

# Wafer-Level Device Characterization

Keysight Technologies  
and FormFactor

## Perform accurate, repeatable wafer-level device characterization with guaranteed configuration, integration and support

The configuration of a device characterization system can be challenging; equipment must be sourced from multiple suppliers and then configured and proven on-site before your first device can be tested. You must integrate all the measurement equipment, wafer probes, and other components, each with its own firmware or software control, and ensure that there is data correlation and measurement accuracy between different locations. It can take weeks or even months before you can execute your first measurements.

Keysight Technologies and FormFactor address these challenges directly by providing a fully integrated device characterization system with guaranteed system configuration, integration and support.

Accurate and repeatable characterization is essential for device modeling, technology development, process development and specification, process monitoring, component specification and pilot manufacturing. Keysight and FormFactor provide all of the building blocks for wafer-level device characterization. FormFactor's wafer-level probe station, probes, and calibration tools combined with Keysight's test instrumentation and measurement and analysis software allow you to perform wafer-level DC parametric, IV & CV curves, and calibrated S-parameter measurements on your devices at frequencies up to 120 GHz.

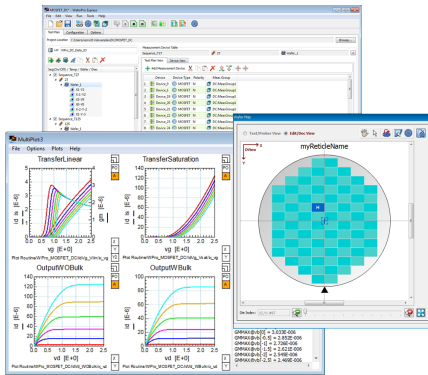
A typical system configuration for device characterization will incorporate an Keysight PNA Series microwave network analyzer, a B1500A Semiconductor Device Parameter Analyzer, Keysight WaferPro Express (WaferPro-XP) measurement software platform and a FormFactor's semi/fully-automated wafer probe station for 200-300 mm wafers, with low-leakage DCP parametric probes, high-frequency Infinity Probes, ISS calibration standards and WinCal XE calibration software.

WaferPro-XP's interface and workflow is optimized for FormFactor semi-automated probe stations. With WaferPro-XP you can setup and execute automated wafer-level characterization measurements rapidly. The addition of Keysight IC-CAP, the industry standard for RF modeling, to the WaferPro-XP software bundle, completes the modeling workflow.

- Accurate, repeatable wafer-level device characterization
- Installation to defined acceptance criteria
- Single point of contact for support
- Solution expert for optimization
- Guaranteed system configuration, integration and support



# Wafer-Level Device Characterization



WaferPro Express is a new SW platform specifically designed to efficiently execute automated wafer-level measurement. It drives Keysight instruments as well as probe control software (including temperature control), simplifies the task of setting up and executing test plans and provides powerful data handling and display capabilities. This software provides a unified measurement platform that eliminates the complexity of software integration, allowing you to set-up and execute wafer level measurements of semiconductor devices.

The WaferPro-XP user interface makes it easy to setup and run complex wafer-level test plans, while powerful customization capabilities are enabled by the new Python programming environment.”

To ensure all of these elements work together to meet your application needs, FormFactor and Keysight will pre-validate the system configuration prior to delivery. FormFactor solutions experts will install, train and validate the system S-parameter and DC parametric performance, and Keysight Technologies solutions experts will verify optional application functionalities.

With a device characterization system from FormFactor and Keysight you have guaranteed configuration, integration and support. You can achieve accurate and repeatable testing, minimize the time to first measurement and ensure correlation between multiple locations.

## System Components

### Keysight Technologies

N5291A	900 Hz to 120 GHz PNA Microwave Network Analyzer
B1500A	Semiconductor Device Parameter Analyzer
WaferPro-XP	Measurement Software Platform
IC-CAP	Modeling Platform

### FormFactor

SUMMIT200	200mm Semi/Fully-Automated Wafer Probe Station
Summit 12000	200mm Manual and Semi-Automated Wafer Probe Station
CM300xi	300mm Semi/Fully-Automated Wafer Probe Station
WinCal XE	Calibration Software
Infinity Probes	Wafer Probes to 500 GHz
ISS	Impedance Standard Substrate Calibration Standards

To learn how this solution can address your specific needs please contact  
Keysight's solutions partner,  
FormFactor  
[www.keysight.com/find/formfactor](http://www.keysight.com/find/formfactor)



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FormFactor is a leading provider of essential test and measurement technologies along the full IC life cycle – from characterization and modeling, to qualification and production test.

[www.formfactor.com](http://www.formfactor.com)

For information on Keysight Technologies' products, applications and services, go to

[www.keysight.com](http://www.keysight.com)

To learn more about WaferPro Express latest release, go to

[www.keysight.com/find/eesof-wafer-pro-express](http://www.keysight.com/find/eesof-wafer-pro-express)

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