAMI™ imaging software

**1999**
First wafer inspection system
Introduction of:
3D rendering
Simulated scanning
Frequency domain imaging

**2000**
Patented Pulse Echo™ Thru Transmission (PETT™)
Introduction of Auto Analysis

**2002**
First automated wafer inspection system

**2004**
ISO 2001 certification

**2006**
Introduction of Wave Form Simulator/Beam Emulator

**2008**
Introduction of 200mm SECS/GEM

**2009**
ECHO™ platform and S-series transducers (35–75 MHz)

**2010**
AutoWafer Pro™, ECHO Pro™ and S-series transducers (110 MHz–UHF)

**2011**
AutoWafer™ software, including MFCI (molded flip chip imaging), SDI (stacked die imaging), Flexible TAMI™ and waveform averaging

**2012**
Introduction of 300mm SECS/GEM

**sonix**™