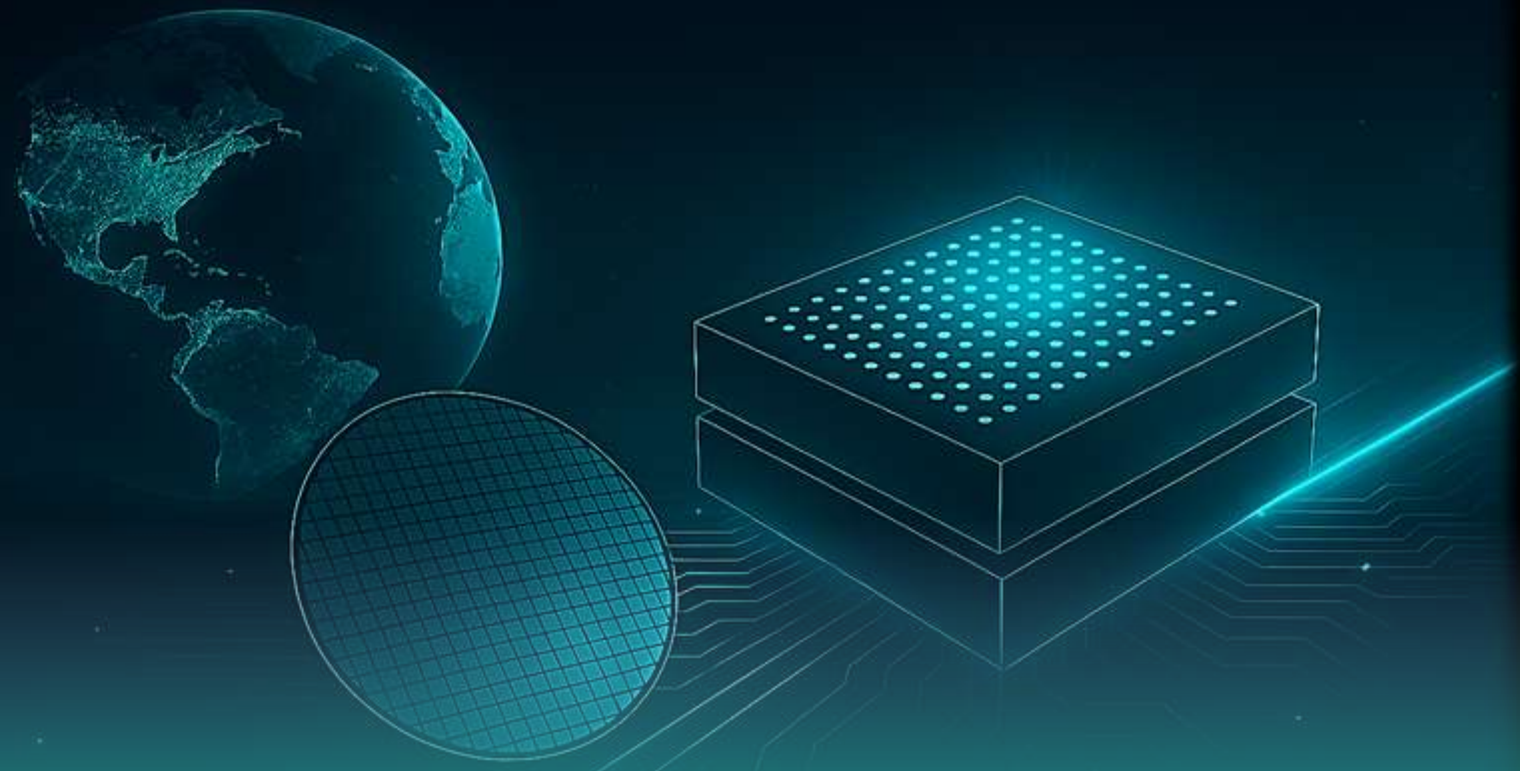
A JOURNEY OF LEARNING, GROWING AND COLLABORATION: FROM MY PATH TO SUPPORTING RAPIDUS' VISION



Rozalia Beica
Field CTO Packaging Technologies
Rapidus Design Solutions

MY JOURNEY: WHERE IT STARTED

Resita

Polytechnic University Timisoara

UCMR Resita
1771

Born in Europe, Romania

M. Sc. Chemical Engineering

Bearings Manufacturing

Started my career in operations, final finishing of bearings for industrial and automotive applications

A GLOBAL CAREER ACROSS THE VALUE CHAIN

34 years of working experience (27 in electronics & semi)

Experience across the Value Chain

Electronic Materials
ROHM HAAS DOW DUPONT
LODX

IDM

FOUNDRY
Rapidus

OEM
NCR

Semiconductor Equipment
SEMITOOL APPLIED MATERIALS Lam RESEARCH

Market Research
Strategy
Consulting
YOLE Développement

PCB & Substrates
AT&S

Different Functions

- R&D & Technology Management
- Applications & Processing
- Quality Control, Metrology & Operations
- Product Management
- New Business Development
- Strategy
- Consulting
- Sales

Education: Technical: M. Sc. Chemical Engineering
Management: M. Sc. Management of Technology
Business , Strategy, Entrepreneurship: Global Executive MBA

International Working Experience CANADA USA AUSTRIA FRANCE ROMANIA CHINA MALAYSIA

Education **USA** (Brown, Harvard, KWU) **BRAZIL (Insper)** **SPAIN (IE)** **ROMANIA (Poytech Univ)** **CHINA (Fudan)**

3 Citizenships: 🇷🇴 🇨🇦 🇺🇸

CATALYZING THE FUTURE: ACTIVE INDUSTRY ENGAGEMENT

20 years of industry volunteering and leadership

General Chair DPC, Program Chair SiP, ESTC (EU) Communications Chair, VP Technology Executive Council, SV Chair

Board Member

General Chair

International Adv. Board Member (TW)

General Chair (US)

General Chair SMC US, Ex. Com: SMC EU, 3D Summit

General Chair (Singapore)

Industry Roadmaps & Technical Committees: ITRS, HIR, SIA CTO Committee, IEEE EPS 3D IC & Substrate
Consortia Activities: Program Director EMC 3D
Student Engagement: SRC Georgia Tech Technical Advisory Board Member , Student Competition ECTC

- **> 175 presentations worldwide, 3 book chapters**
- **2020 – 1st recipient of the IMAPS Leadership Award**
- **2006 – Paul Totta IBM Congratulatory Letter, R&D 100 Award for SnAgCu Electrodeposition for Wafer Bumping**
- **2006 – Dale Carnegie Awards, including The Highest Achievement Award**

CATALYZING THE FUTURE: ENTRENEURSHIP ACTIVITIES

Learning

Winning Venture Day Shanghai 2013
2013 IE Entrepreneurship Award of the Year

Supporting Start-ups

IMAPS SiP 2018 & 2019
ECTC 2024, 2025, 2026

Advising Start-ups

3DInCites

TERECIRCUITS

thintronics

NSSRISE
New Stage Synergic Research Institute of Science and Engineering

Technical Advisory Board Member
Board Chair, Co-Founder

LESSONS LEARNED ALONG THE WAY

Global Perspective
innovation happens when diverse expertise come together

Partnerships & Collaboration
are the engine of progress

Agility & Adaptability are Essential
Technology evolves fast

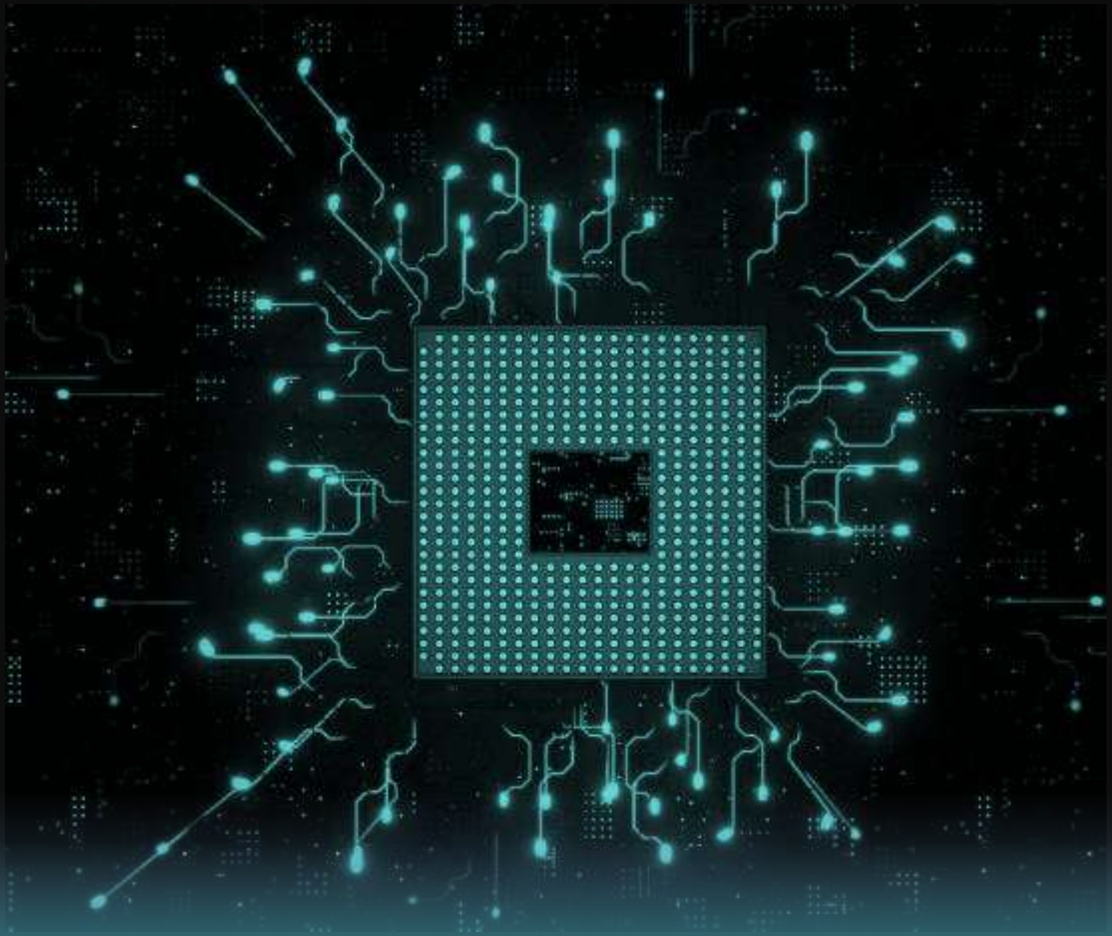
Personal Growth

- Don’t compromise your values
- Advocate for yourself
- Learn, learn and learn again
- Don’t be afraid to leave a job
- Embrace the successes that you have
- Don’t forget to give back and help others, mentor and teach younger generations
- Volunteer and be active in the industry
- Remember what’s important: family

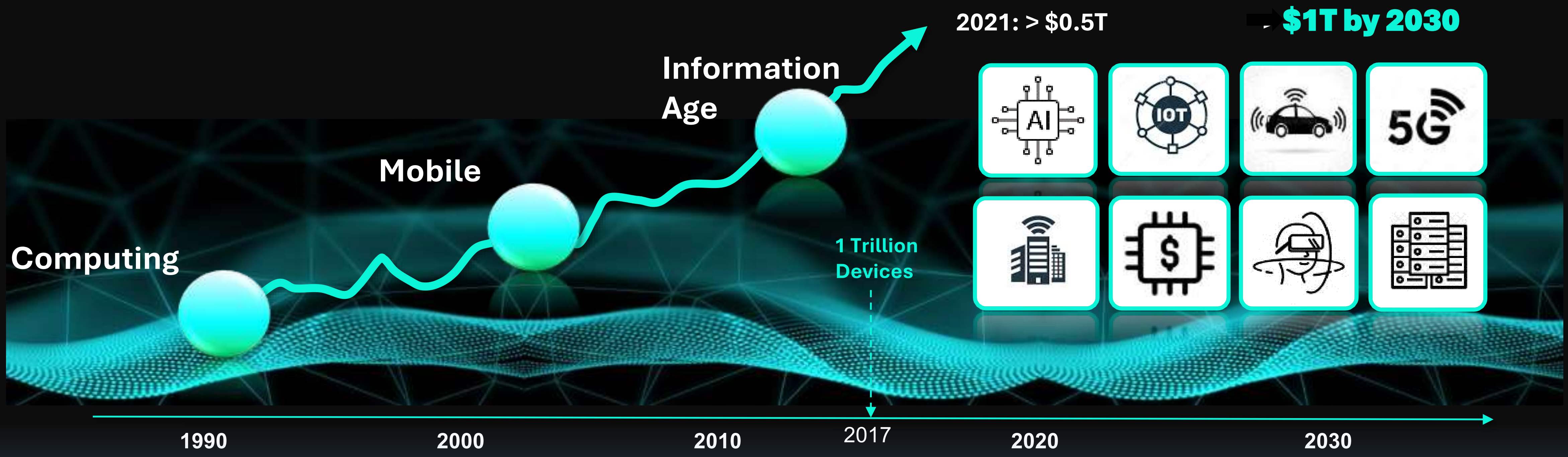
These experiences and lessons guided me throughout my entire career

WHY

RAPIDUS?



SEMICONDUCTORS AT THE CENTER OF EVERY MAJOR APPLICATION



2021: > $0.5T

$1T by 2030

Information Age

Mobile

Computing

1 Trillion Devices

1990

2000

2010

2017

2020

2030

AI IS SURGING. SUPPLY CHAINS ARE SHIFTING.

NATIONS RACING TO RECLAIM SOVEREGNITY OVER ADVANCED MANUFACTURING

AI CATALYZING THE NEXT GROWTH PHASE OF SEMICONDUCTORS

Deep / Machine Learning

Simulation / Modeling

Image / Graph Analytics

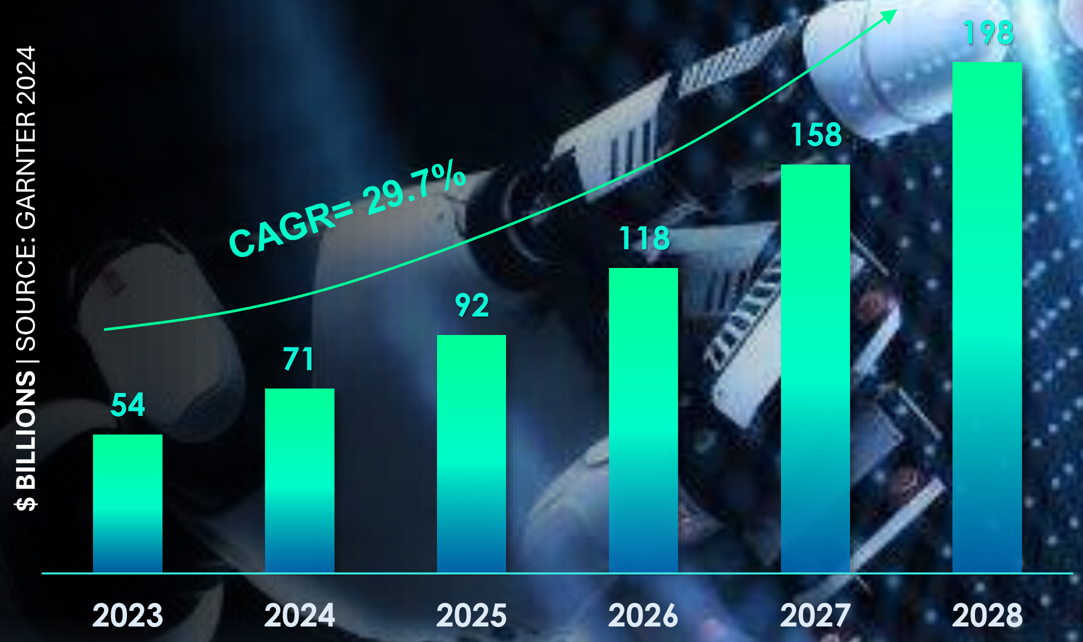
Robotics / Automation

Autonomous Vehicles

Healthcare

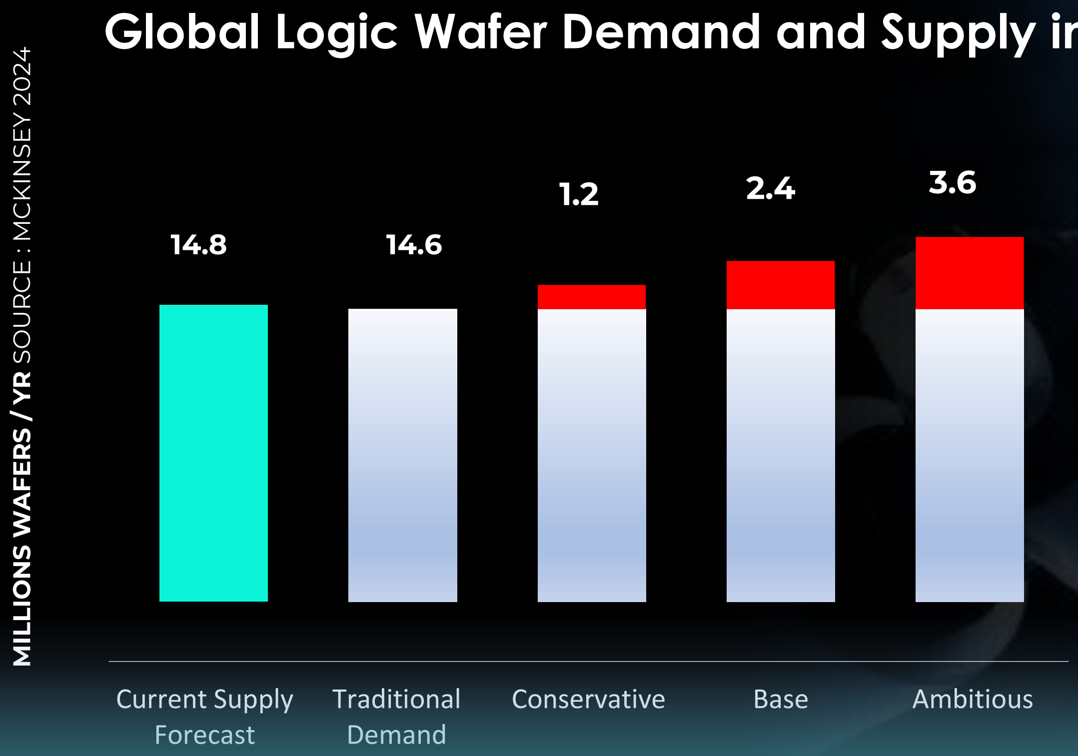
IoT

Projected Global Sales of AI Chips



CREATING NEW PROCESS STRUCTURES, CUSTOMIZATION & CHIPLET ADOPTION

THE NEED FOR ADVANCED NODES IS SKYROCKETING



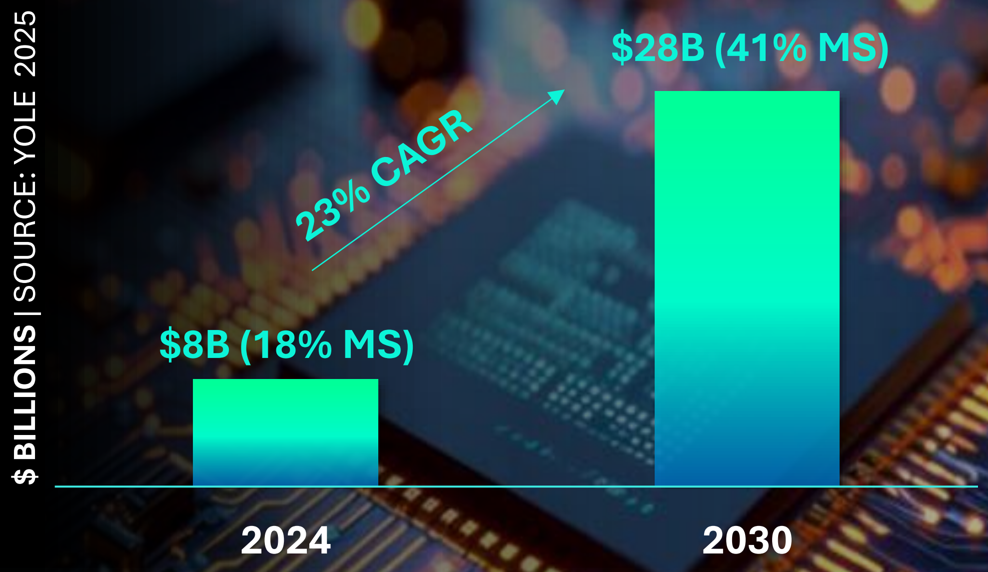
3-9 additional fabs will be needed

DEMANDS WILL KEEP RISING. CAN THE INDUSTRY KEEP UP WITH AI NEEDS?

ADVANCED PACKAGING HAS BECOME A STRATEGIC DIFFERENTIATION

$42.7B
2024 AP Market
(13% Growth due to AI/HPC)

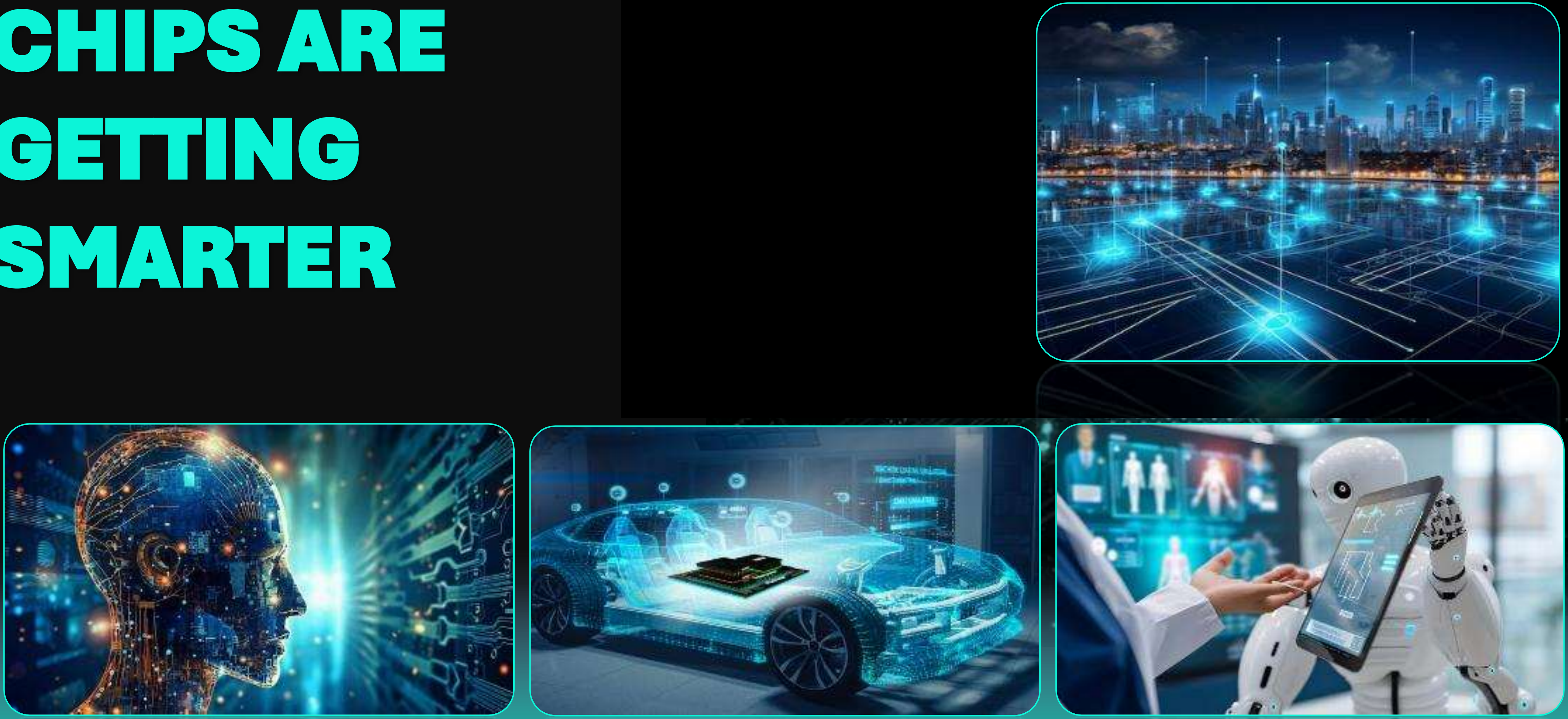
Highest Growth: Higher End Performance Packaging



2024: $11.5B Investments (Foundry, OSATs)

ADVANCED PACKAGING VALUE MOVING TO HIGH END PERFORMANCE PACKAGING

CHIPS ARE GETTING SMARTER



FABS: STUCK IN AN OLDER PARADIGM

FABS: STUCK IN AN OLDER PARADIGM

Slow to Productize

Costly to Scale

Operate at Large Scale

Lack customization

DISCONNECTED FROM THE AI-SYSTEMS THEY SERVE

AI REQUIRE CHANGES & INNOVATIVE SOLUTIONS

NOT JUST INCREMENTALLY

FUNDAMENTALLY!

IMAGINE A FAB THAT COULD THINK

LEARN **ADAPT** **OPTIMIZE** **IN REAL TIME**

A FAB THAT COULD

SENSES

PREDICTS

EVOLVES

AI FOUNDRIES

THE FUTURE OF ADVANCED MANUFACTURING

FAST & SMART

SOLUTIONS

TO ENABLE AI-POWERED ERA

RAPIDUS: THE NEXT GENERATION ADVANCED FOUNDRY

ACCELERATING 2NM &

ADVANCED PACKAGING

INNOVATION THROUGH

GLOBAL COLLABORATION

RAPIDUS CORPORATION

Managing Shareholders


Tetsuro Higashi


Atsuyoshi Koike

Founding Individual Shareholders (12people)

Established by a group of semiconductor experts （August 10, 2022）

SONY
SoftBank
DENSO
KIOXIA
NEC
NTT
MUFG
TOYOTA

Investment by 8 companies （October 31, 2022）

SMART: INNOVATIVE INTEGRATED MANUFACTURING (IIM)

SINGLE WAFER MANUFACTURING

DATA DRIVEN

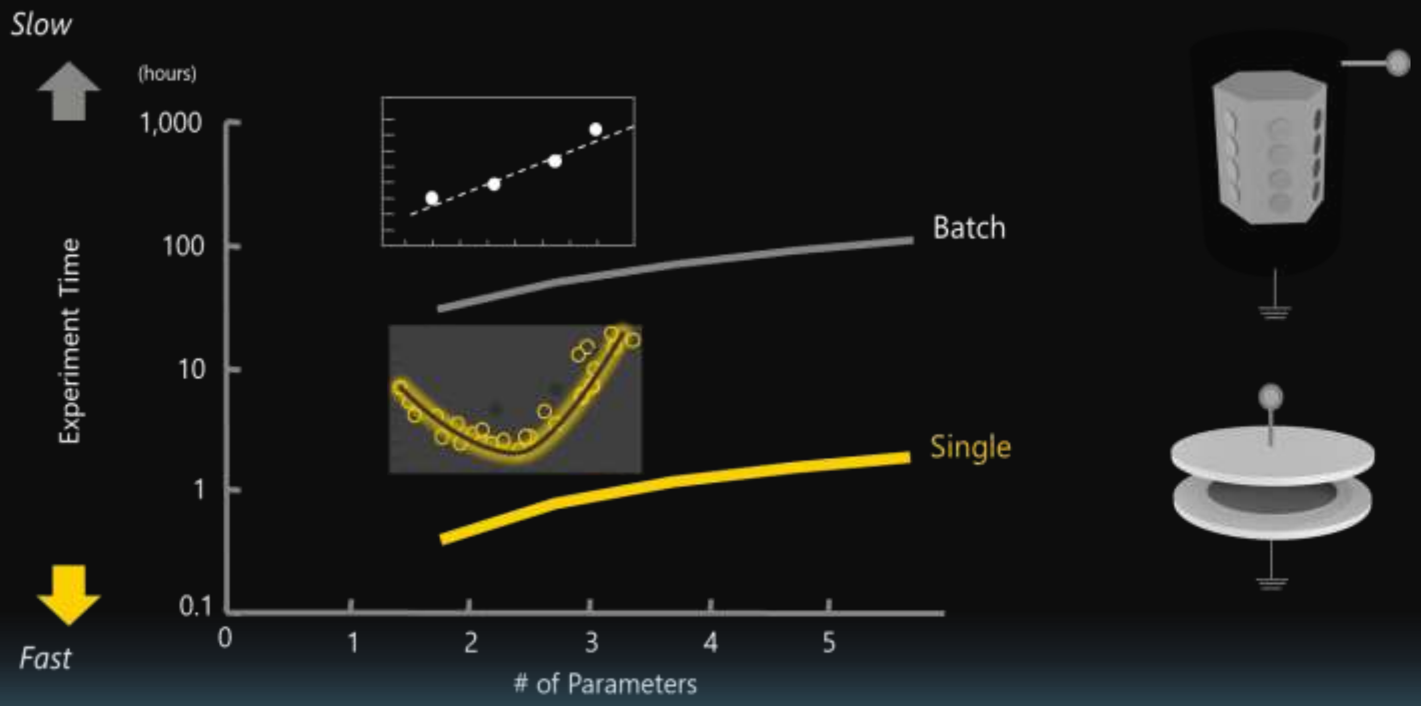
AI ACCELERATED

SENSOR RICH ENVIRONMENT

PREDICTIVE DECISIONS

ACTIVE PROCESS CONTROL

EQUIPMENT OPTIMIZATION



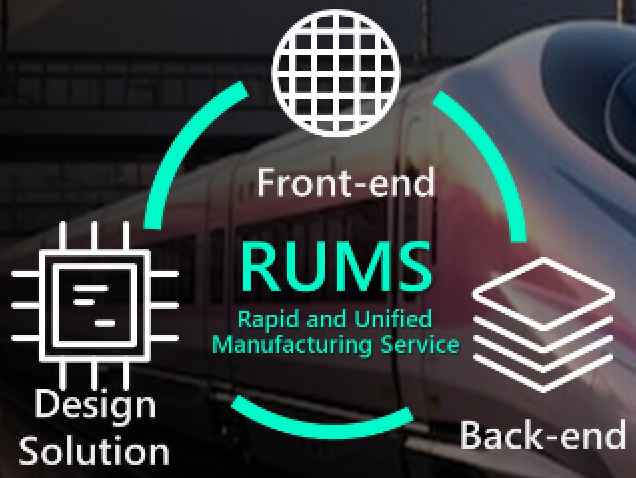
IIM – 1: EVERY WAFER IS A LEARNING OPPORTUNITY, NOT JUST A PROCESS STEP

SPEED: THE TRUE REQUIREMENT OF AI AGE

DESIGN MANUFACTURING CO-OPTIMIZATION

LEVERAGING AI FOR YIELD ANALYSIS & ACCELERATED SCALING

RAPID & UNIFIED MANUFACTURING SERVICES



RAPIDUS Differentiates in Speed

RAPIDUS: WORLD’S FASTEST CYCLE-TIME

INTEGRATED & OPTIMIZED SOLUTIONS

A KEY DIFFERENTIATOR

CHIPLET ARCHITECTURES & CUSTOMIZATION

HETEROGENEOUS INTEGRATION

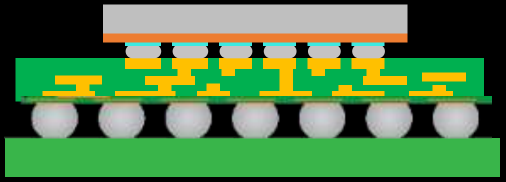
FASTER FEEDBACK LOOPS

END-to-END OPTIMIZATION

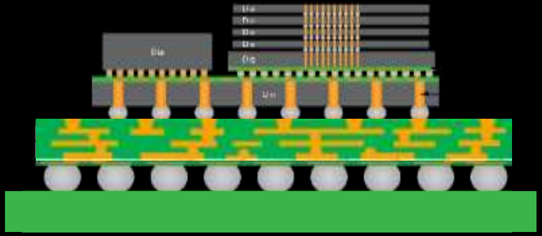
FROM WAFER TO SYSTEM – ALL UNDER ONE INTELLIGENT ROOF

AI/HPC WILL DRIVE THE NEED FOR HIGH END PERFORMANCE PACKAGING

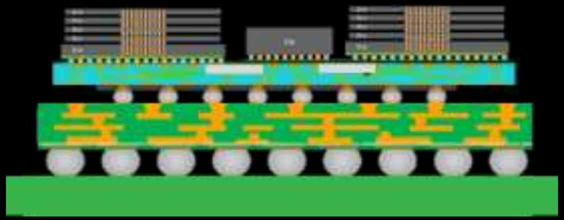
FCBGA



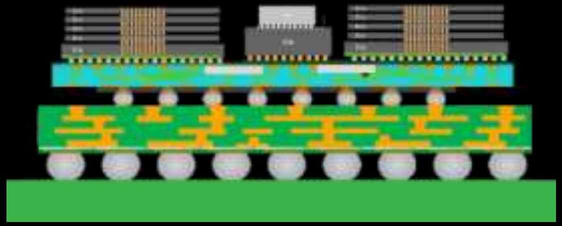
2.5D Interposer



Organic Interposer (Bridge)

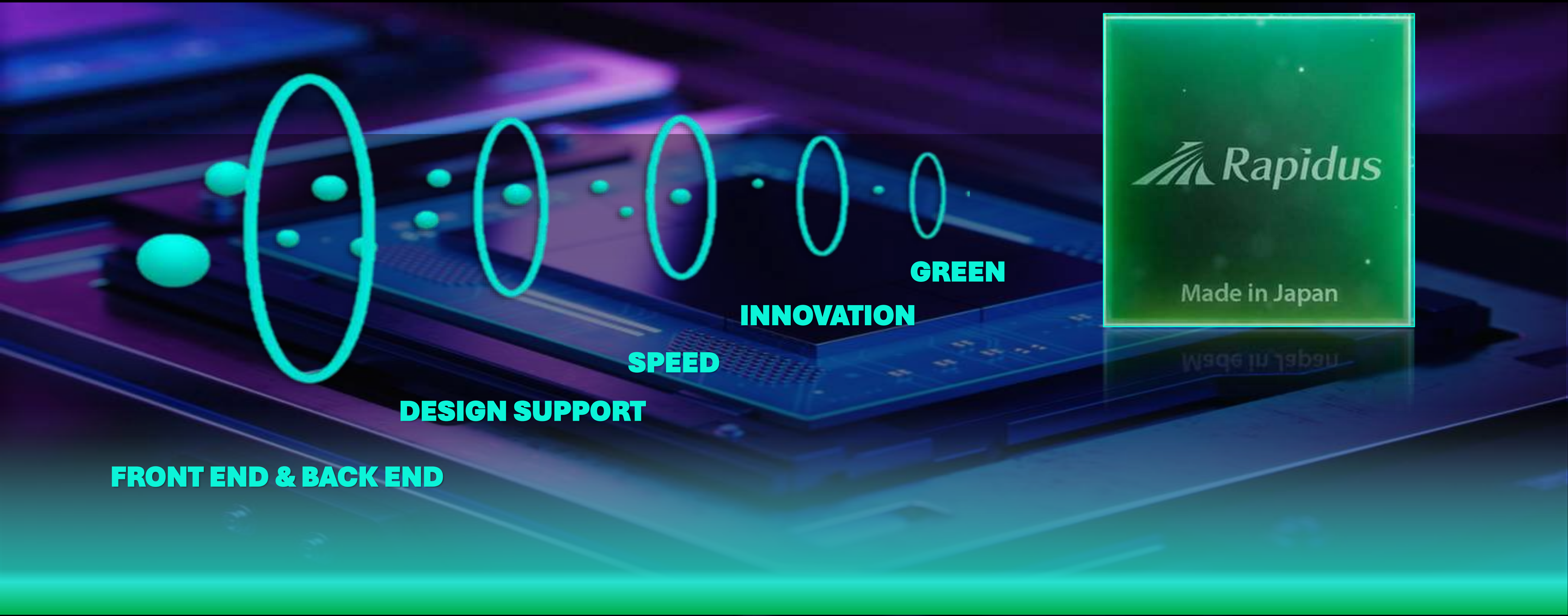


3D Stacking (Hybrid Bonding)



RAPIDUS ADVANCED PACKAGING SOLUTIONS (WAFER & PANEL LEVEL)

OUR SOLUTION APPROACH



FRONT END & BACK END

DESIGN SUPPORT

SPEED

INNOVATION

GREEN

THE FAB OF THE FUTURE

Isn't just a place …it's a philosophy

SPEED, FLEXIBILITY, INTELLIGENCE & INTEGRATION DEFINE ITS SUCCESS

WE ARE BUILDING THAT FUTURE

INVITE YOU ALL TO BUILD IT WITH US

WHY RAPIDUS ?

OPPORTUNITY TO BUILD SOMETHING NEW

COMMITMENT OF A NATION

GLOBAL COLLABORATION

AGILITY OF A START-UP

CREATING A NEW PARADIGM FROM THE GROUND UP

A CHANCE TO SHAPE THE NEXT CHAPTER ON AN INDUSTRY AT A TRULY PIVOTAL MOMENT

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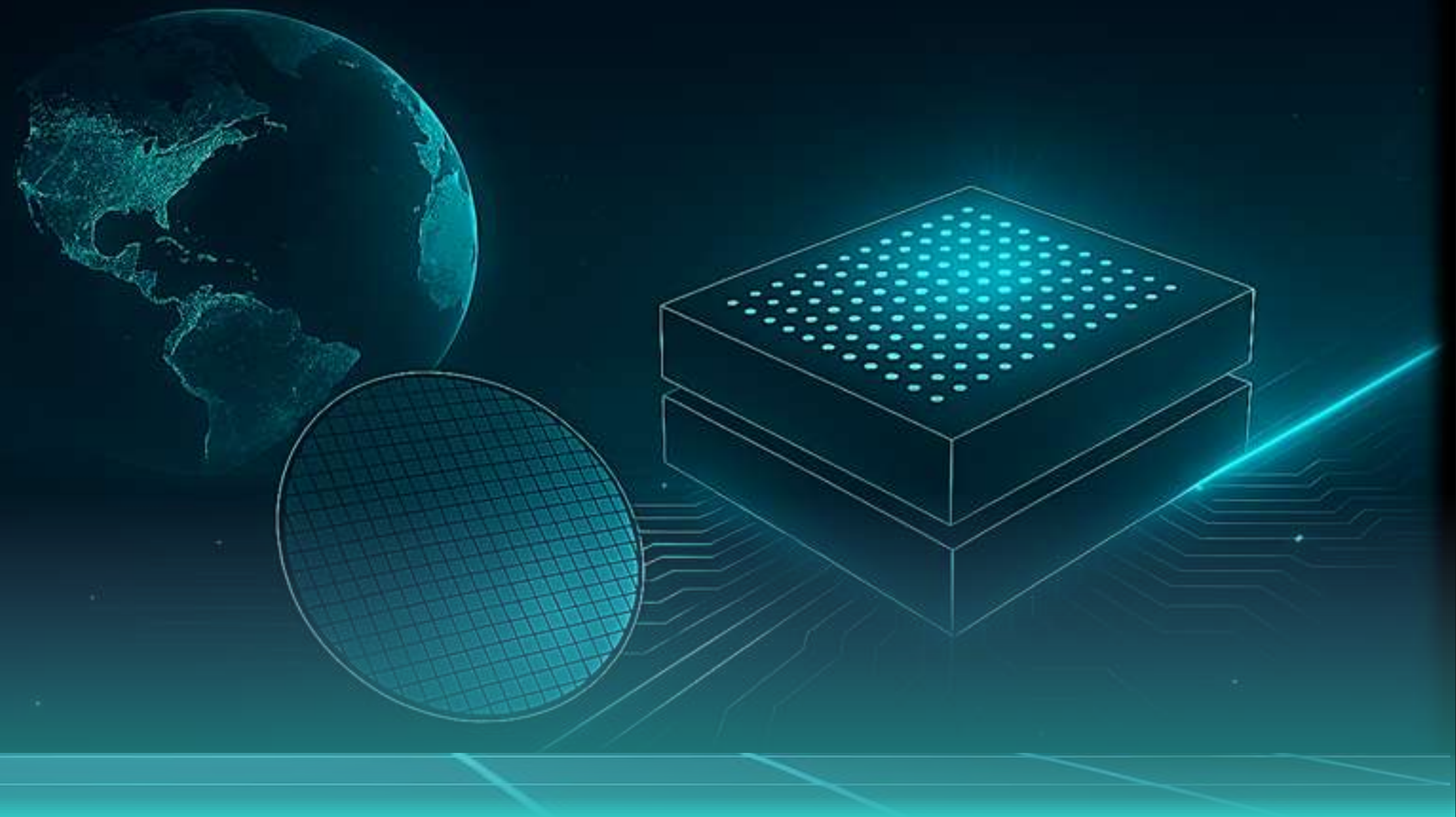

THANK YOU!

Rozalia Beica
Field CTO Packaging Technologies
Rapidus Design Solutions

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