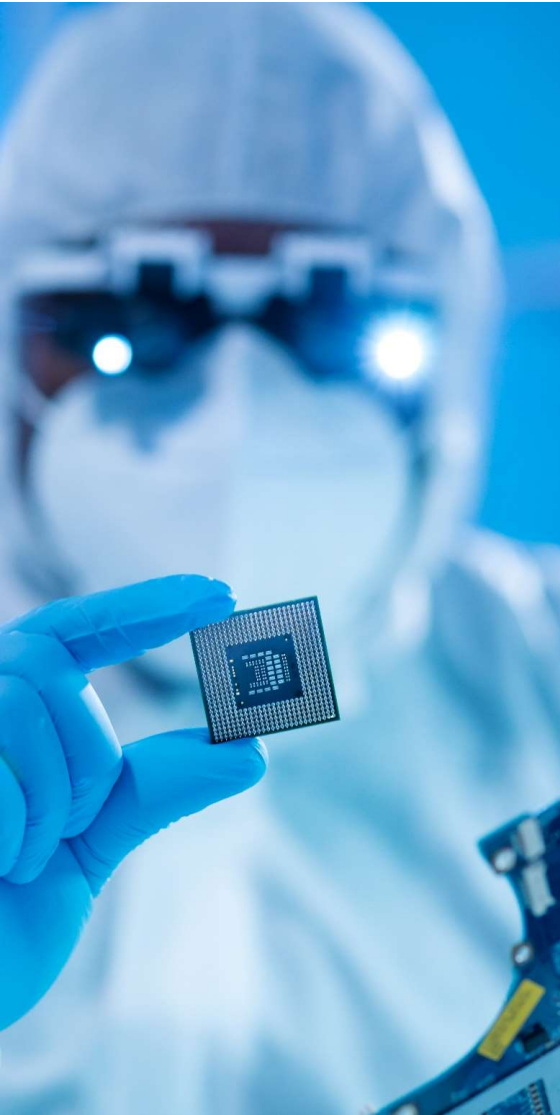


# The Future of Industry - Semiconductor

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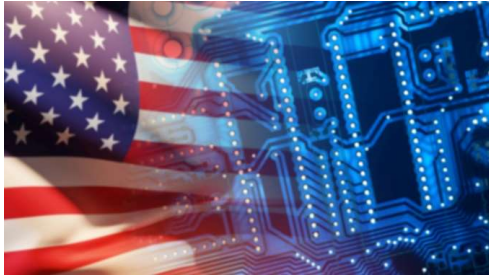
Aurelio Delgado

Industry Marketing Manager, Semiconductor & Electronics



# Semiconductor Industry

Today	Tomorrow
CHIPS Act	Record fab equipment spending
Talent shortage	Embrace Industrial Automation
Supply chain disruptions	Re-shoring production outside of Asia
Space, network, and maintenance limitations	Connected factory with smart manufacturing features



## Current State of the Industry

### CHIPS Act

- \$52 Billion
- Financial Incentives and R&D
- National Security

### Shortage

- Intel's CEO: we are halfway through
- Fab Equipment lead times & War in Europe
- The Auto Industry is an example of an industry majorly affected by the shortage

### 300mm vs. 450mm

- IEEE, by 2025
- Double the number of chips
- In the past there was reluctance to embrace the 450mm wafer by TSMC

### Talent Shortage

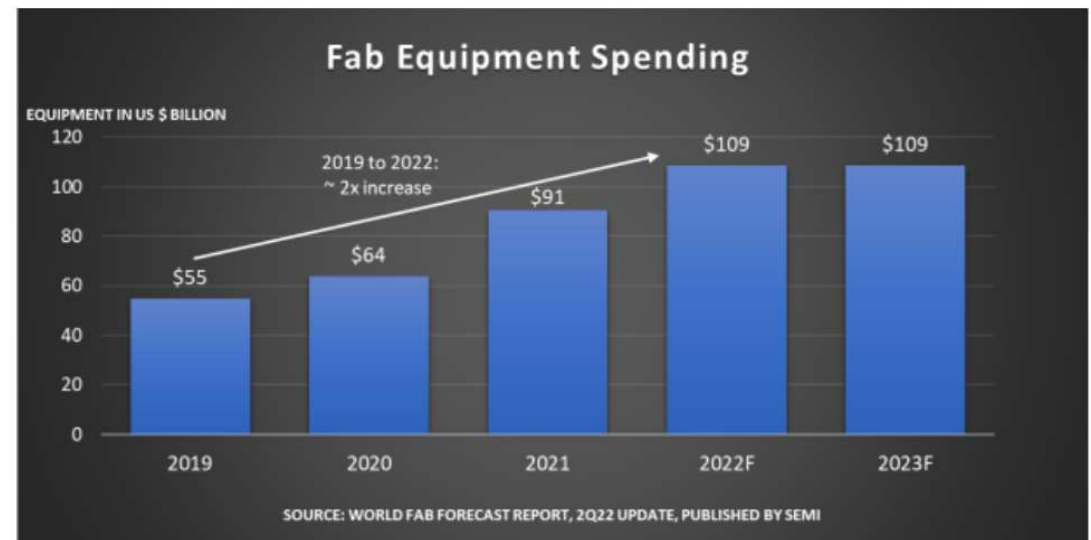
- 56,000 Open Positions
- 300,000 positions by 2025
- Main driver for Automation

# Semiconductor in the future

## Reshoring production outside of Asia

- Micron Technologies, \$15 Billion, Memory Fab, Idaho, by 2030
- Intel, \$20 Billion, Ohio, Open by 2025
- Samsung, \$200 Billion, Texas, 11 Fabs, By 2040
- Qualcomm & Global Foundries, \$4 Billion, New York by 2027

## Record Fab Equipment Spending



# Semiconductor in the future

A banner image for the Global Smart Manufacturing Conference (GSMC) 2022. The background shows a complex, glowing blue and purple circuit board or data visualization with red and green lines. The text "GLOBAL SMART MANUFACTURING CONFERENCE—GSMC 2022" is overlaid in white, bold, uppercase letters.

## GLOBAL SMART MANUFACTURING CONFERENCE—GSMC 2022

- **AUTONOMOUS FACTORY OF THE FUTURE**
- Smart Manufacturing
- Data Gathering
- Predictive Maintenance
- Supply Chain Traceability

## Trends that will be accentuated in the future

- Adoption of Industrial Automation
- Emphasis on Sustainability
- Adding more sensing to the tools
- Emphasis on AI Semiconductors

# Industrial Automation Solutions for the Fabs and Tool Manufacturers

## Wafer Processing/Handling

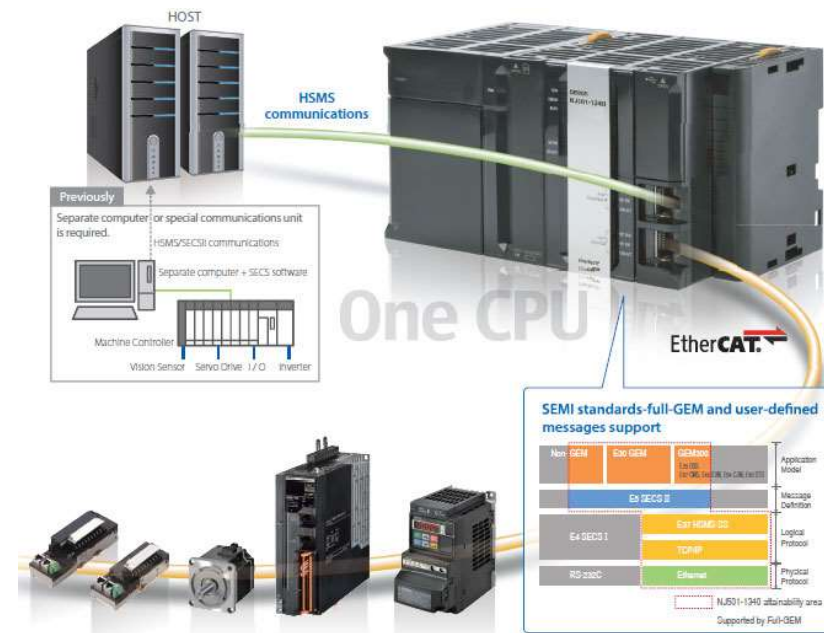
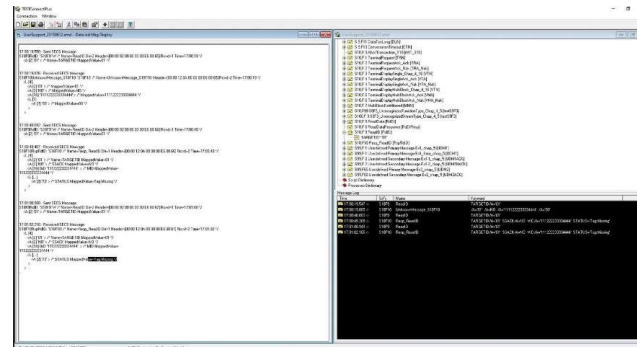
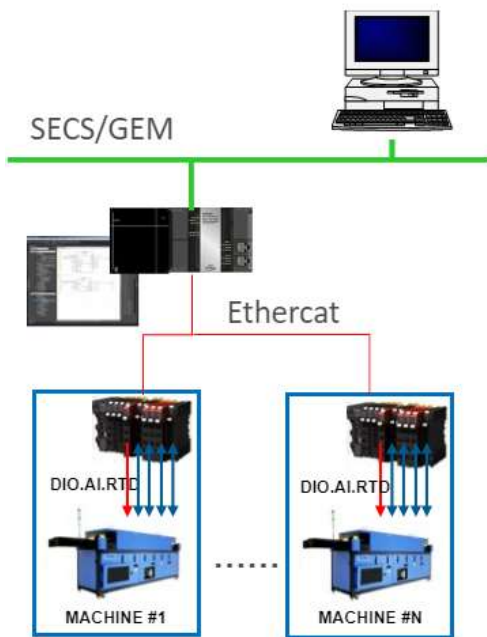
- Connected Factory
- Smart Manufacturing
- Predictive Maintenance
- Supply Chain Traceability
- Data Gathering
- Talent Shortage



# Industrial Automation Solutions for the Fabs and Tool Manufacturers

## Wafer Processing/Handling

### SECS/GEM Integration



# Industrial Automation Solutions for the Fabs and Tool Manufacturers

## Material Handling – Wafer Carriers

- Flexible Manufacturing
- Supply Chain Traceability
- Data Gathering
- Talent Shortage





# Stay Informed



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