

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; business outlook, opportunities and strategies; customer demand and market expansion; strategies related to our products and technology; our planned product releases and capabilities; industry growth rates; software trends; planned acquisitions and buybacks; our expected tax rate; the expected impact of U.S. and foreign government action on our financial results; and the continued impact and duration 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 our 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 tariffs or export restrictions; and more. Additional information on potential risks, uncertainties and other factors that could affect Synopsys' results is included in filings it makes with the Securities and Exchange Commission from time to time, including in the sections entitled "Risk Factors" in its Annual Report on Form 10-K for the fiscal year ended October 31, 2021 and in its latest Quarterly Report on Form 10-Q. The information provided herein is as of February 16, 2022. Synopsys undertakes no duty, and does not intend, to updat

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 first quarter of fiscal year 2022 earnings release and financial supplement, dated February 16, 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)

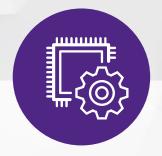
Semiconductor Intellectual Property (IP)

Software Security and Quality

	FY21	FY22 Targets ⁽¹⁾
Revenue:	\$4.20B	\$4.775B - \$4.825B
Growth Rate:	14.1%	14% - 15%
Non-GAAP Operating Margin:	30.5%	~31.9%* *Midpoint of range
Non-GAAP EPS:	\$6.84	\$7.85 - \$7.92
Growth Rate:	23.2%	15% - 16%
Operating Cash Flow:	\$1.49B	~\$1.45B - ~\$1.5B
Business Model:	Time-based, recurring revenue model; Non-cancellable backlog	

⁽¹⁾ These targets are being provided by Synopsys as of February 16, 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

~7 years

~10% of revenue

Emerging 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

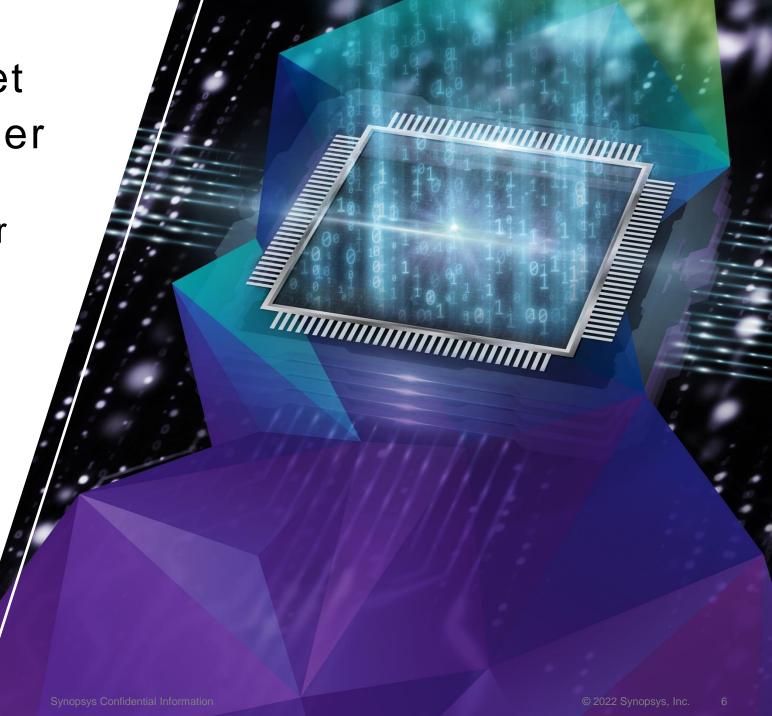
^{1.} These multi-year objectives are provided as of February 16, 2022.

^{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 Stability and Growth

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



Global Value Chain – 2021E

EDA & IP – At the Heart of Accelerating Electronics Innovation







Foundry \$107.2B



Semiconductors \$613.9B



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 business cycle
- Consists of virtually all semiconductor companies in the world, including all of the top 20
- One >10% customer in FY21

Systems



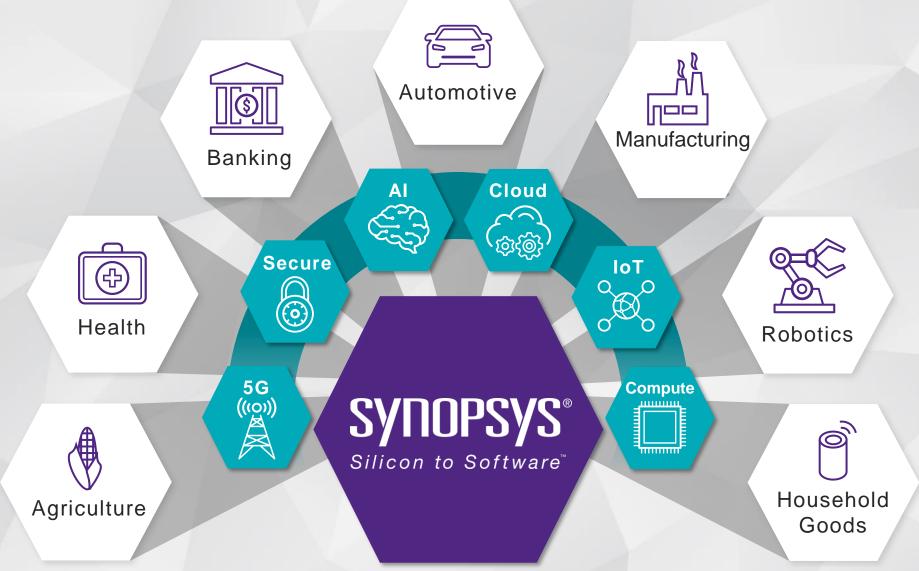
- >40% of our revenue comes from systems companies
- Systems companies develop chips as an input to an end product, rather than selling the chip itself
- Verification challenges are rapidly growing at the intersection of hardware and software

Software Developers



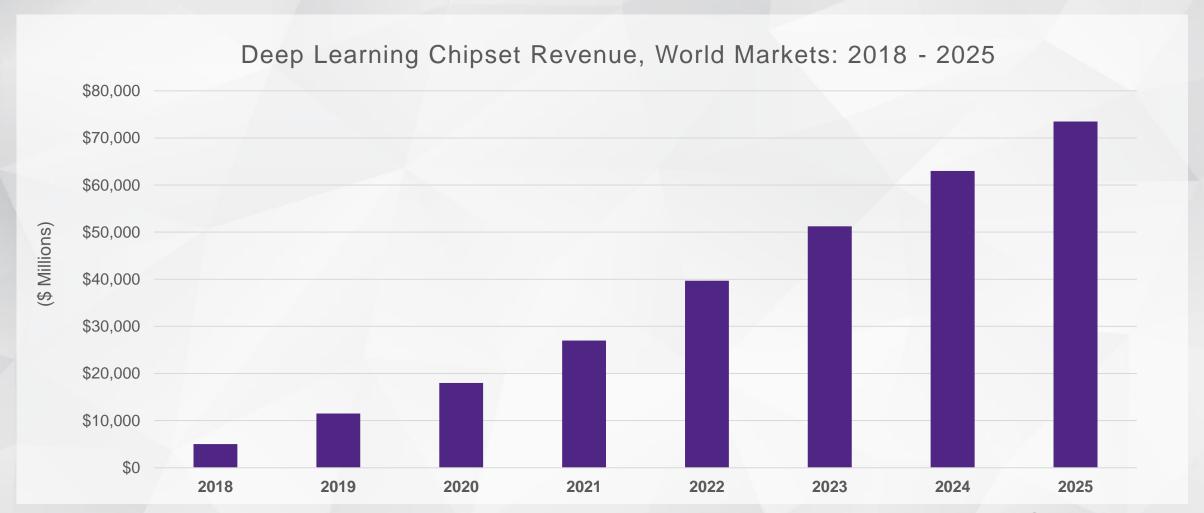
- Key function across all industries: semis and systems, to enterprises in segments such as financial services, medical devices, automotive, and industrial
- Targeting software developers
- Immense software complexity challenges plus high impact of security vulnerabilities

Demand for "Smart Everything" is Impacting Every Vertical



Artificial Intelligence Market Growth

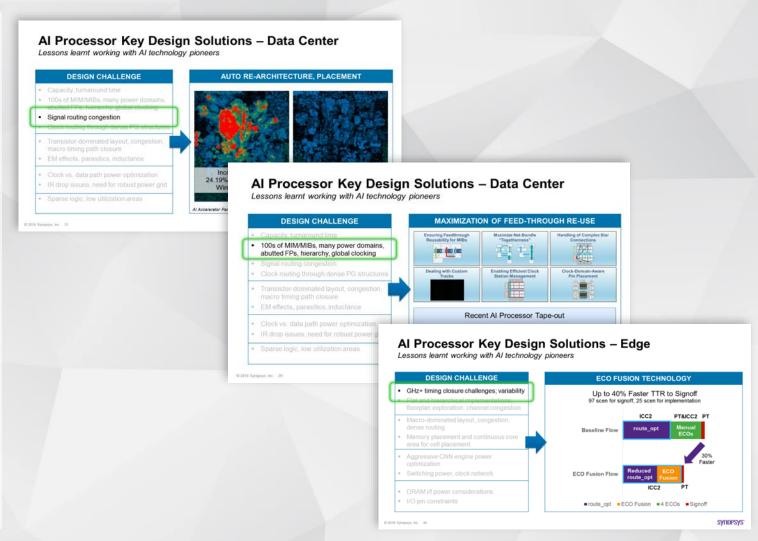
Deep Learning Chipset Market to Reach \$72B by 2025



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
- Fusion Design Platform[™] significantly enhanced to address AI processor design challenges

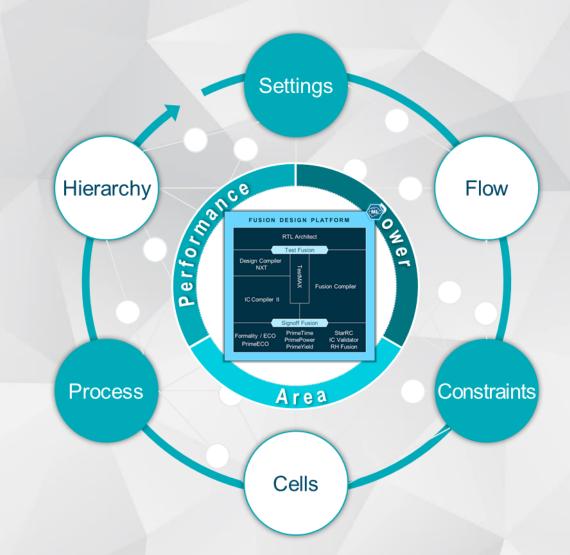


Enabling and Leveraging the Potential of Al

Leading Al-based Chip Design Technologies

- DSO.ai (Mar. 2020): The world's first Al-driven design solution, delivers a significant leap in designer productivity
- "ML Everywhere" enables continuous improvement for better PPA and faster TTR
- "Synopsys's PrimeTime with new machinelearning technology allows us to complete ECO runs in hours versus the days it took before, and reuse learnings across blocks, hierarchies, and even design styles."

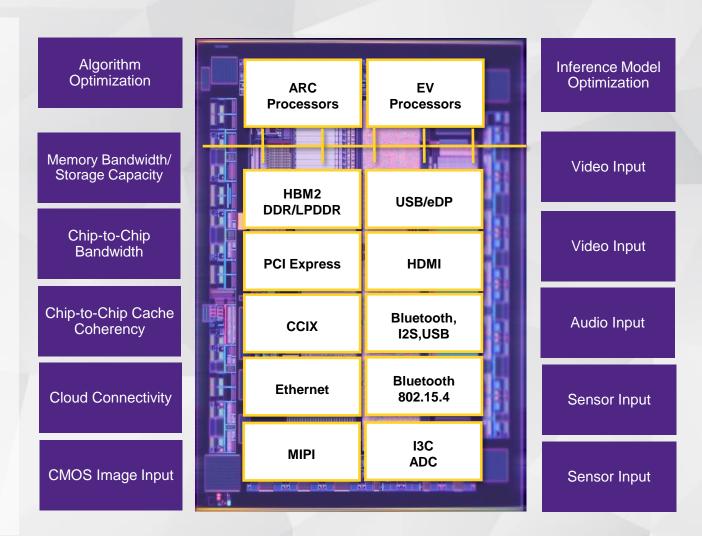
- Renesas



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

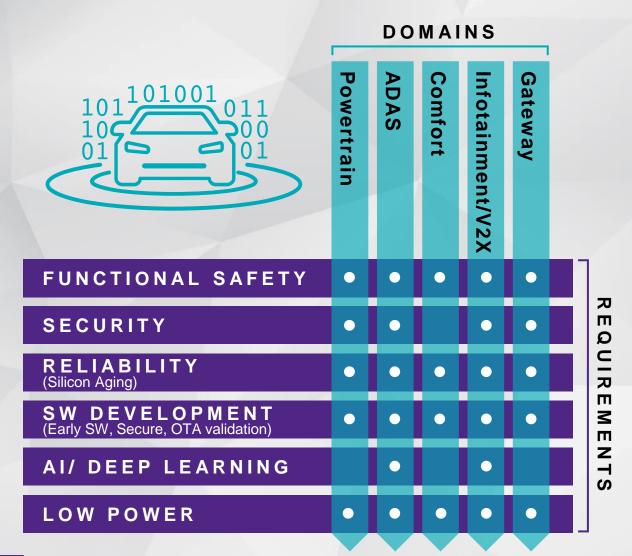


OWNERSHIP & INFRASTRUCTURE

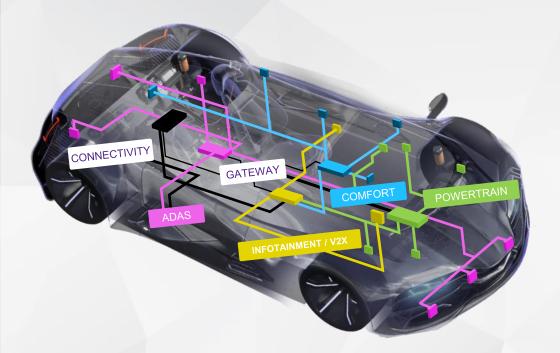
Entire Ecosystem

New Electronics Architecture Required

Integrated Compute and Smart Sensor Architecture Requires Redesign



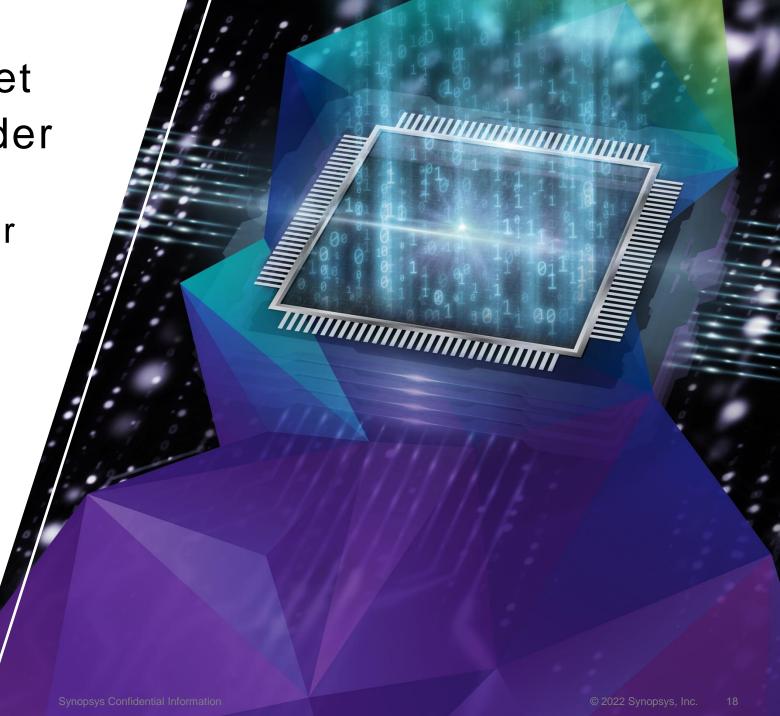
- Integrated Controllers per Domain
- Sensor Fusion
- Connectivity and upgradeability
- Highest reliability, security and safety



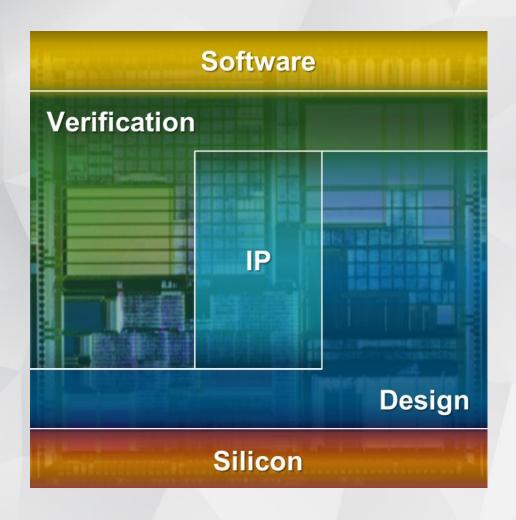
Synopsys: The Market and Technology Leader

Uniquely Positioned for Stability and Growth

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



Synopsys: Silicon to Software





Design

Silicon

- Application security & quality testing
- Leader in Gartner's Magic Quadrant
- Fastest engines & unified platform
- HW/SW verification & early SW bring-up
- Broadest portfolio of silicon-proven IP
- #1 interface, embedded mem. & physical IP
- Digital & custom AMS platforms
- Long-standing market leader
- Best quality of results & highest productivity
- TCAD, lithography tools & yield optimization
- Down to 5nm & below

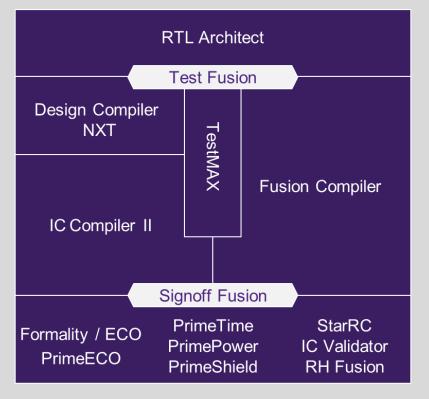
LEADER IN EDA

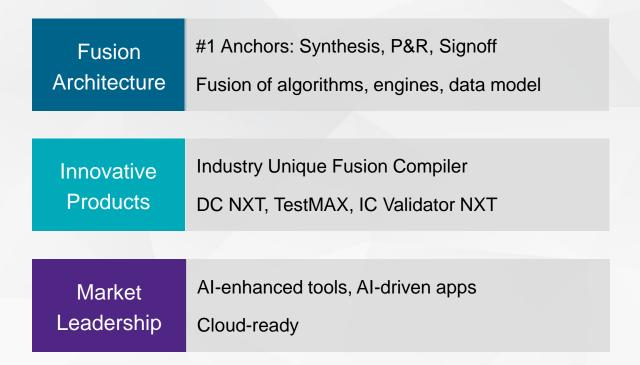
- Market and technology leader in EDA, the tools and technologies used to design semiconductor chips and systems
- ~\$8.9 billion market*; generally tracks semiconductor R&D spend over time
- Growth drivers: all aspects of chip & system complexity
- All leading semiconductor companies in the world use Synopsys technology
- State-of-the-art design and verification platforms with unmatched global support

* 2021E; Source: ESD Alliance, Internal estimates (Jan 2022)

#1 in Digital Design: Synopsys Fusion Design Platform™



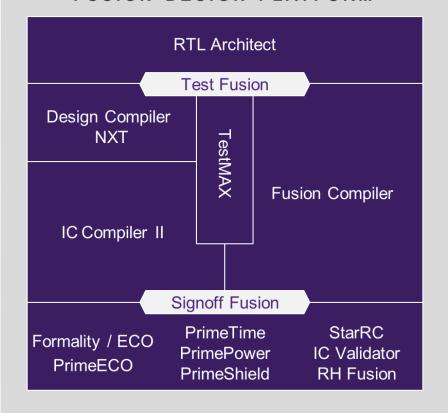




Synopsys Fusion Compiler™

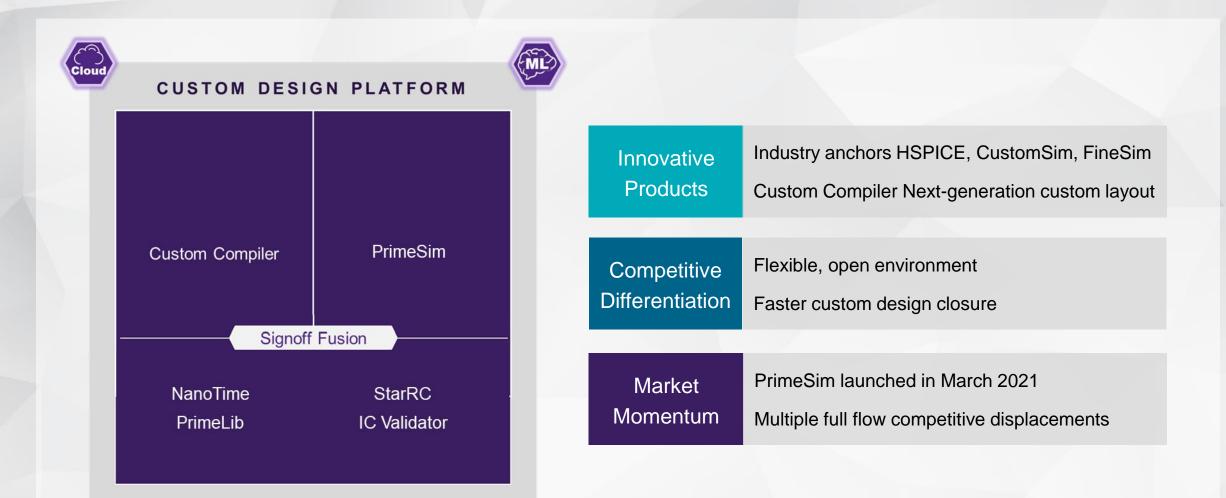


FUSION DESIGN PLATFORM

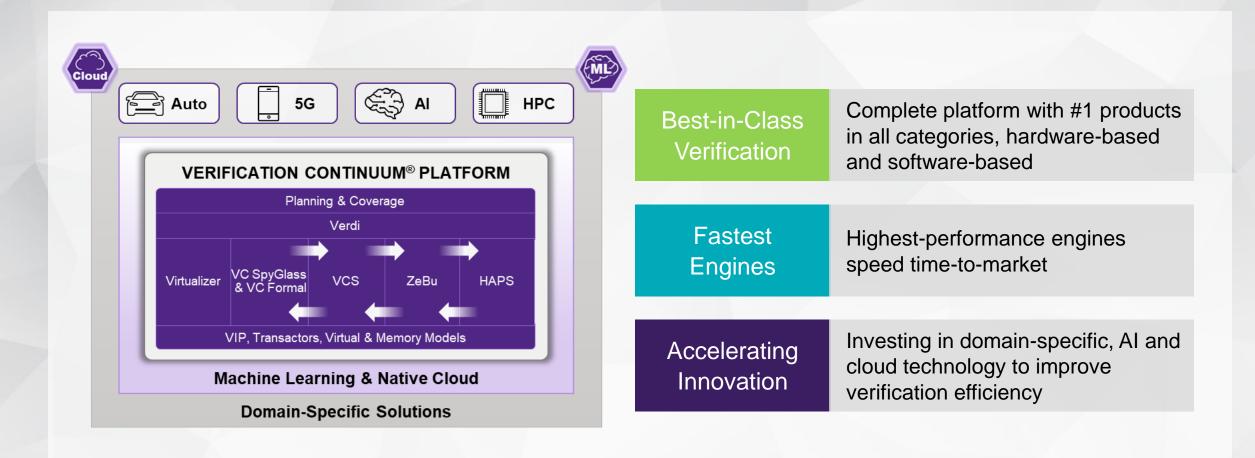


- Only single product on market with innovative next-generation integration of synthesis, place & route and key signoff technologies
- Built with market-leading products
- Redefines conventional product boundaries;
 sharing of algorithms, code and data model
- New synthesis engine, developed from ground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

Custom Design Platform



Verification Continuum® Platform



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

1/10th 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

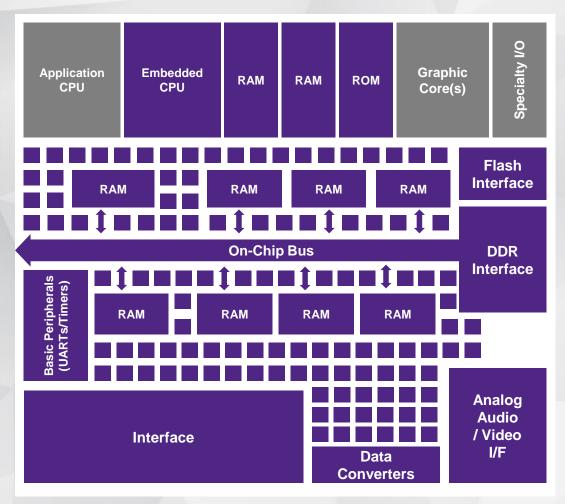
Broadest portfolio of accessory cards for real-world IO connectivity

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
 - ~\$5.1 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

* 2021E; Source: Ipnest (Oct 2021); Internal estimates (Jan 2022)

Broadest and Most Comprehensive IP Platform



- Broadest portfolio available in the market; FY21 revenue >\$1B
- Covers vast majority of chip
- Growing demand for more integrated subsystems
- New markets drive new opportunities
- Customers count on us for the long haul to accelerating time-to-market and reduce risk

Synopsys Portfolio

^{*} Small boxes are standard cell library elements.

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



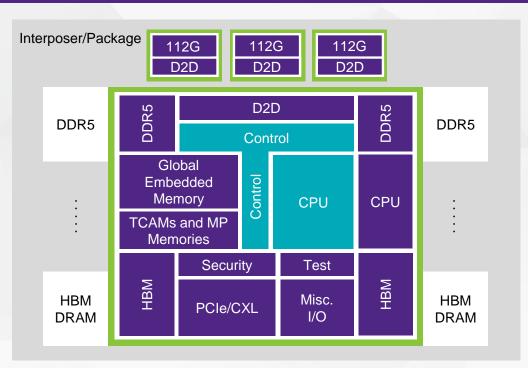
 Rapid data growth requires faster data access & local processing

Artificial Intelligence



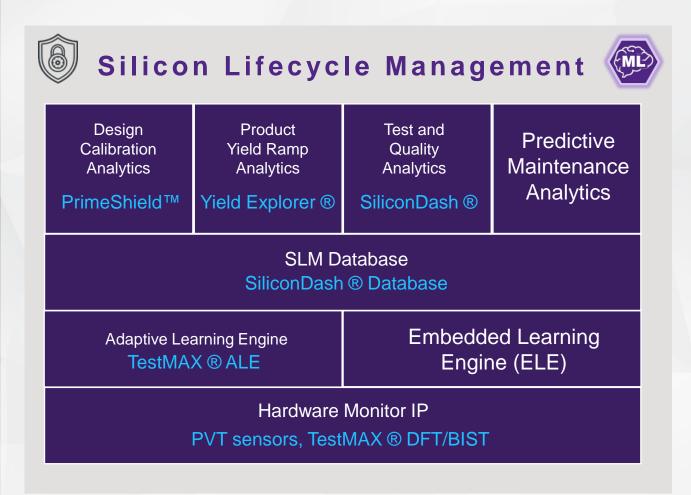
 Al accelerators in cloud servers extract insights from large data sets

DesignWare® Interface, Foundation and Processor IP for Cloud Applications

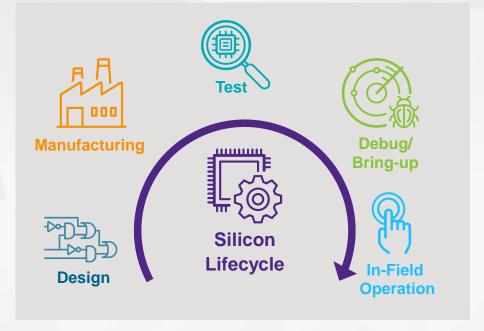


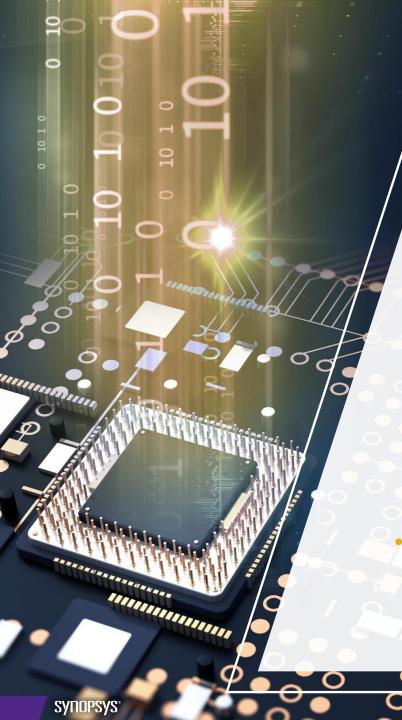
- Interface IP: PCle 6.0, 5.0, CXL, HBM2/2E, DDR5, 112G Ethernet, Die-to-Die
- Foundation IP: specialty memories & logic libraries
- Processor IP: ARC HS Processors

Silicon Lifecycle Management Platform



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



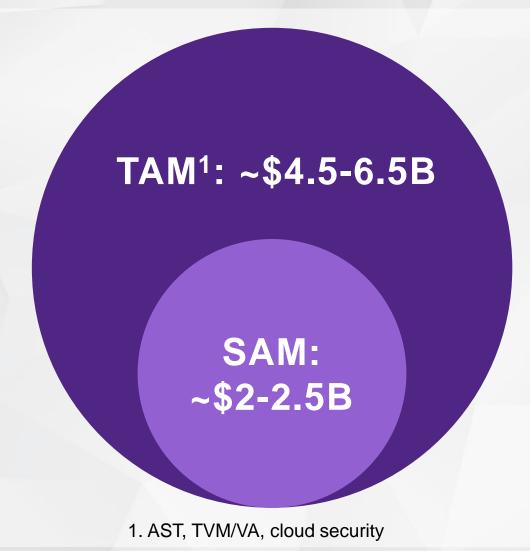


Leader in Software Integrity

Entered the software security & quality space in 2014

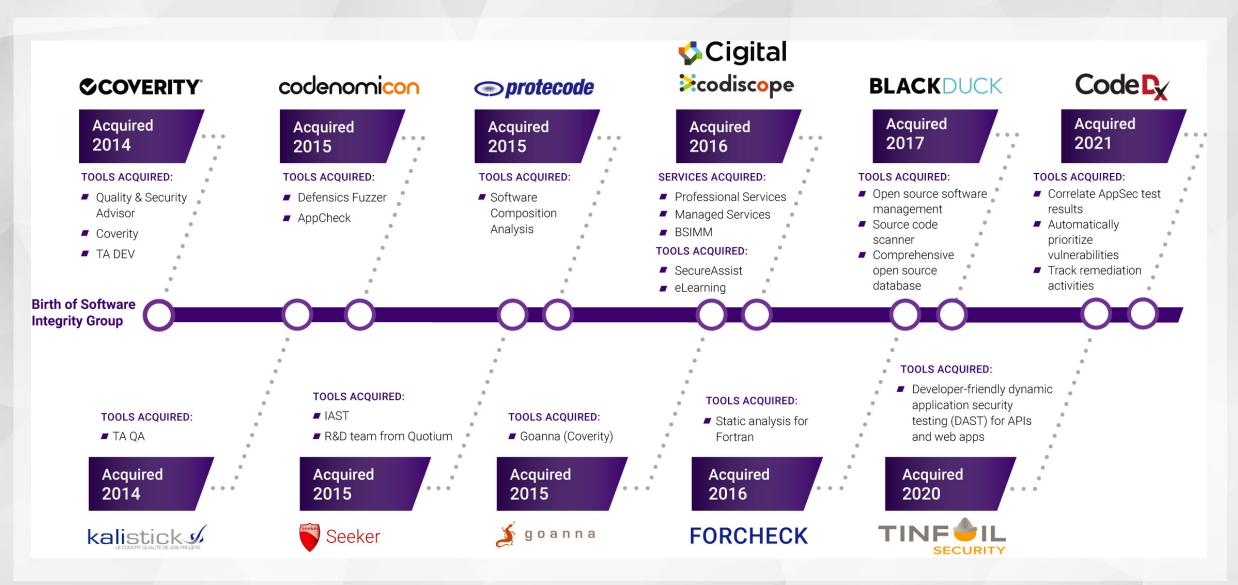
- Assembled and developed the broadest portfolio of solutions on the market; \$394 million revenue in FY21
- Solutions allow organizations to identify and fix security and quality defects early in software development lifecycle
- Approximately \$2-2.5 billion served market: fragmented, with numerous 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*

Growing the Software Integrity Platform - Acquisitions



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



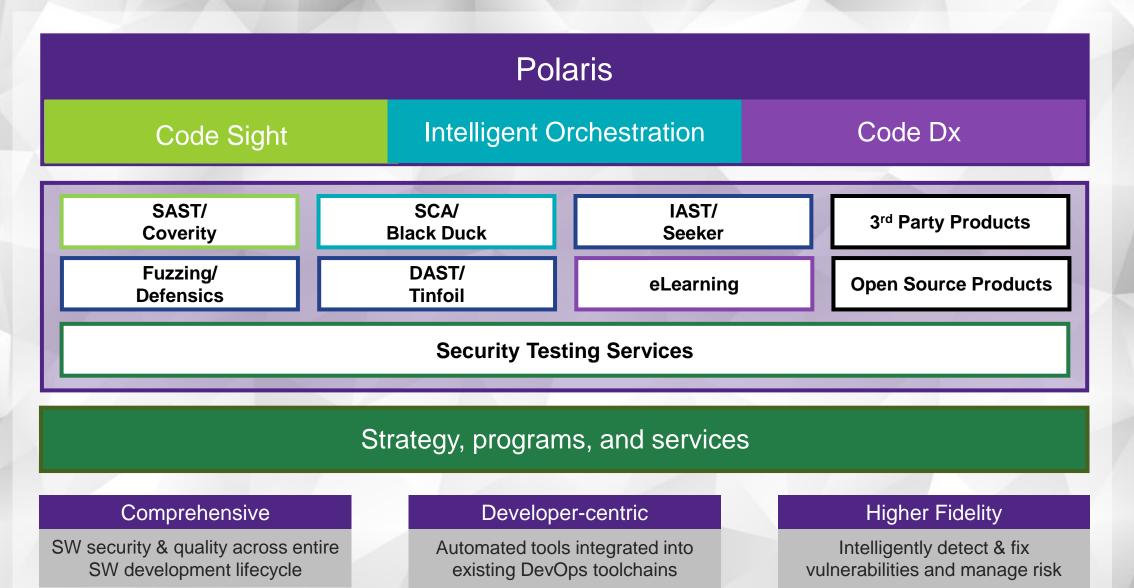
- Tests running apps for security vulnerabilities
- Enables dev to fix security flaws early in the SDLC
- API Scanner for IoT devices and mobile backend servers
- Fuzzing for automotive protocols and 5G

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

Build Trust in Your Software



Synopsys is a Leader in Application Security Testing

Recognized as a Leader for the 5th year in a row

2021 Gartner Magic Quadrant for Application Security Testing

Download a free copy of the 2021 Magic Quadrant for Application Security Testing.



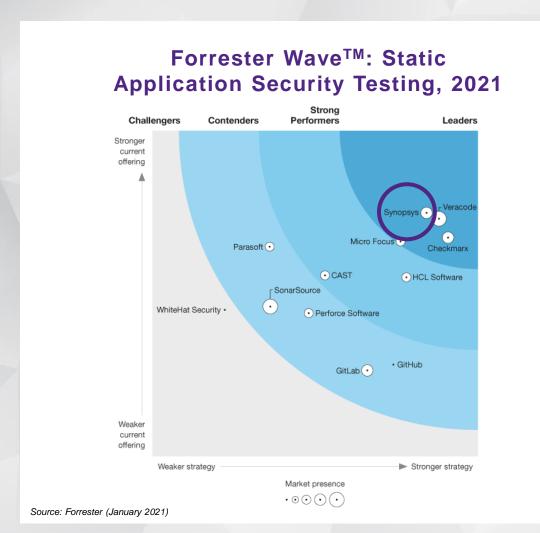
This graphic was published by Gartner, Inc. as part of a larger research document and should be evaluated in the context of the entire document. The Gartner document is available upon request here.

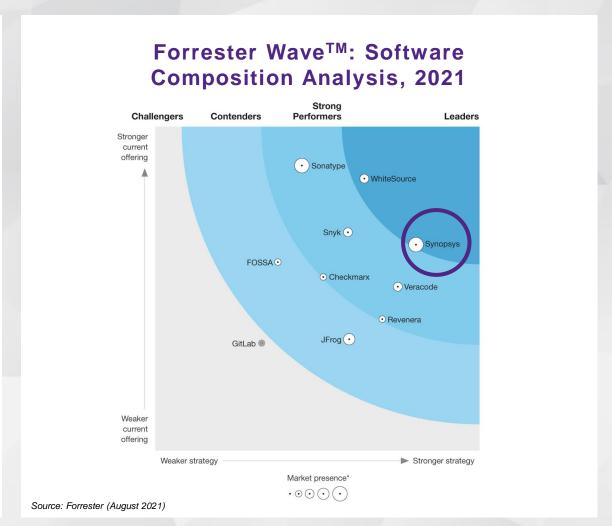
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Gartner, Inc. "Magic Quadrant for Application Security Testing" by Dale Gardner, Mark Horvath, and Dionisio Zumerle, May 27, 2021.

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

Trusted Partner



17 of the Top 25
Commercial
Banks



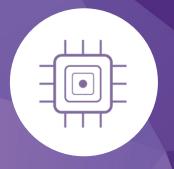
5 of the Top 5 Financial Data Services Firms



9 of the Top 10 Software Companies



5 of the Top 5Aerospace &
Defense Firms



14 of the Top 15
Semiconductor
Manufacturers



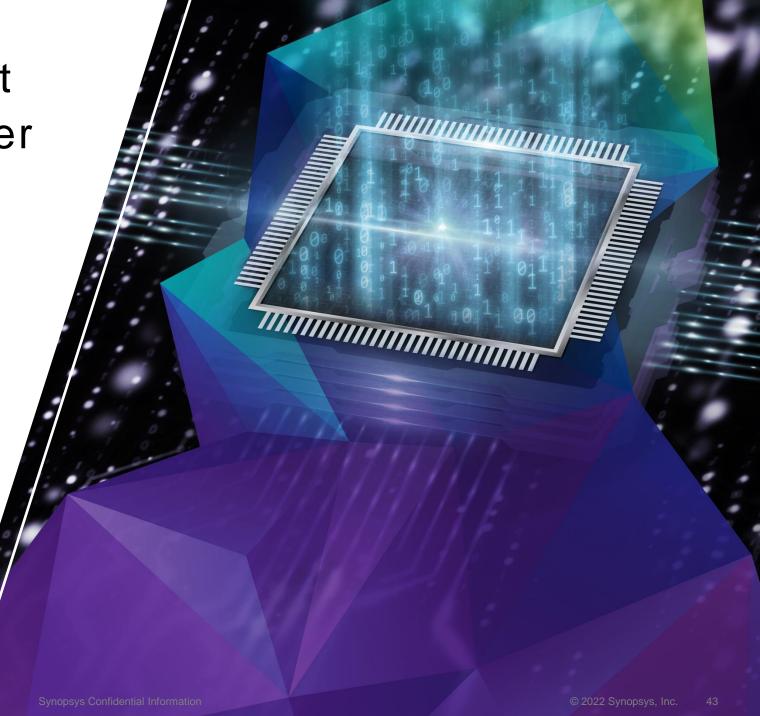
3 of the Top 4 U.S. communications providers

Our mission is to help build secure, high-quality software faster

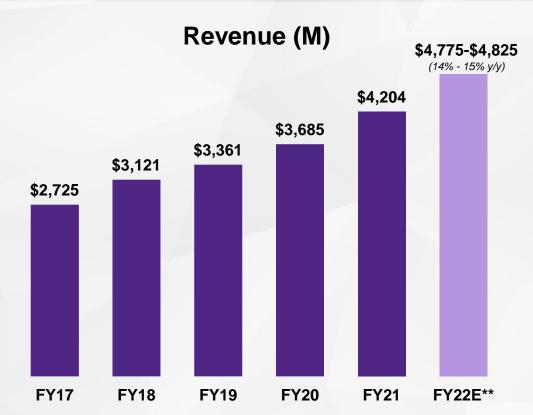
Synopsys: The Market and Technology Leader

Uniquely Positioned for Stability and Growth

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



Excellent Financial Execution



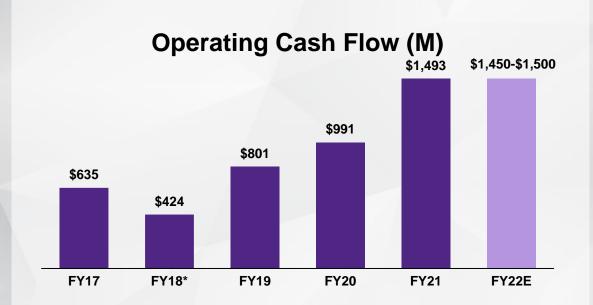
Recurring revenue model with \$6.9B noncancellable backlog provides stability throughout the business cycle



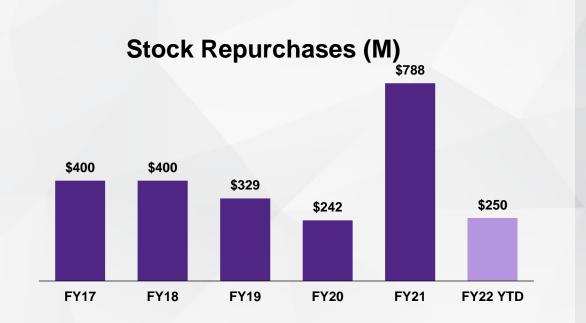
^{*} A GAAP to non-GAAP reconciliation of FY17 to FY22E earnings per share is included at the end of this presentation

^{**} FY22E reflects guidance provided as of February 16, 2022

Cash Flow & Capital Allocation



- Roughly tracks EBITDA less cash taxes on multi-year basis
- Variable from year to year, based mainly on timing of large contracts and payments



- Repurchased more than \$2B in stock since 2017
- Capital allocation priorities:
 - Internal investments
 - Buybacks and acquisitions

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

^{**} FY22E reflects targets provided by Synopsys as of February 16, 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 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 2022 Targets

	Range for Fiscal Year				
	Octo Low \$ 5.50 le assets 0.54 0.07 0.07 0.07 0.07 0.125 0.1	October	31, 202	22	
	Low		High		
Target GAAP earnings per share	\$	5.53	\$	5.72	
Adjustments:					
Amortization of intangible assets		0.54		0.50	
Stock compensation		2.98		2.90	
Acquisition-related costs		0.01		0.01	
Restructuring charges		0.07		0.07	
Tax adjustments		(1.28)		(1.28)	
Target non-GAAP earnings per share	\$	7.85	\$	7.92	
Shares used in non-GAAP calculation (midpoint of target range)		158,500		158,500	

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 February 16, 2022.

Dames for Fiscal Vocas

⁽¹⁾ Synopsys' fiscal year will end on October 29, 2022. For presentation purposes, we refer to the closest calendar month end.

GAAP to Non-GAAP Reconciliation⁽¹⁾

Operating Margin – Midpoint of Fiscal Year 2022 Targets

	Twelve Months Ended October 31, 2022	
At midpoint of revenue and expense guidance ranges		
GAAP operating margin	20.3%	
Amortization of intangible assets	1.7%	
Stock compensation	9.7%	
Acquisition-related costs	0.0%	
Restructuring charges	0.2%	
Target non-GAAP operating margin	31.9%	

- (1) Synopsys' fiscal year 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 February 16, 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 February 16, 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 February 16, 2022.

