

Powering innovation in the era of pervasive intelligence

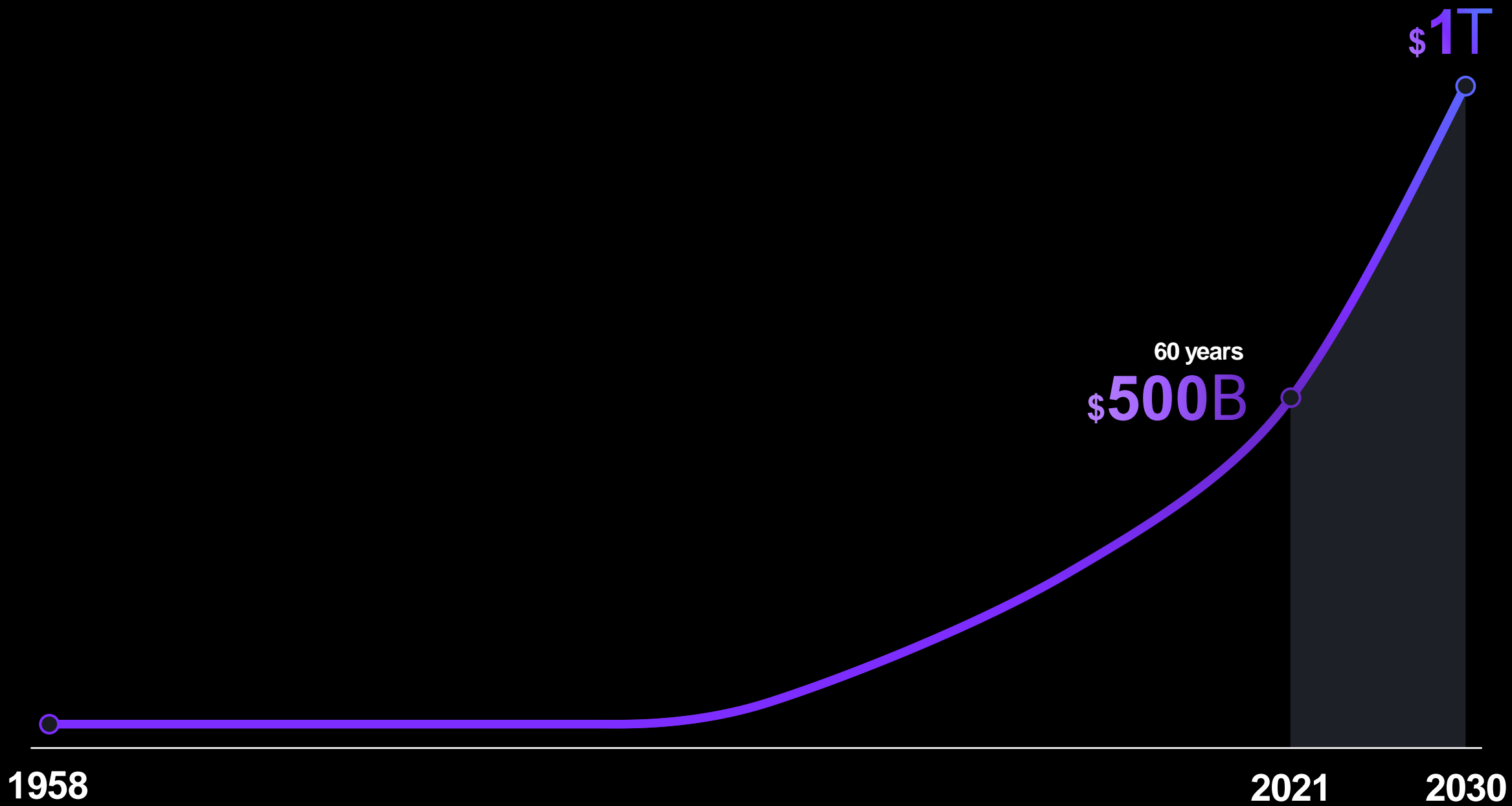
Sassine Ghazi
President and CEO

SYNOPSYS®

Cautionary Statement Regarding Forward-Looking Statements

This presentation contains forward-looking statements, including, but not limited to, statements regarding strategies related to our products, technology and services; business and market outlook, opportunities, strategies and technological trends, such as artificial intelligence; customer demand and market expansion; our planned product releases and capabilities; and industry growth rates. 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 geopolitical 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; 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 latest Annual Report on Form 10-K and in our latest Quarterly Report on Form 10-Q. The information provided herein is as of March 20, 2024. 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.



Artificial intelligence

Exponential productivity and efficiency gains

Silicon proliferation

More silicon content everywhere

Software-defined systems

New applications, new methodologies

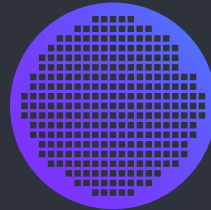
The era of **pervasive intelligence**

Pervasive Intelligence



Artificial intelligence

Exponential productivity and efficiency gains



Silicon proliferation

More silicon content everywhere



Software-defined systems

New applications, new methodologies

Silicon-to-Systems Design Solutions

New design paradigms to accelerate innovation

Reinvention of
computing



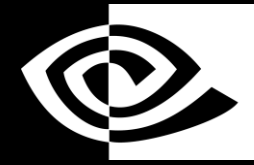
Explosion of
intelligent systems



Unprecedented transformation

Driven by silicon and systems innovation

SYNOPSYS[®]



nVIDIA

SYNOPSYS: MISSION CRITICAL FOR NVIDIA SILICON SUCCESS

DECADES OF COLLABORATION ACROSS FULL EDA SUITE POWERS ACCELERATED COMPUTING

13X

Verification

Functional Verification

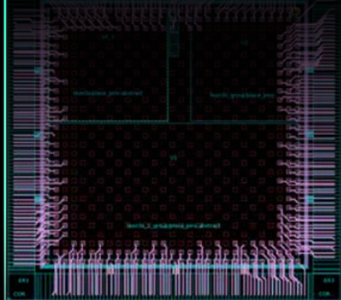


- Synopsys VCS
- NVIDIA L40
- NVIDIA Grace Hopper

10X

Design

Place and Route

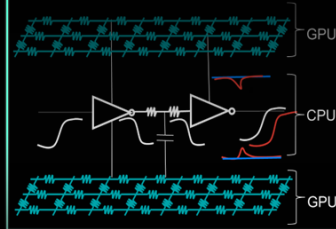


- Synopsys Fusion Compiler
- NVIDIA Grace Hopper

15X

Simulation

SPICE Simulation

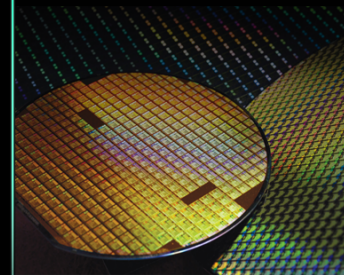


- Synopsys PrimeSim
- NVIDIA Hopper
- NVIDIA Grace Hopper

15X

Manufacturing

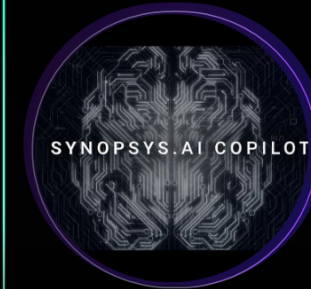
Computational
Lithography



- Synopsys Proteus
- NVIDIA cuLitho
- NVIDIA Grace Hopper

Generative AI

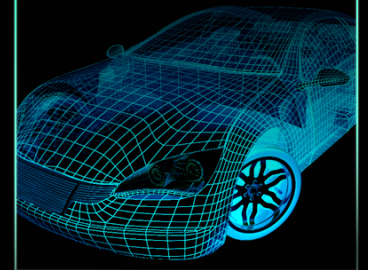
Industry's 1st LLM-Based
GenAI EDA Solution



- Synopsys.ai
- NVIDIA NeMo & NIM
- NVIDIA DGX

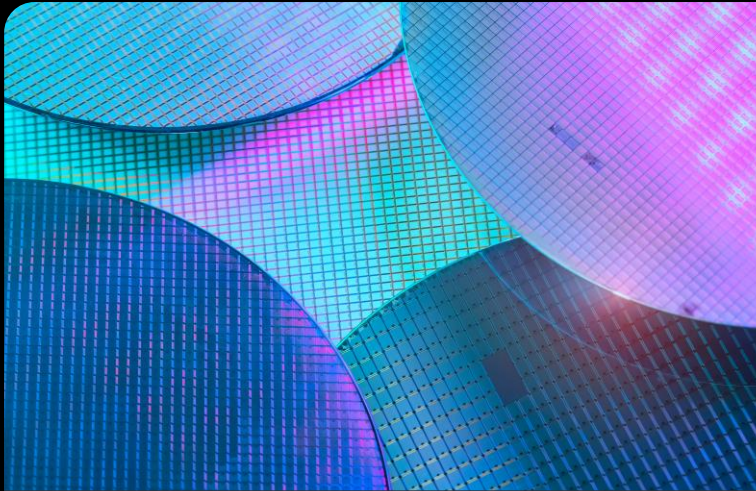
Systems Software

Testing & Validation of
Automotive Software

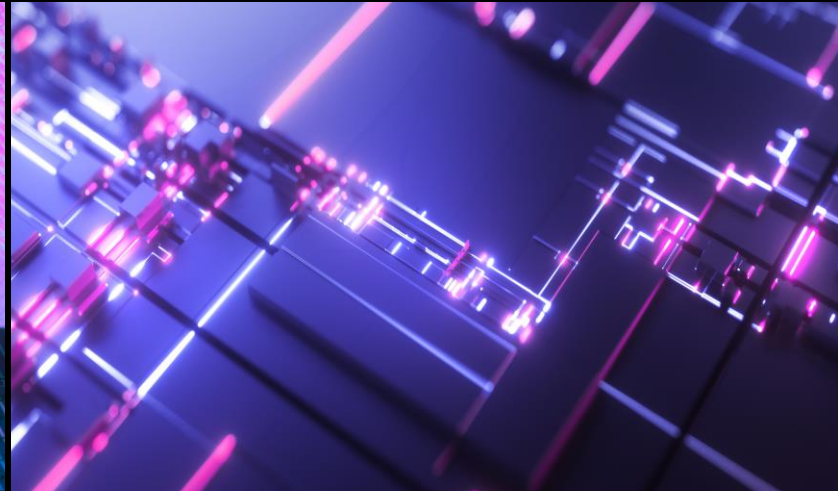


- Synopsys Electronics
Digital Twin, vECU, TPT
- NVIDIA Omniverse

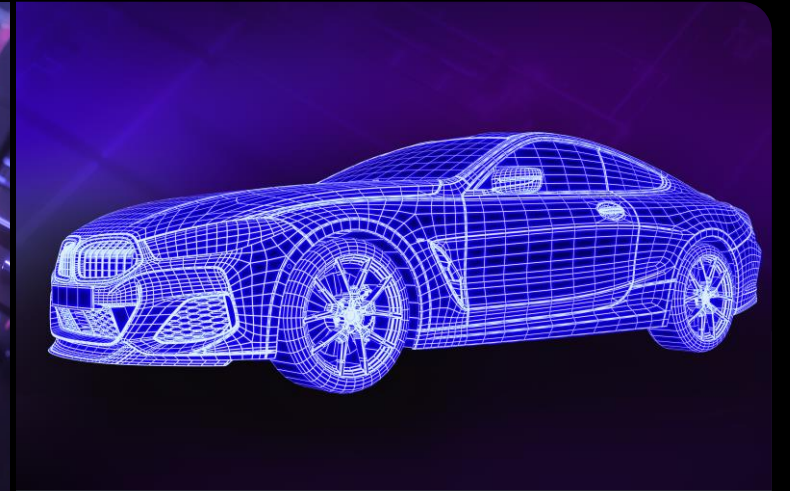
Challenges



**Silicon
Complexity**



**Productivity
Bottleneck**



**Silicon & Systems
Intersection**

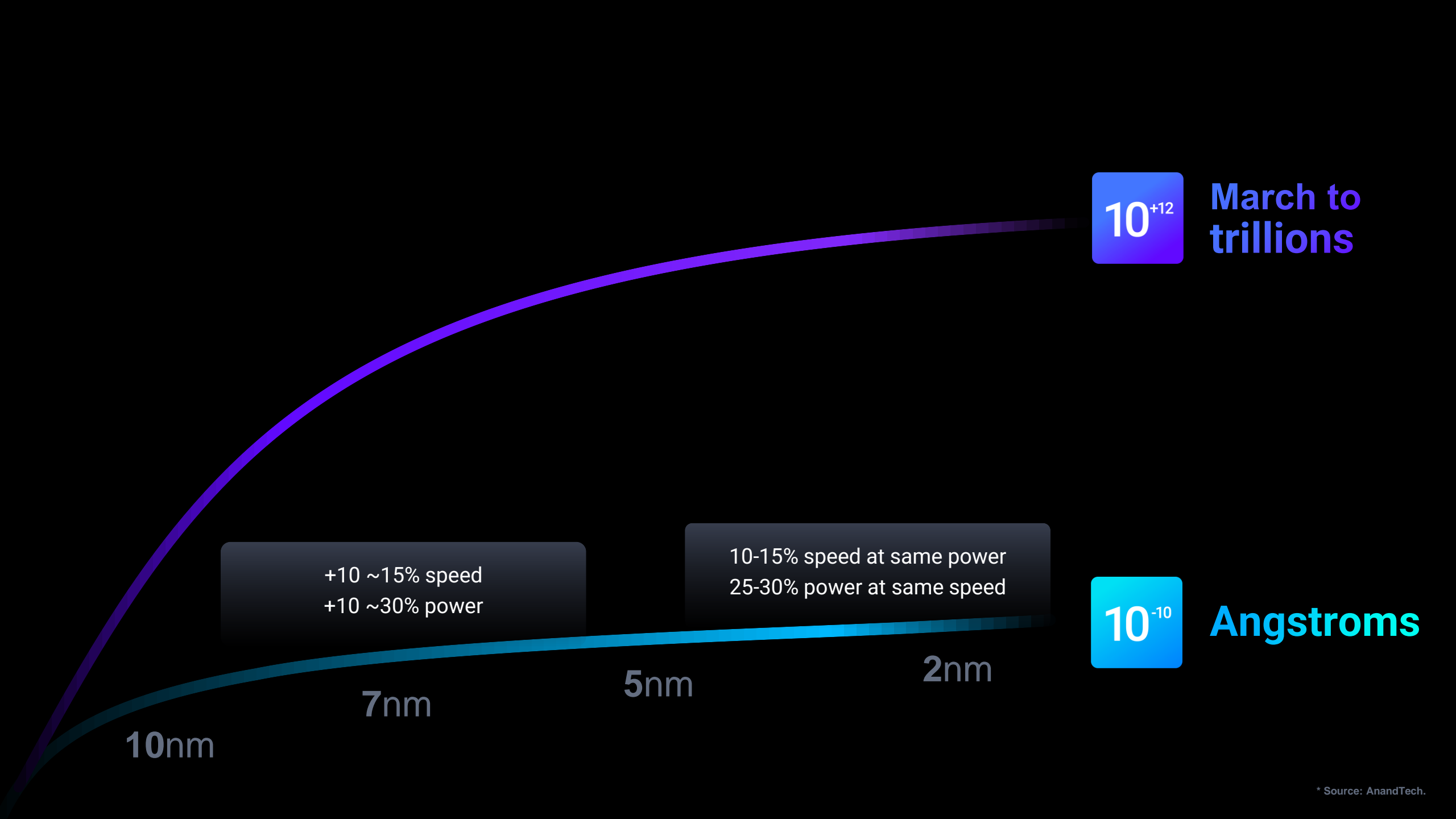
AMD 

arm

 Microsoft

TESLA

Silicon complexity



10^{+12}

March to trillions

+10 ~15% speed
+10 ~30% power

10-15% speed at same power
25-30% power at same speed

10^{-10}

Angstroms

10nm

7nm

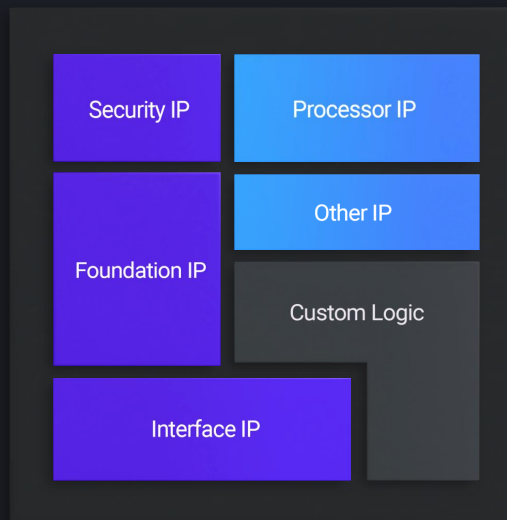
5nm

2nm

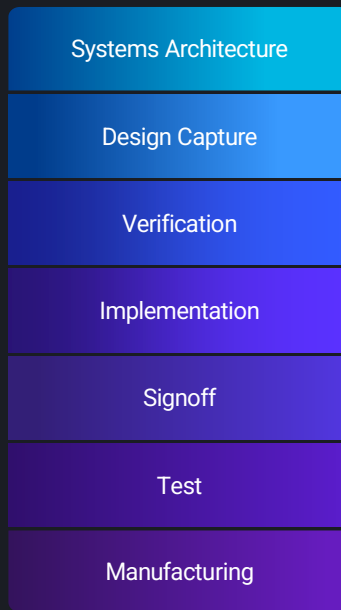
* Source: AnandTech.

Silicon design solutions

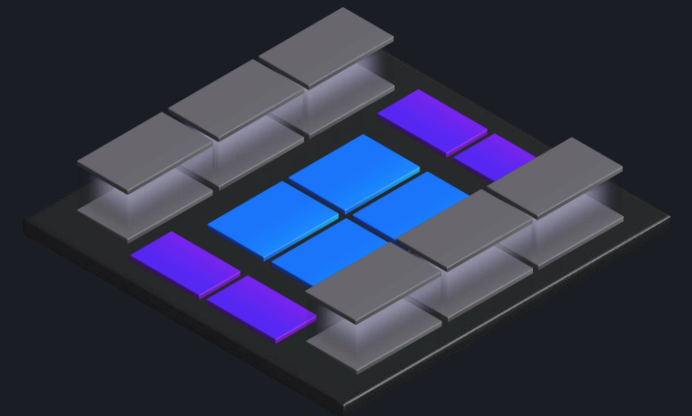
Most Trusted and
Broadest IP Portfolio



Most Comprehensive
EDA Platform

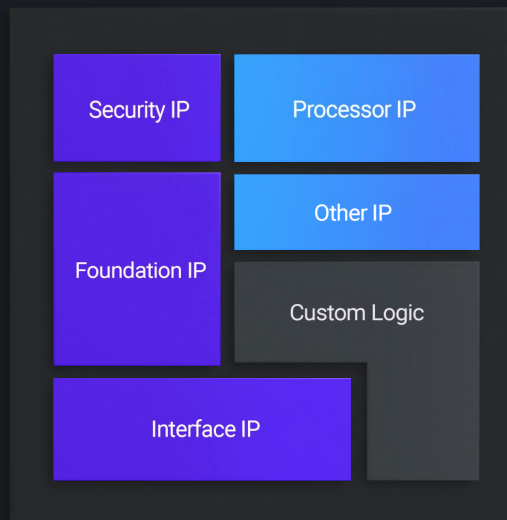


Most Advanced
Multi-Die Solutions

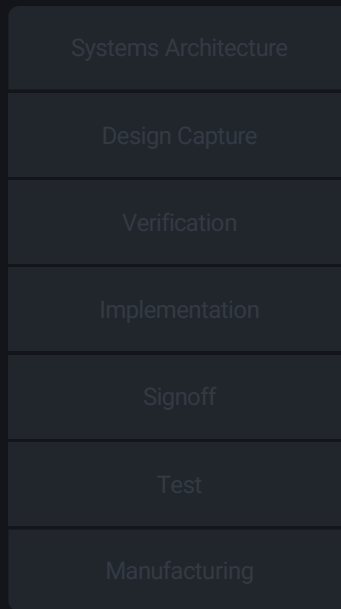


Silicon design solutions

Most Trusted and
Broadest IP Portfolio

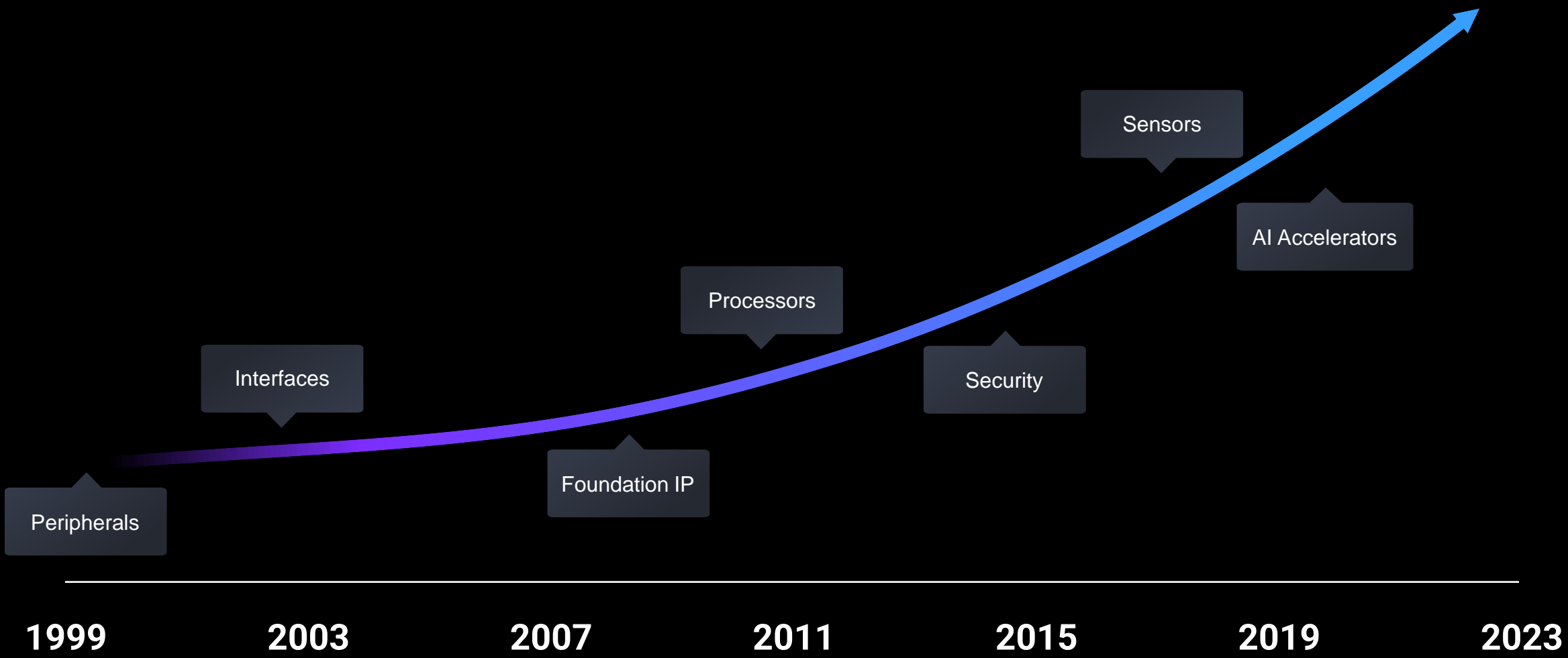


Most Comprehensive
EDA Platform



Most Advanced
Multi-Die Solutions



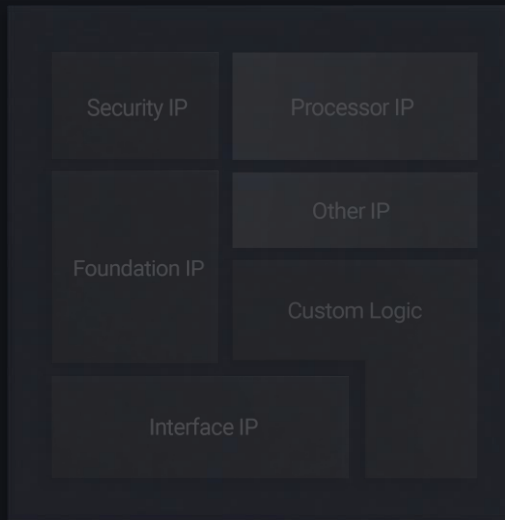


Synopsys IP Revenue*

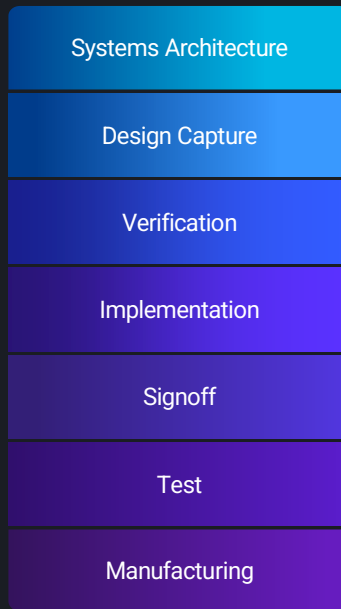
*IP Nest, Gartner

Silicon design solutions

Most Trusted and
Broadest IP Portfolio



Most Comprehensive
EDA Platform



Most Advanced
Multi-Die Solutions

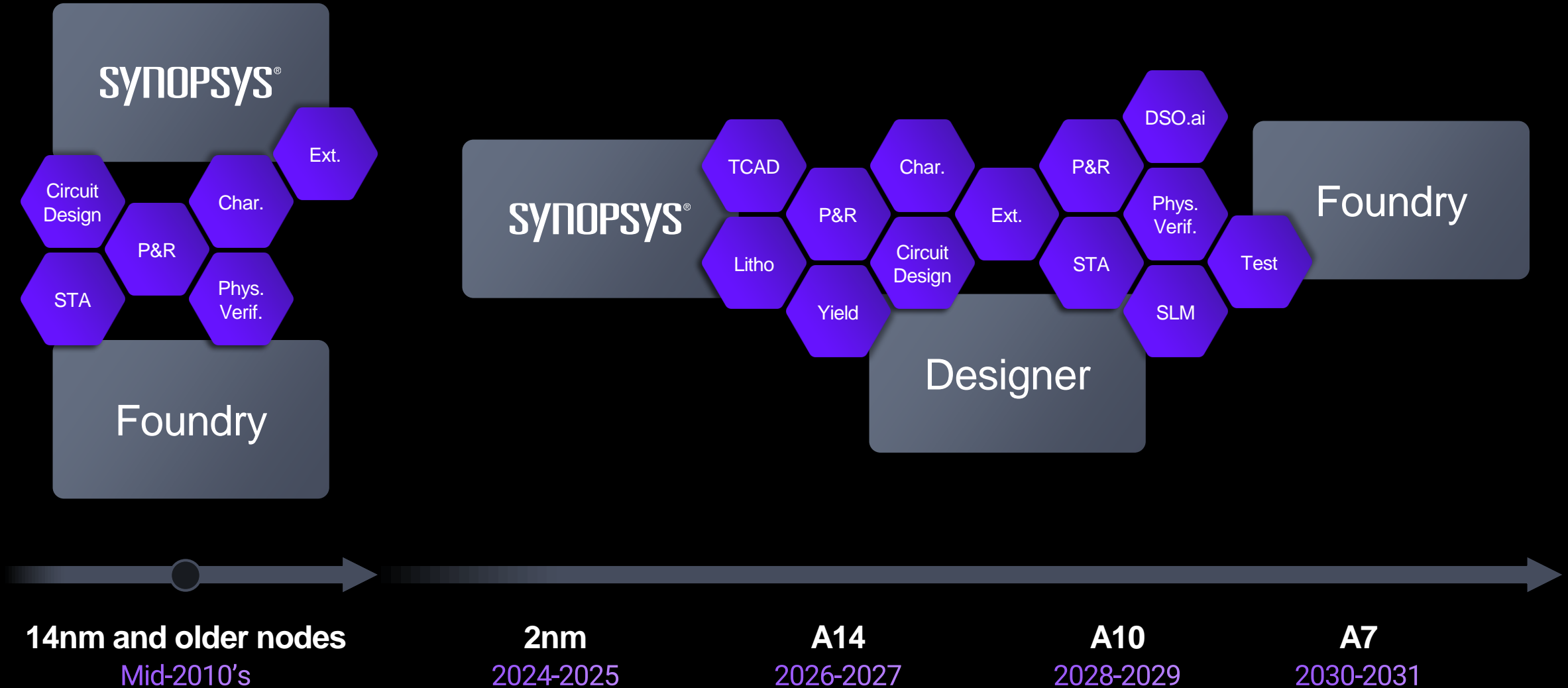


AI-powered

Hyperconvergence

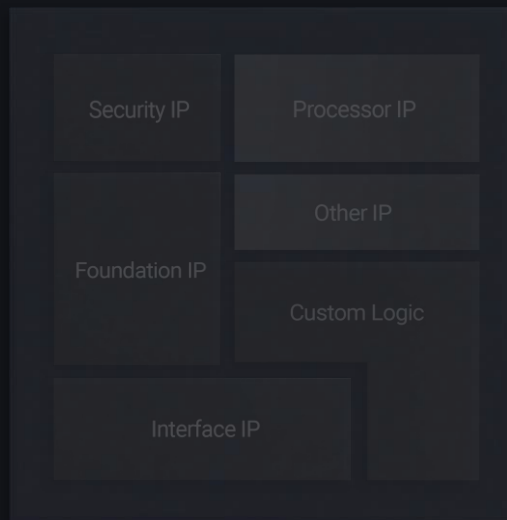
Systems Architecture	Platform Architect™			3DIC Compiler		
Design Capture	Design Compiler®	Fusion Compiler		Custom Compiler™	Design.da	
Verification	VSO	VC SpyGlass®	Verdi®	PrimeSim™	HAPS®	ZeBu®
Implementation	Fusion Compiler		DSO	ASO		Custom Compiler™
Signoff	PrimeTime®		StarRC™	PrimePower		IC Validator™
Test	TestMAX DFT/ATPG	TSO	PVT Sensors	Path-Margin IP		Silicon.da
Manufacturing	Proteus OPC		Sentaurus TCAD		Fab.da	

Advanced Node

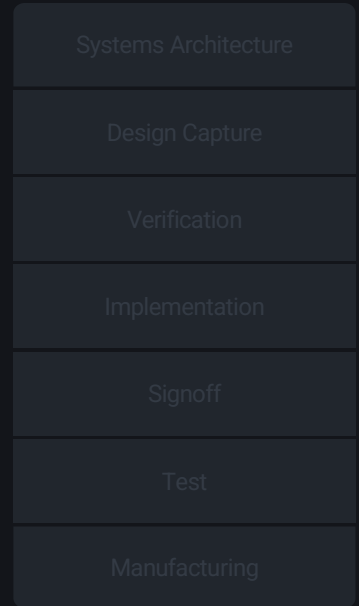


Silicon design solutions

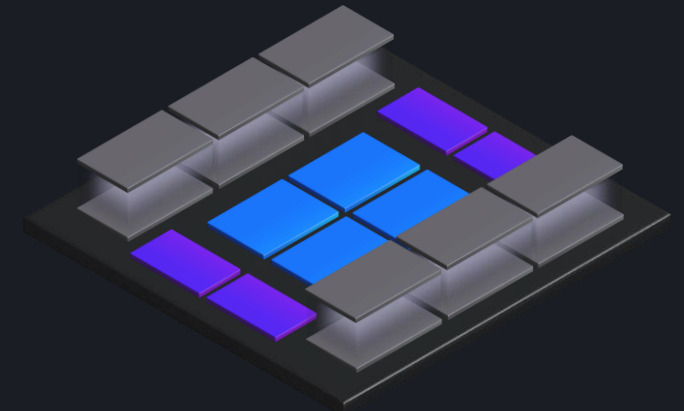
Most Trusted and
Broadest IP Portfolio

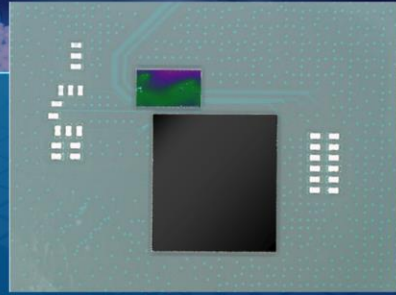


Most Comprehensive
EDA Platform



Most Advanced
Multi-Die Solutions





Synopsys UCle
TSMC N3E Technology



Intel UCle
Intel 3 Technology



EMIB
Advanced Packaging Technology

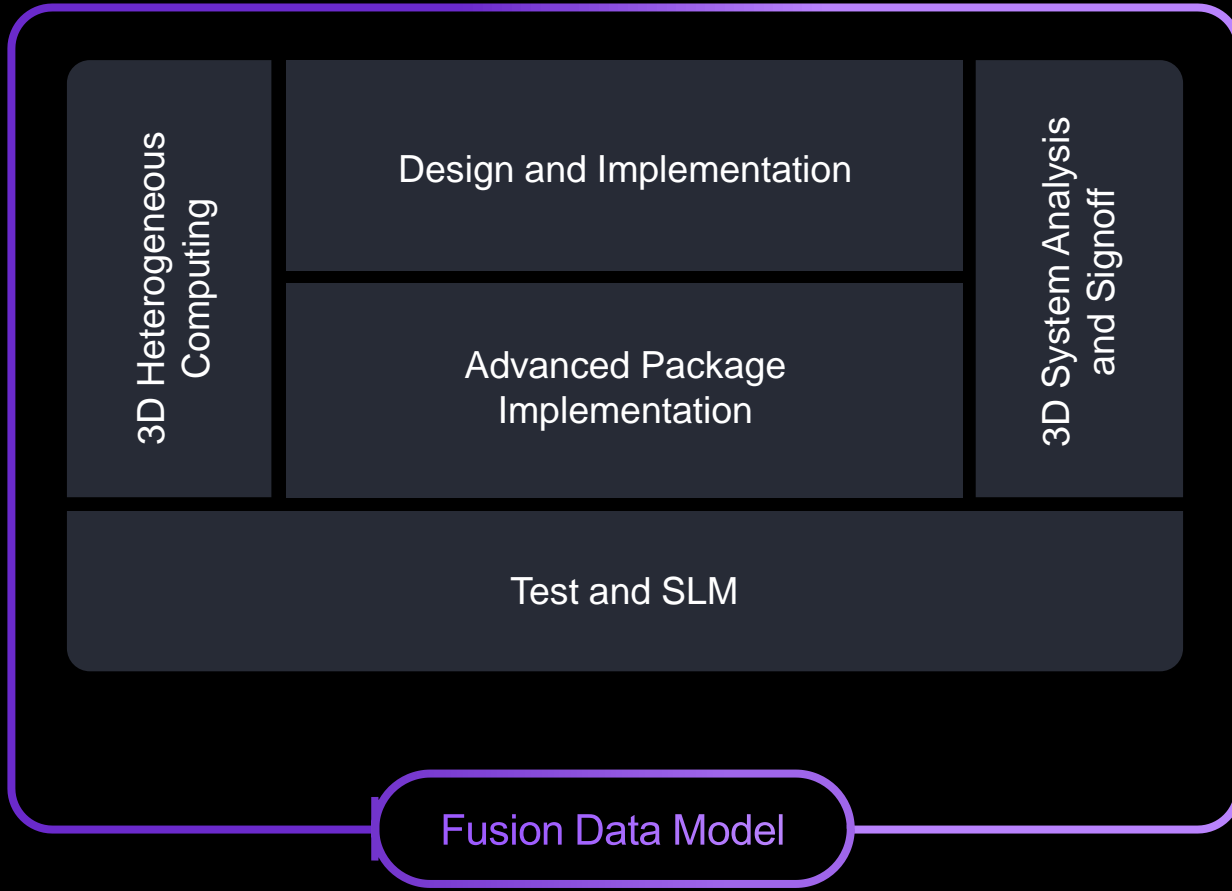
Advanced packaging
technology codenamed

Pike Creek

Industry Interoperability Demo



3DIC Compiler



Highly scalable platform for 2D/3D integration

Comprehensive design and closure

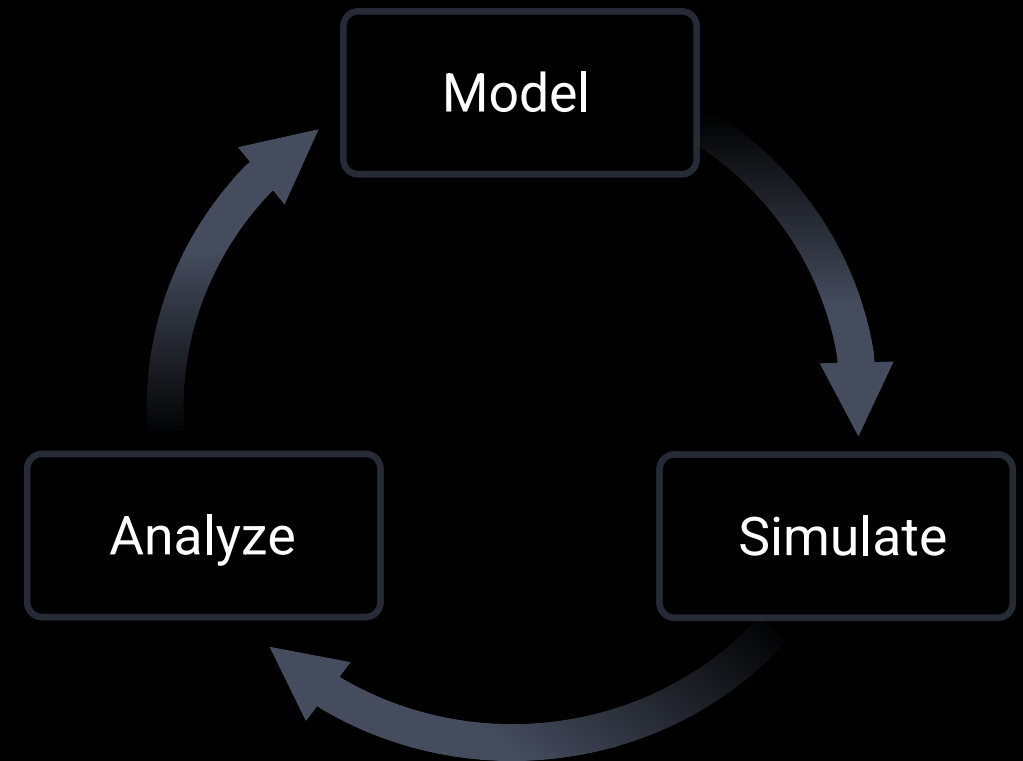
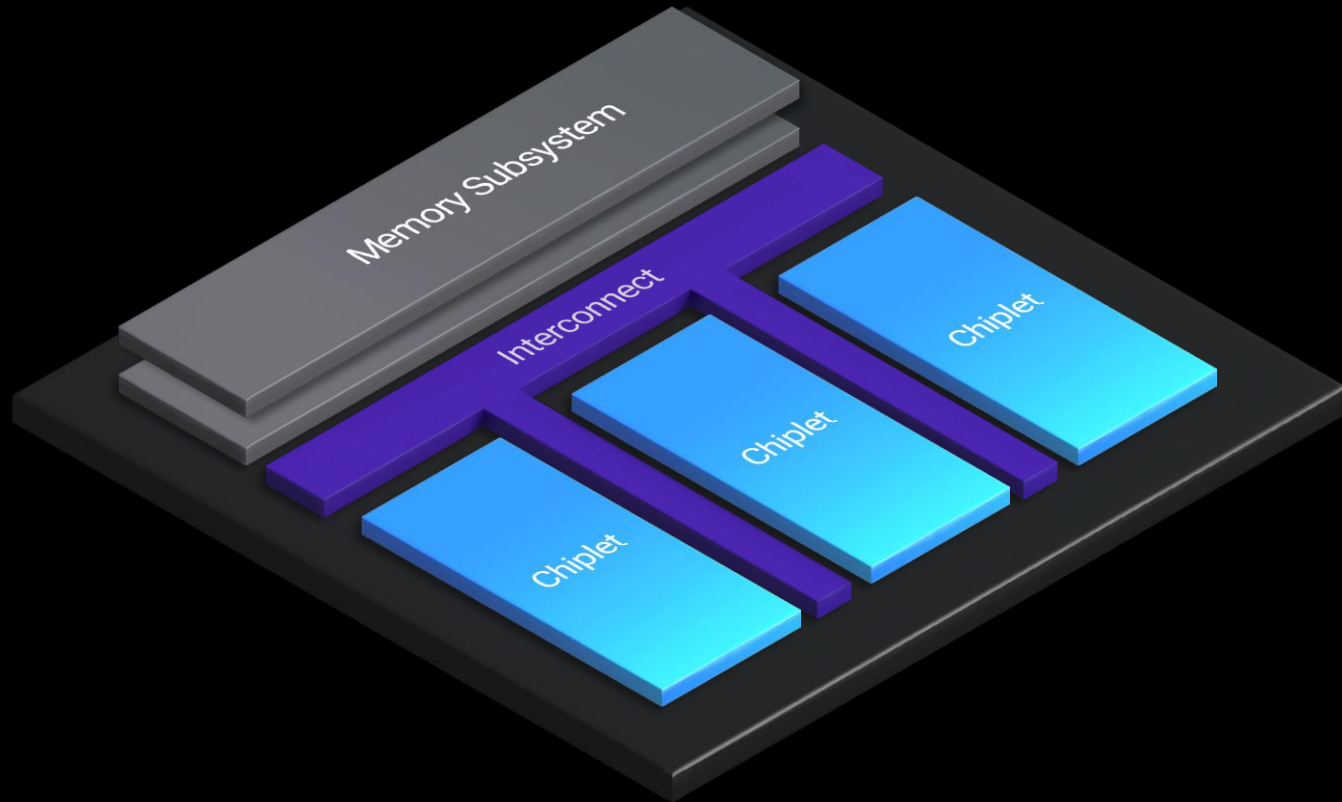
Integrated industry golden signoff

Announcing

Synopsys Platform Architect™ – Multi-Die

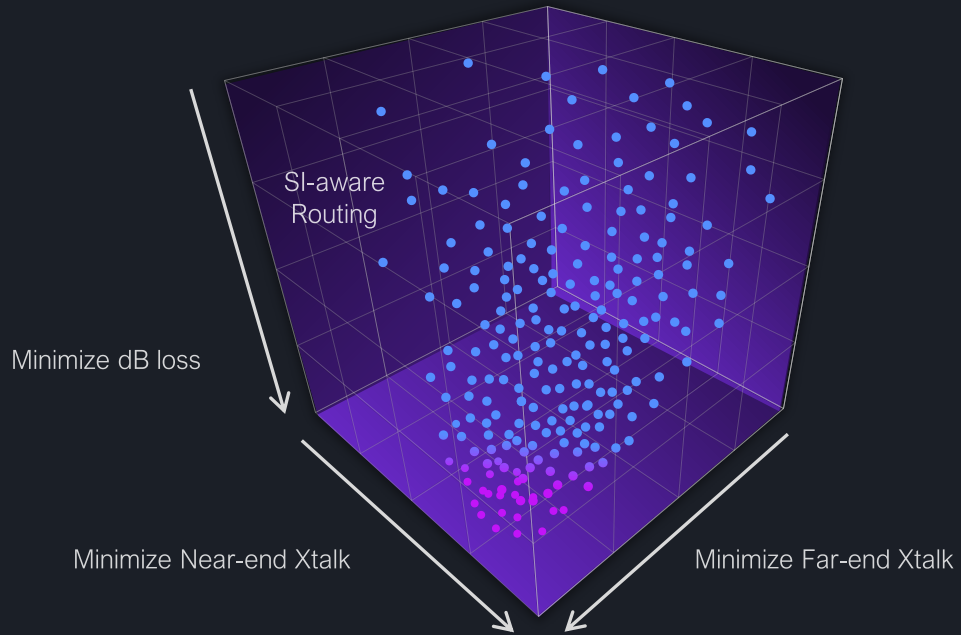
Synopsys Platform Architect - Multi-Die

Explore and optimize 6-12 months before RTL available



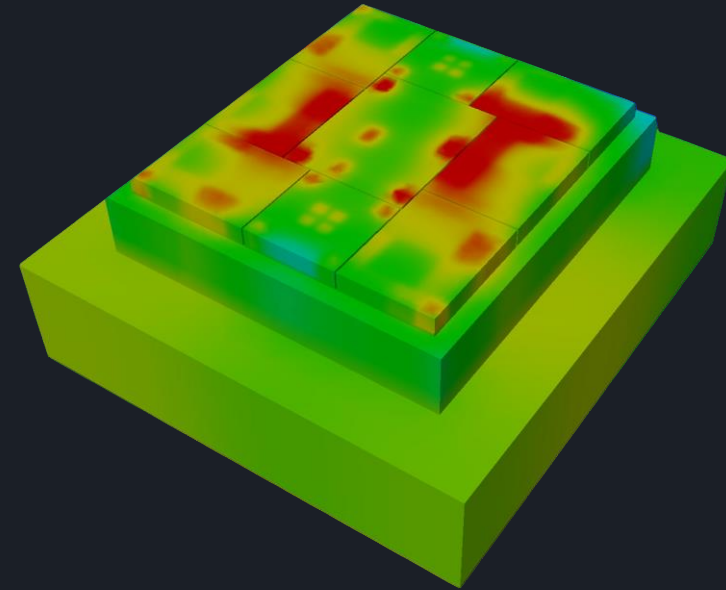
Announcing

Synopsys 3DSO.ai™



AI-Driven Optimization

Over 10x productivity boost



Native Thermal Analysis

Accelerating 3D design from days to hours

Synopsys silicon ecosystem

ADVANTEST



arm



Ansys

CEVA

EXOSTELLAR
Autonomous Cloud Optimization



Imagination

imec

intel
foundry



RISC-V

SAMSUNG



TERADYNE

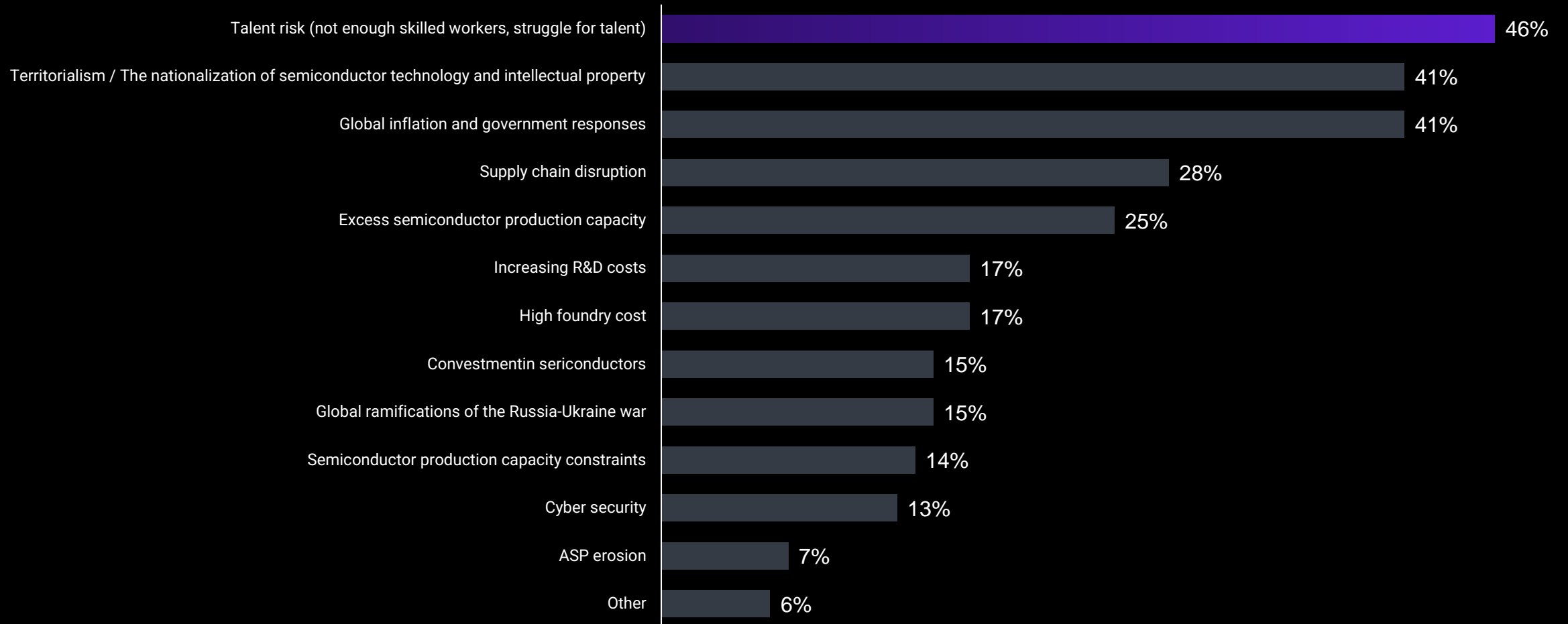


UMC

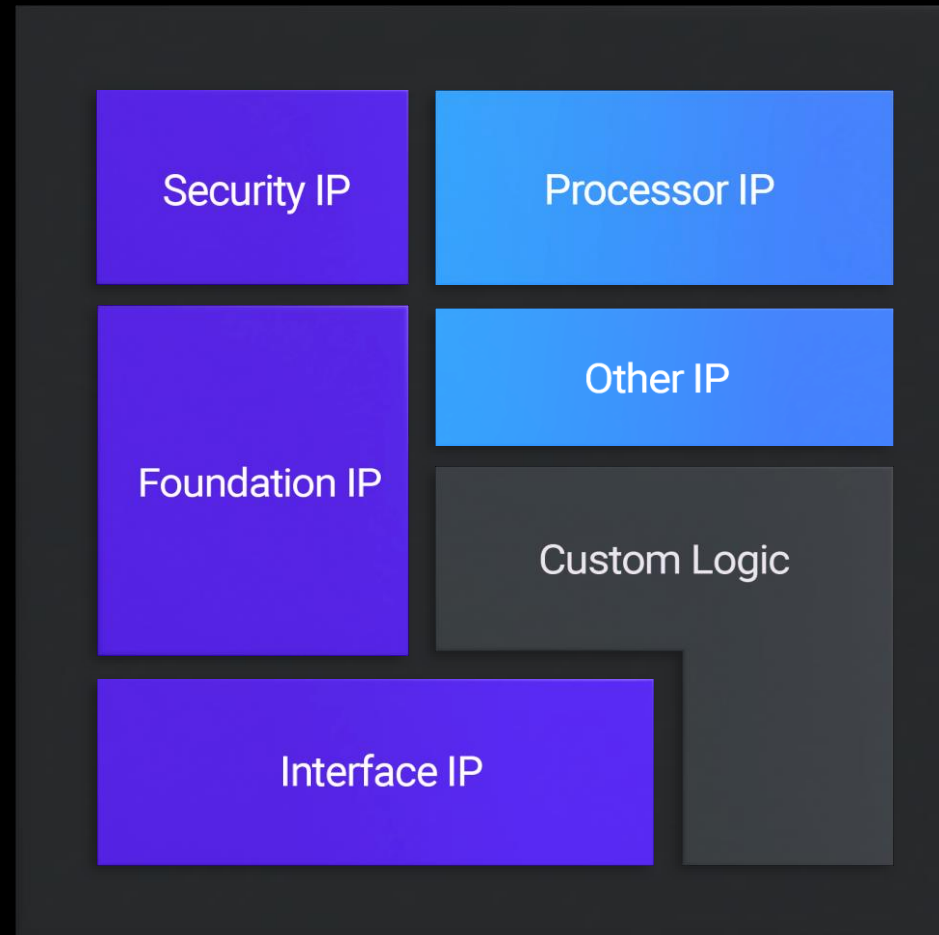


Productivity bottleneck

What do you see as the biggest issues facing the semiconductor industry over the next three years?

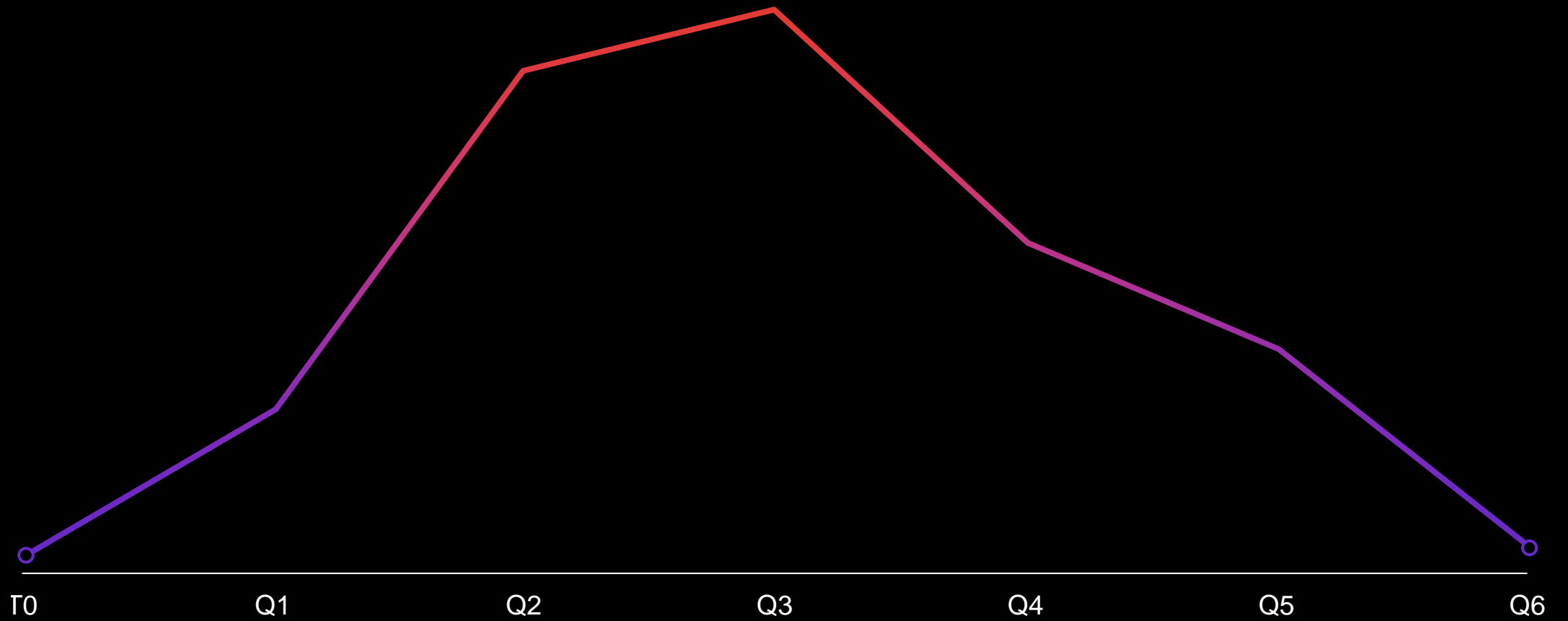


IP a major productivity enabler



Leading edge PHY development

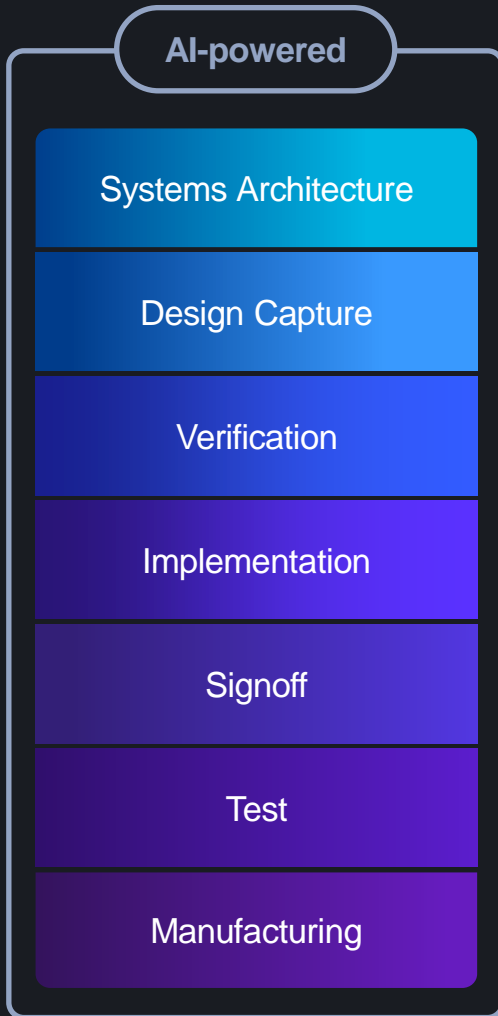
Number of engineers required



Synopsys IP

Boost productivity with world-class IP,
accelerate time to market

Synopsys.ai™



AI-driven optimization

2020 onwards

DSO.ai™

10% better performance per watt

VSO.ai™

4x TAT for same coverage

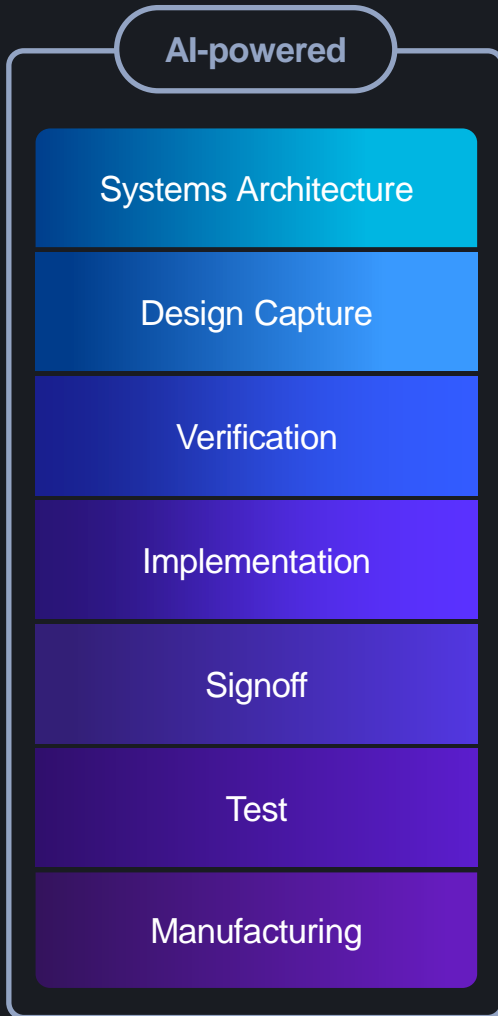
TSO.ai™

25% average pattern count reduction

ASO.ai™

4x TAT for circuit opt.

Synopsys.ai



AI-driven data analytics

2022 onwards

Design.da

Better PPA from
aggregated insights

Silicon.da

Fab.da

Higher yield and quality
Higher fab efficiency

Synopsys.ai

AI-powered

Systems Architecture

Design Capture

Verification

Implementation

Signoff

Test

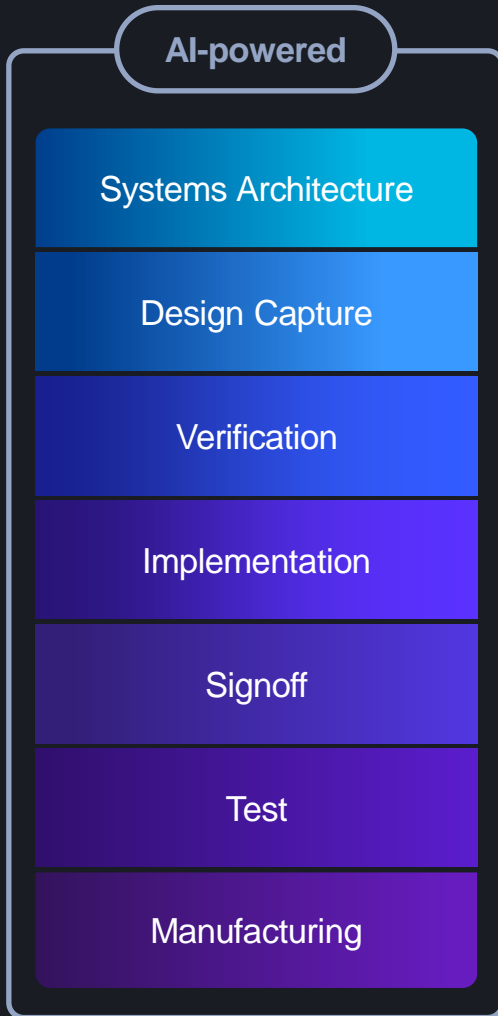
Manufacturing

Generative AI 2023 onwards



SYNOPSYS.AI COPILOT

Synopsys.ai



Generative AI 2023 onwards

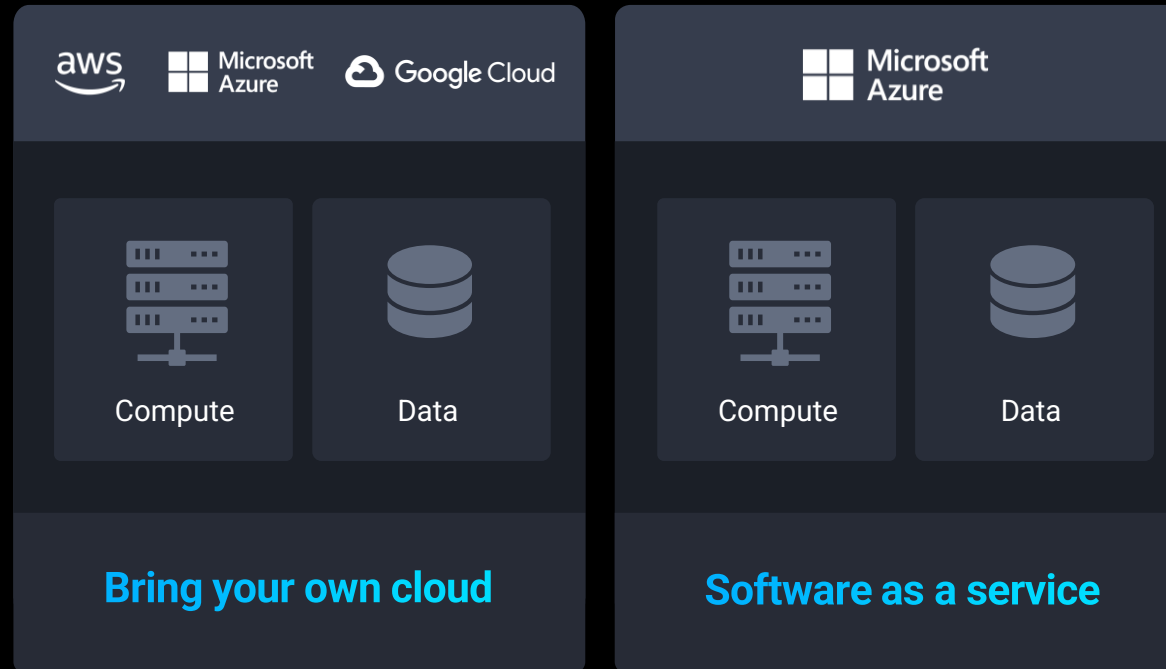
Generative

Generate RTL, Test Bench,
Formal Collateral

Collaborative

Expert answers, expert
root causes

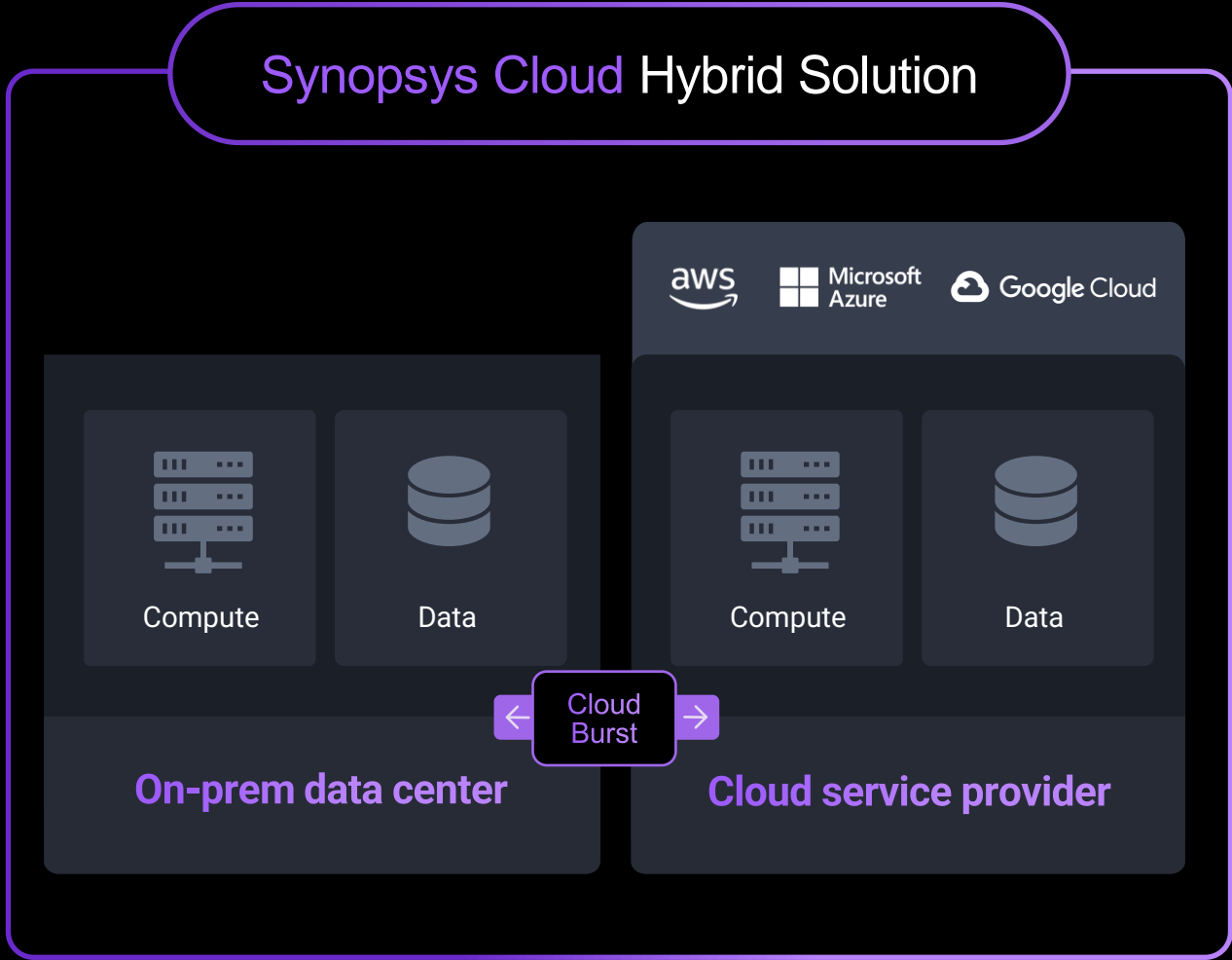
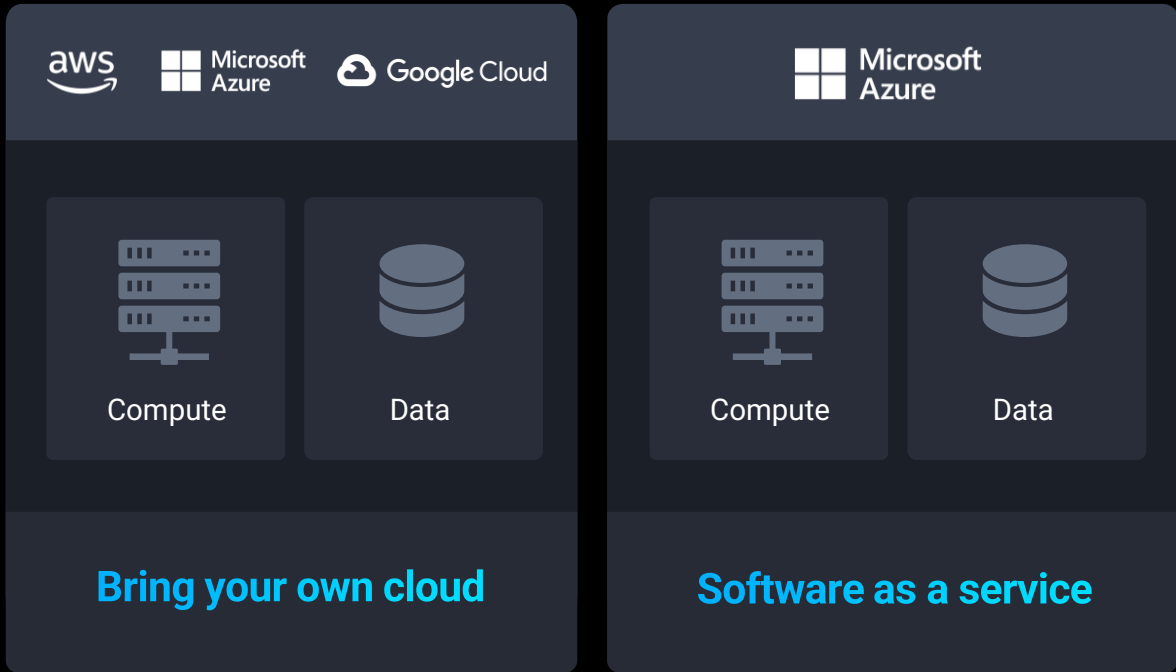
Synopsys Cloud



Up to 40% faster time to results

Announcing

Synopsys Cloud Hybrid Solution



Up to 40% faster time to results

Up to 50% productivity improvement

Source: Synopsys Internal Estimates

Synopsys productivity ecosystem



Silicon & systems intersection



Systems Companies

Customized silicon essential for differentiation



Software-Defined Products



Silicon Companies

Software workloads driving silicon requirements

Software-driven
architecture exploration

Software-driven
design verification

SYNOPSYS[®]

Industry-leading system design solutions

Software and
system validation

Silicon lifecycle
management

Announcing

Synopsys HAPS[®]-100 12

HAPS-100 12 prototyping platform

**HAPS leading prototyping performance
for up to 3x larger designs**

Run interface IP over 400MHz



Announcing

Synopsys ZeBu[®] EP2



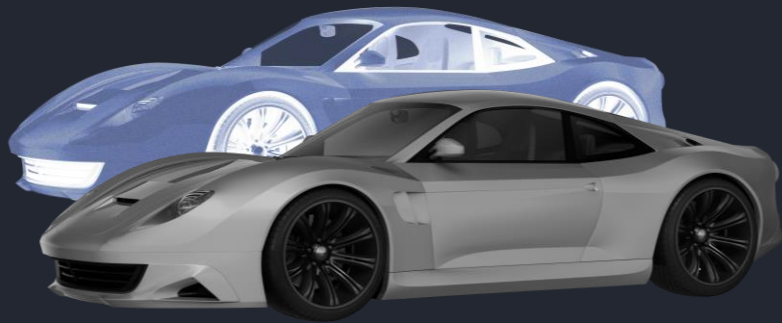
ZeBu EP2 emulation and prototyping platform

Highest performance for all hardware assisted verification use cases

Unique single system for emulation and prototyping

Supports up to 5.6 billion gate designs

Electronics digital twin



Synopsys systems ecosystem

Ansys

arm

aws

 **Microsoft
Azure**

 **cognata**
Simulating Autonomy

 **Elektrobit**

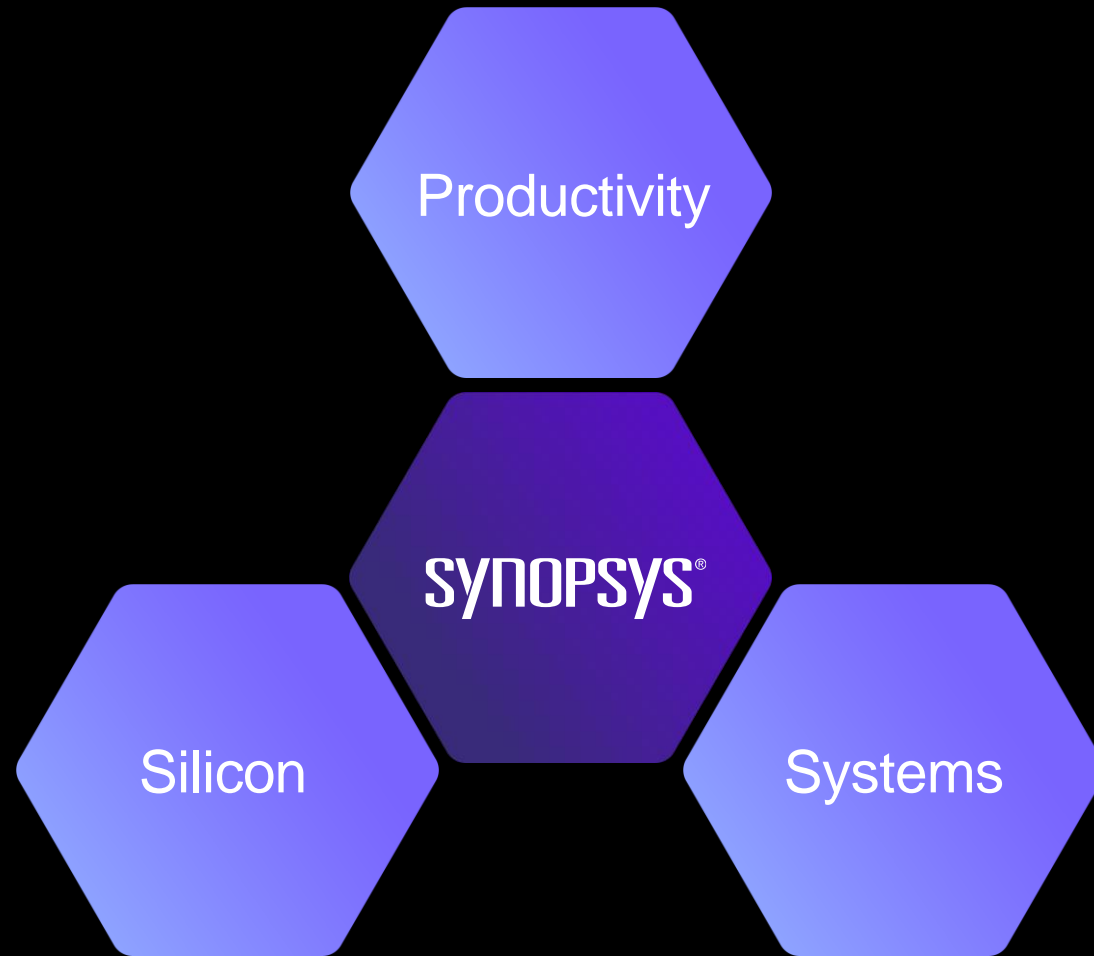
 **IPG**
AUTOMOTIVE

 **MathWorks®**

 **nVIDIA®**

 **tracetronic**

VECTOR 



Synopsys Ecosystem

Synopsys silicon to systems ecosystem

ADVANTEST

AkroStar

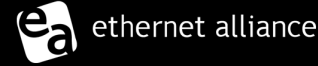


Ansys

arm



CEVA



EXOSTELLAR
Autonomous Cloud Optimization



Google Cloud

GUC

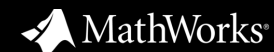


intel
foundry



imec

JEDEC



SAMSUNG



TERADYNE



tracetrionic



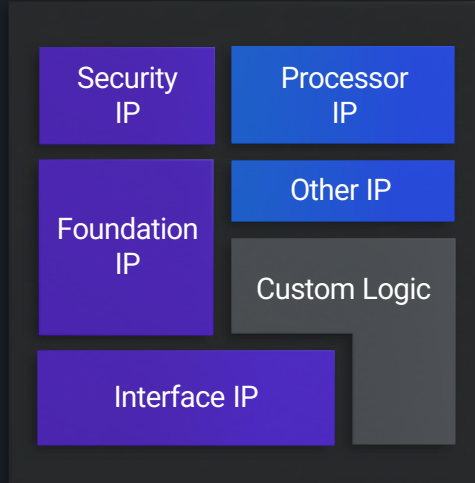
UMC



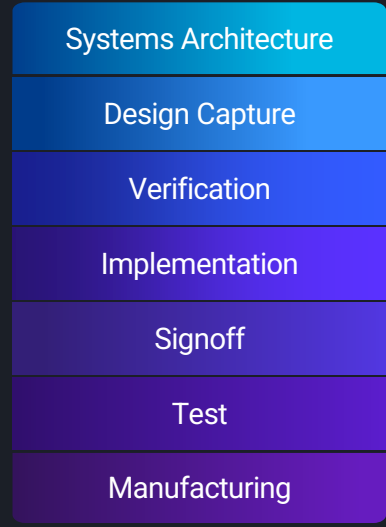
VECTOR



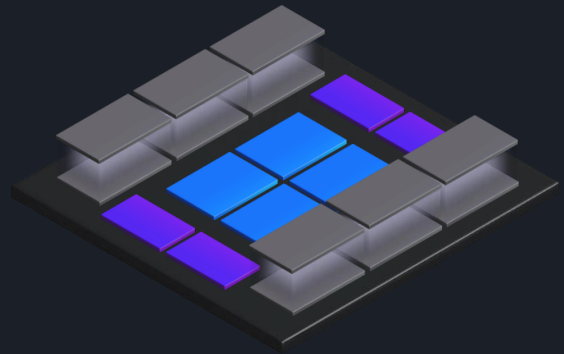
IP



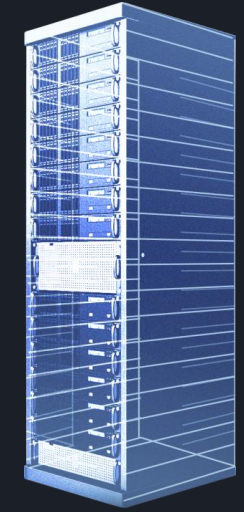
EDA



Silicon



Systems Design



Products deployed in-field

AMD 

arm

 *Astera Labs*®

 Microsoft

TESLA

SYNOPSYS[®]

Our Technology, **Your Innovation[™]**