# P9002A
# Parallel Parametric Test System

## Most Flexible Parallel Parametric Tester

The P9002A is an addition to the proven Keysight P9000 Series Parallel Parametric Test System, the "true" per-pin parametric tester, with the most flexible license-based configuration. It provides the best return on parametric test investment for all evolving semiconductor manufacturers by meeting all test demands from Keysight 4080 Series serial parametric test to P9001A per-pin parallel parametric test and everything in between.

# Keysight P9002A: Parametric Test System Total Solution

Keysight P9002A Parallel Parametric Test System offers flexible configurations for your own parametric tester with various measurement functions for up to 100 channels. Each per-pin test resource give all basic measurement functions such as voltage, current, capacitance, and frequency as installed and licensed.

## Hardware, Software, and Professional Services

P9002A parallel parametric test system may be considered as a hardware integrated system with system cabinet and test head, however, there are more essential system elements of software and professional service by Keysight technical experts.
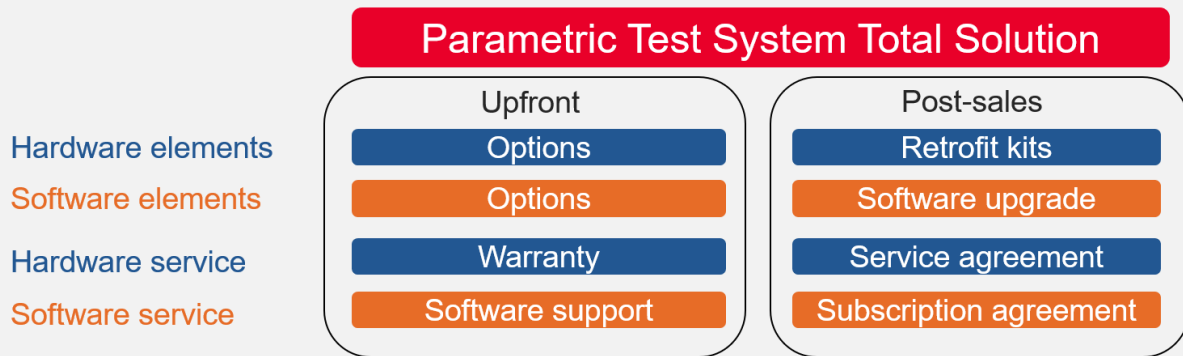


Figure 1. Parametric Test System Total Solution

## P9002A as Single Offer of Total Solution

Keysight also offers solution support and training as professional services to provide a quicker start up, maximize your productivity and minimize downtime of systems. Keysight experts have deep domain knowledge of test equipment, software, standards, and regulations. Service and solutions from Keysight provide truly trusted systems that you can rely on the measurements you make, through the proactively structure an on-site service plan that can include an on-site repair service, a remote response team, a scheduled calibration services, or timely software updates.

- Upfront purchase: configuring available hardware and software options along with some professional Application Engineer (AE) consulting and Customer Engineer (CE) uptime service such as installation, repair, and calibration.
  - Hardware warranty and service agreements are essential for first 12 months and available to extend to 36 months.
  - Software subscription service is offered for first 36 months as required.
- Post-sales: upgrading hardware and software with available retrofit kits and professional AE or CE services. Renewals of service agreement are available with both hardware services and software subscription.

# Hardware Elements

P9002A has the test head with per-pin test resource of up to 100 output channels and system cabinet to use with the probers in semiconductor wafer production line. Most of hardware elements are configurable per your test needs and test structure design to maximize the production capacity and for the highest throughput to archive.

These are the available hardware functions with P9002A Parallel Parametric Test System.

| Selection | Upfront | Post-sales |
|---|---|---|
| Per-pin test resources | **Required:**<br>Source Monitor Unit (PSMU)<br>**Optional:**<br>Capacitance Measurement Unit (PCMU)<br>Frequency Measurement Unit (PFMU)<br>Pulse Generation Unit (PPGU)<br>High Voltage PGU (HVPPGU)<br>Voltage Source Unit (PVSU)<br>High resolution option, Rapid Vth, Universal Kelvin, Extended Path | Retrofittable for adding more channels |
| Shared test resources | **Required:**<br>Source Monitor Unit (SSMU) to choose from Medium Power SMU and High Power SMU<br>**Optional:**<br>Digital multimeter<br>LCR meter<br>High Voltage Semiconductor Pulse Generator Unit (HV-SPGU)<br>Spectrum analyzer | Retrofittable |
| Test head accessories (optional) | Temperature extension, 4080 probe card adapter | Retrofittable |
| System controller (required) | Industrial PC (Linux) | Retrofittable |

## Software Elements

P9002A has the dedicated system controller with Linux operating system (Red Hat Enterprise Linux). This controller has the P9002A system software with fundamental capabilities to operate and control the P9002A test system. The controller can be installed with the optional but essential software effective in managing the semiconductor wafer production and factory automation with P9002A Parallel Parametric Test System.

## Keysight SPECS Parallel Test Extension

Keysight P9002A uses Keysight SPECS (Semiconductor Process Evaluation Core Software) and the SPECS Parallel Test Extension software to perform parallel test with synchronous or asynchronous parallel mode. The P9002A system software and SPECS parallel test extension support powerful and intuitive way of developing parallel test applications. Parallel test sequence and flow control allow you to define parallel test flexibly. Parallel test algorithm interface allows you to define scalable test algorithms.
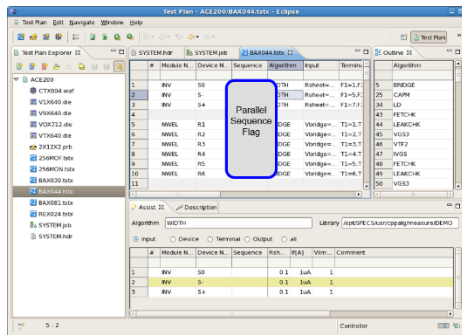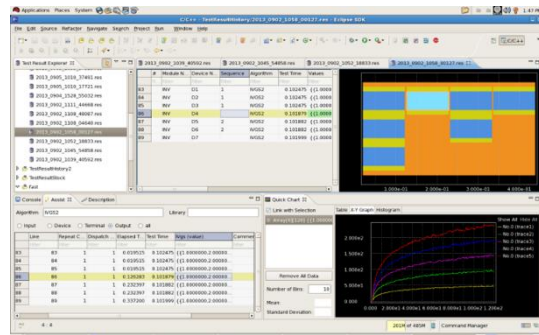


Figure 2. P9002A SPECS Edit Menu Sample



Figure 3. P9002A SPECS Debug Menu Sample

## Keysight SPECS-FA (Factory Automation)

It's the factory automation version of Keysight SPECS test shell.

## Offline Debug Environment of SPECS & SPECS-FA

For test plan development and debug purpose, offline SPECS and SPECS-FA environment (running without live connection to P9002A test system) is available for optional purchase.

## Available Software Options for System

There are available options for P9002A system software, SPECS, SPECS Parallel Test Extension and SPECS-FA as follows:

- Software media on CD-ROM
- English paper manuals

## Software with Subscription Service

P9002A software packages and its software packages offer 36 months subscription service for each new tester at purchase. When software media option is purchased, 36-month software media subscription is available.

1. Software License-To-Use (LTU) subscription service

2. Software media subscription service

To maintain the software with the latest enhancements and defect fixes, Keysight recommends renewing the software update subscription with P9002A system software, SPECS, Parallel Test Extension, and SPECS-FA. You can access to the latest software within the subscription service as well as the remote technical support calls to local Keysight AE experts.

## Advanced Optional Software Functions

P9002A has optional software functions as advanced software functions to enhance the test environment with P9002A Parallel Parametric Test System.

- Interactive Debug Panel (IDP)
- Package for standard parallel parametric test
- Package for array test structure
- Package for multi-die test

# Keysight Professional Services

Keysight offers numbers of services to complete the parametric tester solution including;

**On-site installation services**
This is a standard service for every new parametric test system at purchase. Keysight Customer Engineer (CE) will install the system at on-site. Before installing the system, Keysight CE also performs site verification as pre-installation process.

**Warranty and extended services**
12 months of on-site repair service is offered as a standard warranty. Extended warranty service agreements are also available for sale.

**Calibration services**
12 months of on-site calibration service agreement is offered with the parametric test system. Extended calibration service agreements are also available for sale.

**Productivity assistance**
Customers can choose the term of productivity assistance from a day to required terms Keysight professional Application Engineer (AE) consulting services.

**Application software support**
Keysight AE consulting is also available for specific deliverables such as software customization, software program conversion or software program optimization to assist customers programming for additional test parameters, and/or throughput improvement by optimizing software design.

**Startup assistance**
To correctly set up the parametric test system and check through all purchased functions to operate as soon as possible, Keysight Customer Engineer (CE) can help your smooth production ramp up with the startup assistance.

**Training (on-site, Keysight office, or remote)**
Various trainings are provided by each region or country to meet your local needs. Contact to the training coordinator in your region or country to see what trainings are available and get a quote of the right ones in local price.

**Post-sales professional service**
Keysight offers all above consulting services for post-sales as well. Feel free to contact Keysight representative if you need additional needs for new operator trainings and/or for tester throughput improvements for lowering cost of test.

**Post-sales service agreement and contract renewal**
When the initial service agreements of hardware and software subscription are expiring, Keysight contract sales team will propose you for renewals based on your current system configuration. Request your renewal quote to secure and maintain the parametric test system up and running with the minimized downtime.

## Conclusion

All parametric test users want to improve the throughput and minimize any production downtime for the better cost of test in semiconductor wafer productions. To overcome some typical but difficult process test challenges in your semiconductor wafer production, Keysight offers the total solution on parametric test system not only with hardware and software but with professional AE and CE consulting service for your P9002A Parallel Parametric Test System.

If you need any technical consulting service on throughput improvement and/or advice on service agreements to reduce the unwanted downtime, contact Keysight as we offer the various professional service as agreement and per-incident consultation to maximize your productivity and production capacity.

## Learn more at: www.keysight.com

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

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