

# Global Semiconductor Virtual Metrology Supply, Demand and Key Producers, 2026-2032

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## Abstracts

The global Semiconductor Virtual Metrology market size is expected to reach \$ 910 million by 2032, rising at a market growth of 18.2% CAGR during the forecast period (2026-2032).

Semiconductor Virtual Metrology is a technology that leverages AI and machine learning techniques to construct predictive models based on historical data from equipment sensors (such as temperature, pressure, and RF power). This enables the real-time estimation of critical wafer production metrics?such as film thickness, Critical Dimension (CD), and overlay error?without the need for physical, destructive testing. The industry's aggregate gross margin typically ranges from approximately 45% to 65%.

Semiconductor Virtual Metrology is rapidly emerging as a revolutionary solution for process control. By relying on artificial intelligence and machine learning, this technology utilizes equipment sensor parameters to provide real-time predictions of wafer yield and process metrics, thereby resolving the inherent conflict between the time-consuming nature of traditional physical metrology and the high costs associated with sampling-based inspections.

This report studies the global Semiconductor Virtual Metrology demand, key companies, and key regions.

This report is a detailed and comprehensive analysis of the world market for Semiconductor Virtual Metrology, and provides market size (US\$ million) and Year-over-Year (YoY) growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of Semiconductor Virtual Metrology that contribute to its increasing demand across many markets.

Highlights and key features of the study

Global Semiconductor Virtual Metrology total market, 2021-2032, (USD Million)

Global Semiconductor Virtual Metrology total market by region & country, CAGR, 2021-2032, (USD Million)

U.S. VS China: Semiconductor Virtual Metrology total market, key domestic companies, and share, (USD Million)

Global Semiconductor Virtual Metrology revenue by player, revenue and market share 2021-2026, (USD Million)

Global Semiconductor Virtual Metrology total market by Type, CAGR, 2021-2032, (USD Million)

Global Semiconductor Virtual Metrology total market by Application, CAGR, 2021-2032, (USD Million)

This report profiles major players in the global Semiconductor Virtual Metrology market based on the following parameters - company overview, revenue, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Applied Materials<sup>US?</sup>, KLA Corporation<sup>US?</sup>, Lam Research<sup>US?</sup>, Onto Innovation<sup>US?</sup>, PDF Solutions<sup>US?</sup>, Siemens Digital Industries Software<sup>DE?</sup>, ASML<sup>NL?</sup>, Tokyo Electron<sup>JP?</sup>, SCREEN Holdings<sup>JP?</sup>, Hitachi High-Tech<sup>JP?</sup>, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the world Semiconductor Virtual Metrology market

Detailed Segmentation:

Each section contains quantitative market data including market by value (US\$ Millions), by player, by regions, by Type, and by Application. Data is given for the years 2021-2032 by year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.

Global Semiconductor Virtual Metrology Market, By Region:

United States

China

Europe

Japan

South Korea

ASEAN

India

Rest of World

#### Global Semiconductor Virtual Metrology Market, Segmentation by Type:

Virtual Metrology Software

FDC Analytics Platform

Yield Management Platform

Others

#### Global Semiconductor Virtual Metrology Market, Segmentation by Technology:

ML Prediction Model

Optical and E-Beam Hybrid Metrology

Edge-to-Cloud Fab Data Pipeline

Others

#### Global Semiconductor Virtual Metrology Market, Segmentation by Functional Category:

Film Thickness Prediction

CD and Overlay Control

Defect Excursion Detection

Chamber Matching

Run-to-Run Correction

#### Global Semiconductor Virtual Metrology Market, Segmentation by Application:

Logic Foundry

DRAM and HBM

3D NAND

Compound Semiconductor

Advanced Packaging Lines

Others

#### Companies Profiled:

Applied Materials?US?

KLA Corporation?US?

Lam Research?US?

Onto Innovation?US?

PDF Solutions?US?

Siemens Digital Industries Software?DE?

ASML?NL?

Tokyo Electron?JP?

SCREEN Holdings?JP?

Hitachi High-Tech?JP?

Nova?IL?

Camtek?IL?

Dongfang Jingyuan Electron?CN?

Shanghai Precision Measurement Semiconductor Technology?CN?

#### Key Questions Answered

1. How big is the global Semiconductor Virtual Metrology market?
2. What is the demand of the global Semiconductor Virtual Metrology market?
3. What is the year over year growth of the global Semiconductor Virtual Metrology market?
4. What is the total value of the global Semiconductor Virtual Metrology market?
5. Who are the Major Players in the global Semiconductor Virtual Metrology market?
6. What are the growth factors driving the market demand?

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