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 probers, 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. FormFactor, with MeasureOne partner Keysight Technologies, address these challenges directly by providing a fully integrated wafer-level measurement solution with guaranteed system configuration, installation and support.

Building blocks for wafer-level device characterization

Accurate and repeatable characterization is essential for device modeling, technology development, process development and specification, process monitoring, component specification and pilot manufacturing. FormFactor and Keysight Technologies provide all of the building blocks for wafer-level device characterization. FormFactor’s wafer-level probe station, probes, and calibration tools combined with Keysight Technologies’ 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 110 GHz.

Optimizing the configuration

The wafer-level measurement solution for device characterization incorporates FormFactor’s semi-automated probe system for 200 mm or 300 mm wafer, with low-leakage DCP parametric probes, high-frequency Infinity Probes®, ISS calibration standards and WinCalXE™ calibration software, and a Keysight Technologies PNA or PNA-X Series microwave network analyzer, a B1500A Semiconductor Device Parameter Analyzer, Keysight Technologies’ WaferPro Express (WaferPro-XP) measurement software platform.
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 Technologies’ IC-CAP, the industry standard for RF modeling, to the WaferPro-XP software bundle, completes the modeling workflow.

**Delivering a verified solution**

To ensure all of these elements work together to meet your application needs, FormFactor and Keysight Technologies will pre-validate the system configuration prior to delivery. FormFactor and Keysight Technologies have a team of wafer-level measurement solutions experts who will work with you to optimize the system to meet your continuing device characterization and modeling requirements. FormFactor solutions experts will install and verify the system S-parameter and DC parametric performance, and Keysight Technologies solutions experts will verify optional application functions. Calibration is essential to ensure accurate and repeatable tests, and this can be particularly challenging in a wafer probing environment. FormFactor’s powerful WinCal XE software, when used with the Infinity Probes and Impedance Standard Substrates, enables an automated probe tip calibration with proven accuracy and known repeatability. It minimizes the time to first measurement and ensures correlation between multiple locations.

Installation is only judged complete when all agreed-upon acceptance criteria are fully met. With a wafer-level measurement solution from FormFactor and Keysight Technologies you have guaranteed configuration, installation and support. For ongoing support, you have a single point of contact at FormFactor.

**System Components**

- FormFactor 200 mm or 300 mm semi-automated probe system, WinCal XE calibration software, Infinity Probes, and ISS calibration standards
- Keysight Technologies’ PNA or PNA-X, B1500A, WaferPro-XP, IC-CAP software, and DC Power Analyzer

For information on MeasureOne, call 1-800-550-3279 Toll-Free in USA or 503-601-1122 or go to [www.formfactor.com/test-expertise/measureone/program-overview/](http://www.formfactor.com/test-expertise/measureone/program-overview/)