

#### 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; 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; the expected impact of U.S. and foreign government actions and regulatory changes on our financial results; and the continued impact of the 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: risks from the continued impact of the COVID-19 pandemic on the global economy and on our business, operations and financial condition; 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; 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 as well as actions by the U.S. or foreign governments, such as the imposition of additional export restrictions or tariffs; 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 information provided herein is as of August 17, 2022. Synopsys undertakes no duty, and does not intend, to upda

#### 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 third quarter of fiscal year 2022 earnings release and financial supplement, dated August 17, 2022, and available on Synopsys' website at https://www.synopsys.com/company/investor-relations/financial-news.html.

### Synopsys: The Market & Technology Leader

# Broad Product Portfolio

Electronic Design Automation (EDA)

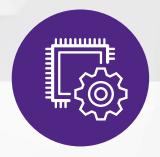
Semiconductor Intellectual Property (IP)

Software Security and Quality

	FY21	FY22 Targets <sup>(1)</sup>
Revenue:	\$4.20B	\$5.06B - \$5.09B
Growth Rate:	14.1%	20% - 21%
Non-GAAP Operating Margin:	30.5%	~33.0%* *Midpoint of range
Non-GAAP EPS:	\$6.84	\$8.80 - \$8.85
Growth Rate:	23.2%	~29%
Operating Cash Flow:	\$1.49B	\$1.60B - \$1.65B
Business Model:	Time-based, recurring revenue model; Non-cancellable backlog	

<sup>(1)</sup> These targets are being provided by Synopsys as of August 17, 2022; a GAAP to non-GAAP reconciliation of FY22 Operating Margin targets and FY22 EPS targets are included at the end of this presentation

### 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

**Emerging Leader, Broadest Portfolio** 

### Long-term Financial Objectives<sup>1</sup>

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 objectives<sup>2</sup> 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

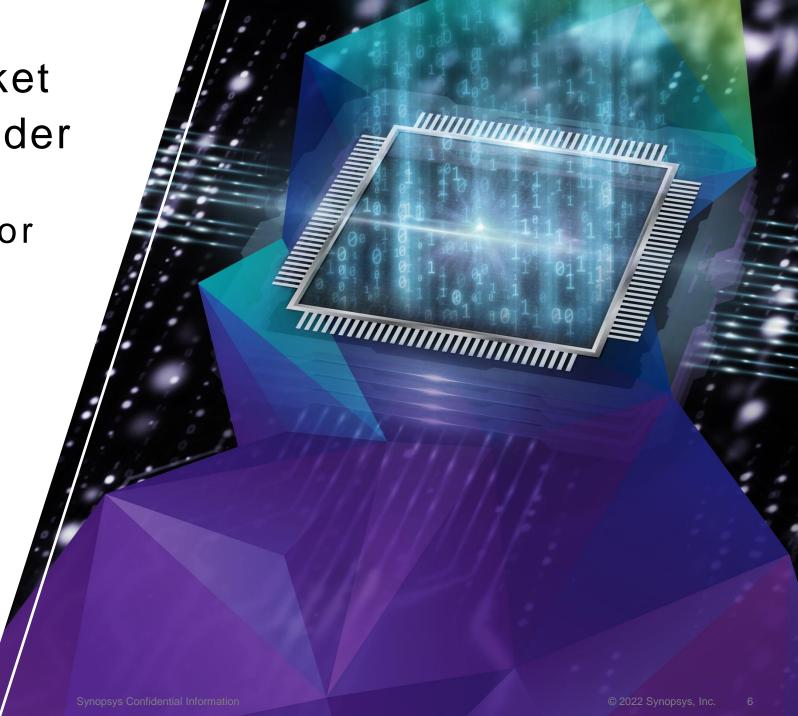
<sup>1.</sup> These multi-year objectives are provided as of August 17, 2022.

<sup>2.</sup> 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 - 2021

#### EDA & IP – At the Heart of Accelerating Electronics Innovation







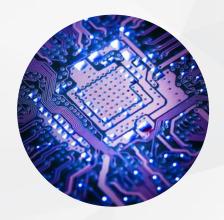




**Electronic Systems** \$1,850B

### 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 FY21

#### **Systems**



- >40% 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











Innovation is fueled by semiconductor and software advances







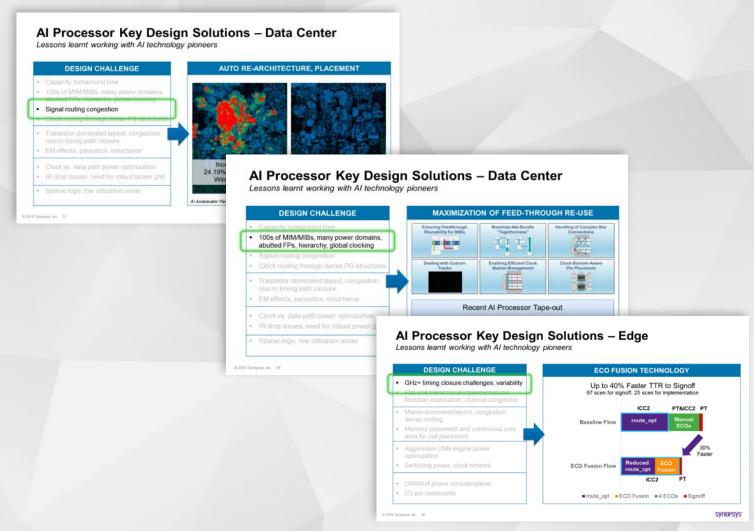


Driven by fusion of big data, massive compute, and machine learning

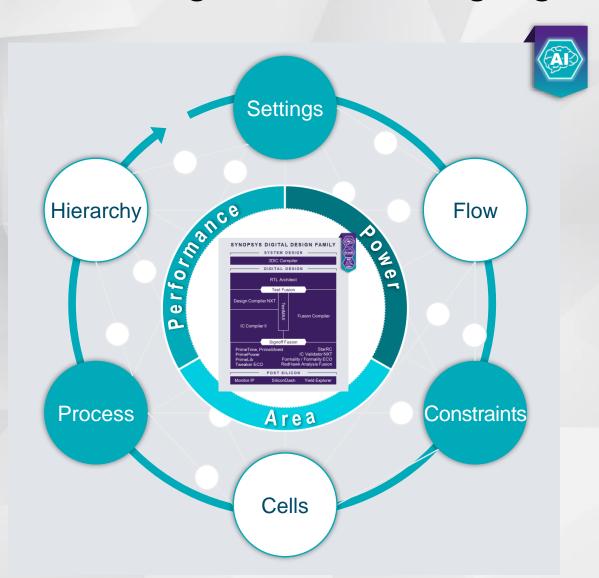
### Enabling and Leveraging the Potential of Al

## 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

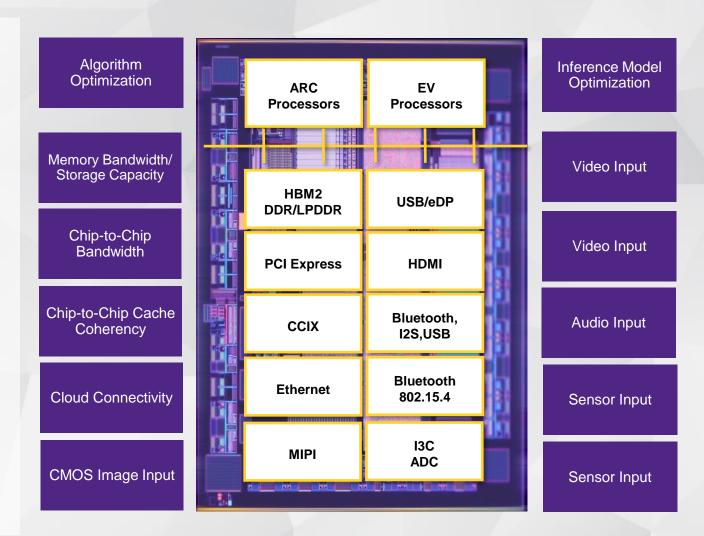
Cloud-Ready

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

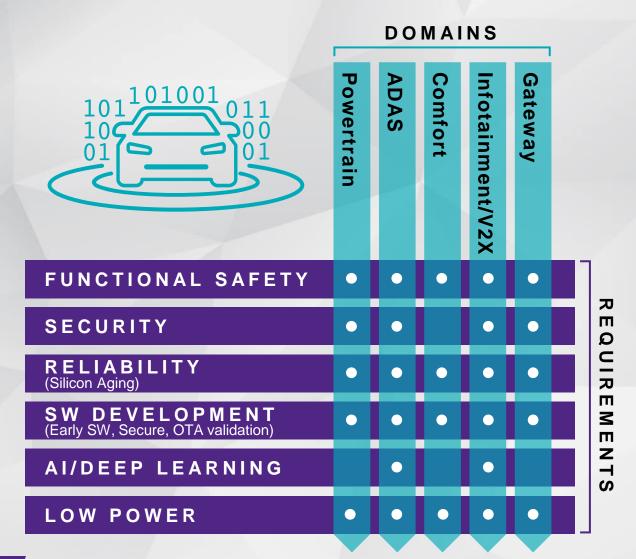


#### **OWNERSHIP & INFRASTRUCTURE**

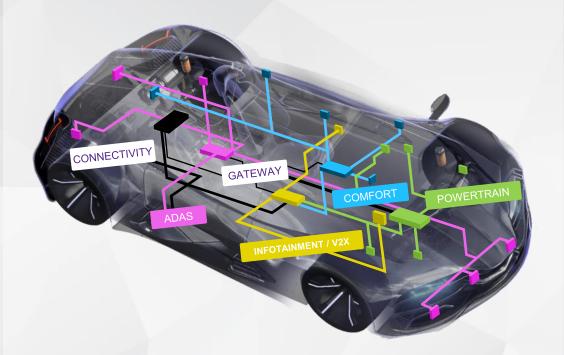
Entire Ecosystem

### New Electronics Architecture Required

Integrated Compute and Smart Sensor Architecture Requires Redesign



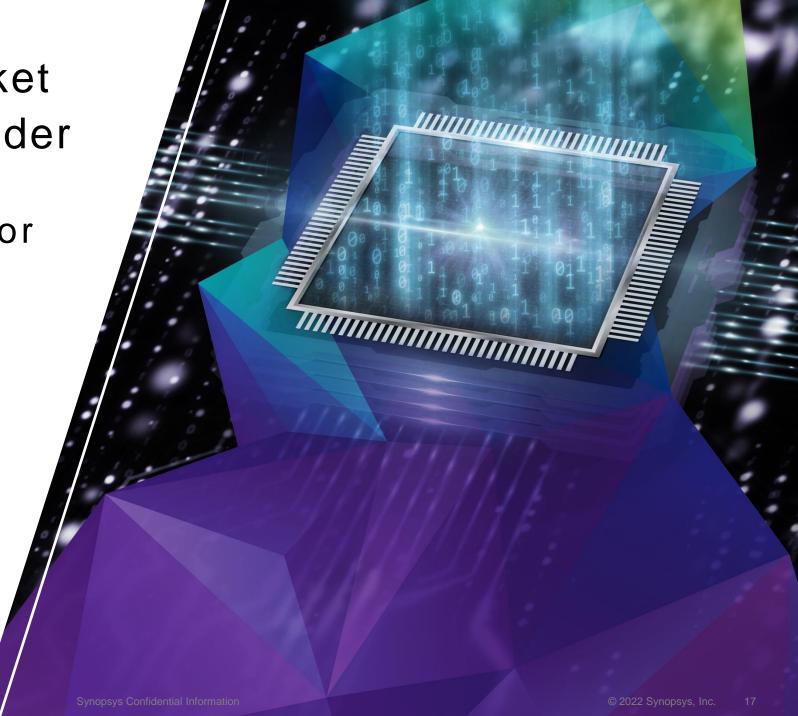
- Integrated Controllers per Domain
- Sensor Fusion
- Connectivity and upgradeability
- Highest reliability, security and safety



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:

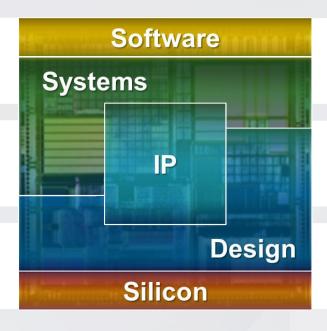
Application security testing & quality Leader in Gartner's Magic Quadrant

#### Systems:

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

#### Design:

Digital & custom AMS platforms 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

~\$8.8 billion market\*; generally tracks semiconductor R&D spend over time

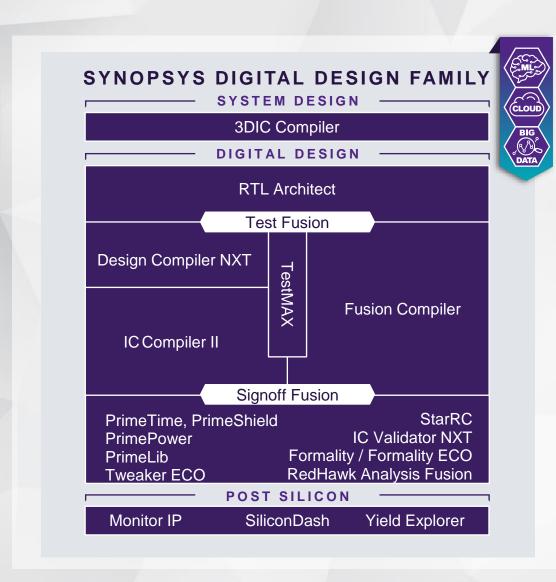
Growth drivers: all aspects of chip & system complexity

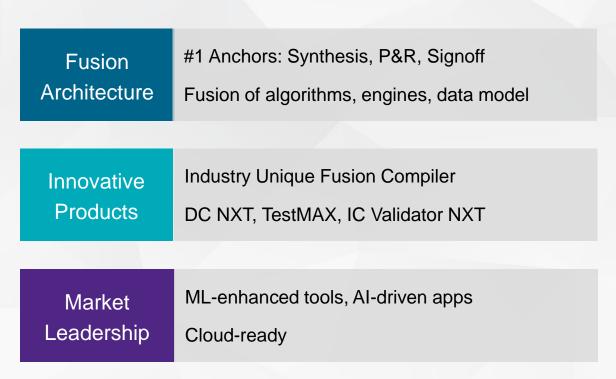
 All leading semiconductor companies in the world use Synopsys technology

 State-of-the-art design and verification platforms with unmatched global support

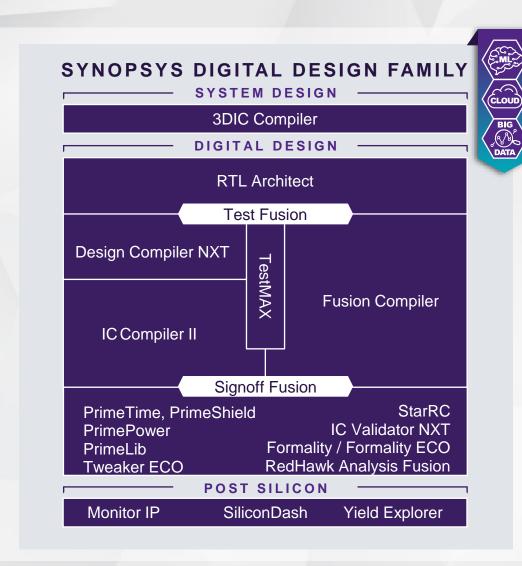
\* 2021; Source: ESD Alliance, Internal estimates (August 2022)

### #1 in Digital Design: Synopsys Digital Design Family



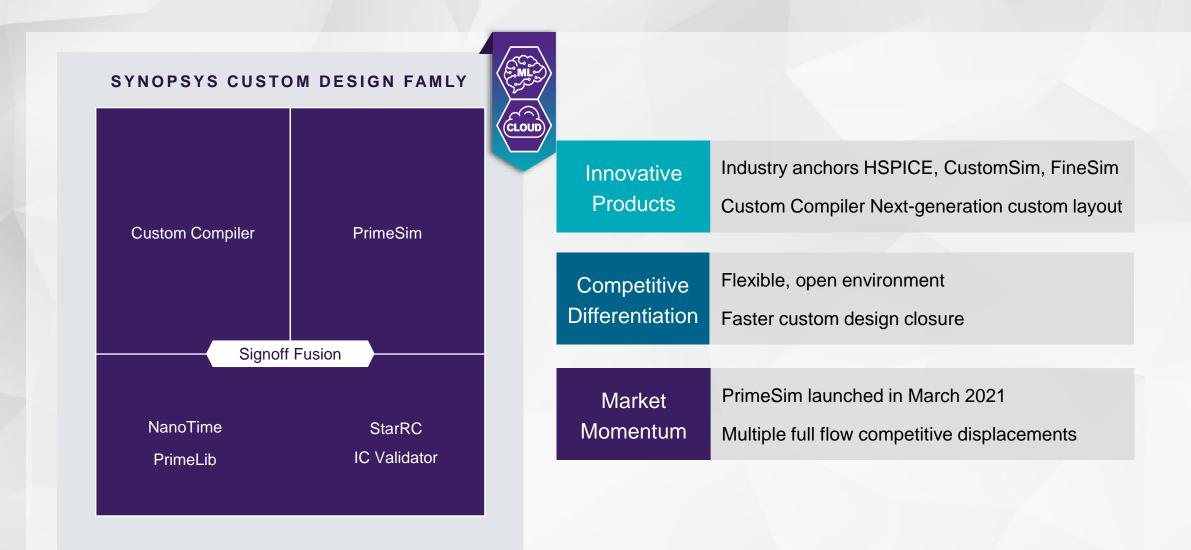


### Synopsys Fusion Compiler™

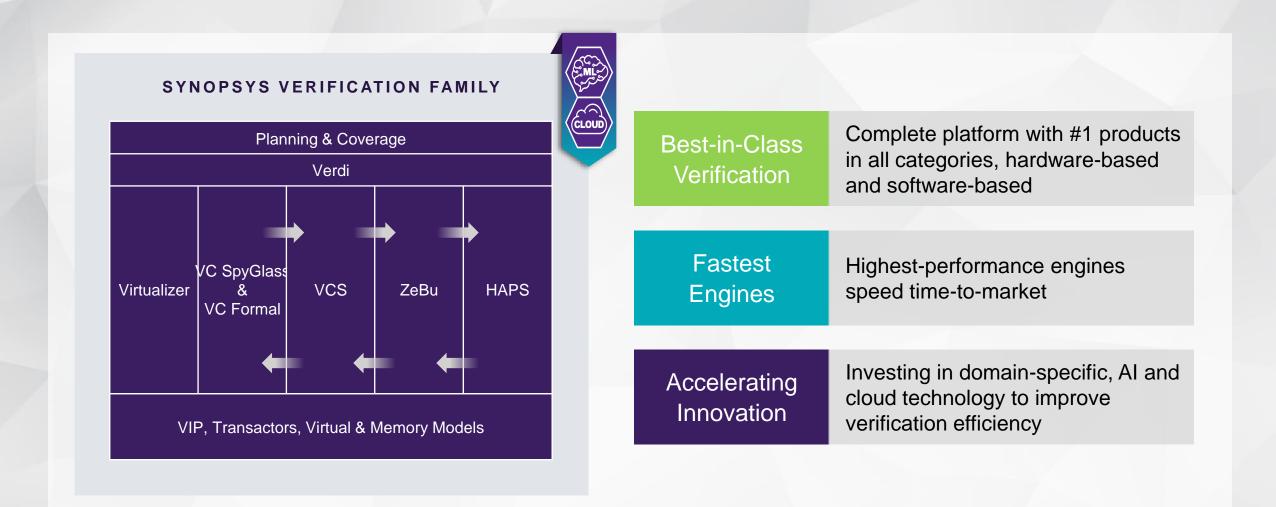


- Only single product on market with innovative next-generation integration of synthesis, place & route and key signoff technologies
- Built with market-leading products
- Redefines conventional product boundaries;
   sharing of algorithms, code and data model
- New synthesis engine, developed from ground 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® Server 4 Emulation System

### Leading System for Software Bring-up

Only modern system to allow software-on-hardware validation

### Industry's Fastest Emulation System

2X higher performance

### Industry's Largest Capacity

Scalable to 19B+ gates

#### Industry's Lowest Total Cost of Ownership

1/10<sup>th</sup> lower power consumption, half data center footprint



ZeBu Server 4

### Introducing Application-Specific Verification Hardware

### ZeBu EP1: Industry's First 10 MHz Emulator

Accelerates hardware/software verification for SoCs up to 2 billion gates 3-4x higher performance vs competition

Supports at-speed, full-visibility debug and all emulation use cases

### ZeBu Empower: Industry's First Power Emulator

Enables power verification of complex SoC running real-world software

Native Cloud scalability for billions of SW cycles on multi-billion gate SoCs

Integrates with PrimePower, the industry's golden power signoff solution



ZeBu EP1



ZeBu Empower

### 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

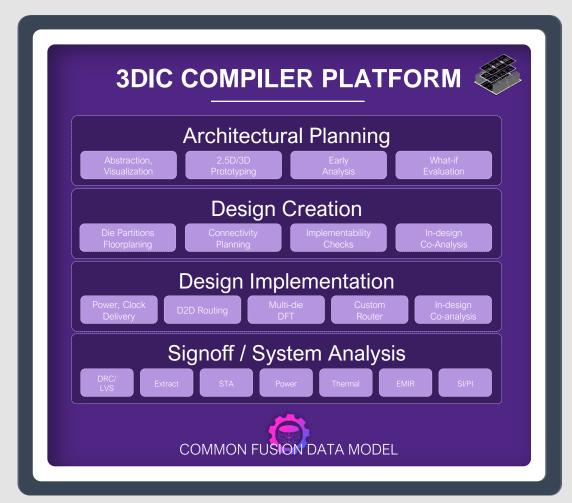


HAPS-100

#### Proven Direct Connect Architecture

Broadest portfolio of accessory cards for real-world IO connectivity

### 3DIC Compiler: Unified Exploration-to-Signoff Platform





#### **Highly Integrated, Scalable Platform**

System-of-chips integration over 100s of Billions of transistors Leveraging common data-model & tech files for 2D and 3D designs



#### Flexible, Efficient Workflow Environment

Fast exploration and pathfinding to accelerate 3D design creation and D2D planning



#### **Comprehensive Design and Closure**

Full breadth of high-throughput engines – Digital, custom, auto D2D routing, native DRC, DFT, ECO and more

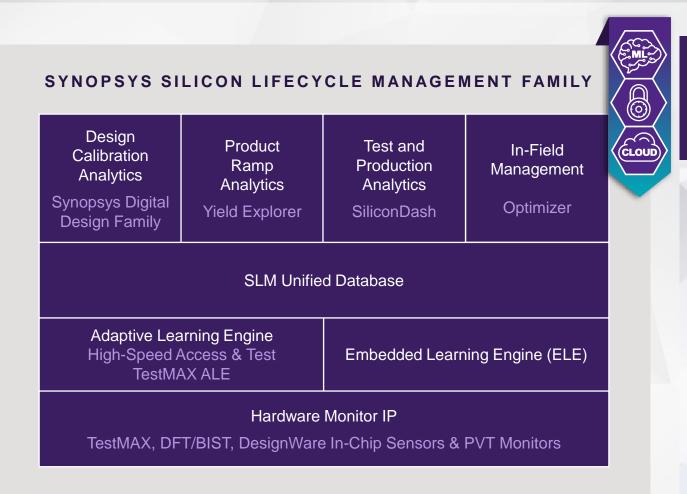


#### **Trusted, Golden Signoff Analysis**

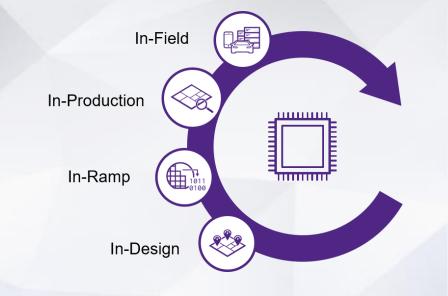
Integrated industry standard technologies for convergence to optimal PPA/mm³ – incl. STA, Thermal, EMIR, SI/PI

2.5D Interposer, RDL Fanout, 3D Stacked Designs

### 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)

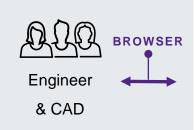


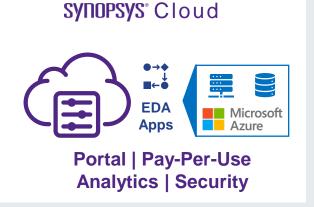
Portal | Pay-Per-Use Analytics | Security

#### SaaS

Software-as-a-Service

**Synopsys Provides EDA Tools & Infrastructure** 



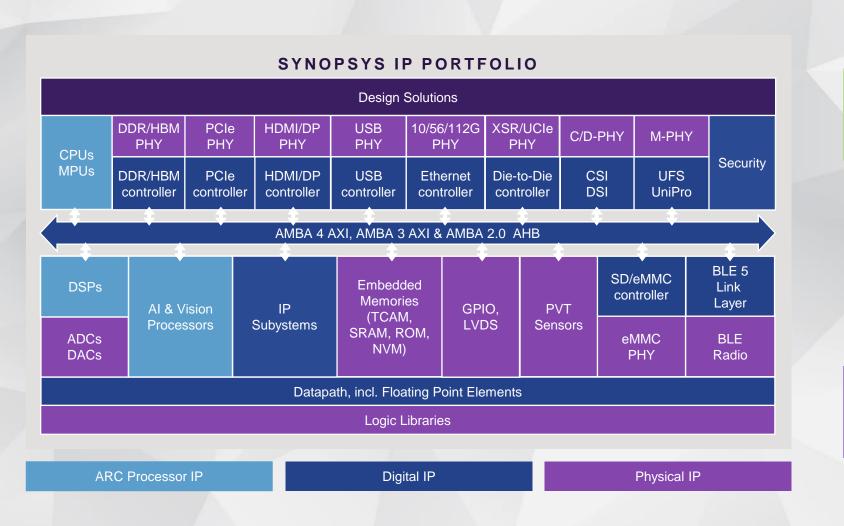


### Leader in Semi IP

- #2 market share in IP, the reusable building blocks that are used for chip designs
  - Leading supplier of interface, memory, analog and physical IP
  - ~\$5.5 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

\* 2021; Source: Ipnest, Internal estimates (August 2022)

### Broadest and Most Comprehensive IP Platform



Growing IP
Demand

>\$1B in Revenue

@ Double-digit growth

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**



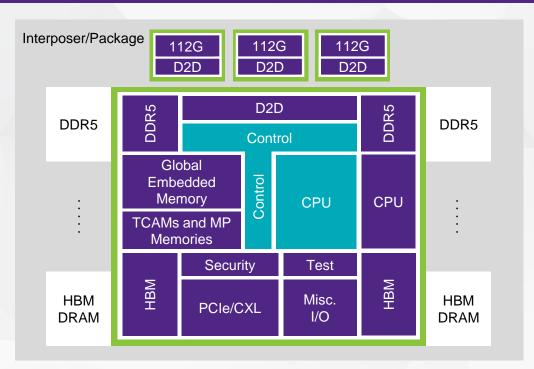
 Rapid data growth requires faster data access & local processing

#### **Artificial Intelligence**

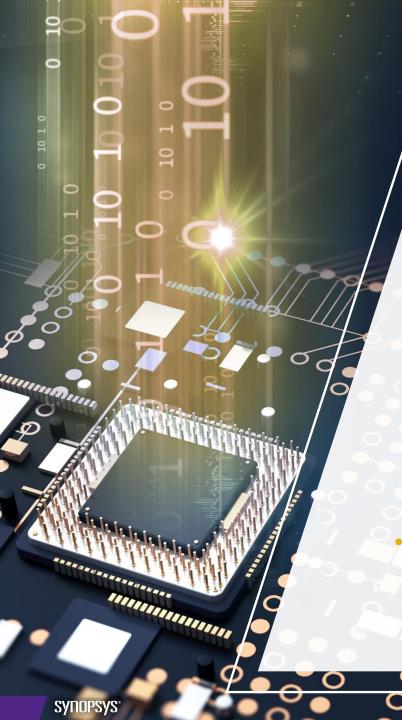


 Al accelerators in cloud servers extract insights from large data sets

## DesignWare® 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

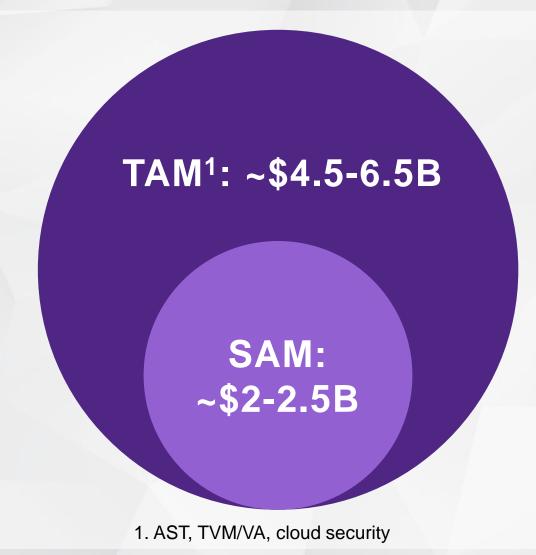


## **Leader in Software Integrity**

Entered the software security & quality space in 2014

- Assembled and developed the broadest portfolio of solutions on the market; \$449 million TTM revenue
- Solutions allow organizations to identify and fix security and quality defects throughout software development lifecycle
- Approximately \$2-2.5 billion served market: fragmented, with numerous point solutions; recognition of cost of software failure has increased dramatically
- Synopsys Polaris Software Integrity Platform® enables customers to fully leverage the strength of the core products and integrate Synopsys into critical development workflows

### Software Security & Quality Market



- Evolving, nascent market
- Growth drivers:
  - Omnipresence of software
  - Widespread connectivity exacerbates security issues
  - Significant business risk from breaches
  - Large development teams
- Market growth rate: mid-teens %
- Synopsys L-T multi-year growth objective:
   ~15-20% range\*

### The Most Complete Portfolio in the Industry

#### **Static Analysis**



- Find critical defects and vulnerabilities in code
- Runs in the dev environment and DevSecOps workflow
- OWASP Top 10 and CWE Top 25
- Automotive compliance (MISRA, ISO26262)

## **Software Composition Analysis**



- Find known vulnerabilities in open-source & 3rd party code
- Identifies license and compliance risks
- Tests source and binaries in apps and containers
- Supply chain total health with SW BoM

#### **Dynamic Analysis**



- Safely scan production applications
- Continuous scanning detects and adapts to code changes
- Fuzzing for automotive protocols and 5G
- Easily integrates with DevOps pipeline tools

#### **Security Services**

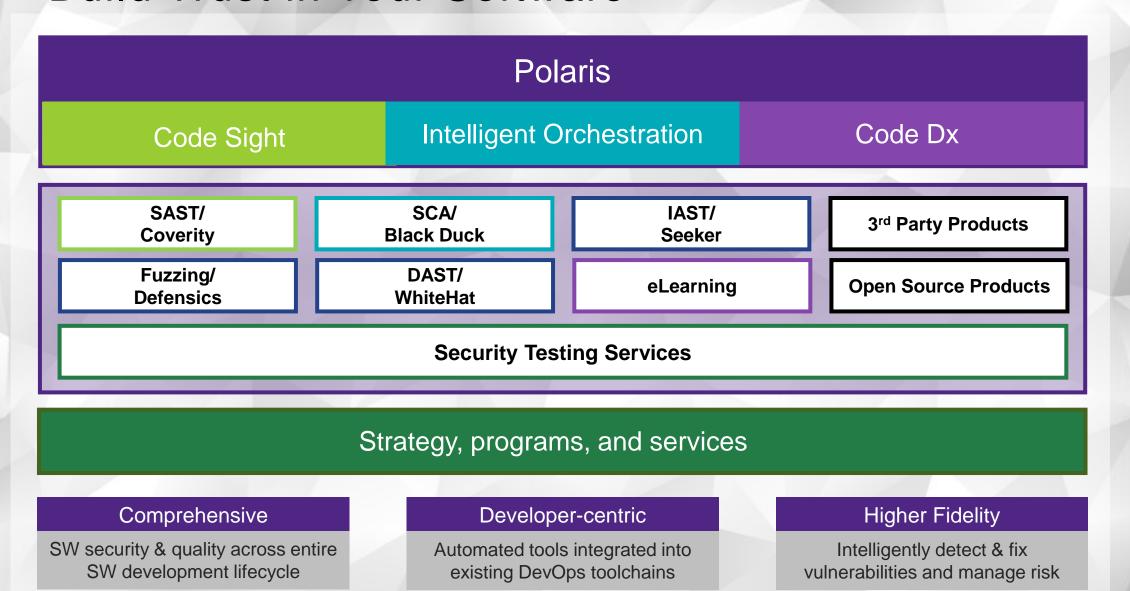


- Strategic analysis to build Software Security Initiative
- DevSecOps integration injects security into dev workflow
- Managed services provides full testing capabilities
- Architecture/design modeling eliminates software flaws

### Synopsys Completes Acquisition of WhiteHat Security

- In Q3'22, Synopsys completed the acquisition of WhiteHat Security, a leading provider of application security testing SaaS
- Provides significant SaaS capabilities and market-segment-leading DAST technology to expand our broad application security testing portfolio
- Paid \$330 million in cash
- Roughly neutral to FY2022 non-GAAP earnings per share

#### **Build Trust in Your Software**



# Synopsys is a Leader in Application Security Testing

Recognized as a Leader for the 6th year in a row

# 2022 Gartner Magic Quadrant for Application Security Testing

Download a free copy of the 2022 Magic Quadrant for Application Security Testing.



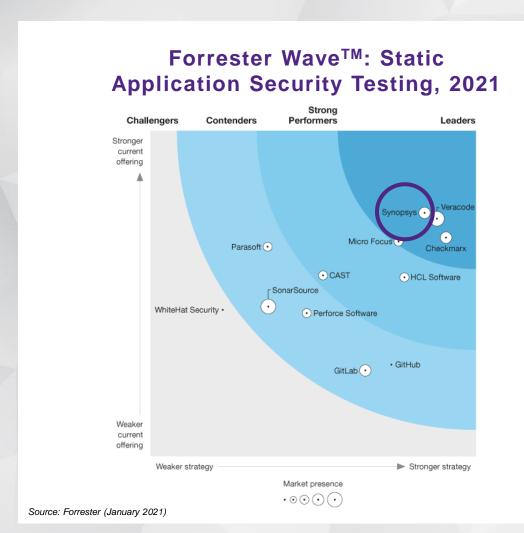
This graphic was published by Gartner, Inc. as part of a larger research document and should be evaluated in the context of the entire document. The Gartner document is available upon request here.

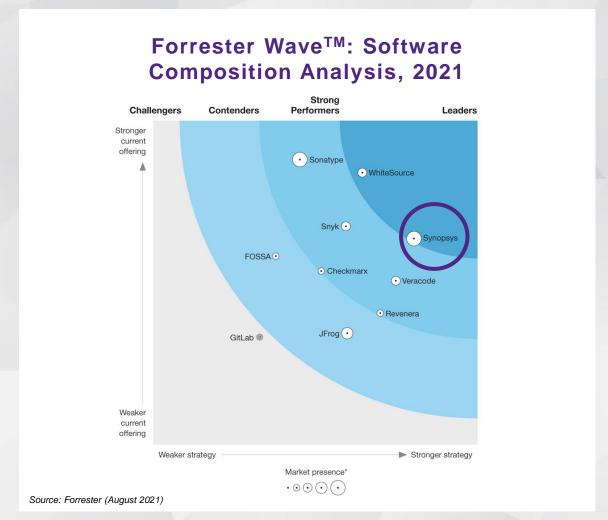
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Gartner, Inc. "Magic Quadrant for Application Security Testing" by Dale Gardner, Mark Horvath, and Dionisio Zumerle, April 18, 2022.

# Recognized Leader in End-to-End Application Security

Synopsys is the only vendor recognized as the leader in both SAST & Open Source (SCA)





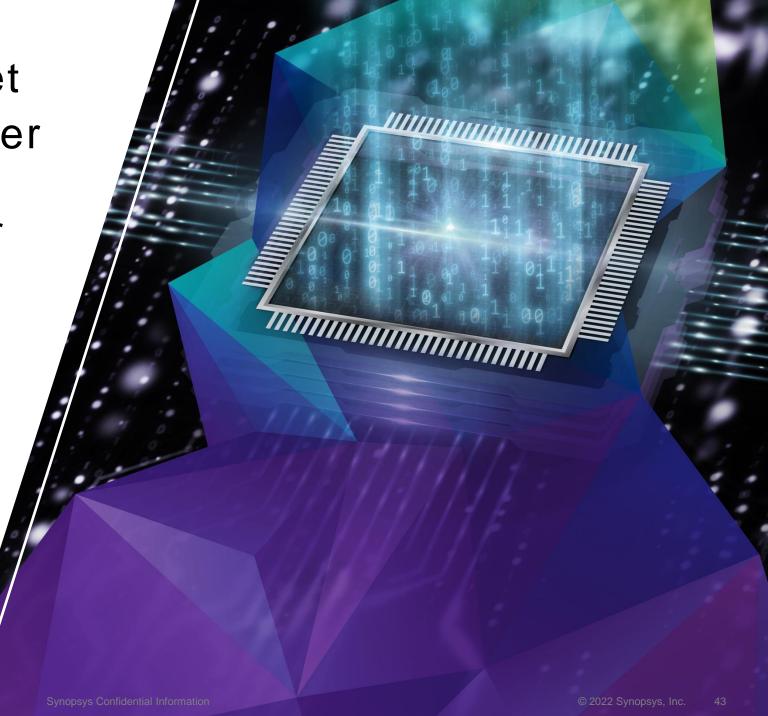
Download a free copy of The Forrester Wave™: Static Application Security Testing, Q1 2021

Download a free copy of The Forrester Wave™: Software Composition Analysis, Q3 2021

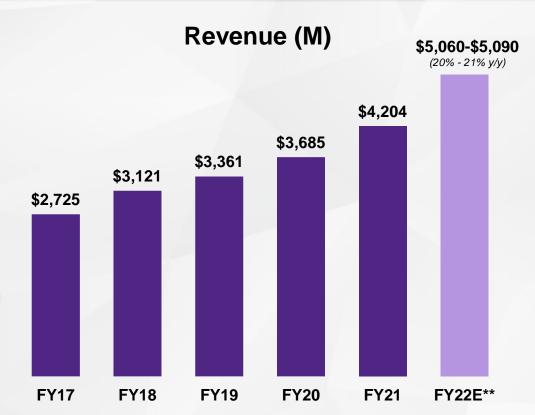
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- ► Financial Strength and Growth



## **Excellent Financial Execution**



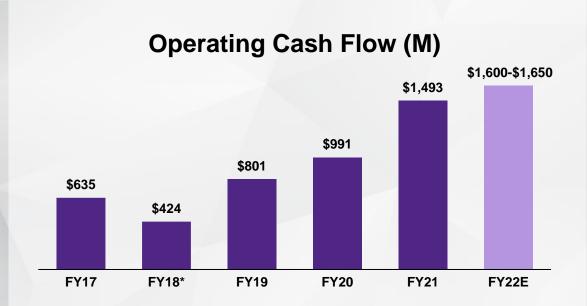
Recurring revenue model with \$7.1B noncancellable backlog provides stability throughout the business cycle



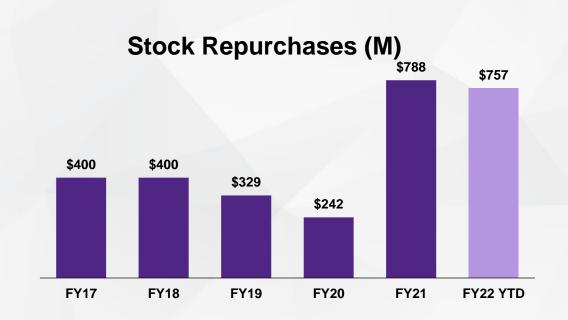
<sup>\*</sup> A GAAP to non-GAAP reconciliation of FY17 to FY22E earnings per share is included at the end of this presentation

<sup>\*\*</sup> FY22E reflects guidance provided as of August 17, 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 2017
- Capital allocation priorities:
  - Internal investments
  - Buybacks and acquisitions

<sup>\*</sup> Includes approximately \$230M in one-time payments

<sup>\*\*</sup> FY22E reflects targets provided by Synopsys as of August 17, 2022

# 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<sup>(1)</sup>

#### Earnings Per Share – Full Fiscal Year 2022 Targets

	Range for Fiscal Year October 31, 2022			
	Low		High	
Target GAAP earnings per diluted share	\$	6.37	\$	6.49
Adjustments:				
Amortization of intangible assets		0.63		0.62
Stock compensation		3.01		2.96
Acquisition-related costs		0.07		0.07
Restructuring charges		0.08		0.08
Tax adjustments		(1.36)		(1.37)
Target non-GAAP earnings per diluted share	\$	8.80	\$	8.85
Shares used in non-GAAP calculation (midpoint of target range)		157,500		157,500

<sup>(1)</sup> Synopsys' fiscal year 2022 will end on October 29, 2022. 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 August 17, 2022.

# GAAP to Non-GAAP Reconciliation<sup>(1)</sup>

#### Operating Margin – Midpoint of Fiscal Year 2022 Targets

	Twelve Months Ending October 31, 2022
At midpoint of revenue and expense guidance ranges	
GAAP operating margin	21.4%
Amortization of intangible assets	1.9%
Stock compensation	9.2%
Acquisition-related costs	0.2%
Restructuring charges	0.3%
Target non-GAAP operating margin	33.0%

- (1) Synopsys' fiscal year 2022 will end on October 29, 2022. 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 August 17, 2022, and do not represent official guidance for fiscal year 2022.

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 August 17, 2022.

## GAAP to Non-GAAP Reconciliation

#### Earnings Per Share – Full Fiscal Years 2017 to 2021 Actual Results

	ASC 605 FY2017	ASC 605 FY2018	ASC 606 FY2019	ASC 606 FY2020	ASC 606 FY2021
GAAP diluted net income per share	\$ 0.88 \$	2.82 \$	3.45 \$	4.27 \$	4.81
Adjustments:					
Amortization of intangible assets	0.70	0.82	0.65	0.59	0.52
Stock compensation	0.70	0.91	1.01	1.60	2.19
Acquisition-related costs	0.06	0.14	0.04	0.08	0.10
Restructuring charges	0.24	0.08	0.31	0.23	0.21
Legal matters	0.05	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 impact of repatriation	1.07	-	-	-	-
Tax settlement	-	-	0.11	-	-
Tax adjustments	(0.28)	(0.65)	(0.89)	(1.22)	(0.98)
Non-GAAP diluted net income per share	\$ 3.42 \$	3.91 \$	4.56 \$	5.55 \$	6.84

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 August 17, 2022.

