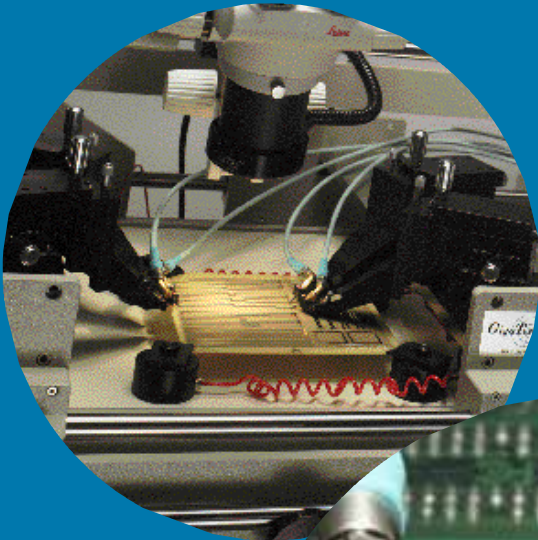


GTL Probe Stations

FROM GIGATEST LABS



PRECISION LARGE-AREA PROBING SYSTEMS



The GTL Probing Systems offer versatility and precision for positioning probe tips to large, fine-pitch structures, including circuit boards, cable assemblies, and semiconductor packages.

The Probing System is manually operated, yet precise and intuitive.

A wide range of probe tips, three-axis positioners, board and wafer chucks, and optics packages are available to customize the solution to your application.



GigaTest Labs

Serving the Electronics Industry with Engineering Excellence



Agilent Technologies

Innovating the HP Way

Channel Partner

Why Probe?

BENEFITS OF MICROPROBING:

- Fast, Accurate Measurements
- Low parasitic Capacitance and Inductance
- Reference Plane AT the Probe Tips
- No Connectors needed
- Minimal Fixturing
- 50 GHz bandwidth

APPLICATIONS:

- Signal Integrity Measurements
- Printed Circuit Boards
- Flip-Chip BGA Packages
- High Speed Connectors
- Sockets and Contactors
- High Speed Serial Busses
- Motherboards and Backplanes
- RF/ Wireless Devices
- Test Wafers
- Failure Analysis

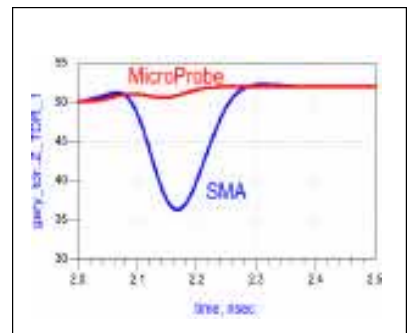
It's Accurate, Simple and Cost-effective

At GigaTest Labs, we're familiar with the measurement challenges faced by signal integrity engineers. We deal with these challenges every day in our lab, and that's why we developed our probe stations for measuring high bandwidth interconnects. The GTL Probing System enables fast, accurate measurements on devices which would otherwise be impossible to measure, bypassing the need for costly test fixtures. They also provide greater accuracy and improved repeatability in measurements, when compared to other DUT interfaces like coaxial connectors and hand-held probes.



Calibration with impedance standard substrate

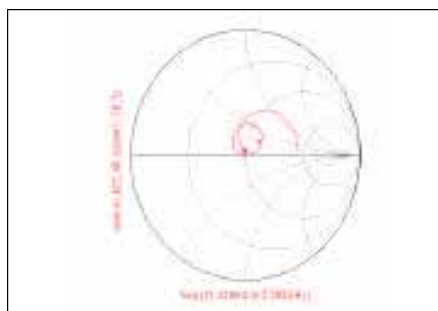
With a sturdy, rigid design coupled with a precise, positioning mechanism, GTL Probe stations allow sensitive electronic probes to be placed in contact with fine-pitch structures, with confidence. The critical tasks of verification, characterization, validation and failure analysis are greatly simplified. When coupled with high bandwidth microprobes, and vector network analyzer (VNA), the probe station enables highly accurate, calibrated measurements up to 50 GHz.



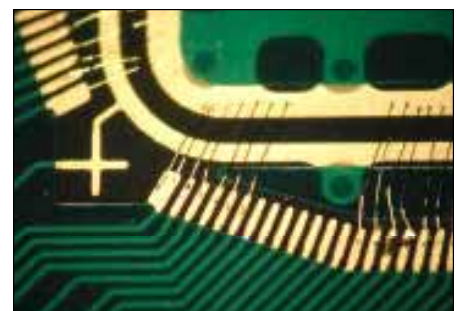
TDR profile: transition to microstrip

Applications: Wafers to Backplanes

The GTL Probe Stations were designed with the precision and flexibility needed to handle the many applications encountered in a high-speed hardware lab. From wafers, to packages, to full systems with large backplanes, the GTL stations are limited only by an engineer's imagination.



Differential VNA Measurements



BGA Wirebonds

GTL 4000 SERIES

GTL 4060 Large Area Probe Station

The GTL 4060 was designed for probing fine-pitch structures on large PCBs like motherboards and backplanes. It can accommodate very large boards and assemblies, including systems with linecards, yet has the same precision, and mechanical resolution for high bandwidth interconnects.

- 18" x 24" Probing Stage
- Rigid Microscope Bridge or Arm
- Up to 8 GTL Micropositioners



GTL 4040 PCB Probe Station

Ergonomically designed with prober controls easily accessible by the user, the GTL 4040 has the flexibility to handle a variety of tasks, and many options that allow the system to be tailored for specific applications.

- 18" x 18" Stage
- Many DUT Mounting and Microscope Options
- Up to 8 GTL Micropositioners



GTL 3030 Component Probe Station

The GTL 3030 is a more compact version of the 4000 series probe stations, designed for crowded labs, where bench space is at a premium. It is ideal for measuring small components like packages, sockets and connectors, as well as small populated boards that require z-axis clearance.

- 12" x 12" Stage
- Integrated Rigid Microscope Bridge for Stable, Flexible Optical Package Positioning



GTL 5000 SERIES

GTL 5000 Vertical Probe Station

The GTL "Top-Bottom" probe station allows probing from the top and bottom of a structure, to allow "thru" measurements on a sample. It provides a systematic probing technique for vias, flip-chip packages, sockets and interconnects that traverse a board's stackup.

- 24" x 36" Maximum DUT Size
- Many Chuck and Microscope Options
- Up to 8 GTL Micropositioners



Fast, Accurate Probing System for Virtually Any Geometry

Flexible Probing of Large-Area Planar and 3-D Structures

Wafer probers have long been used for contacting probes to semiconductor devices. At the package and board level, engineers have relied on “home brew” test setups and handheld probes. With today’s rapid advancement in package and fine-pitch board technologies, this precision system for mounting and testing large-area, 3-D assemblies is indispensable for accurate characterization and test.

Test Set-up of any Geometry in Minutes!

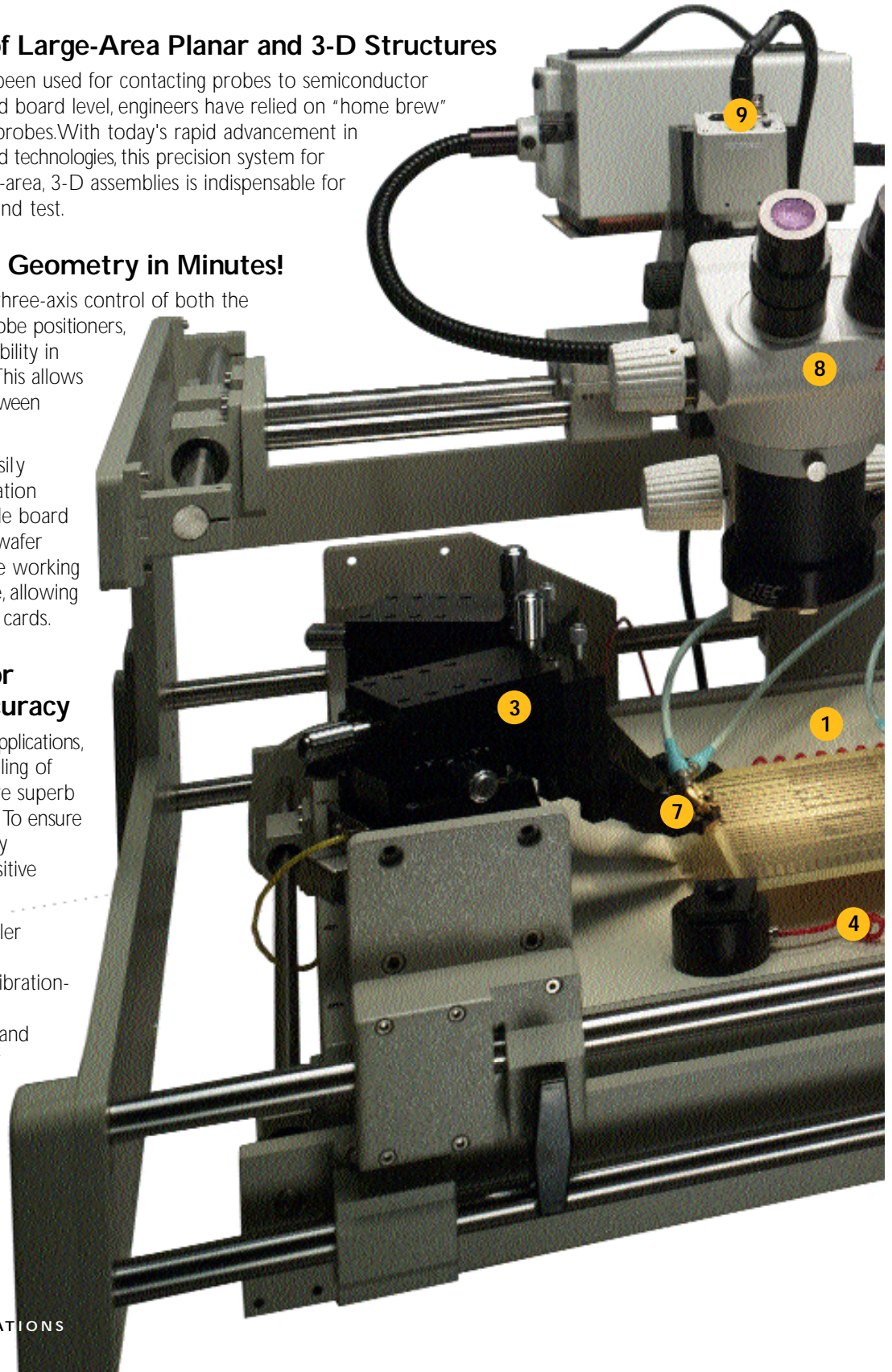
The GTL 4000 offers full, three-axis control of both the working surface and the probe positioners, providing the greatest flexibility in contacting 3-D structures. This allows fast, precise movement between test sites.

Devices are quickly and easily mounted on the Probe Station through vacuum clamp-style board chucks or with traditional wafer chucks. The large, flat stage working surface is extremely versatile, allowing power-on testing of circuit cards.

Precise Control for Measurement Accuracy

Demanding measurement applications, including high-speed modeling of fine-pitch structures, require superb measurement repeatability. To ensure this, the GTL 4000 is sturdily constructed and offers positive locks on all critical axes.

Positioners feature cross-roller bearings for precise and smooth motion. Optional vibration-isolation supports reduce the effects of steady-state and transient vibrations in your test area.

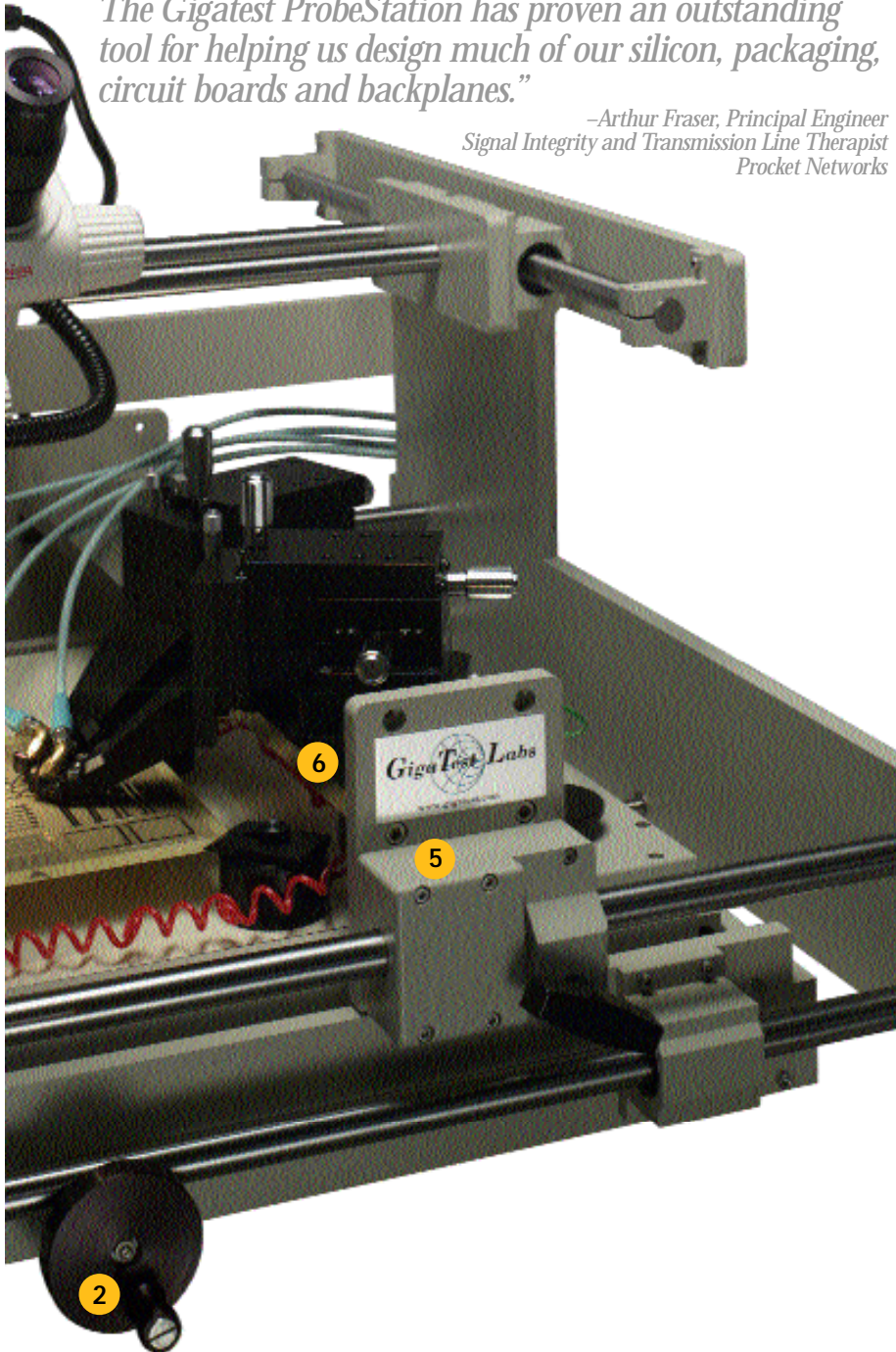


eometry

GTL 4000 Series

“Procket Networks has implemented an advanced design methodology for our multi-gigabit signaling technology, which requires highly accurate measurements. The Gigatest ProbeStation has proven an outstanding tool for helping us design much of our silicon, packaging, circuit boards and backplanes.”

*—Arthur Fraser, Principal Engineer
Signal Integrity and Transmission Line Therapist
Procket Networks*



GigaTest Probe Stations are used by the industry's leading electronics companies for high bandwidth electrical measurements on semiconductor devices, packages connectors and PCBs.

With a world-renowned Engineering team, GigaTest can support these measurement systems with our popular training courses and innovative tools and techniques.

Features

The GTL 4000 Series combines fine positioner resolution with extensive platen and stage travel to satisfy today's broad range of large-area probing applications.

1. Up to 18 in. x 24 in. working surface. Accommodates multiple positioners for n-port, differential measurements.
2. X-Y-Z DUTstage control: 4.0 in. x 3.0 in. x 2.0 in. Stage Positioning Resolution: 5 μ m
3. X-Y-Z Positioner motion 1.0 inches Theta (planarity) range: +/- 10 degrees Positioning resolution: 2 μ m
4. Vacuum system includes pump and manifold (not shown) for board clamps, chucks, and positioners
5. Sliding platens are easily separated from 8 to 30 in. Platens lock for rigidity
6. Positioner height is adjustable with up to 7" of clearance from probe tip to chuck
7. Accepts any industry-standard micro probe
8. Rigid support Bridge for stable mounting and positioning of stereo optics
9. Optional Video system is available

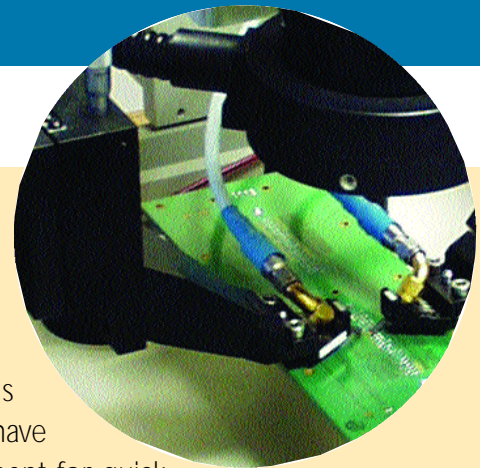
www.gigatest.com

ACCESSORIES

- 1. Active Probe Holder** – Universal probe holder mounts directly on the micropositioner, for oscilloscope measurements.
- 2. North/South Probing** – Platens or optional positioner nose-pieces can be used to probe from the “back” or “front” of the probing system.
- 3. Substrate Holder** – The substrate holder has vacuum controlled mounting for small DUTs like thin-film calibration standards
- 4. PCB Holder** – Vacuum mounted standoff clamps hold small and large PCBs. They can be stacked for Z-axis clearance.
- 5. Wafer Chuck** – 6” or 8” wafer chuck is vacuum mounted, and securely holds a test wafer for device measurements
- 6. Video System** – The GTL probe station can be configured with a high resolution video system, including camera and LCD monitor
- 7. Microscopes** – Stereo zoom microscope with a rigid bridge positioning mechanism, or articulated free-motion support arm for mounting the microscope. High power optics for FA and other die level probing can be configured into the system.
- 8. Vertical Probing** – Small samples can be mounted and probed in the vertical position, to allow measurements on vias and other “thru” structures
- 9. Tables** – We can provide a variety of lab benches and tables, including vibration isolation systems.

GTL Micropositioner

At the heart of the GTL Probing Systems is the micropositioner. These low-profile three-axis positioners are vacuum mounted and have an integral planarity adjustment for quick, accurate probing on a DUT. They are sturdy, reliable and precise, to ensure accuracy and long probe life. A steep probing angle for maximum clearance and a wide range of options allow the positioner to be used for many different applications.



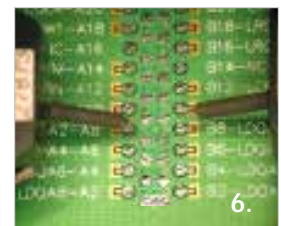
SPECIFICATIONS

Motion: X: 1.0 in. (2.5 cm) Y: 1.0 in. (2.5 cm) Z: 1.0 in. (2.5 cm)

Resolution: 40 TPI Micrometers

Planarity Adjustment: +/- 10deg

Bearings: Cross-roller



GTL 4000 Series

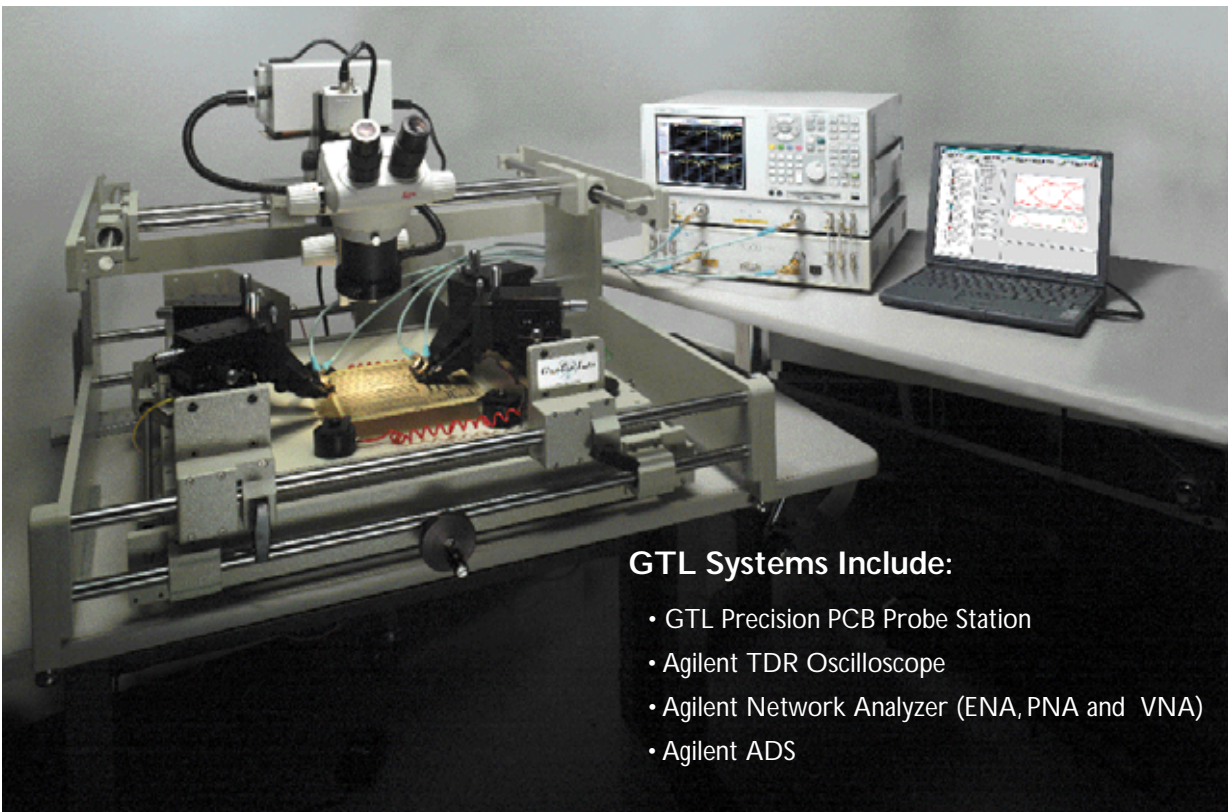
Complete "Turn-key" Measurement Systems

As an Agilent Technologies Value-added Reseller (VAR), GigaTest provides turn-key systems for probing, measuring and characterizing high frequency interconnects. We have used, and contributed to the development of Agilent measurement and simulation tools for many years, gaining expertise on network analysis, calibration, differential measurements, model extraction as well as fixturing and probing. We can apply this expertise to your

measurement requirements, by helping you choose the right measurement and simulation tools. Our well-known, and highly acclaimed training program can help your engineers "ramp-up" more quickly to full utilization of these tools.

BENEFITS of GTL Systems:

- Expert configuration of lab equipment and software
- Integration, installation and support from GigaTest
- MUCH shorter learning curve



GTL Systems Include:

- GTL Precision PCB Probe Station
- Agilent TDR Oscilloscope
- Agilent Network Analyzer (ENA, PNA and VNA)
- Agilent ADS



GTL Probe Stations

Configuration

GigaTest Labs Probing Systems are "turn-key" and include all of the options and accessories needed to perform high bandwidth measurements. Our applications expertise acquired through our consulting activity, has contributed to the flexibility and ergonomics of the GTL4000 Series. This unique perspective encourages a growing range of accessories to further simplify the task of interfacing to your DUT. Application-specific configurations can be specified.

GTL 4000 Series

The GTL 4000 probe stations include :

- GTL Probing Stage
- Rigid Microscope Bridge Mount
- Stereo Microscope with Halogen Illuminator
- 2 - GTL Micropositioners
- PCB Mounting Kit
- Vacuum System
- Video System including camera
- 4 Microprobes
- 2 Coax Cables
- Assembly tools and hardware kit

GTL 5000 Series

The GTL 5000 probe stations include:

- GTL Rotating Probing Stage
- Free Motion Microscope Arm Mount
- Stereo Zoom Microscope with Halogen Illuminator
- 2 - GTL Micropositioners (clamp mount)
- Positioner Shelf

Custom Probe Stations

Prototype designs exist for custom applications including failure analysis and autoprobing. Please contact GigaTest for details, or to discuss your application.



Ordering Information: GTL 4000

GTL3030 - 12" x 12" System
GTL4040 - 18" x 18" System
GTL4060 - 18" x 24" System

OPTIONAL CONFIGURATIONS:

Option DF - Differential Probing

Upgrade includes:

- 2 positioners
- 2 cables

Option VT - Vertical Probing

Upgrade includes:

- 2 north - south platens
- 2 north - south positioner nose pieces
- Vise clamp for sample mount
- Free-motion arm mount for microscope
- 2-90 Degree positioner adapters



Option NV - Remove video

- Deletes microscope interface, camera and monitor

RECOMMENDED ACCESSORIES:

GTL101-121: Vacuum Substrate Holder
GTL 101-116: Active Oscilloscope Probe Holders
50 Ohm impedance standard substrate

For GTL 5000, please contact GigaTest for ordering information and recommended configuration.

Please consult with GigaTest for complete and current information on GTL Probing and Measurement Systems and compatible accessories, or to find a local GigaTest sales representative in your area. GigaTest Labs warrants its products against workmanship flaws for a period of one year.

www.gigatest.com



134 S. Wolfe Road, Sunnyvale, CA 94086
Phone: 408-524-2700 Fax: 408-524-2777
www.gigatest.com