Welcome MOS-AK

Arbeitskreis Modellierung von Systemen und Parameterextraktion
Modeling of Systems and Parameter Extraction Working Group
16th International MOS-AK Workshop
Silicon Valley, December 13, 2023

Nilesh Kamdar
Keysight EDA
Dec.13, 2023
About Nilesh

• Nilesh Kamdar is Senior Director and Portfolio Manager for all the Keysight EDA businesses and segments.

• Nilesh joined Hewlett-Packard in 1999 as a post-sales technical support engineer in the EEsof EDA division. Over his 24+ year career, he worked in various leadership roles including leading the Circuit Simulation and Architecture team, Application Engineering team, Customer Success team, and Software Business & Operations team.

• Nilesh holds a Master's in Electrical Engineering from Utah State University and a Bachelor's in Electronics Engineering from Mumbai University, India. He is based in Santa Clara, California.
A Brief History of Keysight

1939–1998: Hewlett-Packard years
A company founded on electronic measurement innovation

1999–2013: Agilent Technologies years
Spun off from HP, Agilent became the world’s premier measurement company
In September 2013, it announced the spinoff of its electronic measurement business

2014+: Keysight years
Keysight became an independent company focused on electronic measurement solutions
Stevens Creek site
5301 Stevens Creek Blvd

- Built in the 1970s. One of the original HP Silicon Valley sites
- Today - Joint occupancy by Agilent and Keysight
- It is Agilent WW Headquarters
- One of the key Keysight locations in California. Keysight has teams in:
  - R&D
  - Sales
  - Marketing
  - Semiconductor manufacturing
Keysight at a Glance (NYSE: KEYS)

Our Purpose:
Accelerate innovation to connect and secure the world

FY22 Revenue

- $5.4B FY22 Revenue
- 48% / $2.6B Commercial Communications
- 22% / $1.2B Aerospace, Defense, Government
- 30% / $1.6B Electronic Industrial

41% AMERICAS
16% EUROPE
43% ASIA PACIFIC

#1 Market Position

FY22 Company Highlights

- 30K+ Total customers
- 15K Employees
- 100+ Countries served
- 21% Recurring revenue
- 29% Operating margin
- 22% EPS growth
- ~$1B Free cash flow
- $31B Market capitalization

1. Per company estimate; 2. Includes indirect channel; 3. Non-GAAP measure, see appendix for reconciliation; 4. As of fiscal year-end; 5. Cash flow from operations less Capex.
Solutions Designed for Key Markets

COMMERCIAL COMMUNICATIONS

AEROSPACE AND DEFENSE

AUTOMOTIVE AND ENERGY

SEMICONDUCTORS

GENERAL ELECTRONICS

As of March 2020
Keysight EDA Portfolio

- RF & Microwave Circuit Design
- RF System Design
- High-Speed Digital Design
- Device Modeling
- Quantum EDA
- Power Electronics

Design Data & IP Management
Keysight Recent Market expansion

Press Releases

Keysight Expands EDA Software Portfolio with the Acquisition of Cliosoft

- Acquisition to digitally transform design-test workflows and meet productivity requirements of next-generation electronic product development lifecycles
- Cliosoft's revision-control and data and IP management capabilities natively integrate with Keysight's PathWave Advanced Design System
- Customers to benefit from broader EDA ecosystem with Keysight and Cliosoft continuing to support all the major EDA vendor environments to facilitate best-in-class tool workflows

SANTA ROSA, Calif. February 23, 2023

Press Releases

Keysight Advances Software-Centric Solutions Leadership Through the Acquisition of ESI Group

- Expands Keysight’s application layer portfolio with simulation capabilities that are critical to accelerate innovation in multiple end markets including automotive
- Enables customers to accelerate time to market and lower operational costs, while reducing their environmental footprint
- Increases Keysight’s software revenue and ARR

SANTA ROSA, Calif. and PARIS, France. June 28, 2023

Cliosoft SOS and HUB support a wide variety of EDA and software platforms

Keysight Technologies
SILVACO
Si partner network
MathWorks
Siemens
Amazon Web Services (AWS)
Partner Network
Beanbag
Keysight EDA 2024
What’s New

Device Modeling

- **Device Modeling**
  - Quickly adapt model libraries based on new targets
  - Enable early detection of model issues during model parameter tuning
  - Automate de-embedding for multiple devices simultaneously
  - Streamline the binning modeling workflow
IC-CAP
ANN training is built into IC-CAP to model complex GaN device physics

ADS
Python APIs connect simulators and data with your AI/ML workflows to enable innovation

Open Platforms

RF System Design
Pre-6G Channel Estimation Models utilize AI/ML workflows for fast execution

TensorFlow
PyTorch
Consistent Software-Centric Solution Strategy
Accelerating Innovation of Long-term technology trends

First-to-Market Design and Test Solutions

Sustainable Lifecycle Value

to create

Strengthening Customer Value Proposition
Time to market • Productivity

Stronger Keysight Business Outcomes
Accelerating profitable growth • Improving resiliency • Expanding margins
Deep, Long-Term Global Customer Relationships

Strengthening market-leading positions with 30,000+ customers

**SERVING MARKET LEADERS**

- **14/15** Top mobile operators
- **5/5** Top cloud companies
- **22/25** Top aerospace & defense contractors
- **10/10** Top automotive companies
- **25/25** Top semiconductor companies
- **10/10** Top engineering universities

**SELECT CUSTOMERS**

- Alphabet • Amazon • AT&T
- Broadcom • Cisco • Fujitsu • HP • Innolight
- Nvidia • Lenovo • LG • Meta • Microsoft
- Nokia • Qualcomm • Samsung
- BAE Systems • Boeing
- Leonardo • Naval Research Lab
- US Government
- Daimler • Delphi • Ford
- Infineon • Qorvo • Siemens
- Taiwan Semiconductor • Tesla

**23/25** Top technology companies\(^1\)

**67/100** Fortune 100 served

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*Per company estimates, customers who conducted business with Keysight in FY20, FY21, or FY22. 1. Jingdong Mall and Tencent are not customers.*
Digital Transformation Driving New Innovation Paradigm

Our Innovation Strategy

Disciplined Early Investment

Co-Innovating with Market-Defining Customers

Connecting Critical Workflows

Accelerating through Acquisitions

Customer Challenges

Accelerating Design Cycles

Increasing Technology Complexity

Improving Productivity

5G / 6G
EMS
IOT
Security

Industry 4.0
Autonomous & Electric Vehicles
Cloud
AI
Quantum

1 Per customer feedback.
Keysight is actively working with many of the largest foundries in the world to ensure PDK and EDA interoperability. A complete list of Foundry Partners can be found HERE.