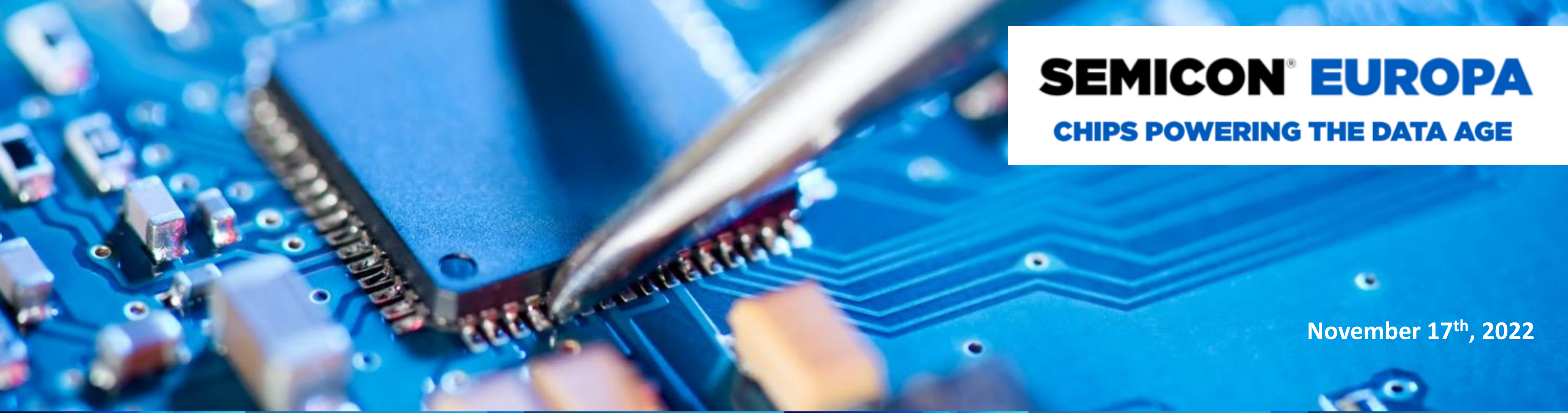


SEMICON® EUROPA

CHIPS POWERING THE DATA AGE

November 17th, 2022

Greenfield & Brownfield:
Semiconductor Fab Asset / Global Manufacturing Market Overview

Stephen M. Rothrock
Founder, President & CEO

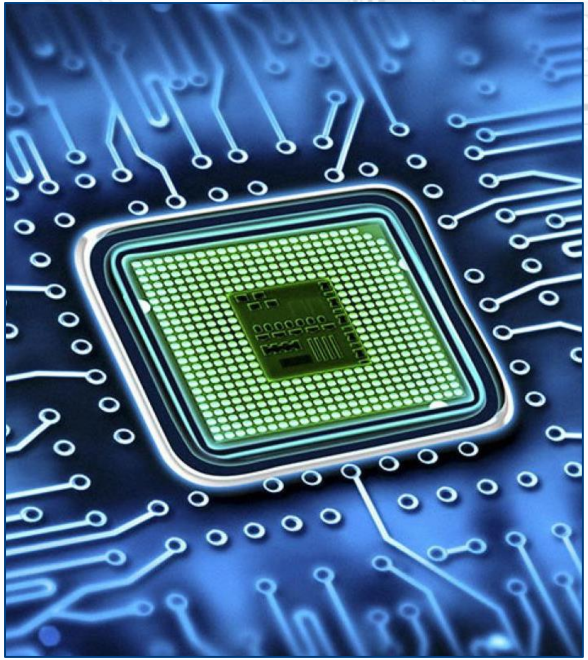
ATREG

Market Growth Drivers / Why We Need Global Semiconductor Manufacturing

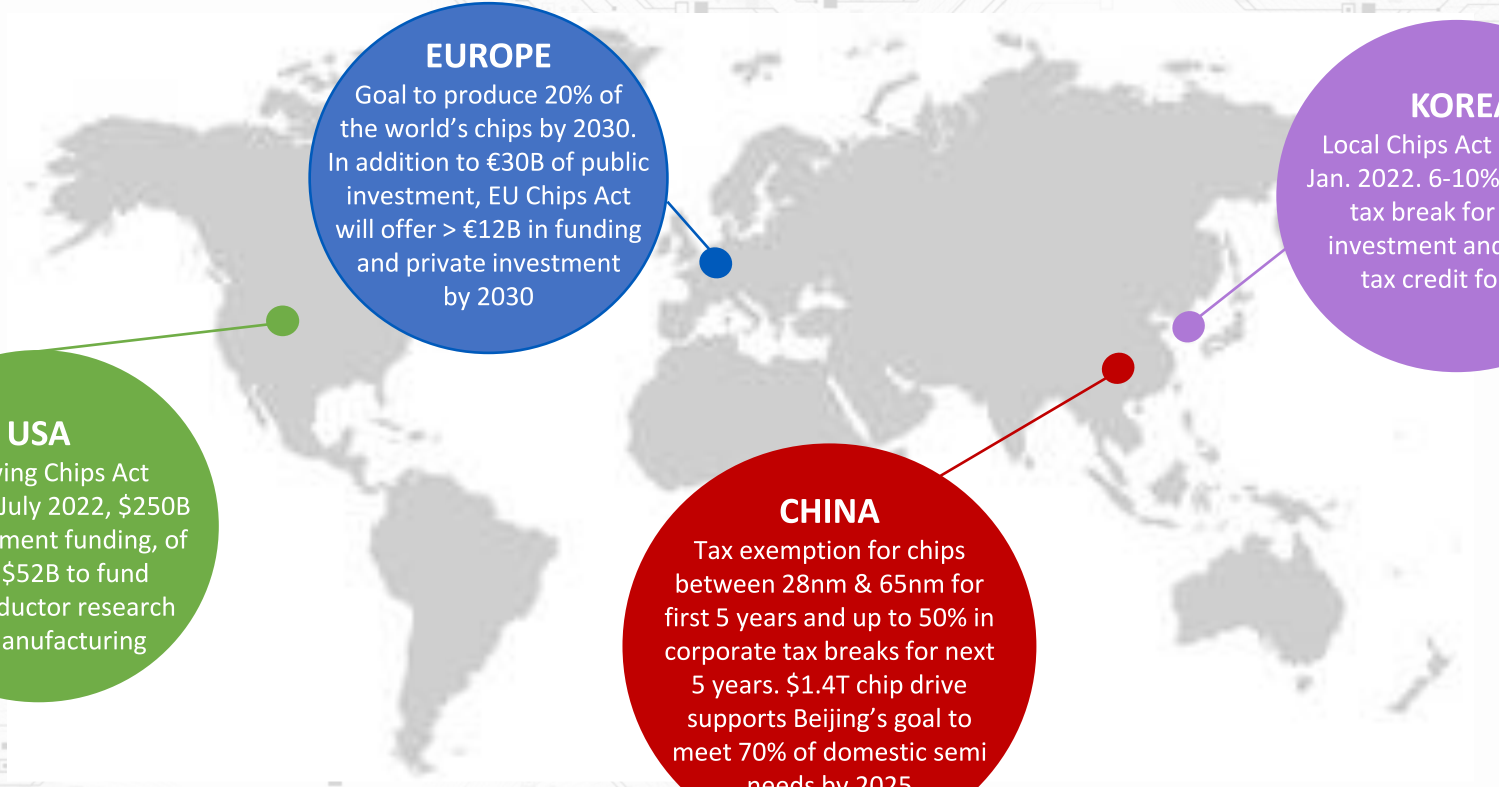
- Automotive transformation – Electrification & digitalization
- Industrial transformation – Cloud computing, server farms, memory, energy management & power efficiency
- Wireless communications – 5G, 6G, satellites & IOT
- AI, super computing, bitcoin, security & medical
- Personal electronics enabling work-from-home environment & digital computing
- Carbon neutrality – Calling for improvements everywhere

Challenges To Global Semiconductor Manufacturing

- Geopolitical tensions creating risks of disruption and shortages
- Limits of a fully globalized supply chain
- Semi industry suffering from a lack of attractiveness and qualified talent
- Global warming threat and need for sustainability programs
- Are countries creating enough incentives for manufacturing investments?



Strategic Importance Of Semiconductors



EUROPE
Goal to produce 20% of the world's chips by 2030. In addition to €30B of public investment, EU Chips Act will offer > €12B in funding and private investment by 2030

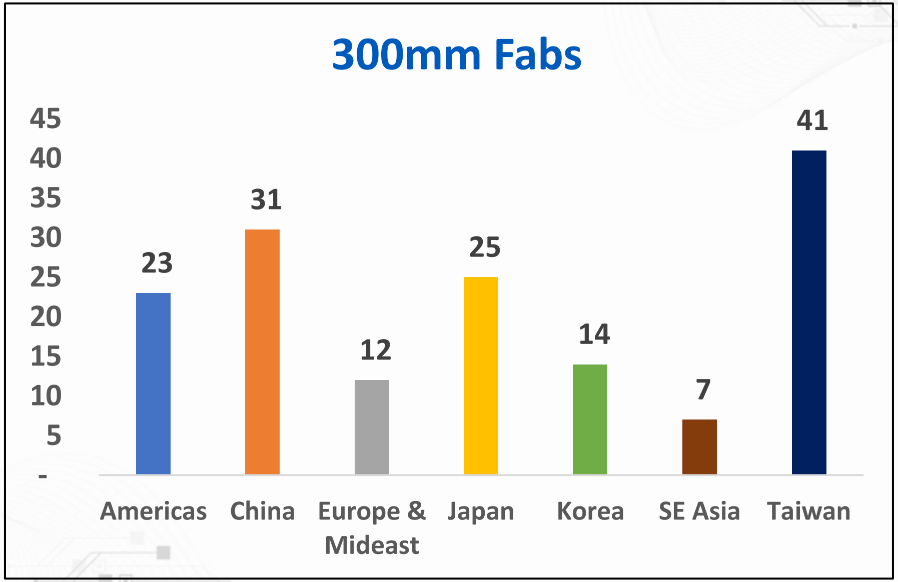
KOREA
Local Chips Act passed in Jan. 2022. 6-10% corporate tax break for facility investment and 30-40% tax credit for R&D

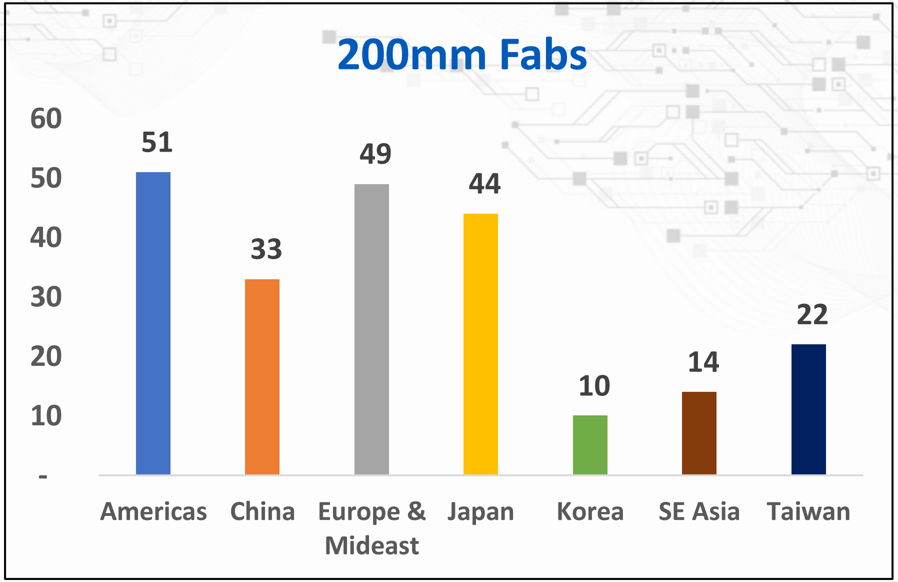
USA
Following Chips Act passed in July 2022, $250B of government funding, of which $52B to fund semiconductor research and manufacturing

CHINA
Tax exemption for chips between 28nm & 65nm for first 5 years and up to 50% in corporate tax breaks for next 5 years. $1.4T chip drive supports Beijing's goal to meet 70% of domestic semi needs by 2025

Source: Edwards ITPC presentation, Nov. 2022

Total Operational Semi Capacity – 200mm / 300mm Fabs By Country / Region



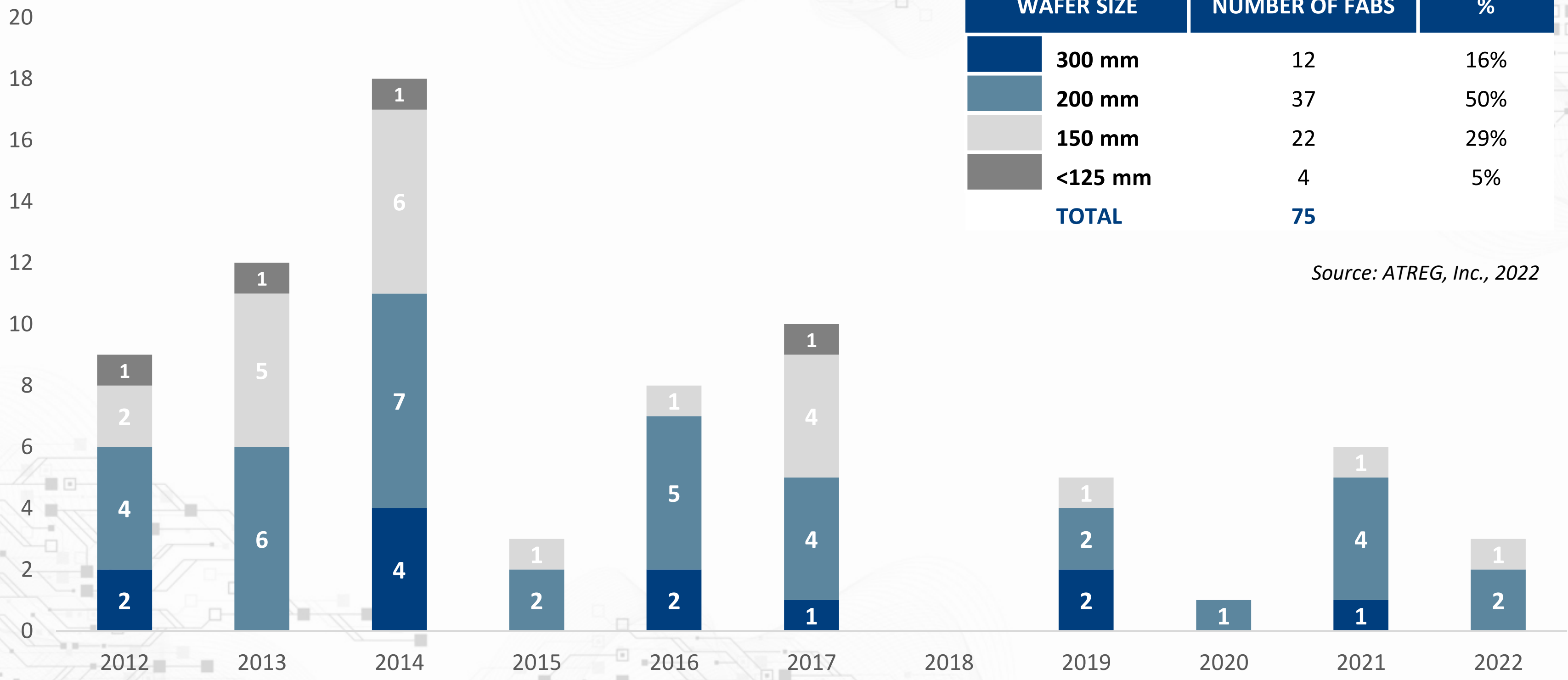


TOTAL OPERATIONAL FABS WORLDWIDE

300mm – 153
200mm – 223
150mm – 297

Sources: SEMI World Fab Watch & ATREG, Inc., 3Q2022

Brownfield Fab Transactions Over The Past Decade (By Wafer Size)

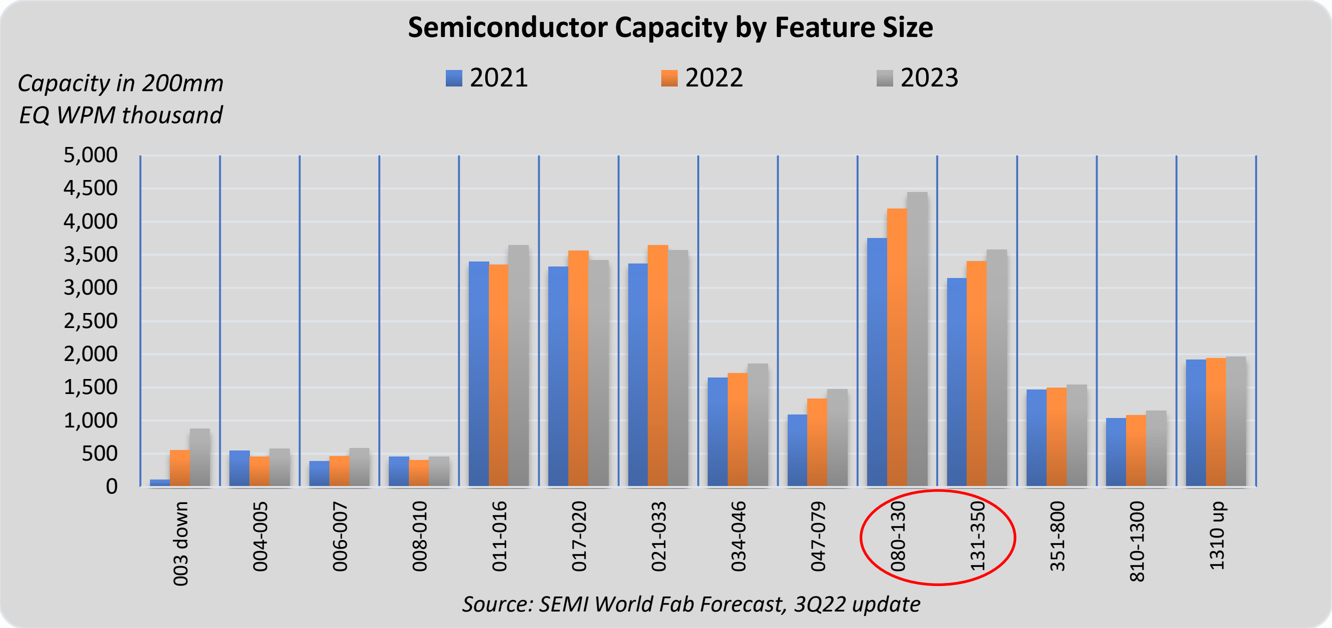


WAFER SIZE	NUMBER OF FABS	%
300 mm	12	16%
200 mm	37	50%
150 mm	22	29%
<125 mm	4	5%
TOTAL	**75**	

Source: ATREG, Inc., 2022

Continued Criticality Of 200mm & Mature Nodes

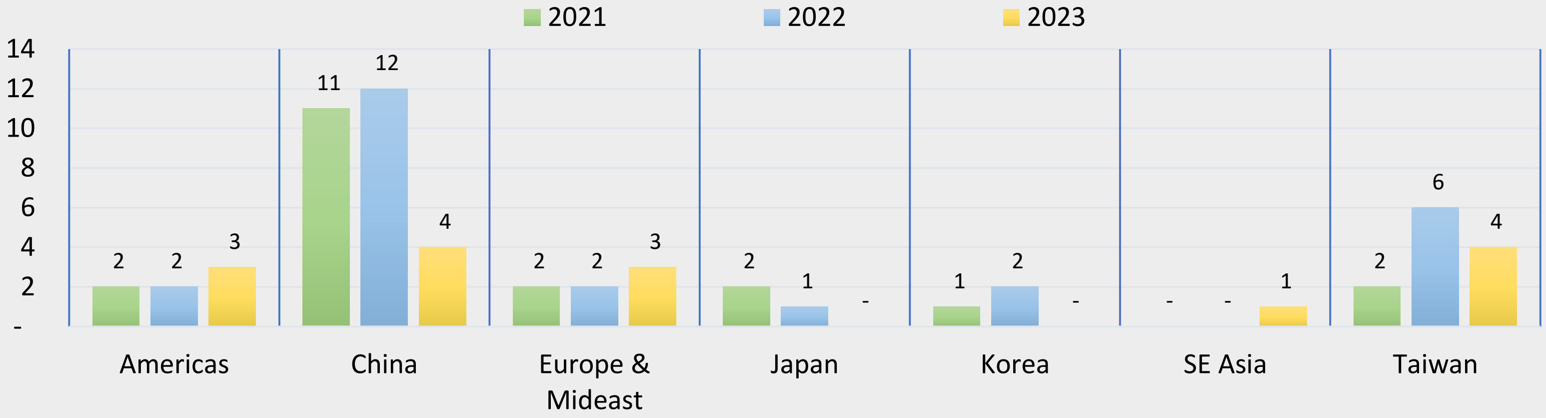
- Core 200mm demand remains strong
- Greenfield expansions focused on 300mm leading edge
- Existing 200mm brownfield fabs remain critical



Global Greenfield Fab Landscape – U.S. & Europe Playing Catch-Up To China

- 2022 fabs starting volume production in the U.S. and Europe
  - Intel, Hillsboro, OR module
  - TI, Richardson, TX
  - Wolfspeed, Mohawk Valley, NY
  - STMicro, Agrate, Italy
  - Soitec, Bernin, France

Count of New Volume Fabs Starting OPERATION (*1st silicon, not volume production*)



Source: SEMI World Fab Forecast, 3Q22

Estimated Planned U.S. & European Greenfield Fab Investment

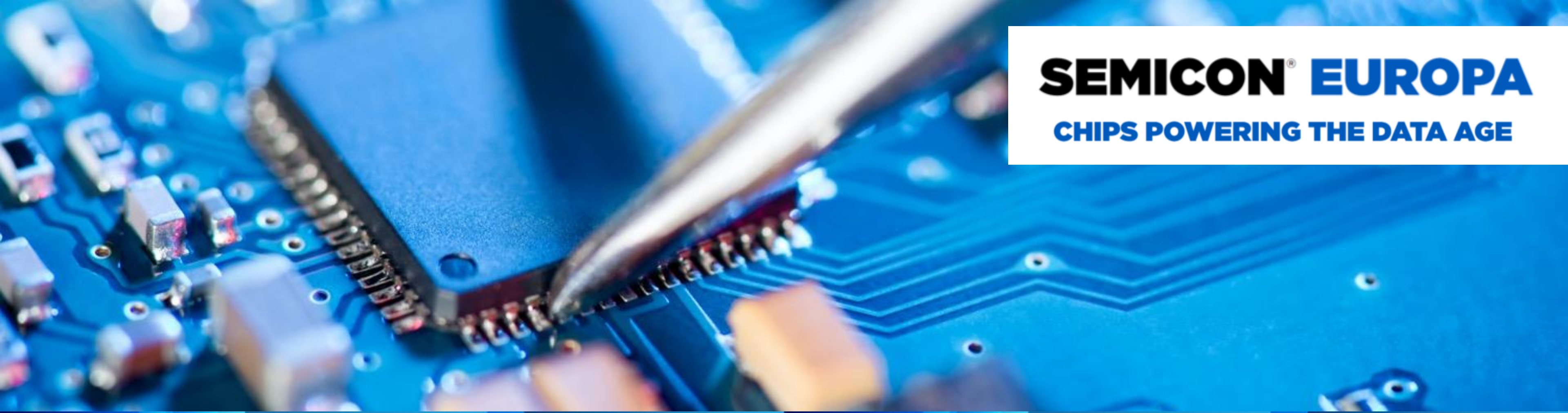
U.S. GREENFIELD INVESTMENT* = ~ $130B

EUROPEAN GREENFIELD INVESTMENT* = ~ $35B

** Reflects confirmed planned investment for fab projects in maps above (source: SEMI World Fab Forecast, 3Q22)*

Greenfield Fab Construction Challenges

- Rising fab construction costs
- Slow construction speed
- Supply chain availability / integration
- Endemic fab ecosystem issues
- Global skilled labor shortage



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And now to our panel discussion

Greenfield vs. Brownfield:
How global government incentives could tip the fab balance

Meet Our Panelists

RUDI DE WINTER
Chief Executive Officer
& Managing Director

xfab

ALEXANDER GORSKI
Executive Vice President
Back-End Operations

Infineon

PATRICK LEINENBACH
Senior Vice President
Automotive Electronics

BOSCH

ABDELKARIM MOHARRAM
Manager, Business Development
Semi Manufacturing & Technology

BECHTEL