SYNOPSYS®

Silicon to Software™

Corporate Overview for Investors

FEBRUARY 2023



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, technology and services; 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, 2022 and in our latest Quarterly Report on Form 10-Q. The financial information contained in this presentation should be read in conjunction with the consolidated financial statements and notes thereto included in Synopsys' most recent reports on Forms 10-K and 10-Q, each as may be amended from time to time. Synopsys' financial results for its first quarter of fiscal year 2023 are not necessarily indicative of Synopsys' operating results for any future periods. The information provided herein is as of February 15, 2023. Synopsys undertakes no duty to, 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. When possible, Synopsys provides a reconciliation of non-GAAP financial measures to their most closely applicable GAAP financial measures. Reconciliations of certain 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 2023 earnings release and financial supplement, dated February 15, 2023, and available on Synopsys' website at https://investor.synopsys.com/news/default.aspx. Synopsys is unable to provide a reconciliation of certain 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. For the same reasons, Synopsys is unable to address the probable significance of the unavailable information.

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Synopsys: The Market & Technology Leader

Broad Product Portfolio

Electronic Design Automation (EDA)

Semiconductor Intellectual Property (IP)

Software Security and Quality

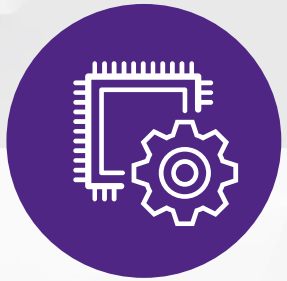
	FY22	FY23 Targets(1)(2)
Revenue:	$5.08B	$5.775B - $5.825B
Growth Rate:	*20.9%*	*14% - 15%*
Non-GAAP Operating Margin:	33.0%	~34.1%* **Midpoint of range*
Non-GAAP Diluted EPS:	$8.90	$10.53 - $10.60
Growth Rate:	*30.1%*	*18% - 19%*
Operating Cash Flow:	$1.74B	~$1.65B
Business Model:	Time-based, recurring revenue model; Non-cancellable backlog	

(1) These targets are being provided by Synopsys as of February 15, 2023.

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

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Synopsys: The Market & Technology Leader



Design Automation

~35 years of investment and execution

~65% of revenue

Market Leader



Design IP

>20 years

~25% of revenue

#2 IP Vendor



Software Integrity

~9 years

~10% of revenue

Industry Leader, Broadest Portfolio

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Long-term Financial Objectives[1]

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[2] are:

Revenue

Annual double-digit growth

- Design Automation: double-digits
  - Design IP: mid-teens
  - Software Integrity: 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

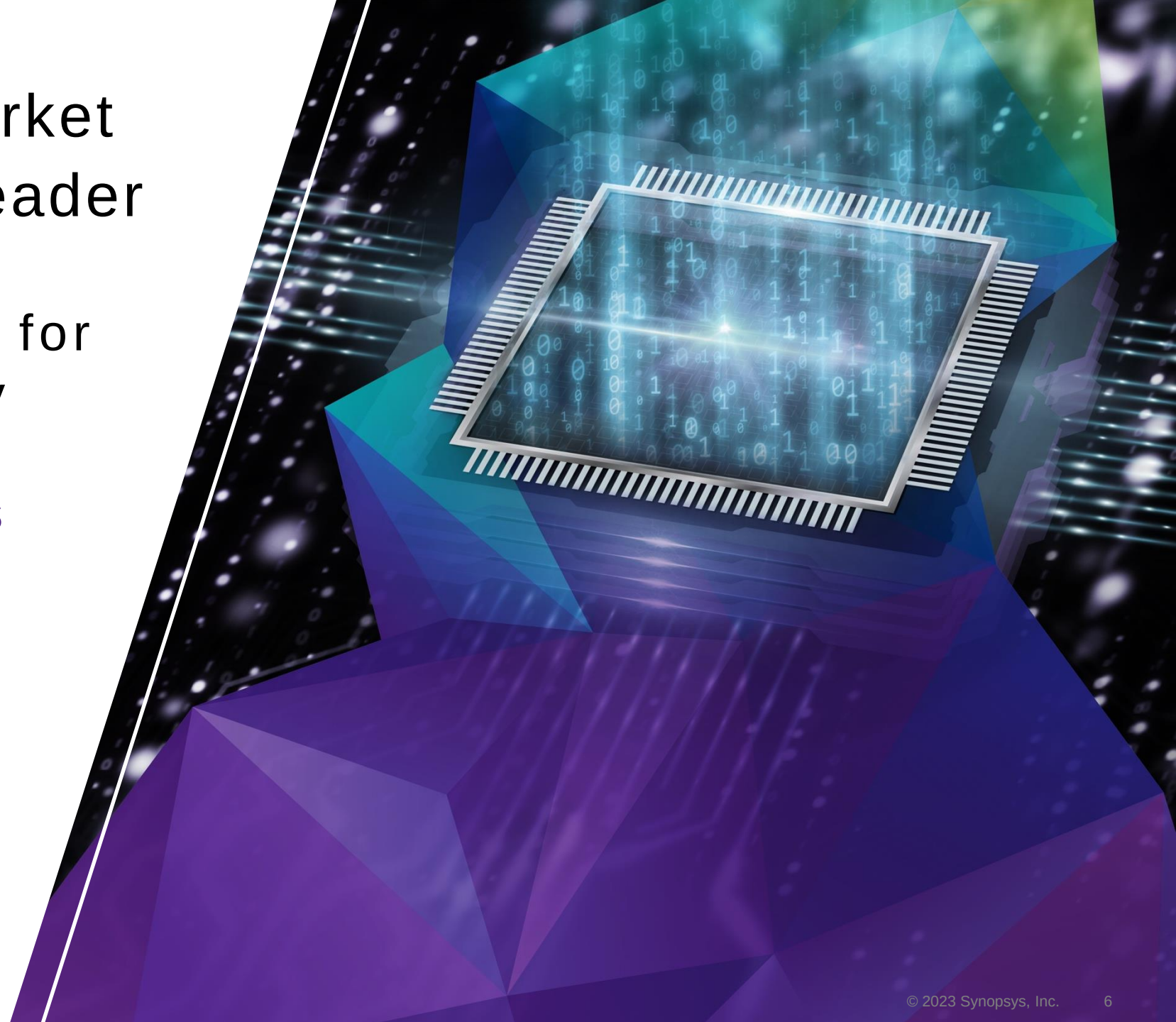
1. These multi-year objectives are provided as of February 15, 2023.
2. Period to period fluctuations are a normal element of our business, driven particularly by timing of hardware and IP deliveries. Variability, which increased as a result of Accounting Standards Code (ASC) 606 adoption, should be expected.

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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



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Global Value Chain – 2022E

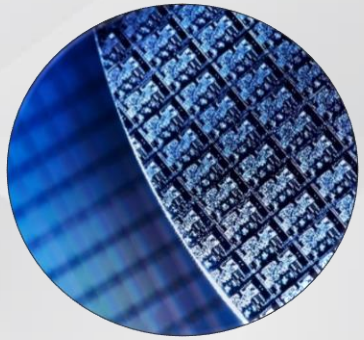
EDA & IP – At the Heart of Accelerating Electronics Innovation



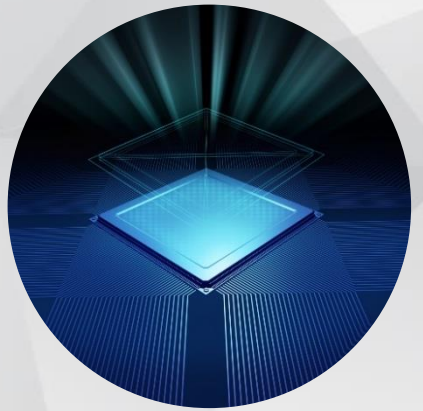
EDA & IP
$16.3B



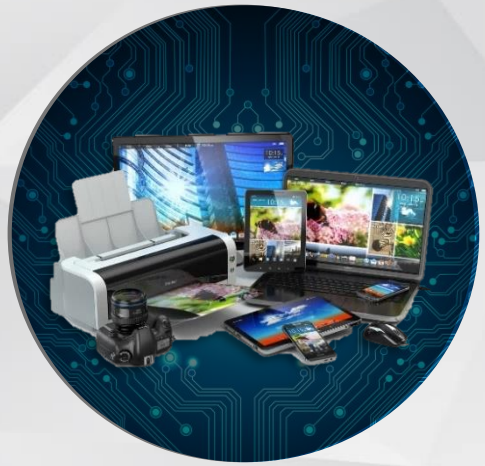
Embedded Software
$13.9B



Foundry
$144B



Semiconductors
$637B



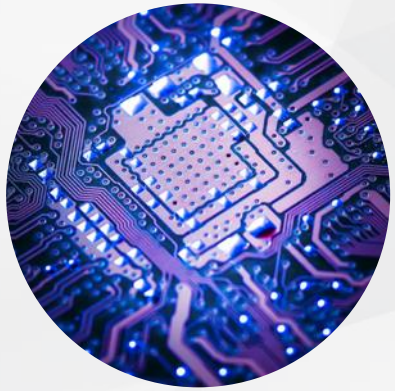
Electronic Systems
$1.855T

Sources: ESD Alliance, Ipnest, MarketsandMarkets, IC Insights

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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

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Dynamic Change in Many Markets



Demand for Smart Everything seems limitless

Innovation is fueled by semiconductor and software advances

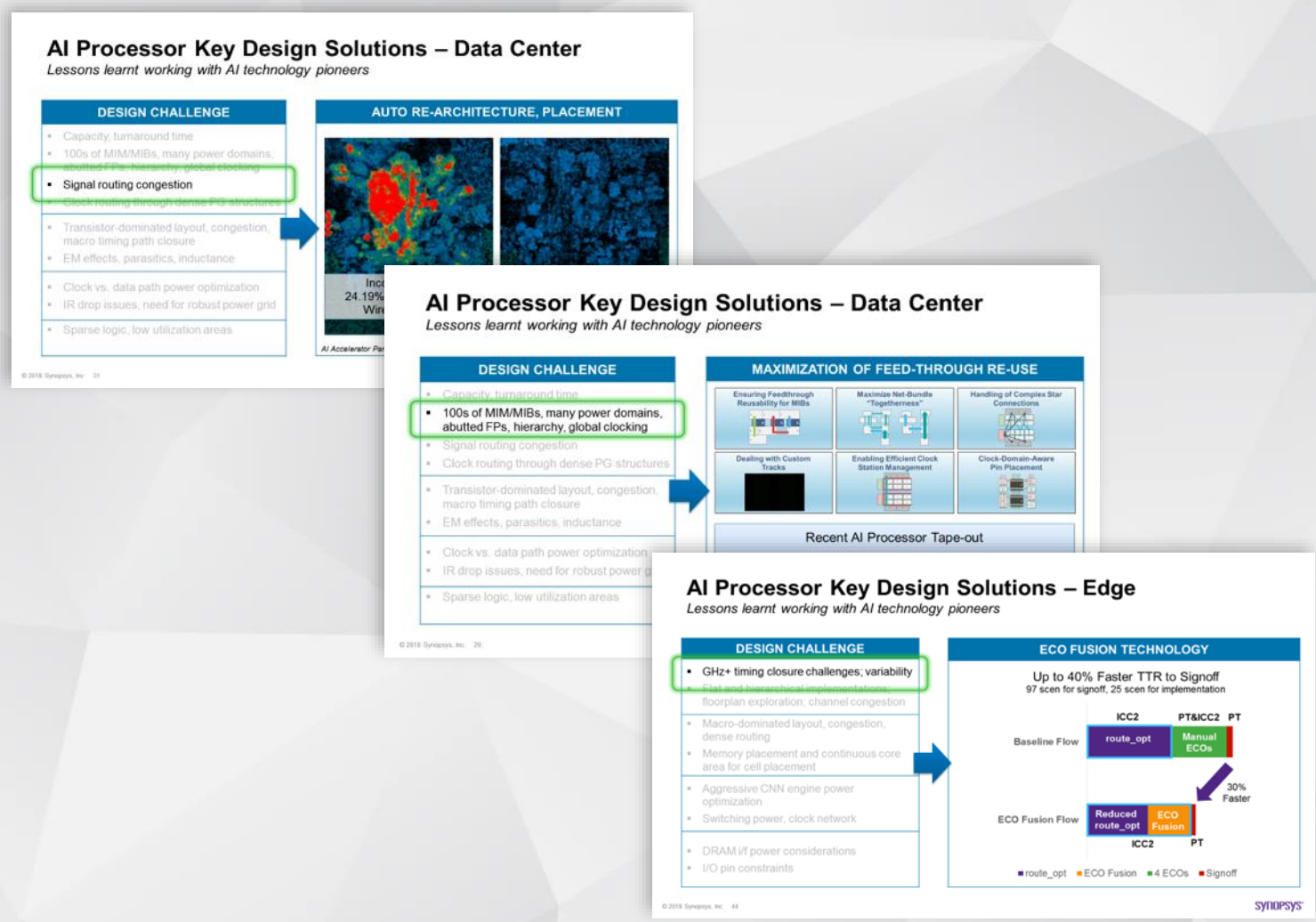
Driven by fusion of big data, massive compute, and machine learning

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Enabling and Leveraging the Potential of AI

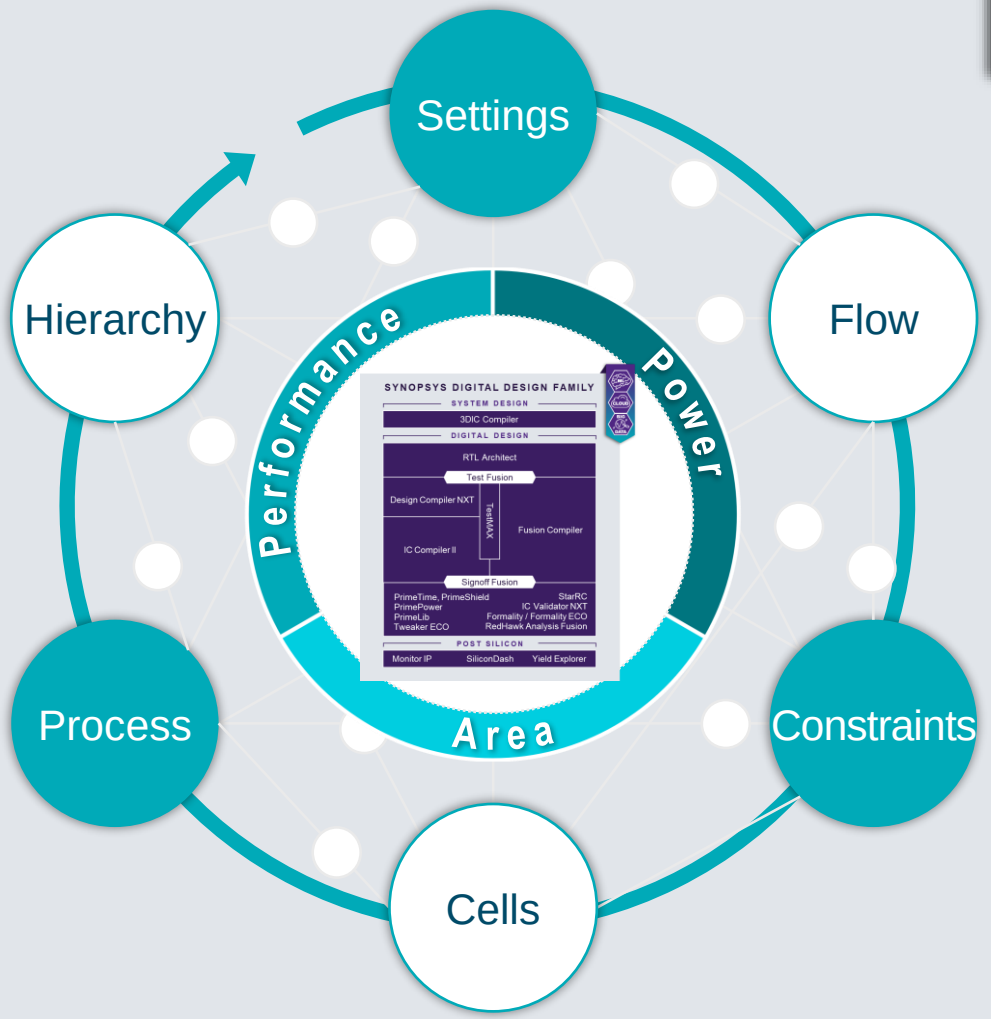
Design and Verification Tools for AI Processors

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



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Enabling and Leveraging the Potential of AI



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

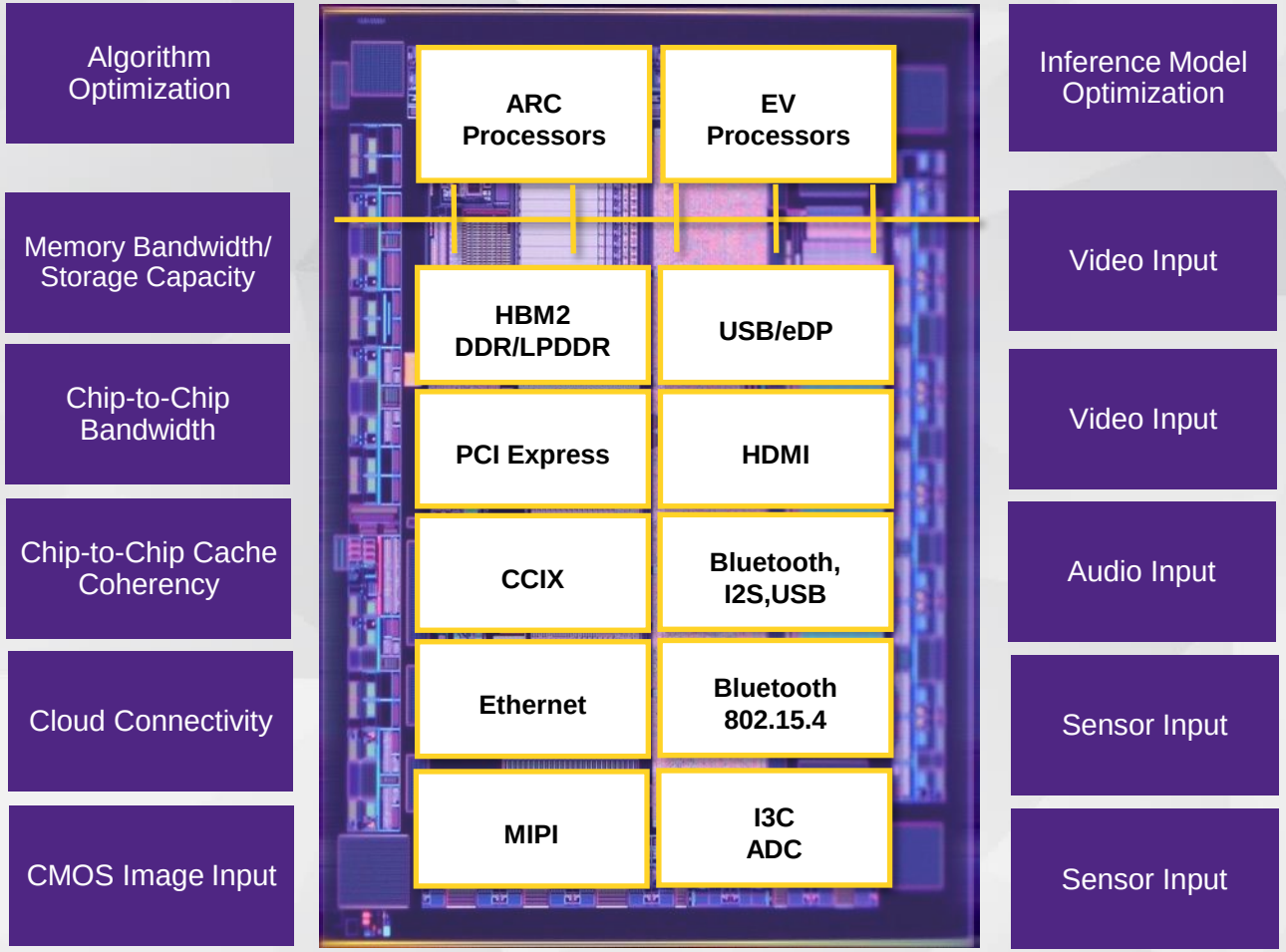
Breakthrough Reinforcement Learning	Capable of searching trillions of design permutations for best PPA solutions
Fast Ramp-Up	Fully-integrated with the Digital Design Family – industry's richest technology foundation
Cloud-Ready	Supports on-prem, public, and hybrid clouds for fast deployment

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Enabling and Leveraging the Potential of AI

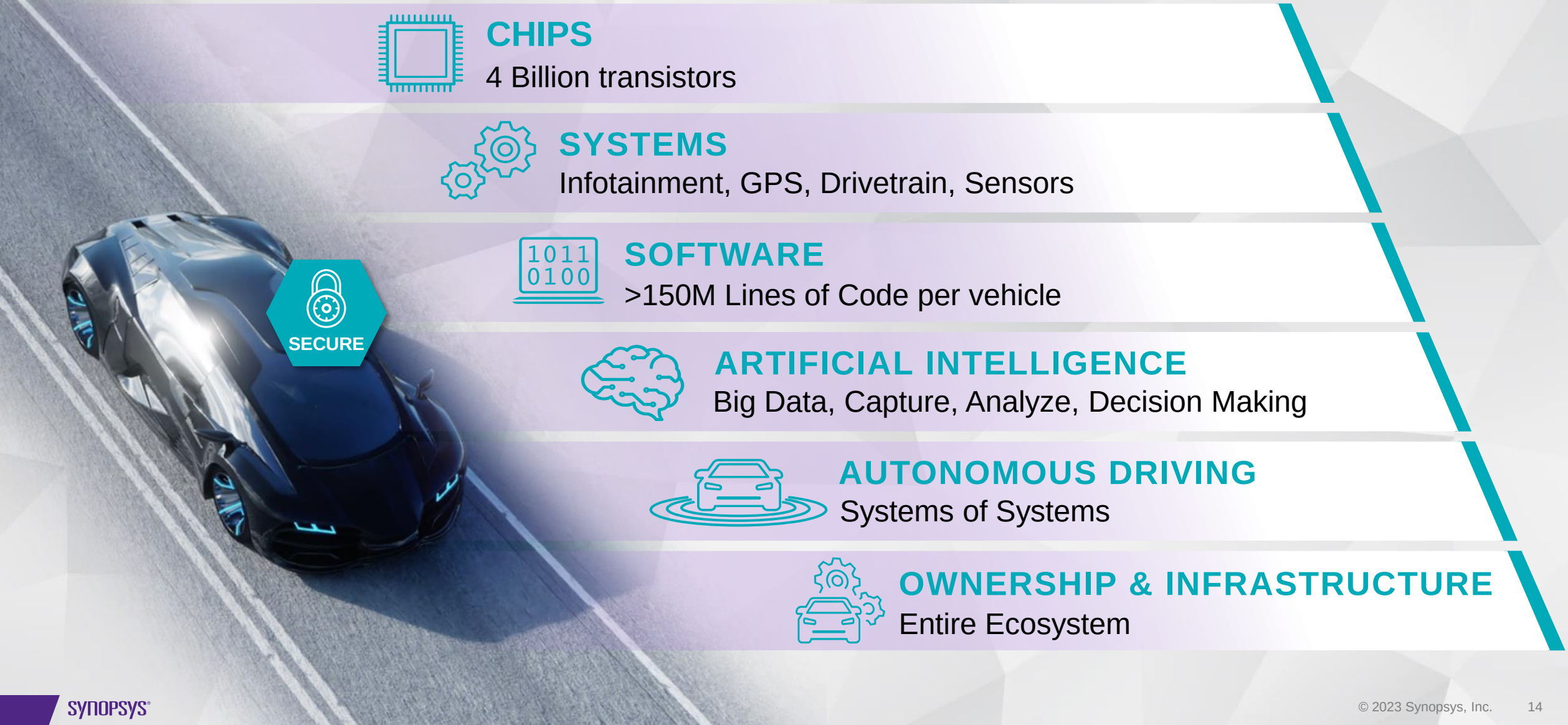
IP Solutions Designed for AI Applications

- 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



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Automotive – A Case Study



CHIPS
4 Billion transistors

SYSTEMS
Infotainment, GPS, Drivetrain, Sensors

SOFTWARE
>150M Lines of Code per vehicle

ARTIFICIAL INTELLIGENCE
Big Data, Capture, Analyze, Decision Making

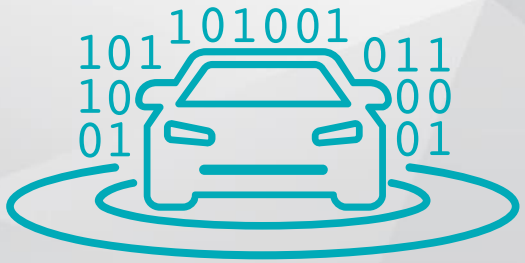
AUTONOMOUS DRIVING
Systems of Systems

OWNERSHIP & INFRASTRUCTURE
Entire Ecosystem

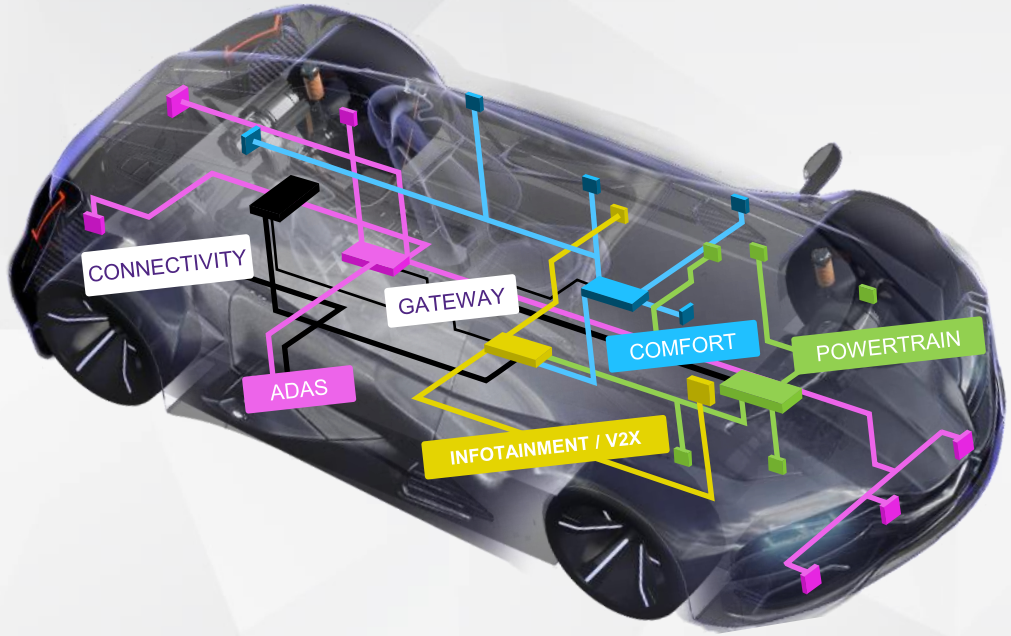
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New Electronics Architecture Required

Integrated Compute and Smart Sensor Architecture Requires Redesign



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

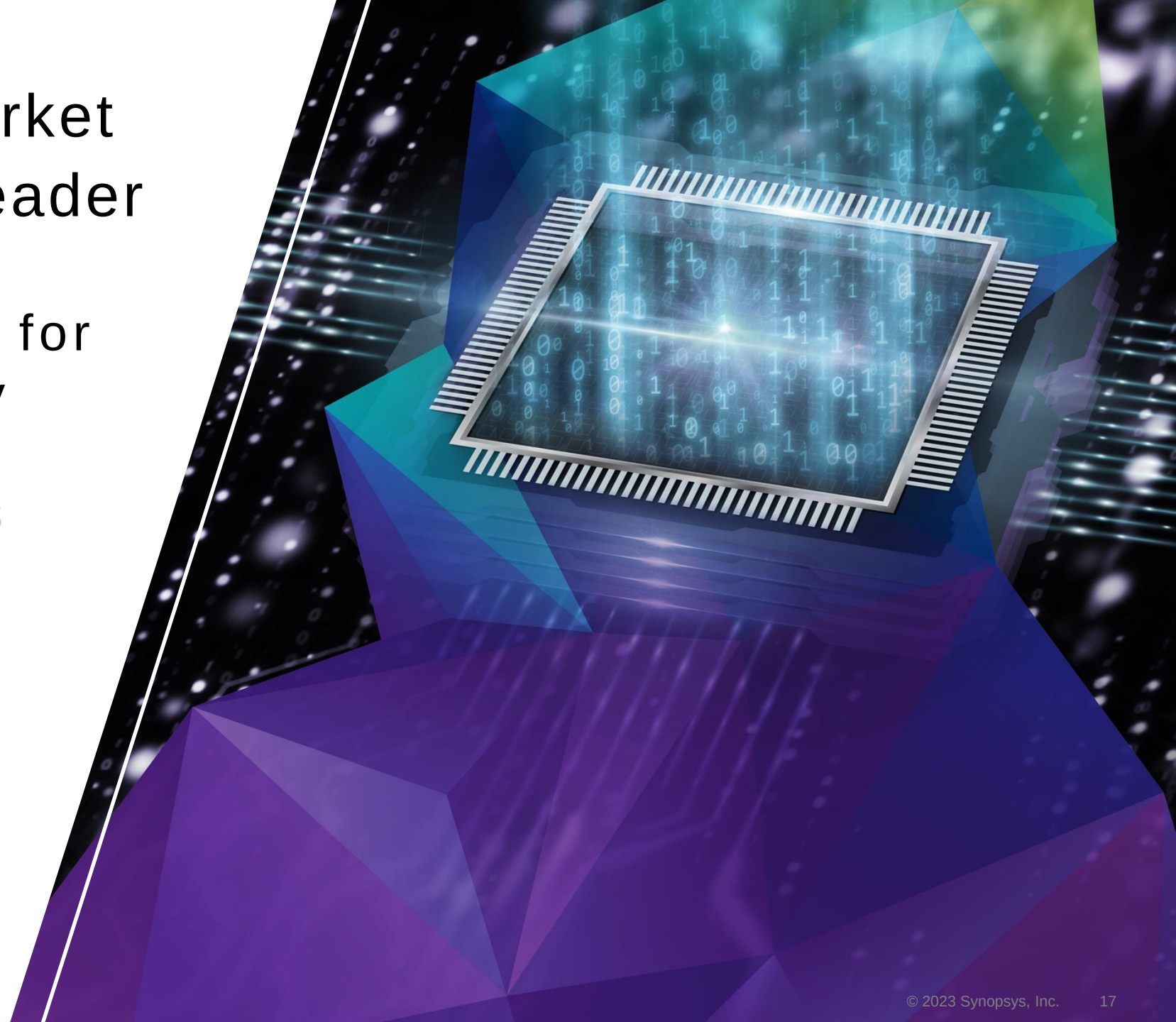


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Synopsys: The Market and Technology Leader

Uniquely Positioned for Growth and Stability

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



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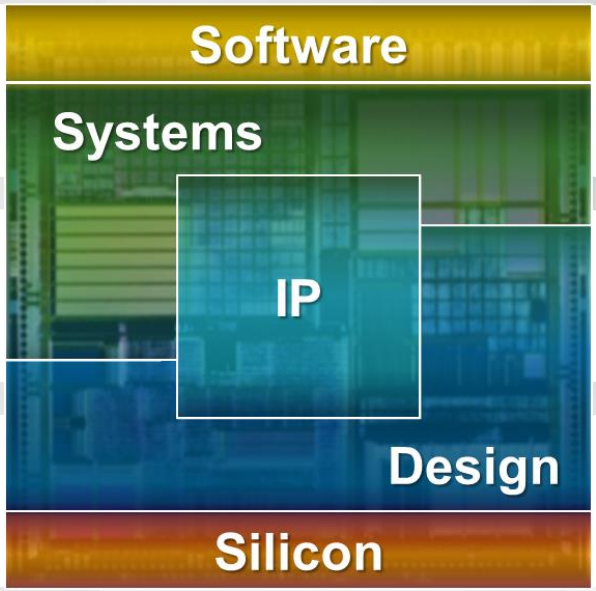
Synopsys Enables System Innovation, Silicon to Software

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

PROCESS FUNDAMENTALS

Broadest System Design Coverage

DEPLOYED SYSTEM

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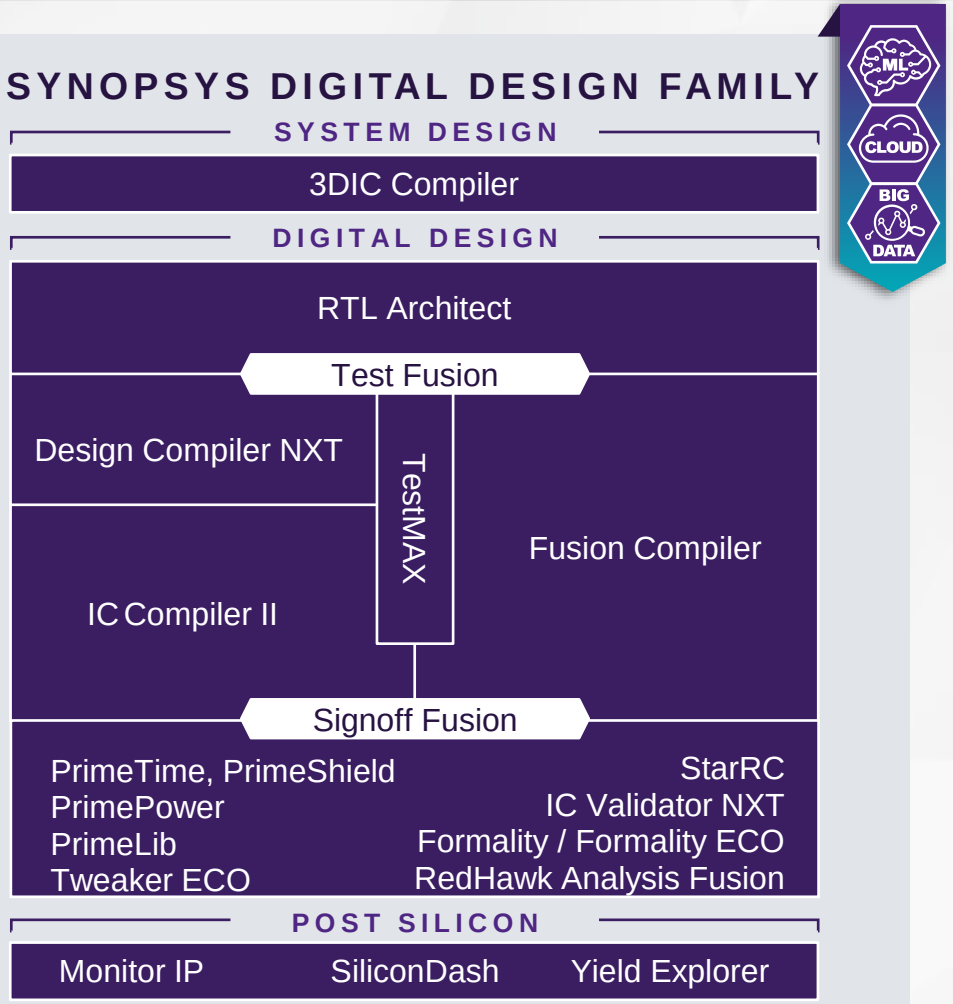
LEADER IN EDA

- 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

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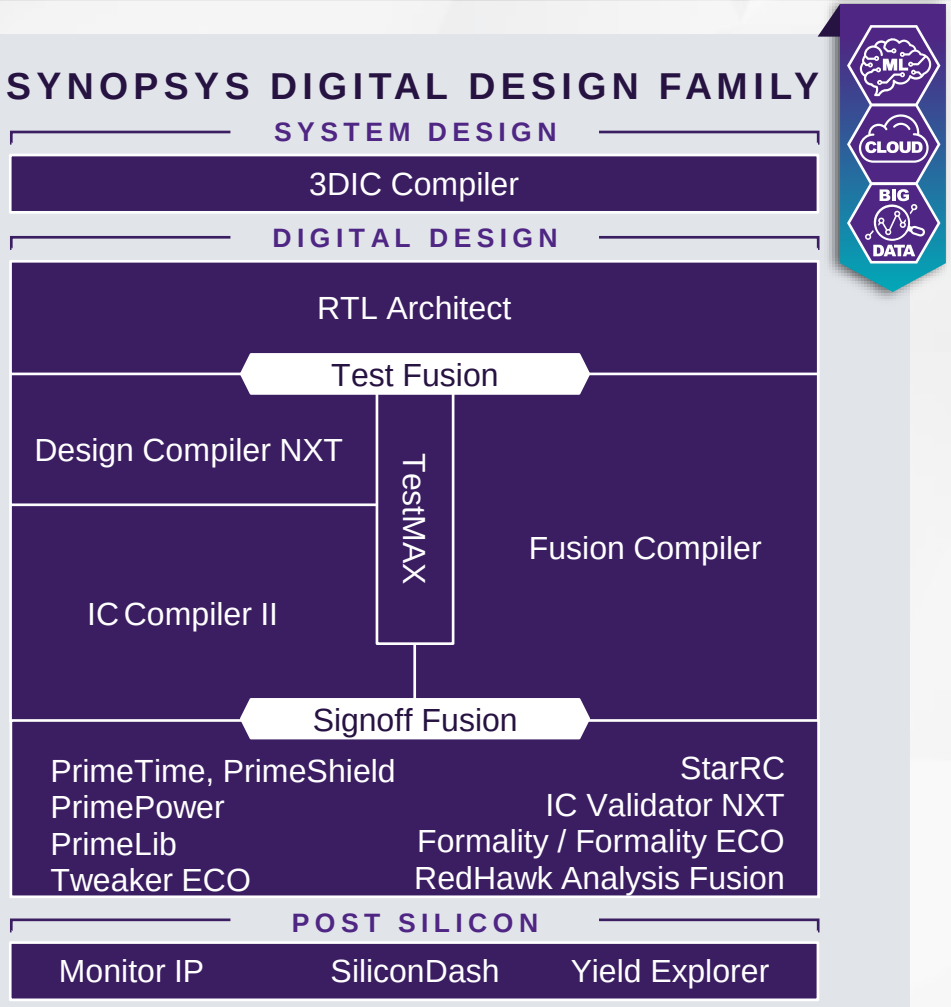
#1 in Digital Design: Synopsys Digital Design Family



Fusion Architecture	#1 Anchors: Synthesis, P&R, Signoff Fusion of algorithms, engines, data model
Innovative Products	Industry Unique Fusion Compiler DC NXT, TestMAX, IC Validator NXT
Market Leadership	ML-enhanced tools, AI-driven apps Cloud-ready

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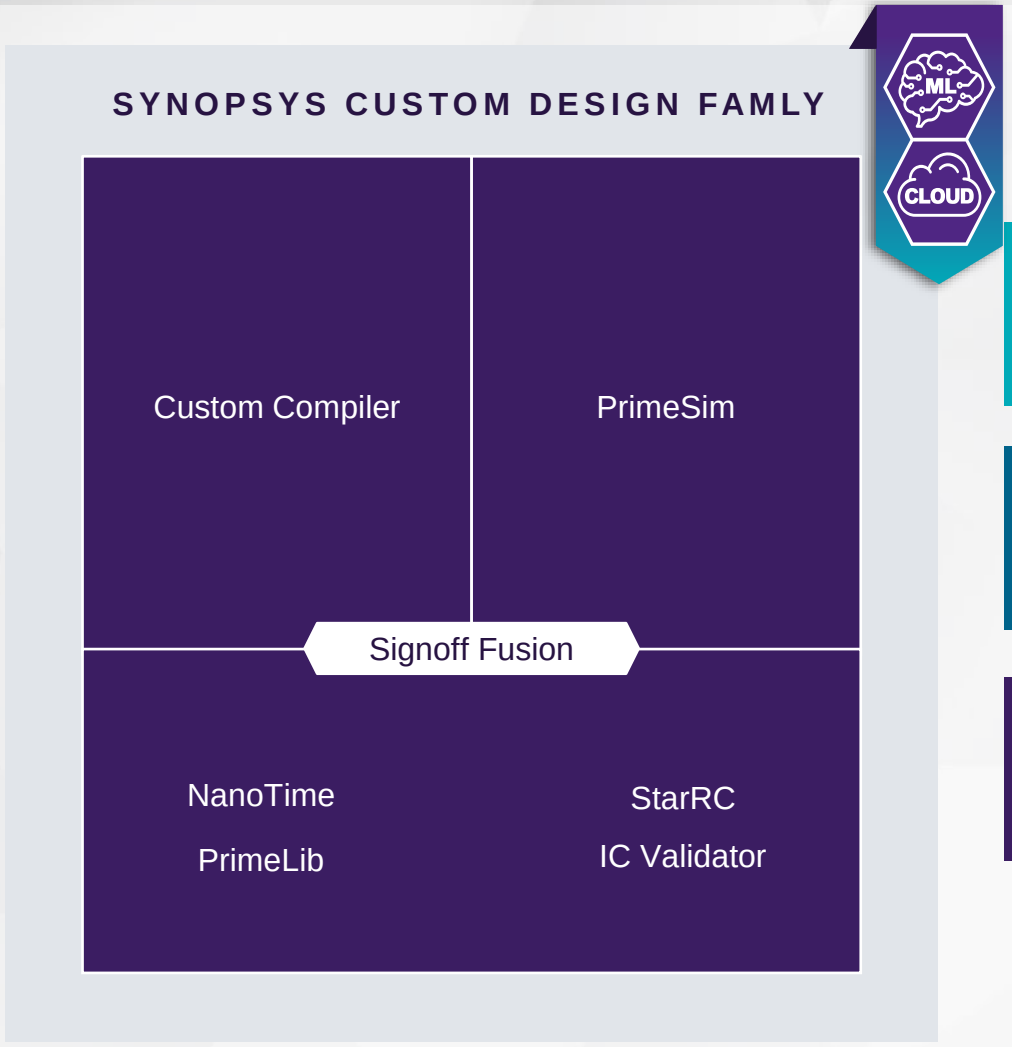
Synopsys Fusion Compiler™



- 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

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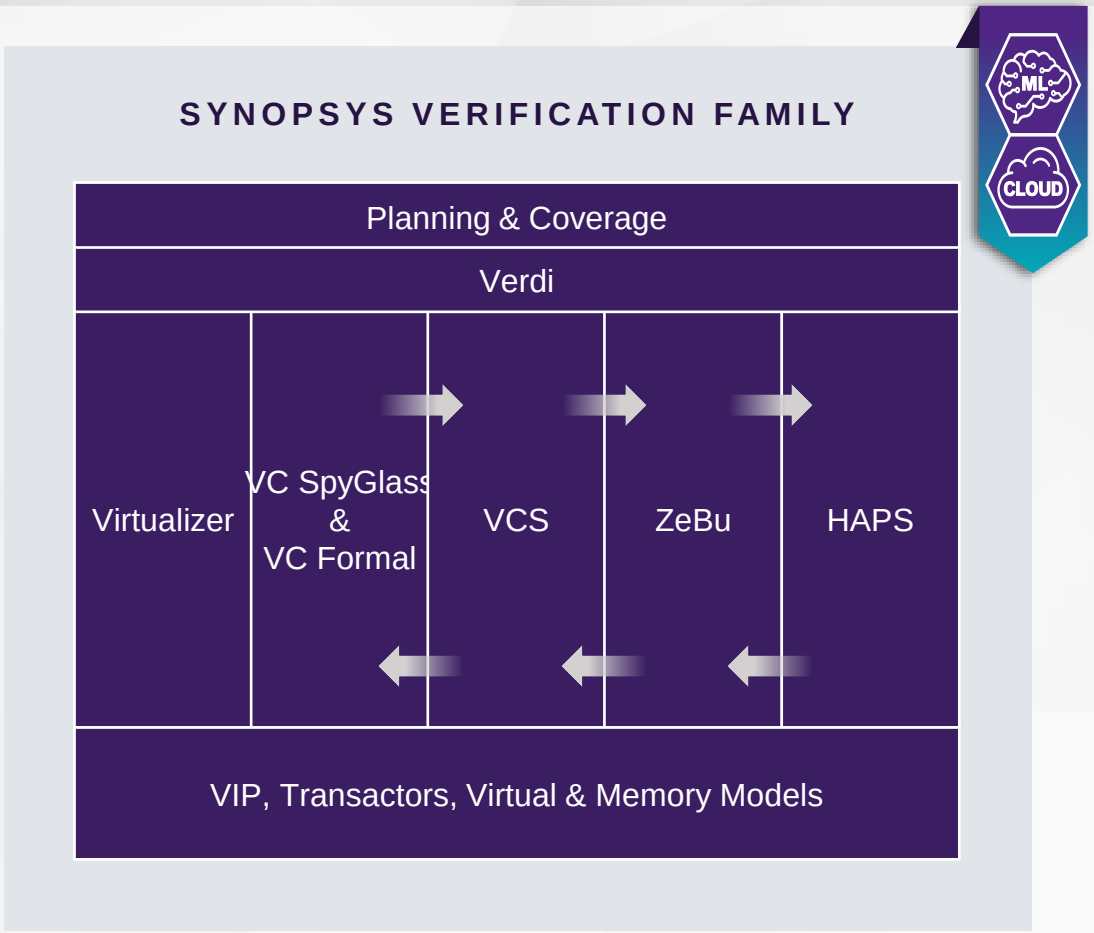
Synopsys Custom Design Family



Innovative Products	Industry anchors HSPICE, CustomSim, FineSim Custom Compiler Next-generation custom layout
Competitive Differentiation	Flexible, open environment Faster custom design closure
Market Momentum	PrimeSim launched in March 2021 Driving competitive displacements

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#1 in Verification: Synopsys Verification Family



Best-in-Class Verification	Complete platform with #1 products in all categories, hardware-based and software-based
Fastest Engines	Highest-performance engines speed time-to-market
Accelerating Innovation	Investing in domain-specific, AI and cloud technology to improve verification efficiency

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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

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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

Proven Direct Connect Architecture

Broadest portfolio of accessory cards for real-world IO connectivity

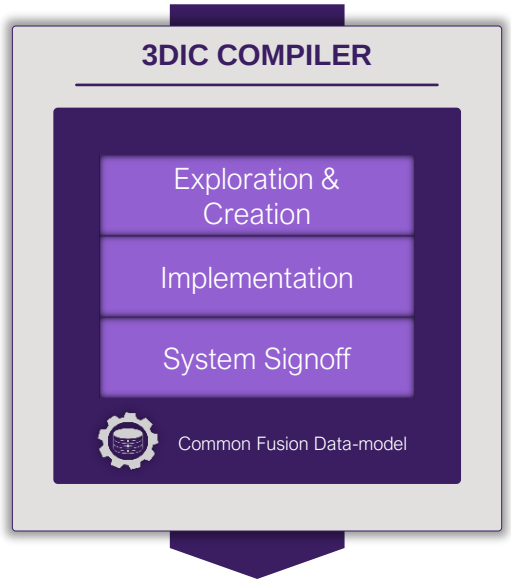


HAPS-100

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Efficient Design Implementation for Multi-Die Systems

UNIFIED EXPLORATION-TO-SIGNOFF



Complete architecture-to-signoff solution in a consolidated user environment

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

Scalable

100s of billions of transistors

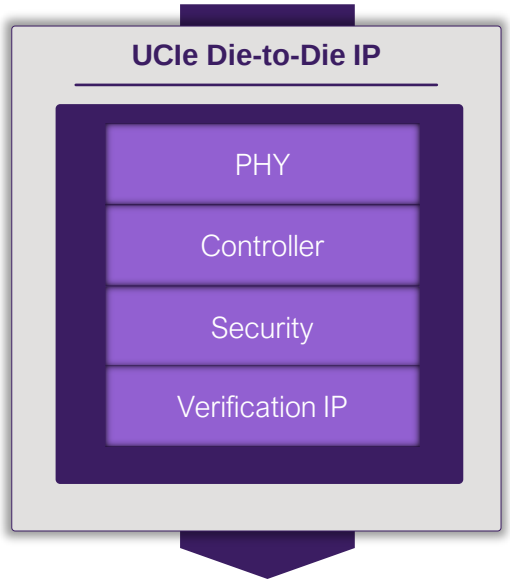
Productive

Fast exploration & design

Golden Signoff

Convergence to optimal PPA/mm^3

DIE-TO-DIE IP



Delivers up to 4Tbps bandwidth in a multi-module configuration

Enables ultra-low latency link between two dies

Complete

PHY, Controller, VIP

Secure

Opt. Authentication Engine

Robust

Based on Proven IP

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Synopsys Silicon Lifecycle Management Family

SYNOPSYS SILICON LIFECYCLE MANAGEMENT FAMILY

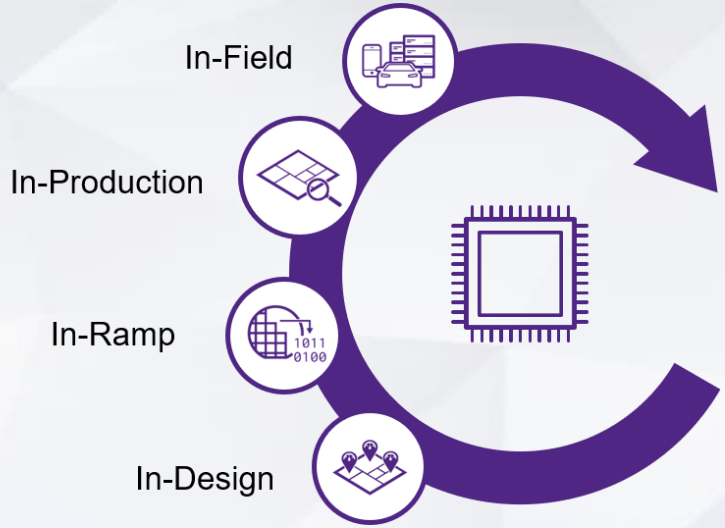
Design Calibration Analytics	Product Ramp Analytics	Test and Production Analytics	In-Field Management
Synopsys Digital Design Family	Yield Explorer	SiliconDash	Optimizer
SLM Unified Database			
Adaptive Learning Engine High-Speed Access & Test TestMAX ALE	Embedded Learning Engine (ELE)		
Hardware Monitor IP TestMAX, DFT/BIST, Synopsys In-Chip Sensors & PVT Monitors			

ML

CLOUD

New Insights

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



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Synopsys Cloud – Industry's First SaaS Cloud Solution

BYOC
Bring Your Own Cloud

Customer Uses Own Public Cloud

Customer Cloud Vendor(s)



METERING

SYNOPSYS® Cloud



Portal | Pay-Per-Use
Analytics | Security

SaaS
Software-as-a-Service

Synopsys Provides EDA Tools & Infrastructure



Engineer & CAD

BROWSER

SYNOPSYS® Cloud





EDA Apps



Portal | Pay-Per-Use
Analytics | Security

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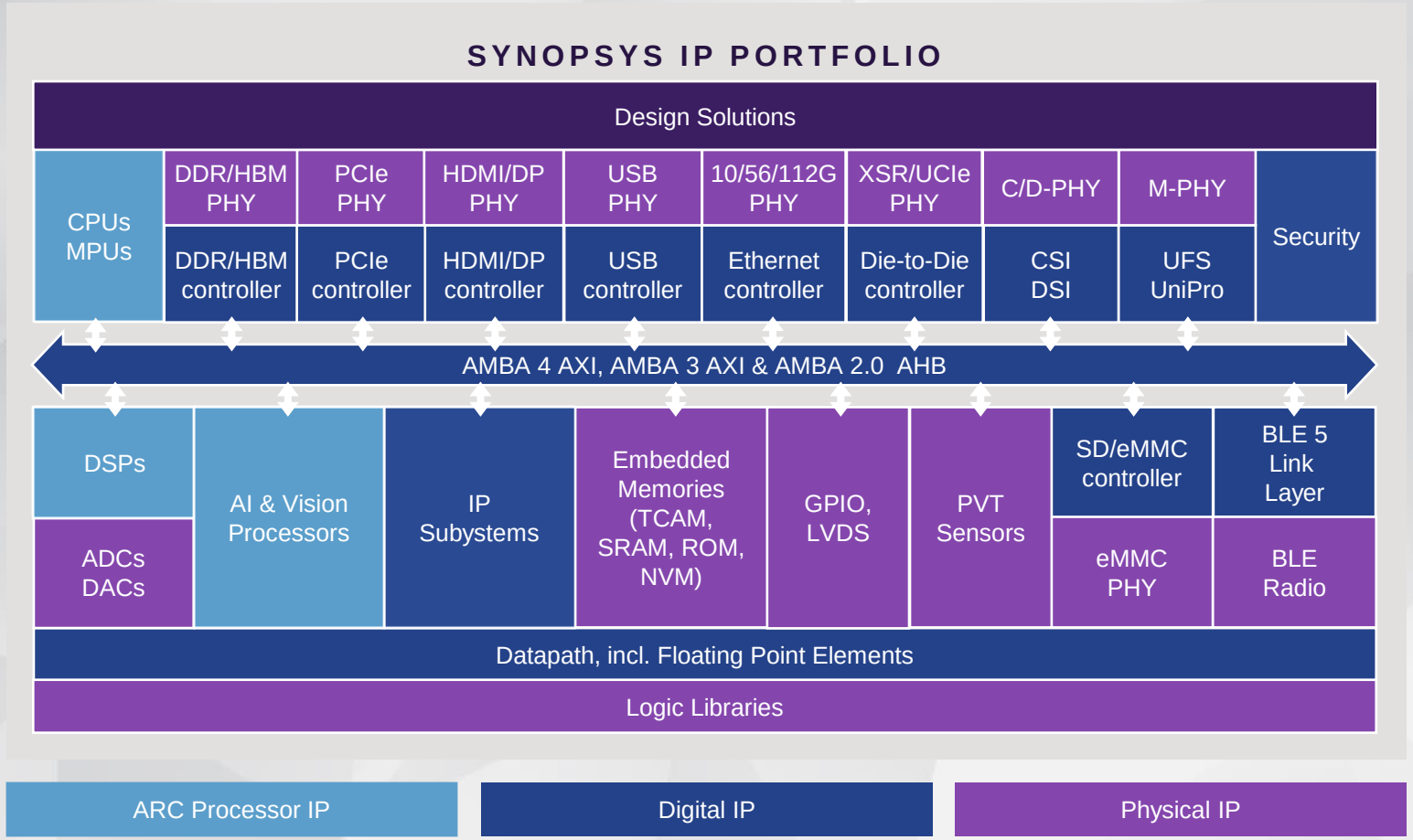
Leader in Semi IP

- #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

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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

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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 AI Accelerators



IoT

Smart Home, Industrial, Wearables

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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



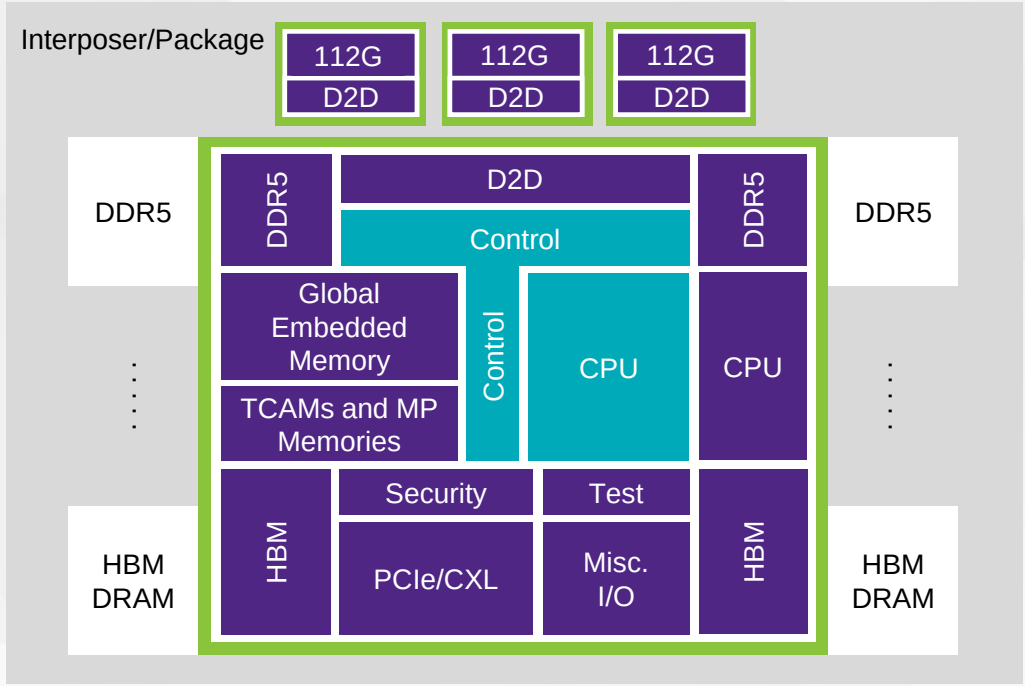
- Rapid data growth requires faster data access & local processing

Artificial Intelligence



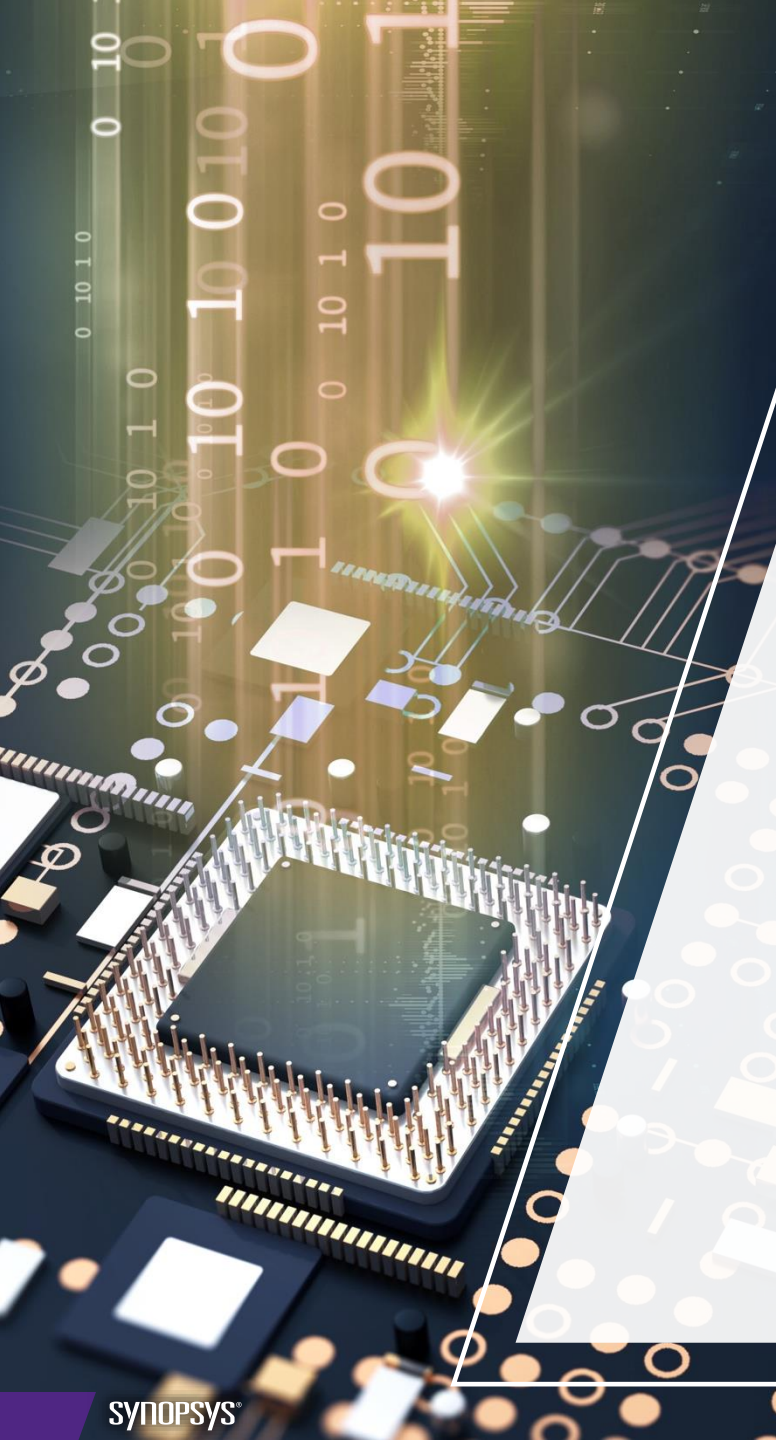
- AI accelerators in cloud servers extract insights from large data sets

Synopsys Interface, Foundation and Processor IP for Cloud Applications



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

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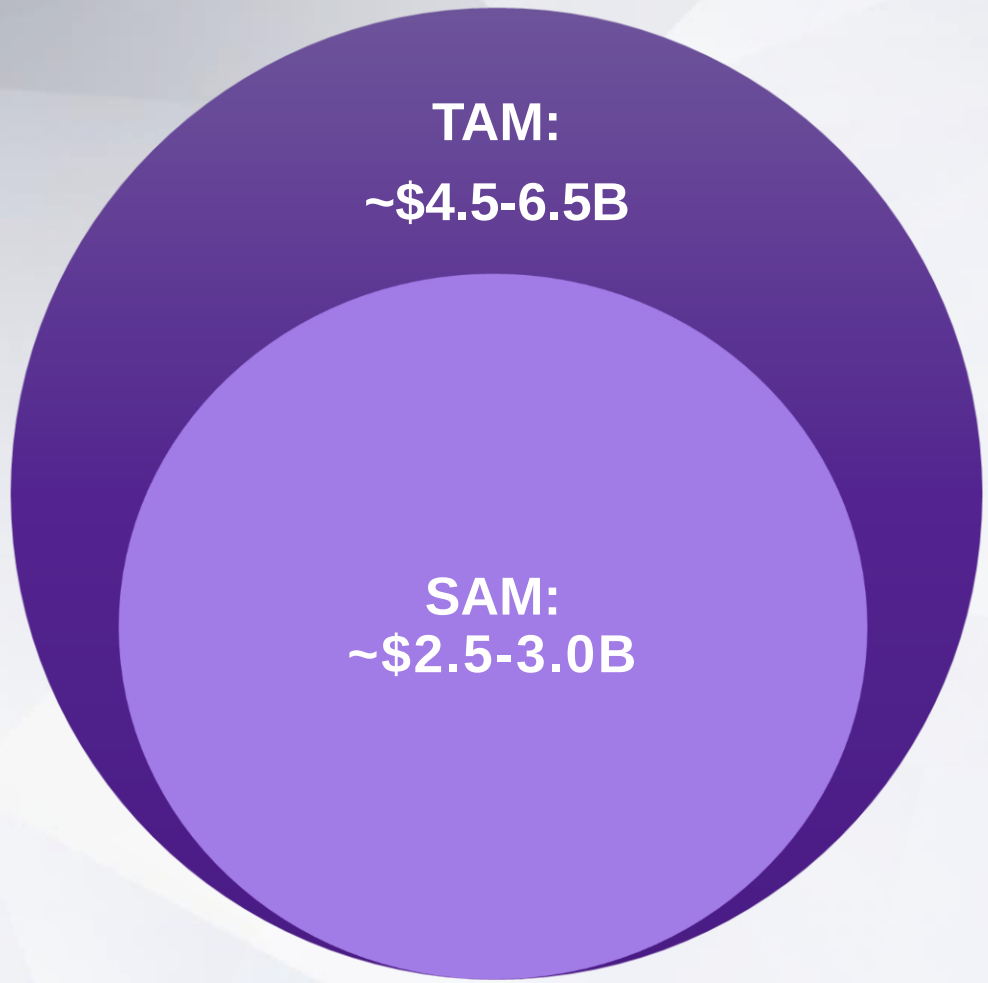


Leader in Software Integrity

- 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)

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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 February 15, 2023

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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 AI-driven policy, visibility and prioritization
- Cohesive, integrated platform for managing risk and compliance

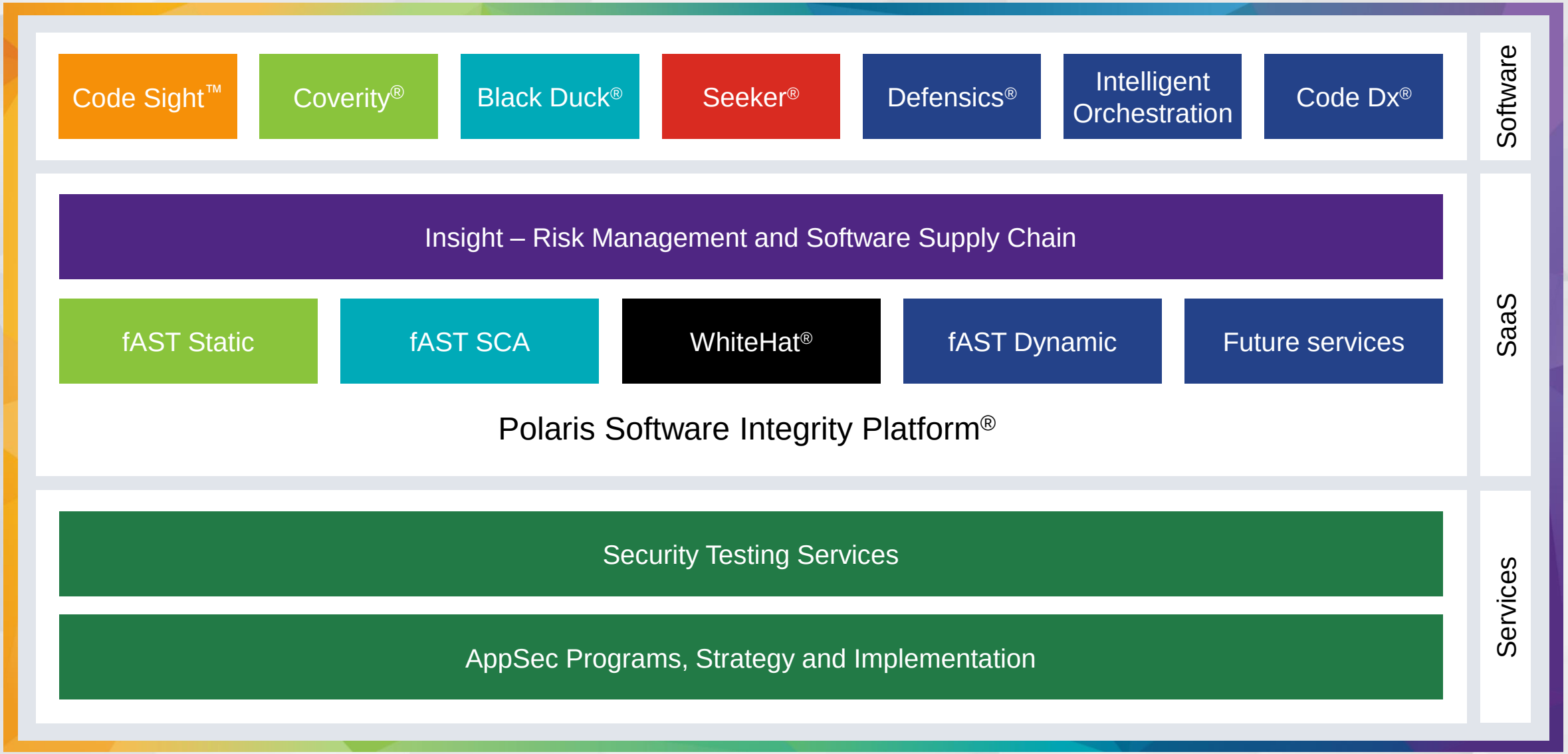
Addressing All Customer Demand Drivers



- 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

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Software Integrity Portfolio

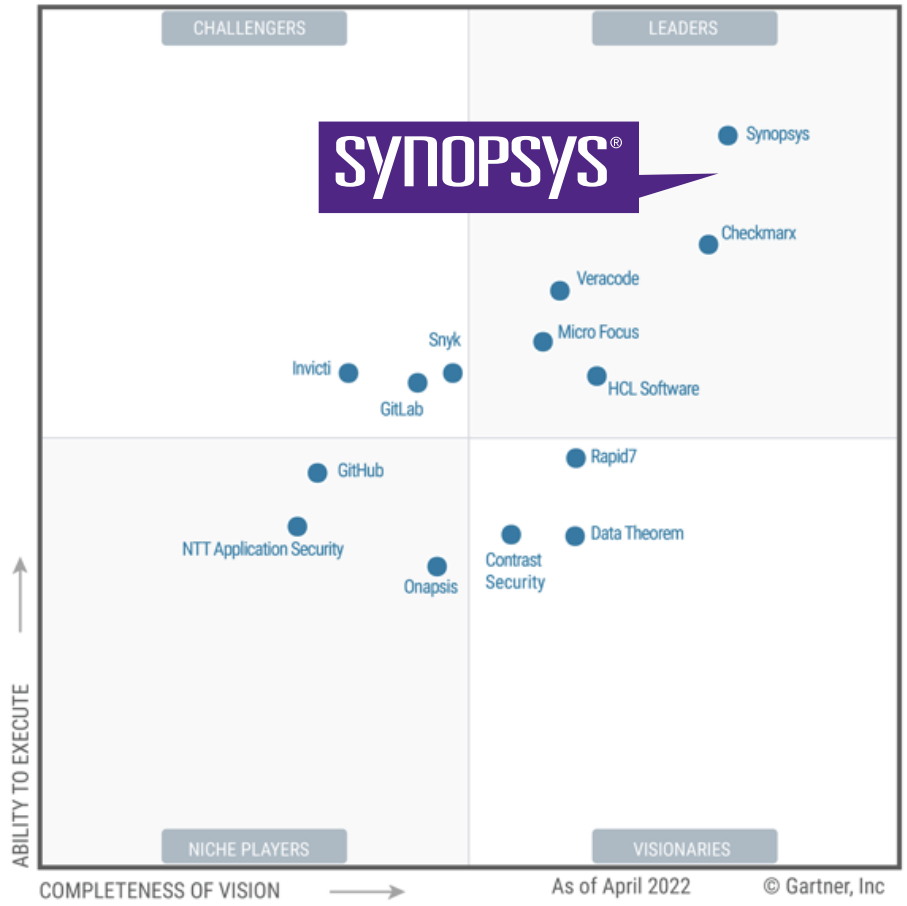


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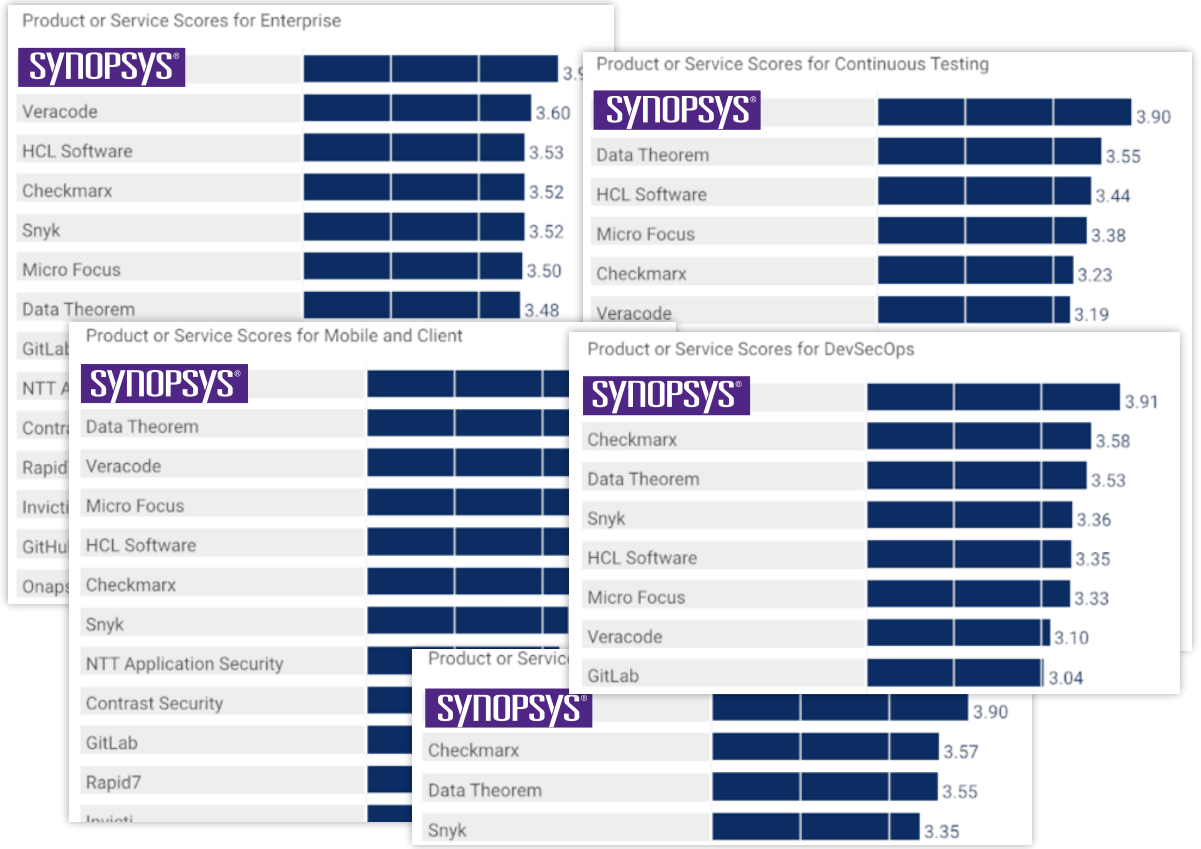
Market Leadership

Gartner®

Magic Quadrant for Application Security Testing



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



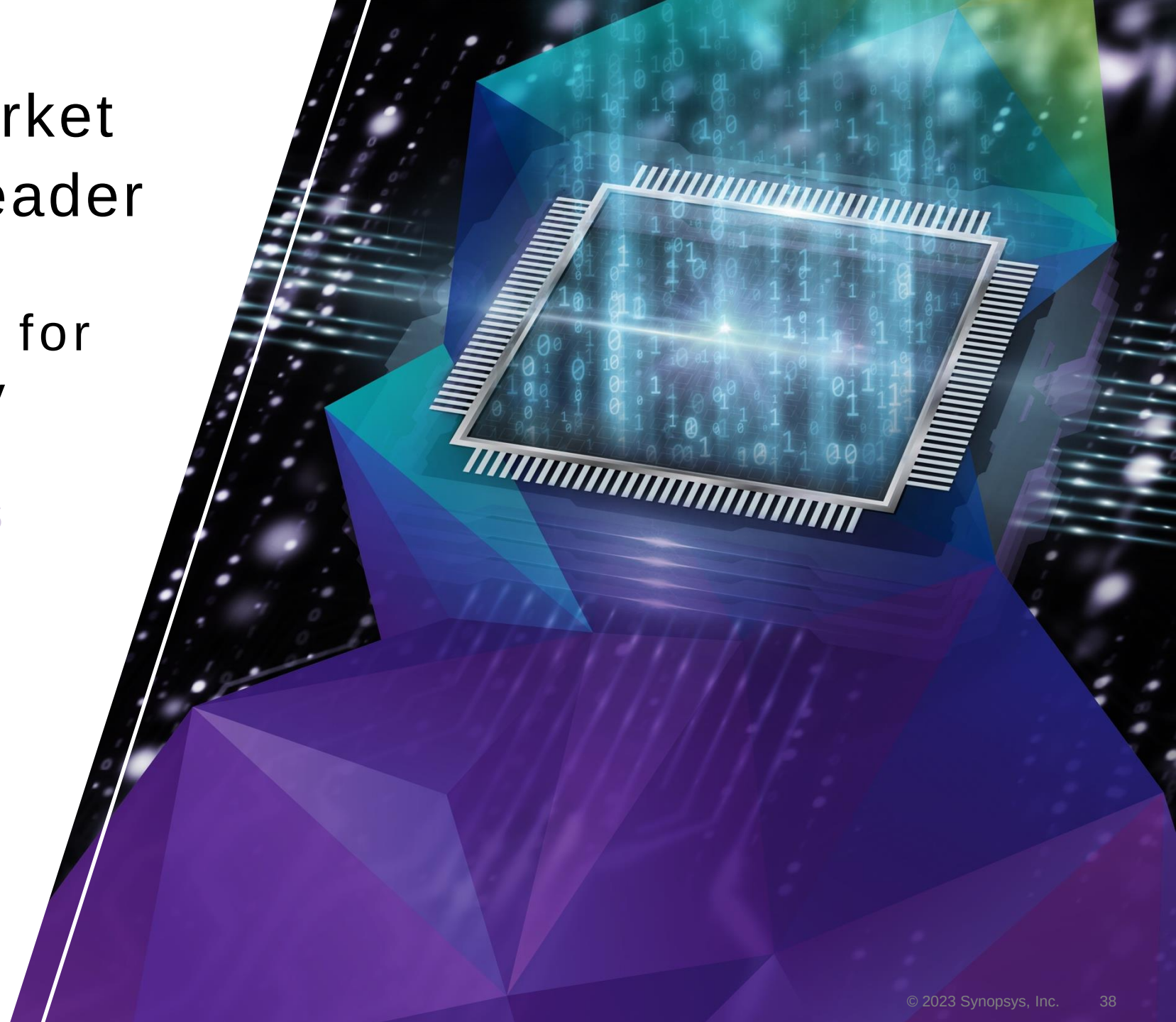
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Synopsys: The Market and Technology Leader

Uniquely Positioned for Growth and Stability

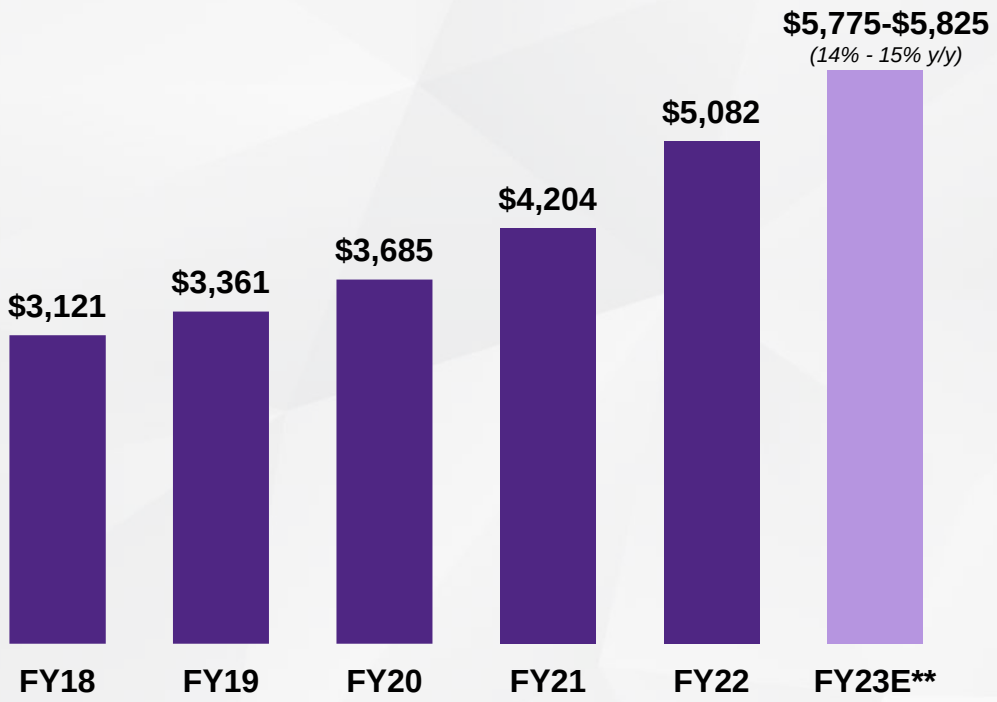
- Robust End Markets
- Clear Technology Leadership
- ▸ Financial Strength and Growth



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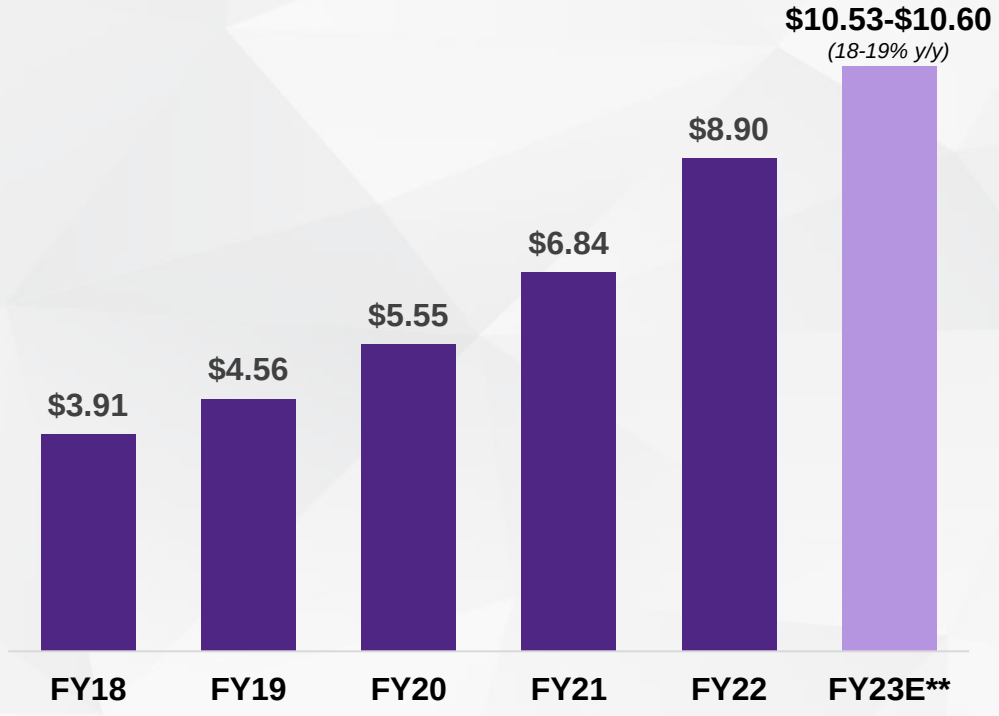
Excellent Financial Execution

Revenue (M)



Recurring revenue model with $6.9B non-cancellable backlog provides stability throughout the business cycle

Non-GAAP EPS*



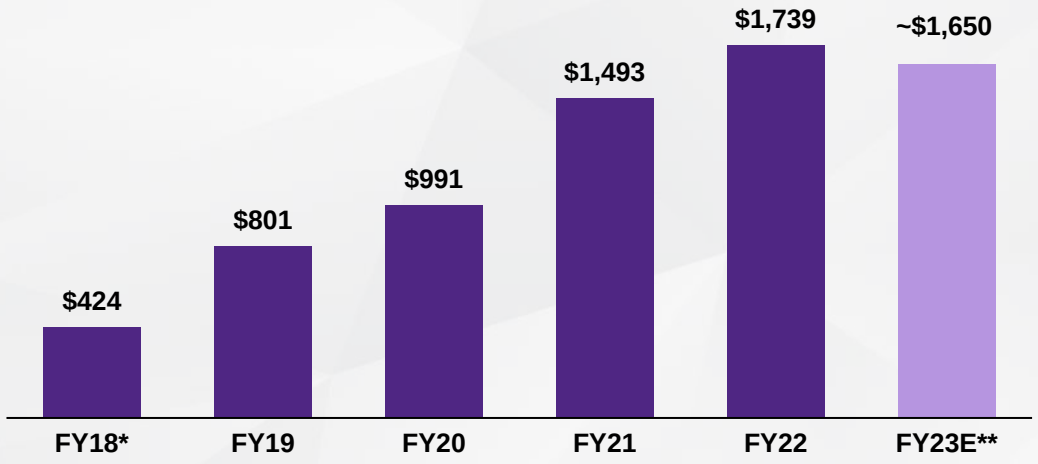
Strong financial execution while investing for long-term growth

* 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 February 15, 2023

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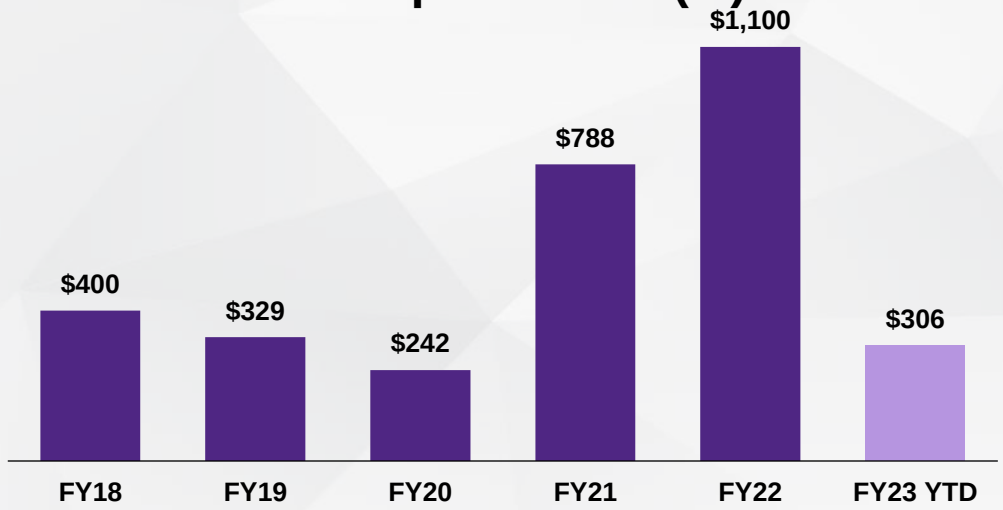
Cash Flow & Capital Allocation

Operating Cash Flow (M)



- 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

Stock Repurchases (M)



- Repurchased >$3B 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 February 15, 2023.

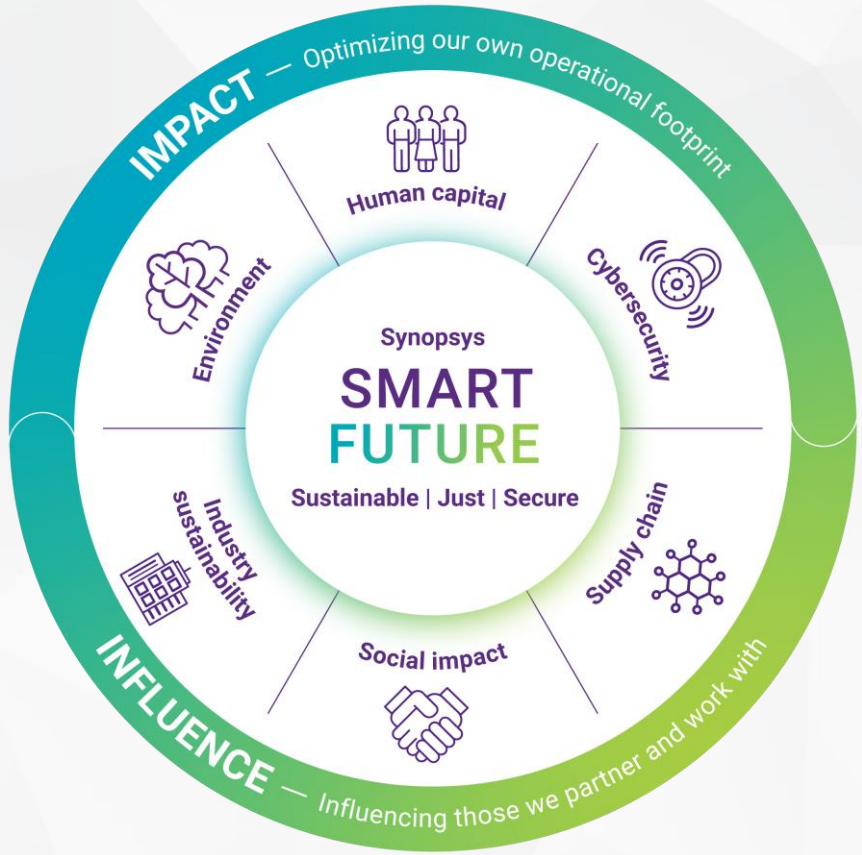
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Synopsys Environment, Social, Governance

Creating a **Smart Future** Together



Synopsys Smart Future corporate social responsibility strategy provides a focus and structure for how we manage our own operational impact and influence others around us to create a better world.



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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 90% participation rate
- Have expanded our disclosures in annual SEC Form 10-K

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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 third annual CSR Report earlier this year with alignment to GRIand SASB - Software and & IT Services standards. Reporting also aligns TCFD and the UN SDGs.

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.

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SYNOPSYS®

Market and Technology Leader

Electronic Design Automation

Semiconductor Intellectual Property

Software Security & Quality

Solid Financials

Recurring revenue model

Large, non-cancellable backlog

Excellent execution

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GAAP to Non-GAAP Reconciliation(1)

Earnings Per Share – Full Fiscal Year 2023 Targets

	Range for Fiscal Year Ending October 31, 2023	
	Low	High
Target GAAP earnings per diluted share	$ 7.12	$ 7.30
Adjustments:		
Amortization of intangible assets	0.66	0.63
Stock compensation	3.87	3.79
Acquisition-related items	0.02	0.02
Restructuring charges	0.26	0.26
Tax adjustments	(1.40)	(1.40)
Target non-GAAP earnings per diluted share	$ 10.53	$ 10.60
Shares used in non-GAAP calculation (midpoint of target range)	156,500	156,500

(1) Synopsys' fiscal year 2023 will end on October 28, 2023. 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 February 15, 2023.

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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	21.3%
Amortization of intangible assets	1.7%
Stock compensation	10.3%
Acquisition-related items	0.0%
Restructuring charges	0.8%
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 February 15, 2023, 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 February 15, 2023.

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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 February 15, 2023.

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THANK YOU