

Forward-Looking Statements

This presentation contains forward-looking statements, including, but not limited to, statements regarding Synopsys' short-term and long-term financial targets, expectations and objectives; strategies related to our products and technology; business and market outlook, opportunities and strategies; the expected impact of U.S. and foreign government actions and regulatory changes, including export control restrictions, on our financial results; customer demand and market expansion; our planned product releases and capabilities; industry growth rates; software trends; planned acquisitions and stock repurchases; our expected tax rate; and the impact of the ongoing COVID-19 pandemic. These statements involve risks, uncertainties and other factors that could cause our actual results, time frames or achievements to differ materially from those expressed or implied in such forward-looking statements. Such risks, uncertainties and factors include, but are not limited to: macroeconomic conditions and uncertainty in the global economy; uncertainty in the growth of the semiconductor and electronics industries; the highly competitive industry we operate in; actions by the U.S. or foreign governments, such as the imposition of additional export restrictions or tariffs; consolidation among our customers and our dependence on a relatively small number of large customers; risks and compliance obligations relating to the global nature of our operations; the impact of the ongoing COVID-19 pandemic on the global economy and on our business, operations and financial condition; and more. Additional information on potential risks, uncertainties and other factors that could affect Synopsys' results is included in filings we make with the SEC from time to time, including in the sections entitled "Risk Factors" in our Annual Report on Form 10-K for the fiscal year ended October 31, 2021 and in our latest Quarterly Report on Form 10-Q. The financial information contained in this release should be read in conjunction with the consolidated financial statements and notes thereto included in Synopsys' most recent reports on Forms 10-and 10-K each as may be amended from time to time. Synopsys' financial results for its fourth quarter and fiscal year 2022 are not necessarily indicative of Synopsys' operating results for any future periods. The information provided herein is as of November 30, 2022. Synopsys undertakes no duty, and does not intend, to update any forward-looking statement, whether as a result of new information, future events or otherwise, unless required by law.

Regulation G

In addition to financial results prepared in accordance with Generally Accepted Accounting Principles, or GAAP, this presentation also contains certain non-GAAP financial measures. Except for certain forward-looking non-GAAP financial measures for which a reconciliation is not possible without unreasonable efforts, reconciliations of the non-GAAP financial measures (either contained in this presentation or given verbally) to their most comparable GAAP measures are included in the table at the end of this presentation, along with the fourth quarter and fiscal year 2022 earnings release and financial supplement, dated November 30, 2022, and available on Synopsys' website at https://www.synopsys.com/company/investor-relations/financial-news.html. Synopsys is unable to provide a reconciliation of non-GAAP guidance measures to the corresponding GAAP measures on a forward-looking basis because doing so would not be possible without unreasonable effort due to, among other things, the potential variability and limited visibility of the excluded items.

Synopsys: The Market & Technology Leader

Broad Product Portfolio

Electronic Design Automation (EDA)

Semiconductor Intellectual Property (IP)

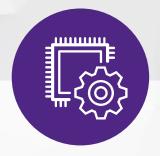
Software Security and Quality

	FY22	FY23 Targets(1)(2)				
Revenue:	\$5.08B	\$5.775B - \$5.825B				
Growth Rate:	20.9%	14% - 15%				
Non-GAAP Operating Margin:	33.0%	~34.1%* *Midpoint of range				
Non-GAAP Diluted EPS:	\$8.90	\$10.28 - \$10.35				
Growth Rate:	30.1%	~16%				
Operating Cash Flow:	\$1.74B	~\$1.7B				
Business Model:	Time-based, recurring revenue model; Non-cancellable backlog					

⁽¹⁾ These targets are being provided by Synopsys as of November 30, 2022.

⁽²⁾ Assumes no further changes to export control restrictions or the current U.S. government "Entity List" restrictions.

Synopsys: The Market & Technology Leader



Electronic Design Automation

~35 years of investment and execution

~65% of revenue

Market Leader



Semiconductor IP

>20 years

~25% of revenue

#2 IP Vendor



Software Integrity

~8 years

~10% of revenue

Industry Leader, Broadest Portfolio

Long-term Financial Objectives¹

While the results in any given period will vary due to timing of product deliverables, acquisitions or other near-term priorities, our long-term, multi-year objectives² are:

Revenue

Annual double-digit growth

EDA: double-digits

• IP: mid-teens

• SIG: 15-20%

Margin

Annual non-GAAP operating margin expansion of more than 100 bps

Earnings

Annual non-GAAP EPS growth in the mid-teens range

Utilize our strong cash flow for organic investments, M&A and share buybacks

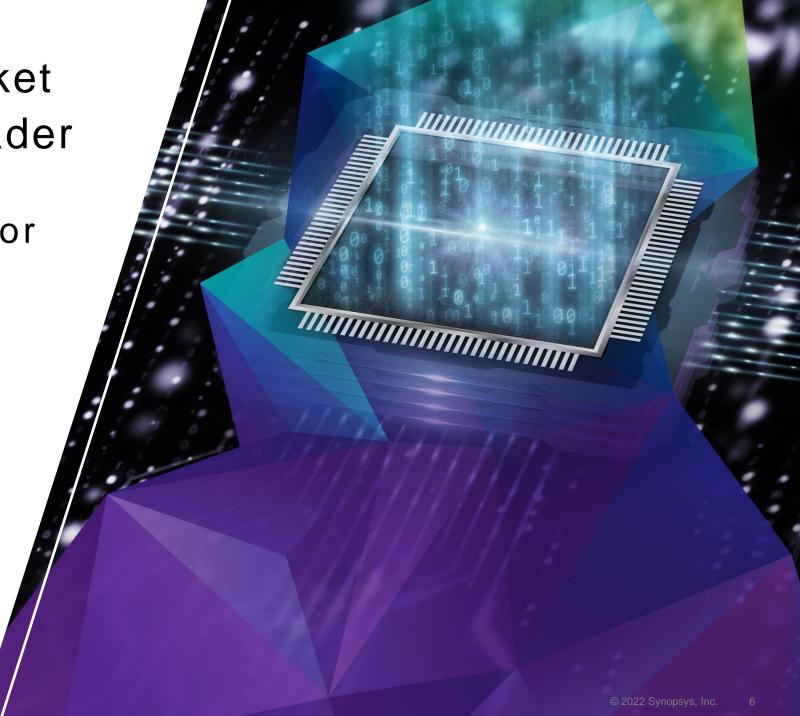
^{1.} These multi-year objectives are provided as of November 30, 2022.

^{2.} Period to period fluctuations are a normal element of our business, driven particularly by timing of hardware and IP deliveries. Variability, which increased as a result of Accounting Standards Code (ASC) 606 adoption, should be expected.

Synopsys: The Market and Technology Leader

Uniquely Positioned for Growth and Stability

- ▶ Robust End Markets
- Clear Technology Leadership
- Financial Strength and Growth

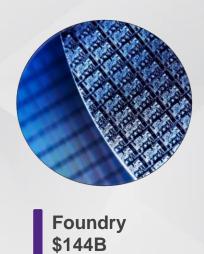


Global Value Chain - 2022E

EDA & IP – At the Heart of Accelerating Electronics Innovation











Electronic Systems \$1.97T

Blue Chip, Diversified Customer Base

Semiconductors



- Semi R&D (including EDA) is a top investment priority for semi and system customers in all phases of the business cycle
- Consists of virtually all semiconductor companies in the world, including all of the top 20
- One >10% customer in FY22

Systems



- ~45% of our revenue comes from systems companies
- Systems companies develop chips as an input to an end product, rather than selling the chip itself
- Verification challenges are rapidly growing at the intersection of hardware and software

Software Developers



- Key function across all industries: semis and systems, to enterprises in segments such as financial services, medical devices, automotive, and industrial
- Targeting software developers, DevOps groups, corporate security teams

Dynamic Change in Many Markets









Demand for **Smart Everything** seems limitless









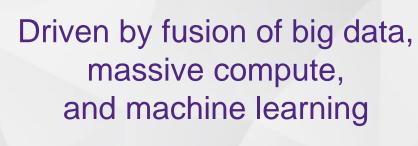


PC/Gaming





Innovation is fueled by semiconductor and software advances

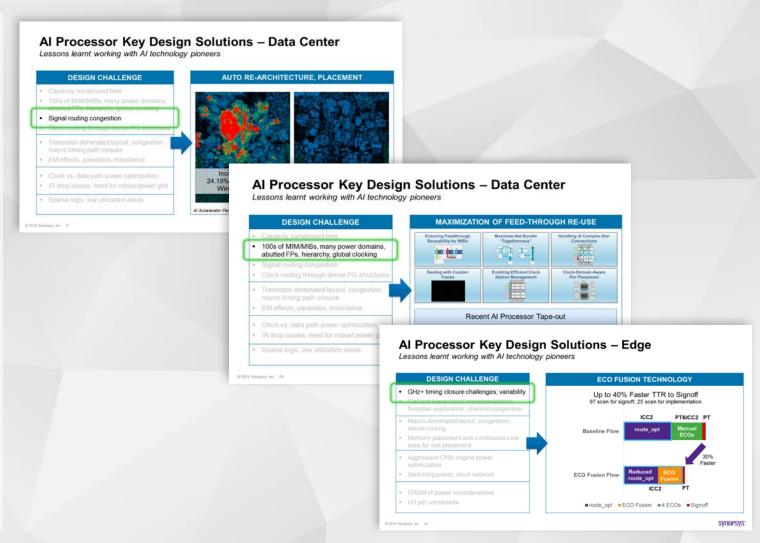




Enabling and Leveraging the Potential of Al

Design and Verification Tools for Al Processors

- Multiple years of collaboration alongside Al pioneers – deep understanding of Al design implications and challenges
- Verification solutions from architecture to simulation to emulation and prototyping
- Digital Design Family significantly enhanced to address Al processor design challenges



Enabling and Leveraging the Potential of Al



DSO.ai – World's First Autonomous Design Space Optimization

Breakthrough Reinforcement Learning

Capable of searching trillions of design permutations for best PPA solutions

Fast Ramp-Up

Fully-integrated with the Digital Design Family

– industry's richest technology foundation

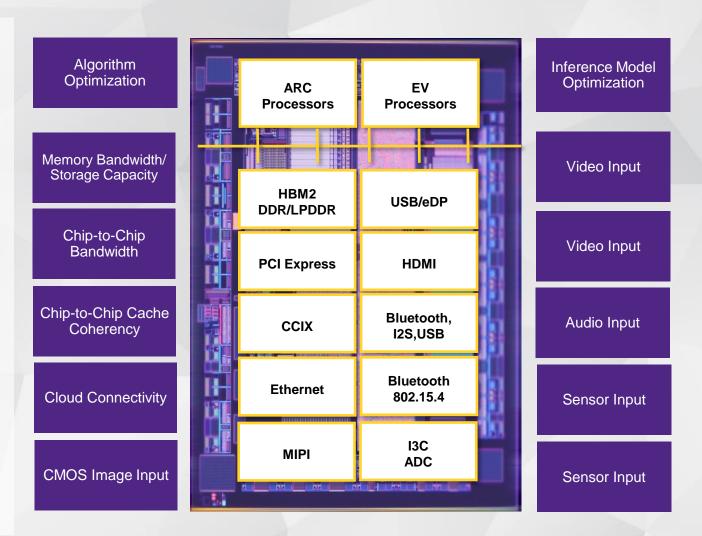
Cloud-Ready

Supports on-prem, public, and hybrid clouds for fast deployment

Enabling and Leveraging the Potential of Al

IP Solutions Designed for Al Applications

- Proven IP solutions accelerate time-to-market
- Memory/interface/analog IP designed to handle the uniquely intensive AI demands of memory capacity, bandwidth and coherency
- ABI Research forecasts AI chipset sales to exceed \$10B in 2024 with SoCs across all markets containing AI capabilities



Automotive – A Case Study



SECURE

CHIPS

4 Billion transistors



SYSTEMS

Infotainment, GPS, Drivetrain, Sensors



SOFTWARE

>150M Lines of Code per vehicle



ARTIFICIAL INTELLIGENCE

Big Data, Capture, Analyze, Decision Making



AUTONOMOUS DRIVING

Systems of Systems

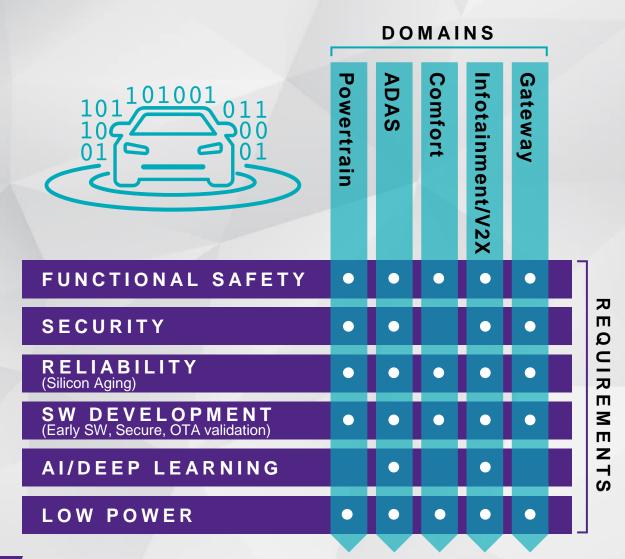


OWNERSHIP & INFRASTRUCTURE

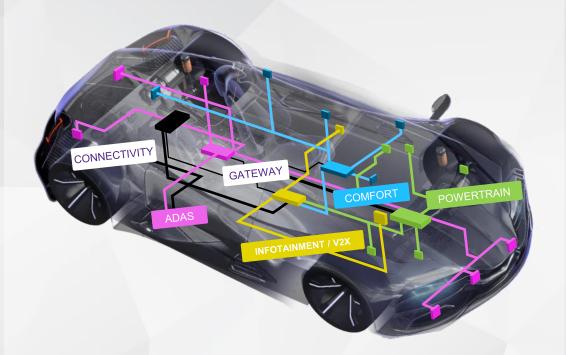
Entire Ecosystem

New Electronics Architecture Required

Integrated Compute and Smart Sensor Architecture Requires Redesign



- Integrated Controllers per Domain
- Sensor Fusion
- Connectivity and upgradeability
- Highest reliability, security and safety



Synopsys: The Market and Technology Leader

Uniquely Positioned for Growth and Stability

- Robust End Markets
- Clear Technology Leadership
- Financial Strength and Growth



Synopsys Enables System Innovation, Silicon to Software

Comprehensive World-Class Technology

Software:

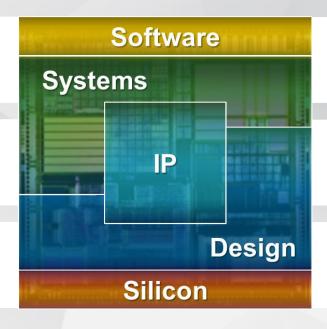
Application security testing & quality Leader in Gartner's Magic Quadrant

Systems:

Leader in HW/SW verification, virtual prototyping, VIP and models

Design:

Digital & custom AMS solutions Best QoR, highest productivity



IP:

Broadest portfolio, silicon-proven #1 interface, analog, memories, physical

Silicon:

Reference tools for process optimization, CAD, lithography & yield optimization

Solutions:

Automotive, low power, 3DIC, DTCO, memory, silicon lifecycle management





Broadest System Design Coverage



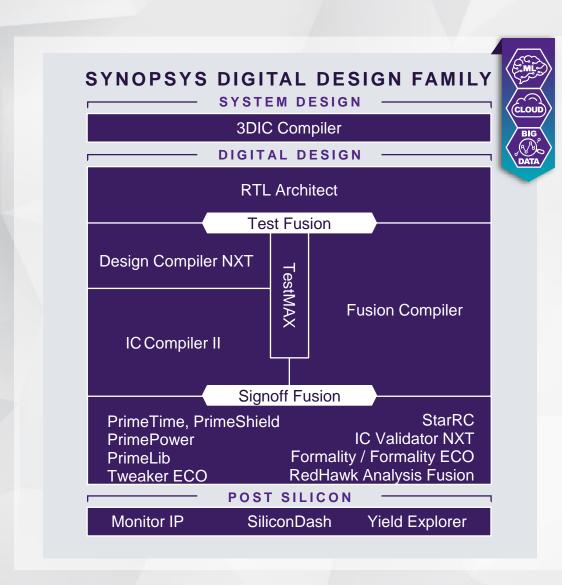
DEPLOYED SYSTEM

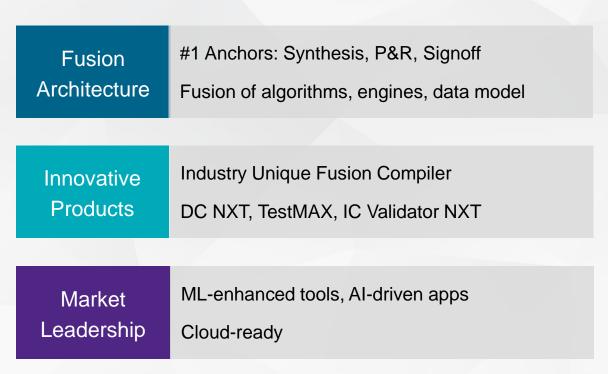
LEADER IN EDA

- Market and technology leader in EDA, the tools and technologies used to design semiconductor chips and systems
 - ~\$9.9 billion market*; generally tracks semiconductor R&D spend over time
- Growth drivers: all aspects of chip & system complexity
- All leading semiconductor companies in the world use Synopsys technology
- State-of-the-art design and verification solutions with unmatched global support

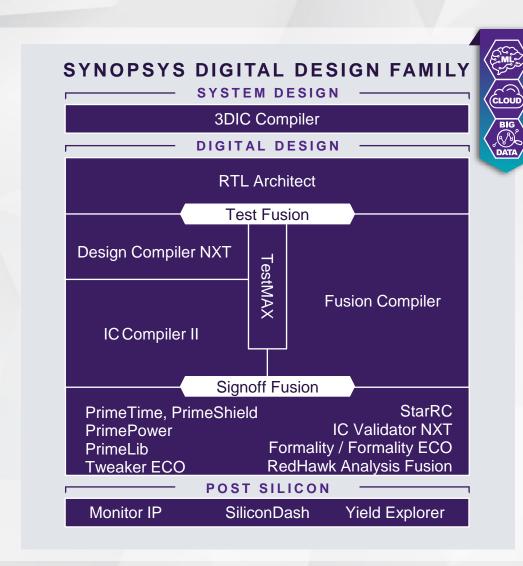
* 2022; Source: ESD Alliance, Internal estimates

#1 in Digital Design: Synopsys Digital Design Family



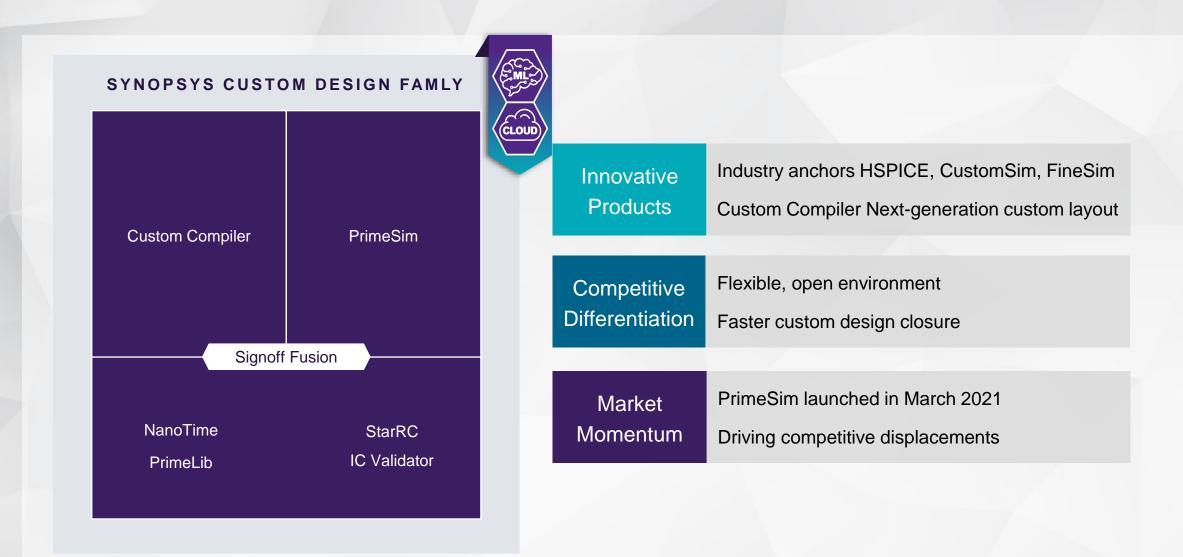


Synopsys Fusion Compiler™

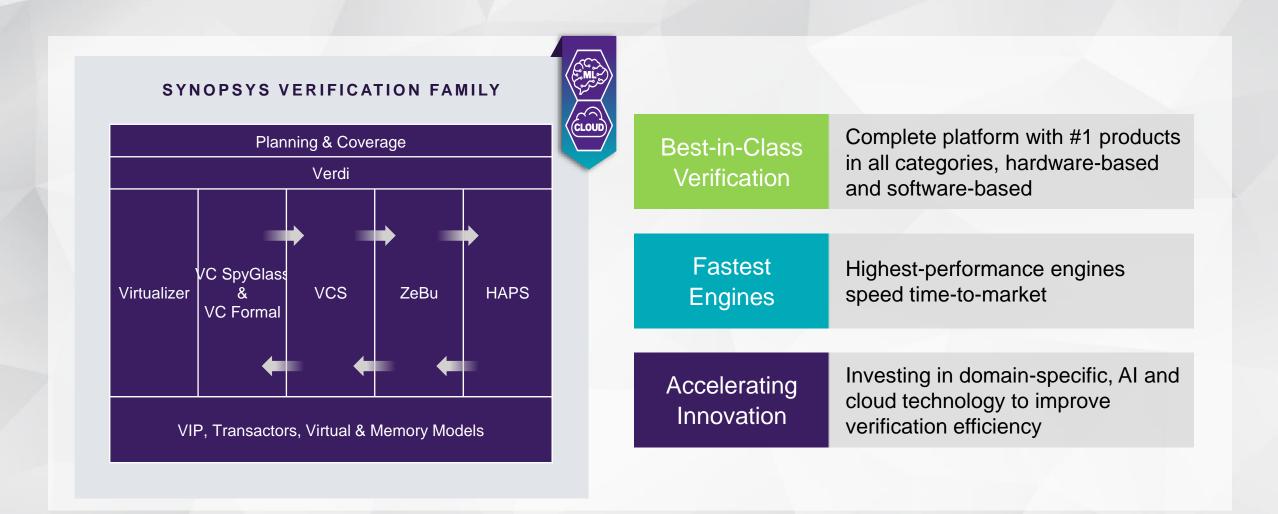


- Only single product on market with innovative next-generation integration of synthesis, place & route and key signoff technologies
- Built with market-leading products
- Redefines conventional product boundaries; sharing of algorithms, code and data model
- New synthesis engine, developed from ground up for significantly higher capacity & performance
- Strong momentum with considerable benchmark wins and competitive displacements, driving accelerating digital design revenue growth

Synopsys Custom Design Family



#1 in Verification: Synopsys Verification Family



Verification Hardware: ZeBu® EP1 Unified Emulation/Prototyping

Industry's First Unified Hardware for Emulation and Prototyping

Industry's fastest emulation and prototyping system with flexible capacity

Highest Emulation Performance, up to 19MHz

Verification for SoCs up to 1.2 billion gates, up to 3x faster ZeBu compile

Highest Prototyping Performance, up to 100MHz

Up to 2.5 billion gates with fastest prototyping compile and debug

Wide Range of Connectivity Options

Real world system validation using speed adaptors and at-speed protocol interface cards



ZeBu EP1

Verification Hardware: HAPS-100 Prototyping System

Industry's Highest Performance Prototyping System

20-50 MHZ for complex SoC software development and system validation

Industry's Highest Prototyping Debug Productivity

4x higher debug performance vs HAPS-80

Enterprise and Ecosystem Scalability

HAPS Gateway software enabling multi-design, multi-user parallelization

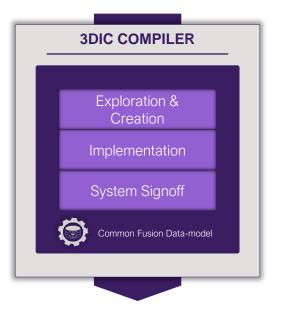
HAPS-100

Proven Direct Connect Architecture

Broadest portfolio of accessory cards for real-world IO connectivity

Efficient Design Implementation for Multi-Die Systems

UNIFIED EXPLORATION-TO-SIGNOFF



Complete architectureto-signoff solution in a consolidated user environment

End-to-end solution for efficient, 2.5D, and 3D multidie system integration

Scalable 100s of billions of transistors

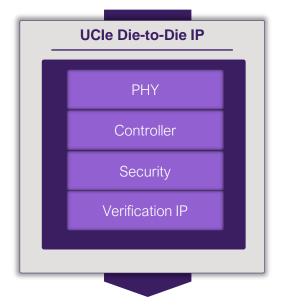
Productive

Fast exploration & design

Golden Signoff

Convergence to optimal PPA/mm³

DIE-TO-DIE IP



Delivers up to 4Tbps bandwidth in a multimodule configuration

Enables ultra-low latency link between two dies

Complete

PHY, Controller, VIP

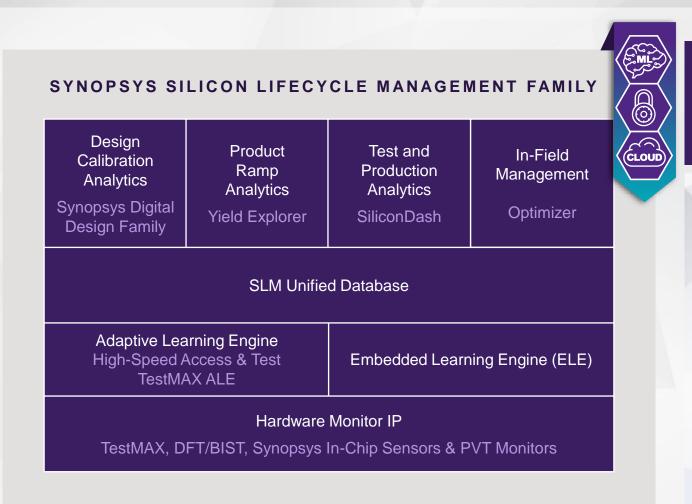
Secure

Opt. Authentication Engine

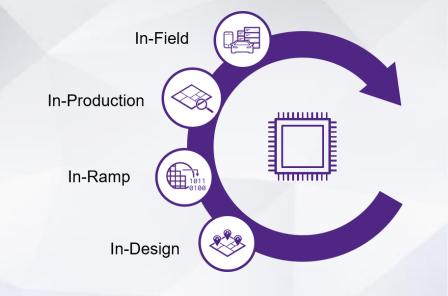
Robust

Based on Proven IP

Synopsys Silicon Lifecycle Management Family



New Insights Monitor, manage and optimize the performance, health and security of the chip from initial qualification to in-field



Synopsys Cloud – Industry's First SaaS Cloud Solution

BYOC

Bring Your Own Cloud

Customer Uses Own Public Cloud

Customer Cloud Vendor(s)

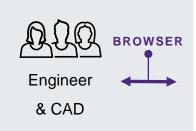


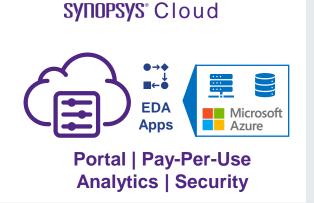
Portal | Pay-Per-Use Analytics | Security

SaaS

Software-as-a-Service

Synopsys Provides EDA Tools & Infrastructure



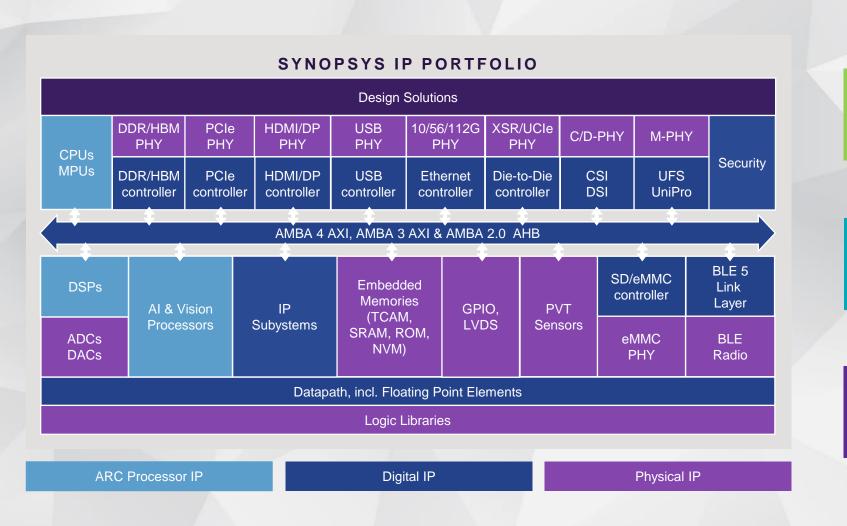


Leader in Semi IP

- #2 market share in IP, the reusable building blocks that are used for chip designs
 - Leading supplier of interface, memory, analog and physical IP
 - ~\$6.4 billion market*, benefitting from our customers' move to outsourcing more and more complex IP
- IP reuse reduces our customers' chip design costs, lowers risk and speeds time-to-market
- Serving high-impact, growing markets (IoT, Automotive, Security, Cloud Computing), advanced processes & protocols
- >20 years of investment and commitment resulting in unmatched portfolio breadth, quality and reliability

* 2022; Source: Ipnest, Internal estimates

Broadest and Most Comprehensive IP Platform



Growing IP
Demand

>20% growth in FY22

Broadest Portfolio

Interfaces, Analog, Foundation IP, Memories, Security, Processors

Competitive Differentiation

Unmatched global engineering team Dedicated to quality

High-Impact Markets: Increasing Technology Complexity

Driving Growth in Third-Party IP Demand



AI

Machine Learning,
Deep Neural
Networks



AUTOMOTIVE

ADAS, Infotainment, Connected Vehicle



CLOUD

Networking, Servers Al Accelerators



IoT

Smart Home, Industrial, Wearables

Comprehensive IP Solutions for Cloud Computing SoCs

Servers



 Improved power efficiency for high-density and edge environments

Networking



 Increasing data volume driven from rich media and high-speed devices

Storage



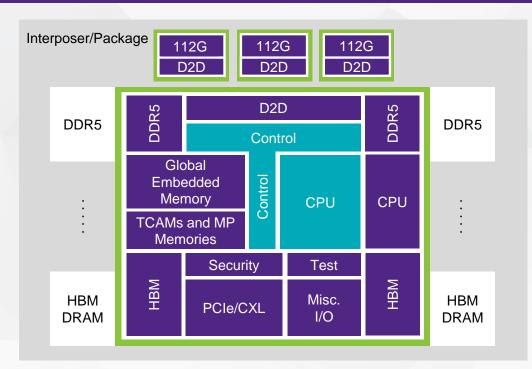
 Rapid data growth requires faster data access & local processing

Artificial Intelligence



 Al accelerators in cloud servers extract insights from large data sets

Synopsys Interface, Foundation and Processor IP for Cloud Applications

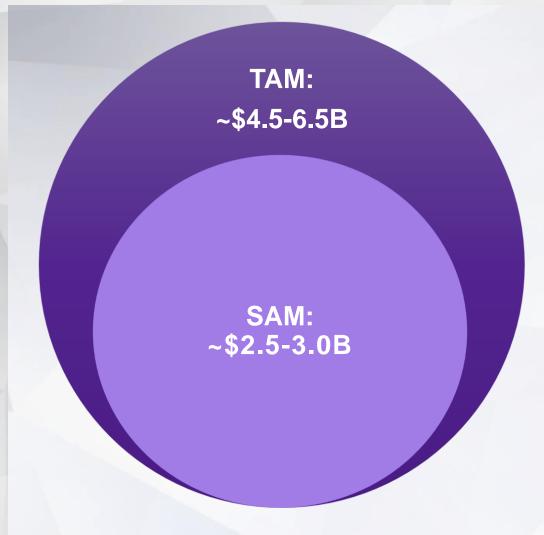


- Interface IP: PCle 6.0, 5.0, CXL, HBM2/2E, DDR5, 112G Ethernet, Die-to-Die
- Foundation IP: specialty memories & logic libraries
- Processor IP: ARC HS Processors

Leader in Software Integrity

- Assembled and developed the broadest portfolio of solutions on the market; \$466 million FY22 revenue
- Solutions that enable organizations to manage application security, quality and compliance risks at the speed their business demands
- Approximately \$2.5-3.0 billion served market: fragmented, with numerous point solutions; recognition of cost of software failure has increased dramatically
- Serving organizations in sectors ranging from embedded (including semis, systems) to enterprise (incl financial services, medical, industrial, automotive)

Software Security & Quality Market



- Evolving market, ~15% growth
- Growth drivers:
 - Ubiquity and growth of software
 - Cloud transformation
 - Significant business risk from breaches
 - Rise of open source
 - Software supply chain complexities
- Synopsys L-T multi-year growth objective:
 ~15-20% range*

Sources: Gartner, Forrester, IDC, other external and internal analyses

*This multi-year objective was provided as of November 30, 2022

Synopsys Vision - Build Trust in Software

Complete Security Assurance for All Software



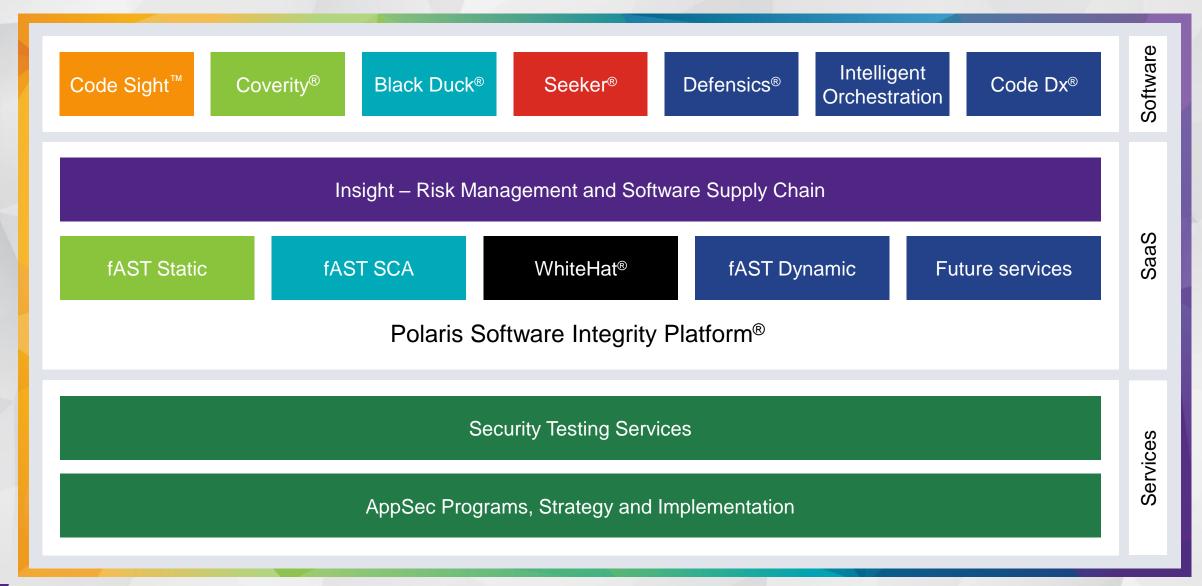
- Align people, process and tools across the entire lifecycle
- Secure all sources of software custom, open source and third-party
- Unified and Al-driven policy, visibility and prioritization
- Cohesive, integrated platform for managing risk and compliance

Addressing All Customer Demand Drivers



- Cloud transformation rapid cloud adoption and movement of dev workflows to the cloud
- Software supply chain ensure safe and effective adoption of open source and 3rd party software, minimize external threats from software
- DevOps create velocity, rather than impede it

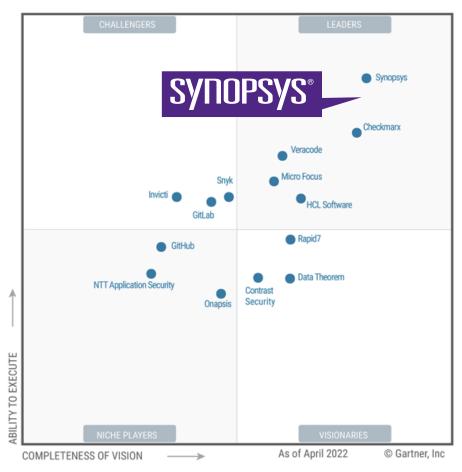
Software Integrity Portfolio



Market Leadership



Magic Quadrant for Application Security Testing



Top ranking in all five **Critical Capabilities** for Application Security Testing

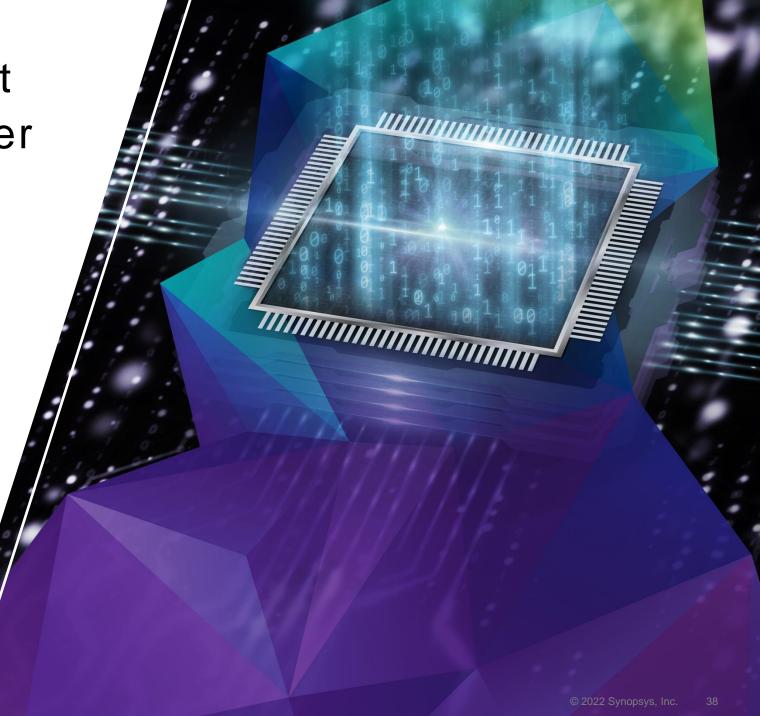


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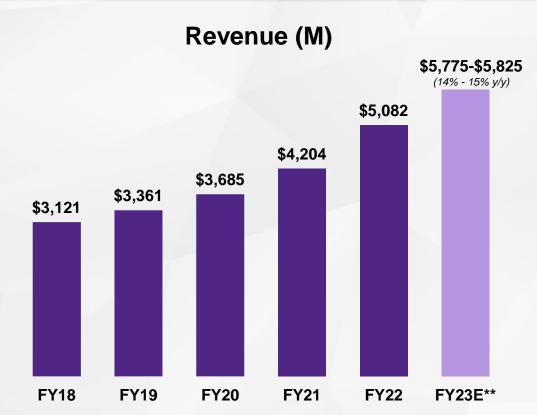
Synopsys: The Market and Technology Leader

Uniquely Positioned for Growth and Stability

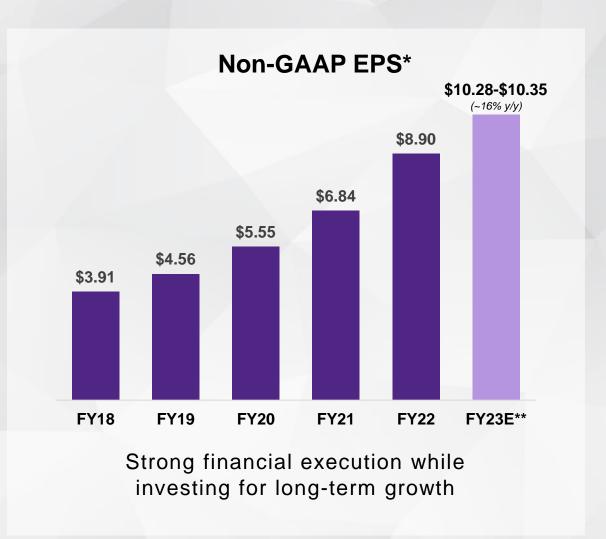
- Robust End Markets
- Clear Technology Leadership
- ► Financial Strength and Growth



Excellent Financial Execution



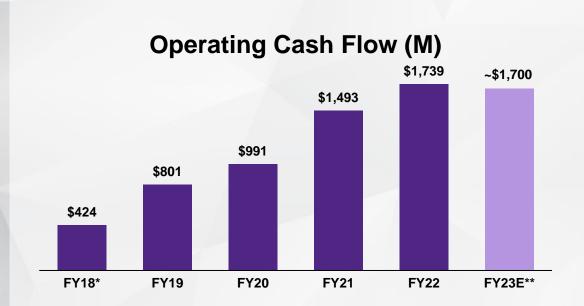
Recurring revenue model with \$7.1B non-cancellable backlog provides stability throughout the business cycle



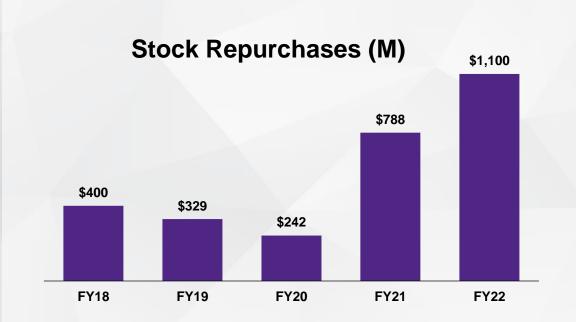
^{*} A GAAP to non-GAAP reconciliation of FY18 to FY22 earnings per share is included at the end of this presentation

^{**} FY23E reflects guidance provided as of November 30, 2022

Cash Flow & Capital Allocation



- Roughly tracks EBITDA less cash taxes on multi-year basis
- It is important to consider multi-year averages, as operating cash flow is inherently lumpy



- Repurchased ~\$2.9B in stock since 2018
- Capital allocation priorities:
 - Internal investments
 - Buybacks and acquisitions

^{*} Includes approximately \$230M in one-time payments

^{**} FY23E reflects targets provided by Synopsys as of November 30, 2022. Reflects ~\$100M of early payments shifted into FY22 and higher cash taxes.

Synopsys Corporate Social Responsibility

Working Together for a Smart Future



Synopsys ESG Progress Highlights

Scope 1 and 2 GHG emissions

- Pledged to reduce by 25% by 2024 over 2018 baseline, in line with Paris Agreement's goal to limit global temperature rise within 1.5 degrees Celsius above pre-industrial levels.
- Entered into one of the largest corporate aggregated clean energy procurement agreements to accelerate renewable energy development

Achieved CarbonNeutral® certification for third consecutive year

Inclusion & Diversity efforts have led to enhanced gender diversity across company and on Board of Directors

33% female representation and expanded BLI representation on Board

Employee engagement: critical component of human capital management

- Frequent, results-driven employee surveys most recent achieved 88% participation rate
- Have expanded our disclosures in annual SEC Form 10-K



Synopsys ESG Progress Highlights

Security

- Formally adopted industry-recognized frameworks to structure, test and assess the rigor of our cybersecurity and product security practices.
- Our leading Software Integrity business offers security-enhancing products and services that help enterprises build more secure software development processes.

Corporate Social Responsibility report

 Published second annual CSR Report earlier this year with alignment to GRI standards and in line with disclosures recommended by SASB.

Ratings progress

• As a result of step-by-step enhancements to our disclosures, governance and goal setting, we've made good progress in improving our ratings – in particular, for ISS ESG, Sustainalytics and MSCI.





Market and Technology Leader

Electronic Design Automation

Semiconductor Intellectual Property

Software Security & Quality

Solid Financials

Recurring revenue model

Large, non-cancellable backlog

Excellent execution

GAAP to Non-GAAP Reconciliation⁽¹⁾

Earnings Per Share – Full Fiscal Year 2023 Targets

	Kange for Fiscal Teal					
		October 31, 2023				
Target GAAP earnings per diluted share Adjustments: Amortization of intangible assets Stock compensation Tax adjustments		Low		High		
	\$	7.68	\$	7.86		
Adjustments:						
Amortization of intangible assets		0.66		0.63		
Stock compensation		3.80		3.72		
Tax adjustments		(1.86)		(1.86)		
Target non-GAAP earnings per diluted share	\$	10.28	\$	10.35		
Shares used in non-GAAP calculation (midpoint of target range)		156,500		156,500		

(1) Synopsys' first quarter of fiscal year 2023 and fiscal year 2023 will end on January 28, 2023 and October 28, 2023, respectively. For presentation purposes, we refer to the closest calendar month end.

For additional information about the measures Synopsys uses to evaluate its core business operations, please review the earnings press release and Item 2.02 of the Current Report on Form 8-K filed on November 30, 2022.

Range for Fiscal Vear

GAAP to Non-GAAP Reconciliation (1)(2)

Operating Margin – Midpoint of Fiscal Year 2023 Targets

	Twelve Months Ending October 31, 2023			
At midpoint of revenue and expense guidance ranges				
GAAP operating margin	22.3%			
Amortization of intangible assets	1.7%			
Stock compensation	10.1%			
Target non-GAAP operating margin	34.1%			

- (1) Synopsys' fiscal year 2023 will end on October 28, 2023. For presentation purposes, we refer to the closest calendar month end.
- (2) These numbers represent the midpoint of targets in the prepared remarks provided on November 30, 2022, and do not represent official guidance for fiscal year 2023.

For additional information about the measures Synopsys uses to evaluate its core business operations, please review the earnings press release and Item 2.02 of the Current Report on Form 8-K filed on November 30, 2022.

GAAP to Non-GAAP Reconciliation

Earnings Per Share – Full Fiscal Years 2018 to 2022 Actual Results

	ASC 605 FY2018	ASC 606 FY2019	ASC 606 FY2020	ASC 606 FY2021	ASC 606 FY2022
GAAP diluted net income per share	\$ 2.82	\$ 3.45	\$ 4.27 \$	4.81 \$	6.29
Adjustments:					
Amortization of intangible assets	0.82	0.65	0.59	0.52	0.61
Stock compensation	0.91	1.01	1.60	2.19	2.93
Acquisition-related costs	0.14	0.04	0.08	0.10	0.06
Restructuring charges	0.08	0.31	0.23	0.21	0.08
Legal matters	0.17	(0.12)	-	(0.01)	-
Income tax related to transition tax	0.41	_	-	-	-
Income tax related to tax rate change	0.33	_	-	-	-
Income tax related to tax restructuring	(1.12)	-	-	-	-
Tax settlement	-	0.11	-	-	-
Tax adjustments	(0.65)	(0.89)	(1.22)	(0.98)	(1.07)
Non-GAAP diluted net income per share	\$ 3.91	\$ 4.56	\$ 5.55 \$	6.84 \$	8.90

For additional information about the measures Synopsys uses to evaluate its core business operations, please review the earnings press release and Item 2.02 of the Current Report on Form 8-K filed on November 30, 2022.

