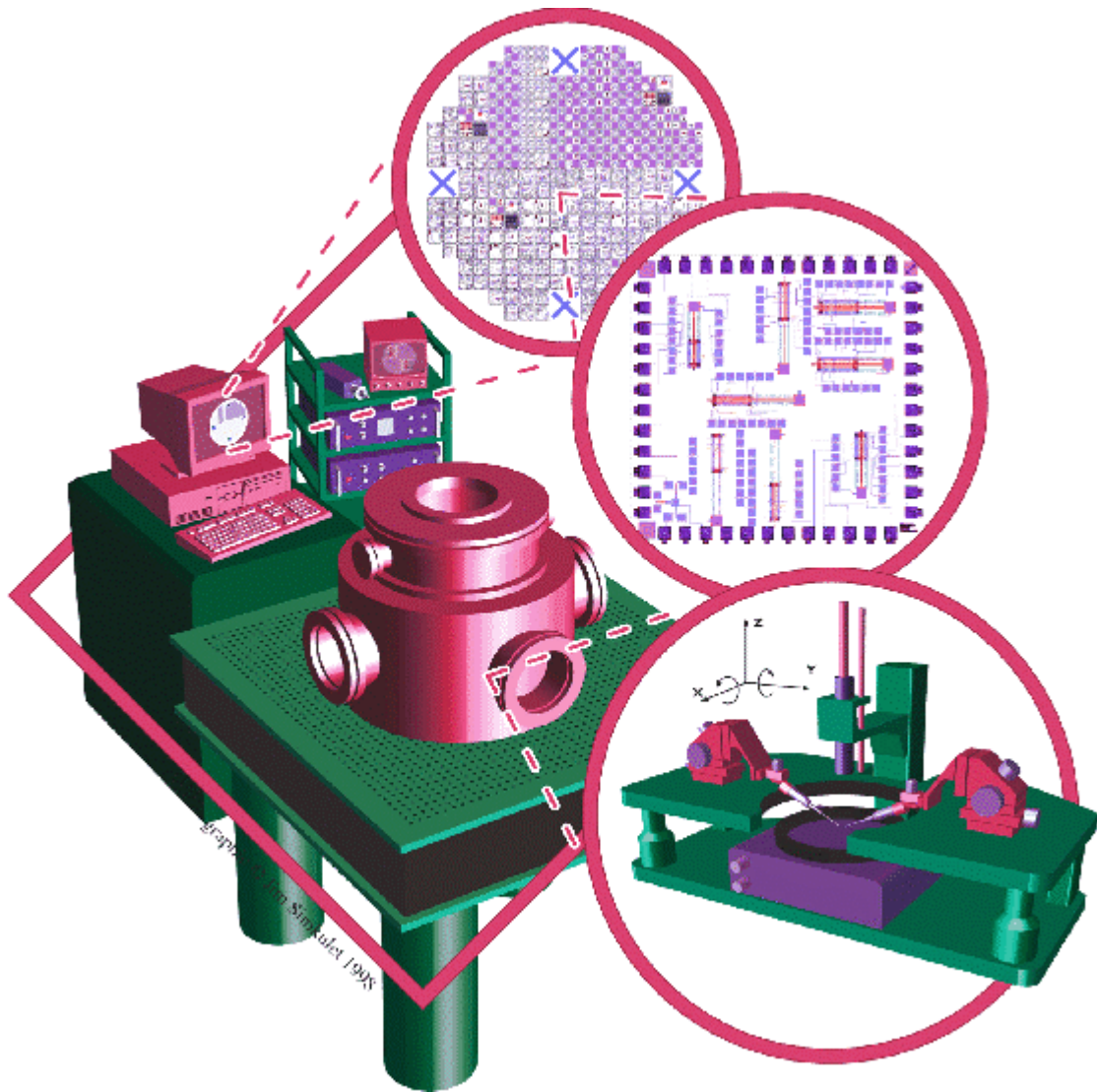


MEMSPEC™-2000



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The MEMSPEC™ System

MEMSPEC™-2000 is a combined wafer probing and micromachine device characterization system. The system integrates elements found in conventional wafer probing stations with features found in non-contact metrology tools. Non-contact probing techniques, such as laser-based metrology and microscopic video imaging, are seamlessly integrated with automated wafer positioning and probing. Extensive software capabilities and support of the IEEE 488 standard interface allow simplified connection to standard laboratory equipment.

MEMSPEC™-2000 has been engineered to easily accommodate the testing and characterization requirements of microsystems developers engaged in wide ranging areas of application. The system can characterize devices made by diverse fabrication technologies including surface and bulk micromachining, LIGA and polymer-based microforming. The system can test devices that operate in various domains such as electromechanical, electrostatic, fluidic, optical, etc.

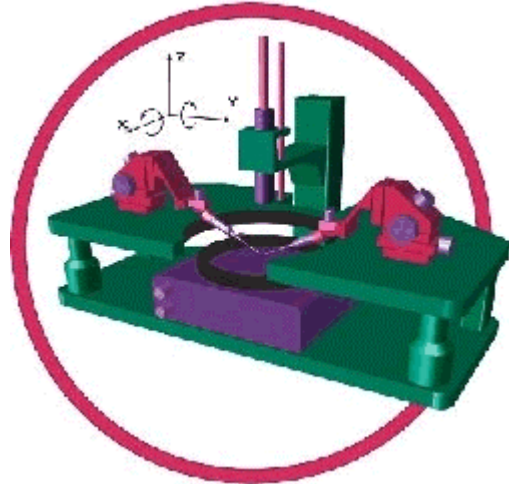
MEMSPEC™-2000 can test devices for functional characteristics and facilitate the extraction of material properties parameters.

MEMSPEC™-2000 simplifies and systematizes probing a vast range of microsystems including inertial sensors, pressure sensors, optical devices, fluidic devices, biochips, microassembled systems and many others.

MEMSPEC™-2000 can be easily customized and upgraded to incorporate the latest developments that affect the characterization of device operation and material parameters.

MEMSPEC™-2000 helps the research engineer to maximize productivity with powerful built-in features and a wide range of custom options.

Research & Development Tool



MEMSPEC™-2000 Laser Probe Station

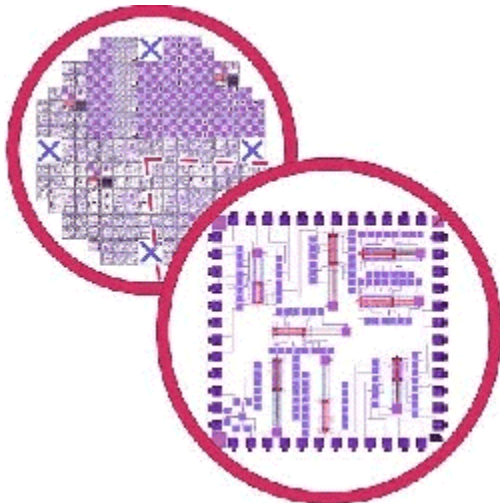
The MEMSPEC™-2000 system has been engineered to easily accommodate the needs of researchers working in the rapidly changing field of microsystems technology. Standard interfaces and a highly modular design make possible rapid adaptation to a wide range of micromachine device characterization requirements. The basic system combines standard manual probes for electrical testing with precise positioning of the laser head or video camera. The control software enables simplified data acquisition and recording. Data analysis can be performed using standard data analysis packages.

Researchers concerned with reliability issues such as stiction, breakdown, wear and damping can take advantage of optional features such as enhanced video analysis, thermal imaging, image intensified microscopy and vacuum testing. Researchers interested in fluidic devices can monitor fluid flow patterns using fluorescent dyes, with or without image intensification. Researchers interested in high-speed video can take advantage of various hardware and software options to speed and enhance image processing and analysis.

Researchers requiring other more specialized techniques can work with our engineers and scientists to customize the system for their specific application needs

Product Development Tool

MEMSPEC™-2000 is an especially valuable tool for product development engineers engaged in process and device optimization, and in reliability and quality assurance testing. Advanced versions of the system allow for automated electrical and optical probing at the wafer level. Automation is achieved by precise position control of the wafer and the probe card assembly, and by interface to standard mask layout software. A result of this is that automated testing of a large variety of micromachine devices is now possible.



Mask Layout Interface Capability

A powerful feature of the system is that it can be directly interfaced to mask layout software. This provides ample flexibility for defining position reference cells. It also makes it possible to test different devices that share a common wafer, as is often the case in prototype development runs.

Users

- Microsystems R&D Community
- Microsystems Engineering Community
- Semiconductor Industry General
- Biochip Companies

Applications

- Functional Testing
- Parameters Extraction (Electrical and Mechanical Motion Analysis)
- Stiction Studies
- Reliability Studies
- Fluidics Analysis
- Biochip Processes Analysis
- Optical Device Performance Measurements

Basic Features

- Wafer and Die Level Testing
- Non-contact Laser Measurements
- Local Depth Profiling
- Out-of-plane Motion Analysis
- In-plane motion Analysis
- Conventional Manual Probing
- Basic Data Analysis Library
- Windows based Graphical User Interface
- Mask Layout Software Interface
- IEEE 488 interface support

Optional Features

- Automated Probe Card Positioning
- Stroboscopic Video Imaging Capture
- Video Motion Analysis
- Fast Photography capability
- Video grid generator
- Laser-based fluorescence imaging
- Vacuum Environment Operation
- Wafer Temperature Control
- Thermal Imaging Attachments
- Fluid Flow Analysis Modules
- Various Software Modules