



ECHO Specifications

Ease of Use Features

- **PLC & Joystick feature:** Included with system and allows for one-step scanning set-up at the tool level. (Patent Pending)
- **Easy Transducer Changeover:** New transducer simplifies changing of transducers. Just slide the transducer into the transducer fixture and move the locking knob into place. The transducer height will be the same every time and it only takes seconds to change.
- **High Contrast Tank Bottom:** White tank bottom improves visibility inside tank and helps to easily see parts under test.
- **Transducer based Z-axis:** Focusing is achieved by a motorized z-axis that raises and lowers the transducer. This allows for easy focusing of part and raising transducer out of water when system is not in use.
- **Emergency on/off safety interlock switch**
- **Easy visibility:** 360 degree view of scan area
- **Easy level tray fixture:** JEDEC sized scan platform
- **Easy Maintenance & Access:** All electrical components mounted on slides for easy access

Scan Axis (X Axis):

Positioning Device:	Linear Servo Motor
Servo Max Velocity:	1000 mm\sec
Servo Repeatability:	+/- 0.5 micron
Linear Encoder Resolution:	0.5 micron
Active Scan Area:	350 mm

Step Axis:

Positioning Device:	Low –EMI micro step motor with Zero-backlash lead screw
Step Axis Resolution:	0.25 micron
Max Scan Area:	350 mm

Focus Axis:

Positioning Device	Low –EMI micro step motor with Zero-backlash lead screw
Step Axis Resolution	0.25 micron
Max Travel	50 mm

**Computer/Monitor:**

- Minimum Computer specifications
 - 300Ghz processor
 - High performance graphics card
 - 16GB High performance memory
 - 120GB storage
- Single 19" High resolution monitor

Processing Performance:

- Standard High speed 1 GHz full wave form Analog to Digital converter up sampling to 4 GHz
 - 1.5 Ghz full waveform A/D converter upgrade available
- Minimum resolution of 1 micron per data point

Fixtures:

- JEDEC Tray Fixture
- Scan platform to hold individual packages in tray fixture
- Through-Transmission transducer fixture

Workstation/Table:

- State of the art, ergonomic workstation is provided with system.

Unit Dimensions:

- 31" inches x 31" inches x 47.80" inches
- 78.74cm x 78.74cm x 121.4cm

Unit Weight:

- 450 LBS or
- 204 KG

Fluid Systems:

- Acrylic immersion tank

Ultrasonic Instruments:

- DPR 500 Receiver with L2/H4 Pulser
- Optional U4 with expanded bandwidth receiver

Enclosure:

- Includes base cabinet for computer and instrumentation with casters and leveling feet.
- Emergency off and safety interlock



- Lower load /unload area

Standard Software:

WinIC Lab 4.X - Standard Sonix operating software. Designed to capture the level of details that customers need to see when detecting defects and perfecting products and reducing yield. (See separate WinIC brochure for more data).

Or

WinIC Production 4.X – This software provides a simplified user interface, increased data analysis and has the production floor user and manager in mind. Works hand in hand with the machine to achieve ultra high throughput and go/no-go defect analysis results. (See separate WinIC Production brochure for more data – under development).

Available Options

Software Options:

- **TAMI™ Scan– Tomographic Acoustic Micro-Imaging**

Acquires up to 100 C-Scan images simultaneously in one scan, allows for Multi Focus Images and all interfaces within an IC without needing to rescan the device saving time. Imaging of all interfaces allows for images rather than waveforms to be interpreted by the operator

- **WinIC Pro Operating Software**

Tray Scan – efficient scanning of JEDEC trays and strip. Multiple devices can be imaged without user interaction. Skip and Scan – positions and parameter settings can be established for a variety of components mounted on a board. With one push of the button, this software allows for all components to be imaged without user interaction. Jump Scan – independent single package scanning. Components can be scanned at one at a time without user interaction.

- **WinIC Offline Analysis**

Allows for offline analysis on a remote desktop or PC. Share images and results away from the SAM tool from a different computer in the lab, in the office or even at different locations worldwide.

- **ICEBERG – Digital Volumetric Interactive C-Scan Evaluation**

Integrated Iceberg analysis package that enhances the Sonix WinIC acoustic imaging systems. It permits the user to create unlimited C-Scan images by repositioning the data gate in the software without physically rescanning the device. However, ICEBERG also contains many additional analysis features. The full three-dimensional Curtain B-Scan and TAMI data can be viewed in a true three-dimensional display. The peak amplitude and time-of-flight images can be viewed as standard two-dimensional images or can be displayed in a pseudo three-dimensional format. High Pass, Low Pass, Band Pass, and Band Stop filters can be applied to the full 3D Curtain B-Scan data set to enhance or remove frequency dependent features in the data. Peak and Magnitude F-Scans can be obtained from the Curtain B-Scan data. Finally, P-Scans can be obtained from the Curtain B-scan data. The flexibility of obtaining unlimited C-Scans from the original and filtered Curtain B-Scan data sets without rescanning the part allows the user to quickly and efficiently obtain all of the peak amplitude and time-of-flight data available. The capability of using the frequency information in the data to filter desired signals and to obtain frequency based C-Scans allows the user to bring out information that might otherwise be hidden. The capability of using the phase information (not just the phase inversion information) in the data also allows the user to bring out information that might otherwise be hidden. Finally, the ability to view the Curtain B-Scans and



TAMI images three-dimensionally gives the user the means to view the data in terms of the physical nature of the part, not just as a cross-section. ICEBERG with its user friendly, fully integrated format is truly an invaluable tool for getting the most information out of a single data set.

- **Waveform Simulator and Beam Emulator**

Beam Emulator: The Beam Emulator allows a user to see the propagation path of an ultrasound beam through the lens, couplant, and up to two sample materials. It allows the user to determine if a certain transducer can penetrate to an interface of interest and what the water path should be to focus on that interface. Any transducer that Sonix offers may be selected in the software, so the user can determine if a better transducer for the application can be purchased.

Waveform Simulator: The Waveform Simulator allows the user to simulate actual A-scans from a sample in order to interpret the correct gate positioning for specific interfaces. This is especially useful for stacked die and/or thin layer samples where the frequency used to penetrate to the interfaces of interest is not able to provide the desired separation of interface reflections in the A-scan. Internal multiples may also be added and removed from the simulation to understand how they impact the signal from the sample and whether they overlap any reflections from interfaces of interest. The graphical display of the Waveform Simulator allows the user to quickly adjust the material parameters of the layers within a package to accurately simulate the real A-scan even if not all of the parameters are initially known.

Hardware Options:

- **Simultaneous Pulse Echo – Through Transmission (PETT) Kit**

This allows for the simultaneous acquisition for the PE and TT images in a single scan. The kit includes an additional pulser/receiver channel, software modifications, mixer box, and required cables. This option requires the through transmission transducer.

- **Dual 19” High Resolution Monitor Package**
- **RP-U4 for UHF transducers: required for UHF transducers**
- **2nd JEDEC tray**

Transducer Options:

Sonix offers a complete line of transducers ranging in frequency from 10MHz to 300Mhz. Our transducer designs offer solutions for various applications and materials. Depending on the need, Sonix can quote the appropriate transducers for your application(s).