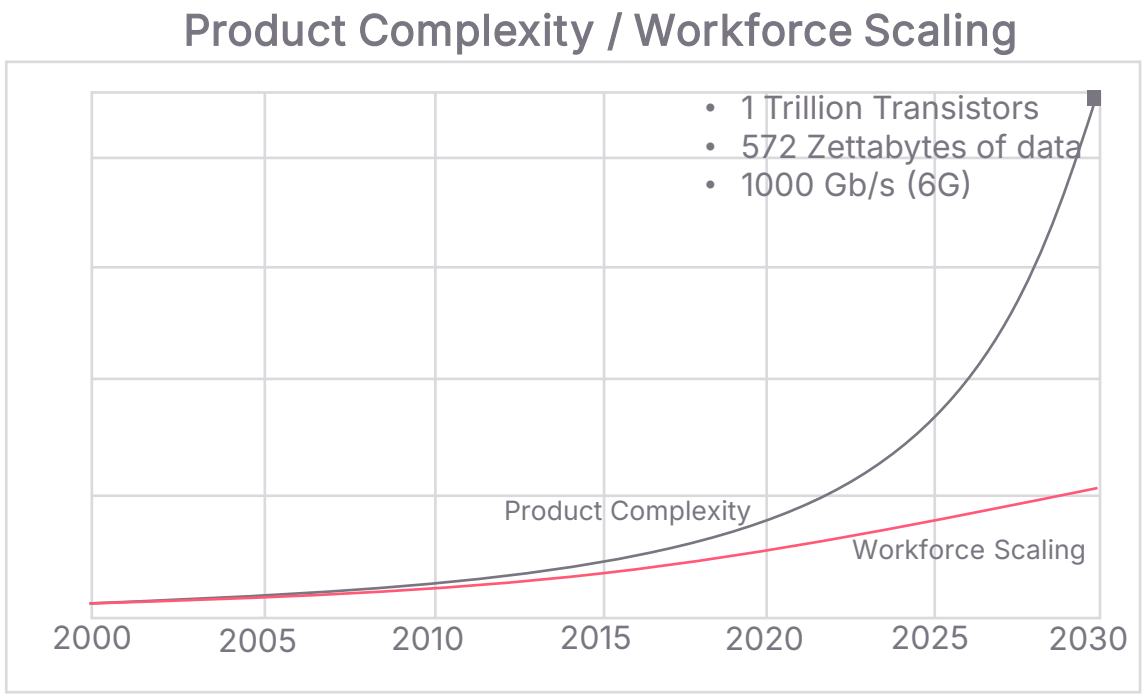
KEYSIGHT

Keysight Requirements Verification Suite

Reduce Design Verification Time & Resources, Take Control of your Product's Destiny





*"To be successful in the modern world, companies need to shift left and **digitally transform**"*

* Source: Dimensional Research

Introduction

As design complexity grows, so does your data and your job — but it doesn't have to delay your product launch. That's the power of Keysight's Requirements Verification Suite: it's the automated way to reduce the time and resources used during design verification across simulation and test. On its own or integrated with your in-house tools, KRVS helps you drive process transformation by weaving together simulation predictions, prototype measurements, analytics, and people.

Product complexity has been progressing rapidly over the last two decades. It is being driven by increased design requirements, miniaturization, standards, and regulations. Product complexity is growing exponentially and there is no end in sight. Over the next five years, the industry experts anticipate a tipping point will occur where traditional processes won't be able to keep up.

Any design team using electronic design automation to accelerate product development must consider how best to use digital twin simulation and hardware verification in their process. Most designers operate these domains in isolation. Keysight has found 2/3 of product development time is spent in design verification. The verification process is plagued with manual workflows and isolated homegrown tools which are not scalable and difficult to maintain. This represents a failure of EDA and test companies to address the problem. But the industry is at a tipping point and mainstream workflow automation solutions are required.

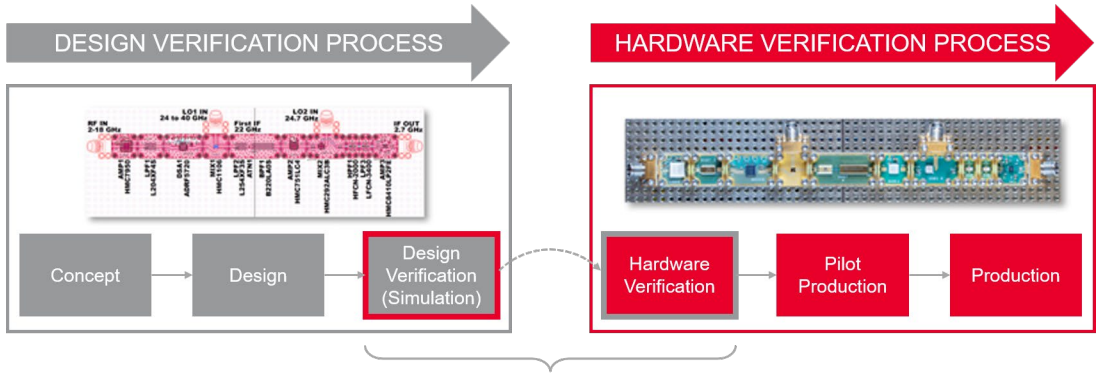
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Challenges

Keysight commissioned Dimensional Research to conduct a global survey with 301 electronic design professionals and leaders from diverse sectors such as semiconductors, aerospace, automotive, and telecommunications.

The results from this survey identified the top challenges facing designers and testers, including:

- Design engineers are entrenched in workflow inefficiency, with an alarming average of 3 hours per day being consumed by manual tasks.
- 70% of companies risk losing their time-to-market advantage due to months' long design and test data correlation cycles.
- Disconnected, manual workflows cost an average 10-person design team over $1.7 million per year.
- Addressing the semiconductor talent shortfall, the same-size team can recover the workload equivalent to 3.5 full-time employees by adopting automation and integrated workflows.
- 74% of organizations use spreadsheets to keep critical design data, which often lack the sophisticated security measures
- 72% still use paper notes or emails to share data



Up to 67% of product development time is spent in verification

Where is your Time Spent?

- Increased design complexity driven by miniaturization, standards and regulations
- Growing requirements driven by exploding specifications & operating modes
- Manual, complicated verification methods and procedures
- Gigabytes of results data to analyze

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Requirements & Results

- Faster design cycle time
- Faster insights into conformance
- Easier data access across teams and organizations

Verification Automation

- Error-free measurements from simulation and validation
- Consistent measurements across organizations
- Optimized use of test assets

Advanced Analysis

- Faster results insights
- Easier results reporting to management

The automated way to reduce time and resources during design verification across simulation and test

Benefits Of Optimized Requirements Verification

Beneath the surface of day-to-day operations lurks a formidable adversary: the productivity loss of disconnected workflows. Companies are paying huge sums only to achieve bad outcomes – leading to old and error-prone information that is raising design costs.

More active usage of integrated requirements verification tools can lead to significant productivity gains and faster time to market. This shift is critical; engineering teams are moving away from traditional and often manual, siloed workflows to streamlined, integrated, and automated processes.

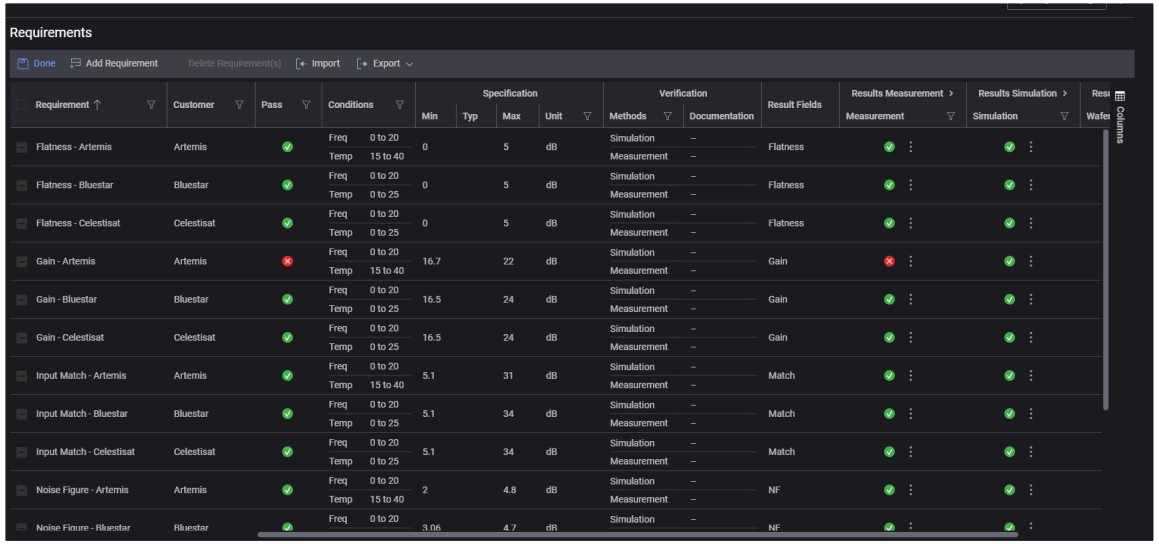
Benefits of Keysight Requirements Verification Suite

- Up to 50% improvement in verification efficiency and cost
- Shrink time-to-market as much as 33%
- Reduce data management time spent in verification up to 30%
- Traceability of processes and data
- Empower collaboration across teams
- Reduce project management efforts

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Requirements and Results Management

KRVS Requirements and Results management provides a cockpit to document requirements for the entire verification process from design to test. It provides a centralized repository for results from CSV or other formats, drives product verification plans used by both simulation and test. The application automates the status of compliance checking, flags items that are not compliant and stores pass/fail determinations along with the results data for future analysis. Requirements and results can be meta-data tagged for traceability.



Requirements & Results

- Accelerate time to compliance with clear determination of specifications achievement
- Capture requirements centrally
- Import from spreadsheets or directly via API
- Share simulation and measurement data more readily across organizations or regions
- Integrate with requirements management systems

Direct traceability between requirements and results with consistent and normalized data acquisition and analysis

Collaborate within teams and across organizations or regions using secure, sharable access

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Unlock insights quickly with visualization and statistics analysis capability tailored for electronics design

Accelerate analysis of aggregated measurement results tagged with test properties through easy and real time web access of dataset

Results Visualization & Analysis

KRVS provides interactive tables and plots of simulation and test measurements.

By having a centralized data store for simulation and test data, correlation analysis becomes easier; compliance to requirements across the development lifecycle becomes instantaneous.

Collected through test automation or manually collected and imported from CSV files, it provides filters, colorizations and custom chart configurations.

Data overlay and reference test limits can be set for benchmarking against golden unit test results and requirement specifications.

Visualization & Analysis

- Visualize spec thresholds
- Export visualizations for reuse
- Unlock insights quickly with visualization and statistics analysis capability tailored for electronics design
- Collaborate across teams, organizations and regions using sharable visualizations

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Results Compliance

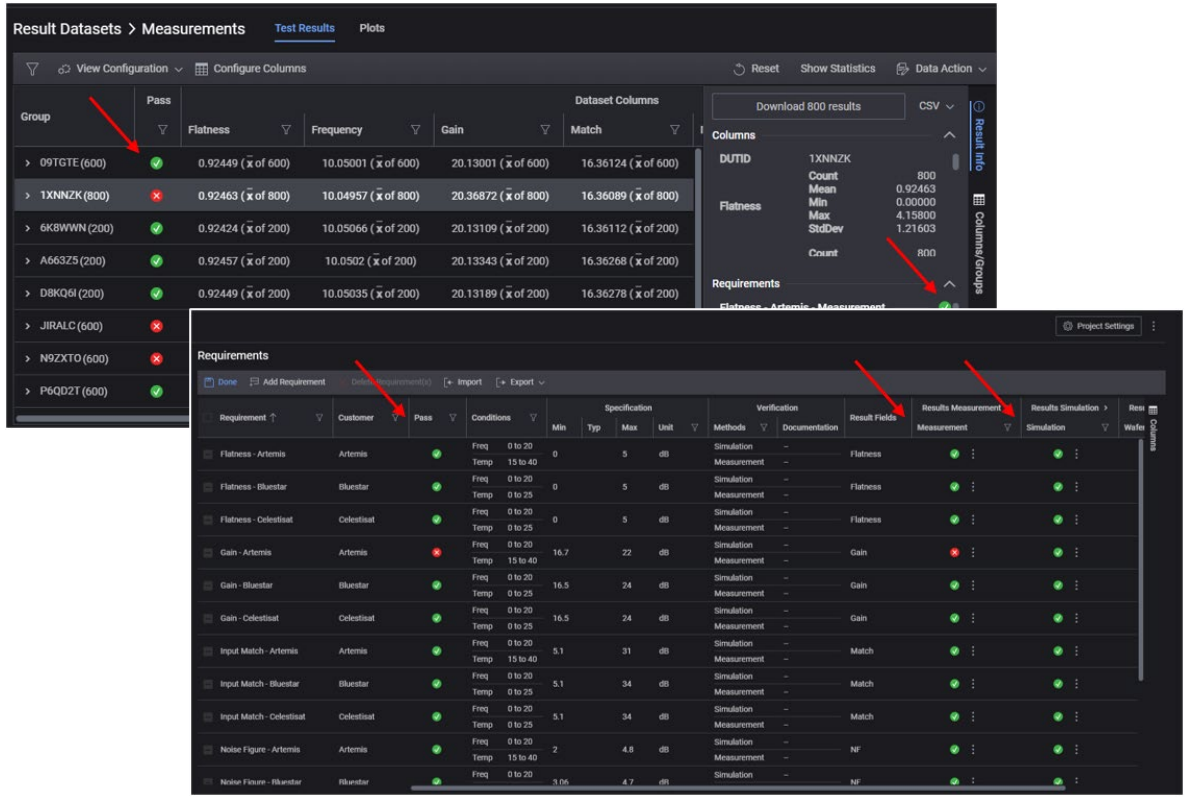
Complex requirements with many conditions and specification ranges can be a time-consuming task. KRVS simplifies the process by automating the analysis of the results and determines instantly whether the result measurements fall with the specifications.

Or quickly determine what specifications can be reliably met given the measurements taken across the sweeps of simulations or samples of design prototypes produced.

Limits on minimum numbers of samples required to determine compliance to the specifications can also be included in the requirements.

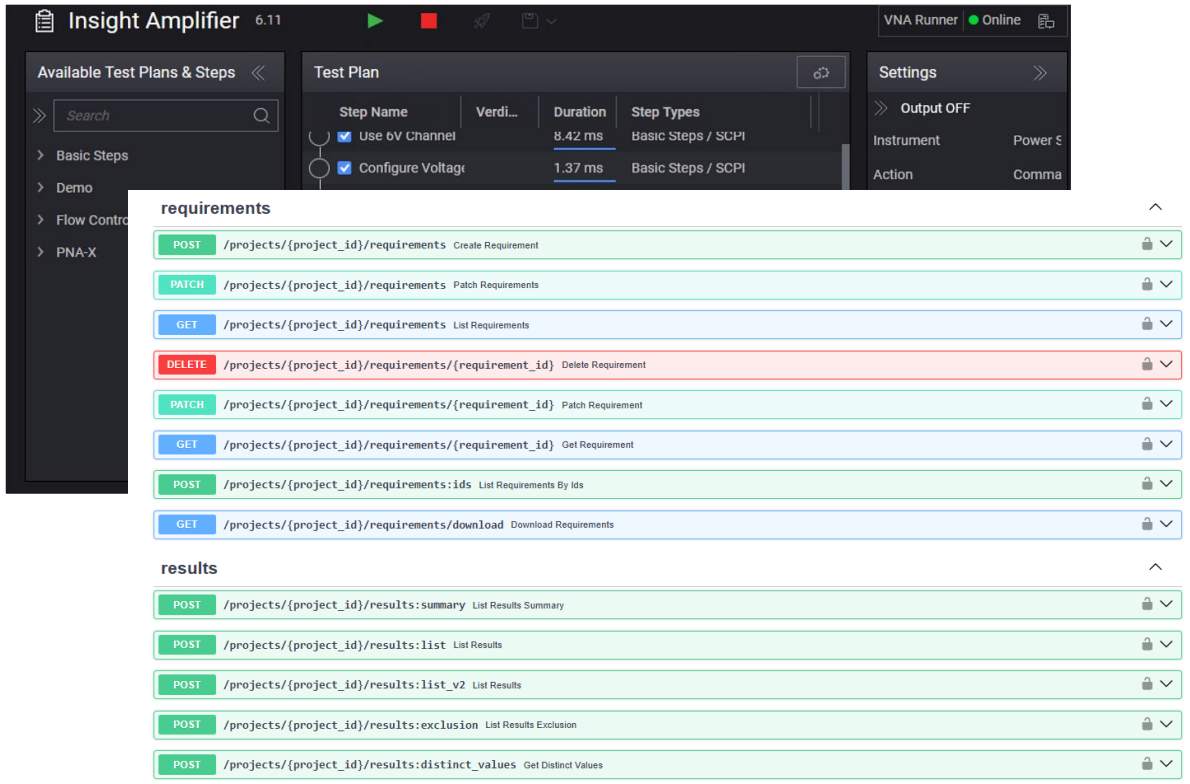
Compliance to Specifications

- Identify pass/fail against specs
- Analyze failures quicker
- Correlate using meta data
- Get results summary across filtered measurements instantly
- Detect simulation and test misalignments



Faster time to compliance with clear visualization of specifications achievement

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Optimize the design verification process with flexible integration into your preferred test automation platform

Verification Automation

KRVS integrates with automation via API, and is AI driven by an on-prem MCP that integrates into an agentic workflow.

Keysight's open-source test automation platform, openTAP is a test automation platform that supports KRVS data collection. The application includes a test plan editor to create, version control, and manage tests used in simulation and prototype verification stages of the requirements verification process.

Combined with Keysight's MCPs for ADS, SystemVue and Instruments, KRVS provides a full agentic workflow across design and test.

Keysight Test Automation Platform

- Compose test plans directly from requirements and easily evolve with changing goals
- Standardize measurements from simulation and validation
- Integrate data collection with direct access to KRVS database
- Accelerate design and test workflows with AI-driven orchestration

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In Pratice

Keysight designs very complex products for design and test measurement use cases. The components, modules, systems are state-of-the-art for a wide range of industries.

Keysight Labs design teams successfully use KRVS to manage their design processes and data. The savings in time and cost for Keysight are dramatic.

RESULTS

80% reduction in data management & analysis time

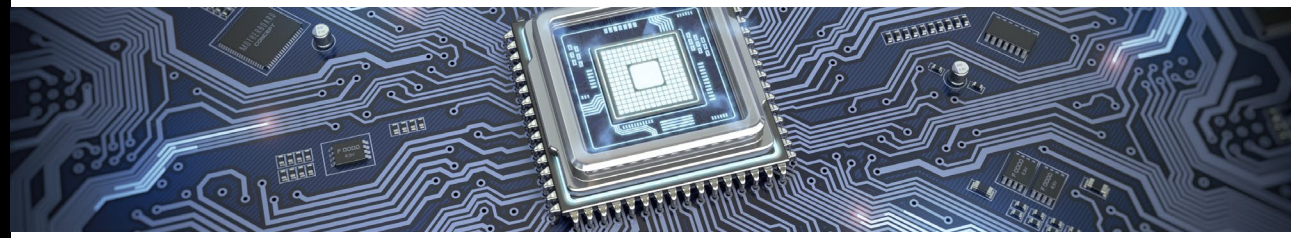
1.5 hours/day/engineer
to under 15 minutes

- Better organization of data
- Easier access to the data
- Instant assessment of compliance
- Better visualization of results
- Reduced data errors from manual transformation

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KEYSIGHT LABS

Hardware Design Team



Challenge

Designing MMICs

- Very complex requirements
- Growing volumes of measurement data
- Increased team size
- Reliance on Excel and email

Solution

KRVS

- Requirements & Results Management
- Data Management Automation
- Requirements Compliance
- Results Analysis



Keysight Requirements Verification Suite

The automated way to reduce time and resources during design verification across simulation and test

In Conclusion

Design complexity will undoubtedly continue to increase. How do teams close the chasm between design and test and shift-left towards more efficient design processes using digital twins? How can they improve design productivity with more actionable data insights?

Executives are increasingly recognizing the strategic need for increased productivity through agility. 60% of industry leaders assert that an optimized design process is not just beneficial but vital for maintaining the competitive edge necessary in today's market. It's a fundamental component in the quest to accelerate time-to-market — a goal that 63% of executives identify as directly influenced by the integration of software across the design and testing lifecycle.

Keysight Requirements Verification Suite is the automated way to optimize your workflows across digital and physical design verification. On its own or integrated with your in-house tools, the Suite helps you drive process transformation by weaving together simulation predictions, prototype measurements, analytics, and people. Collaborate with Keysight and take control of your product destiny.

Learn More

- Flyer - Product Overview
- Solution Brief - Solving the Technical Challenges
- Video - Requirements and Results Management
- Video - Test Automation Cloud Overvciew
- Video - Third Party Integrations
- Case Study - Accelerate Requirements Compliance Verification

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As a mission-critical design enablement partner, Keysight connects design, emulation, and test so customers can solve the world's most complex engineering challenges. Accelerate innovation at www.keysight.com.

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