

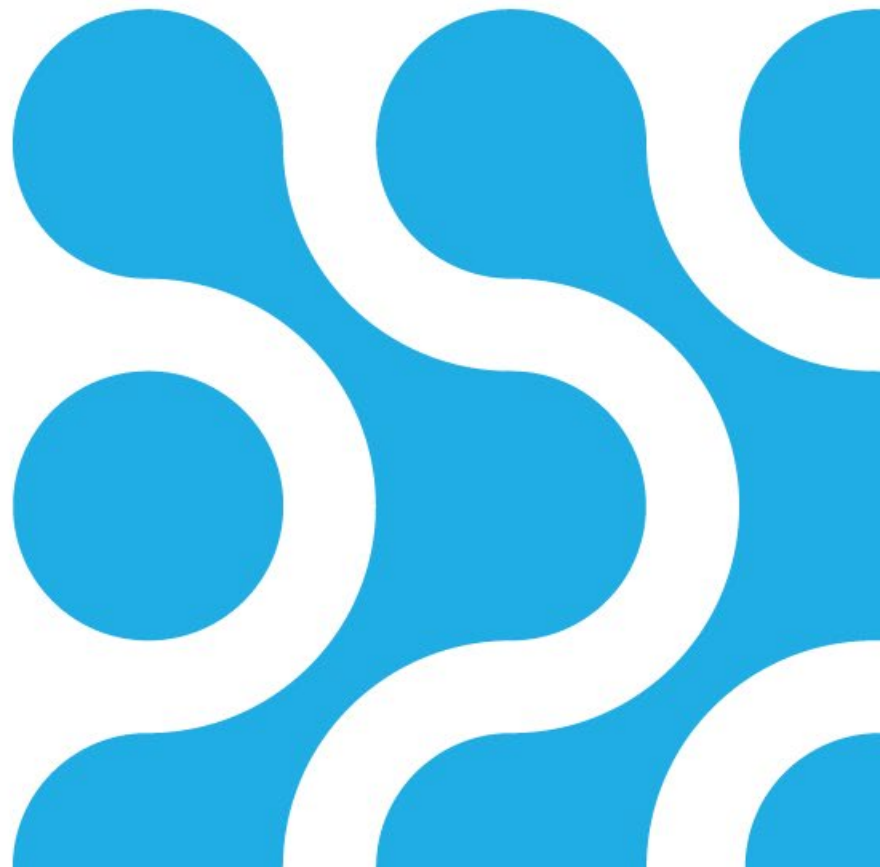
# 2023/24 Semiconductor Market Analysis & Outlook

## SIA Roundtable

Dale Ford – Chief Analyst  
February 22, 2024



Electronic Components Industry Association



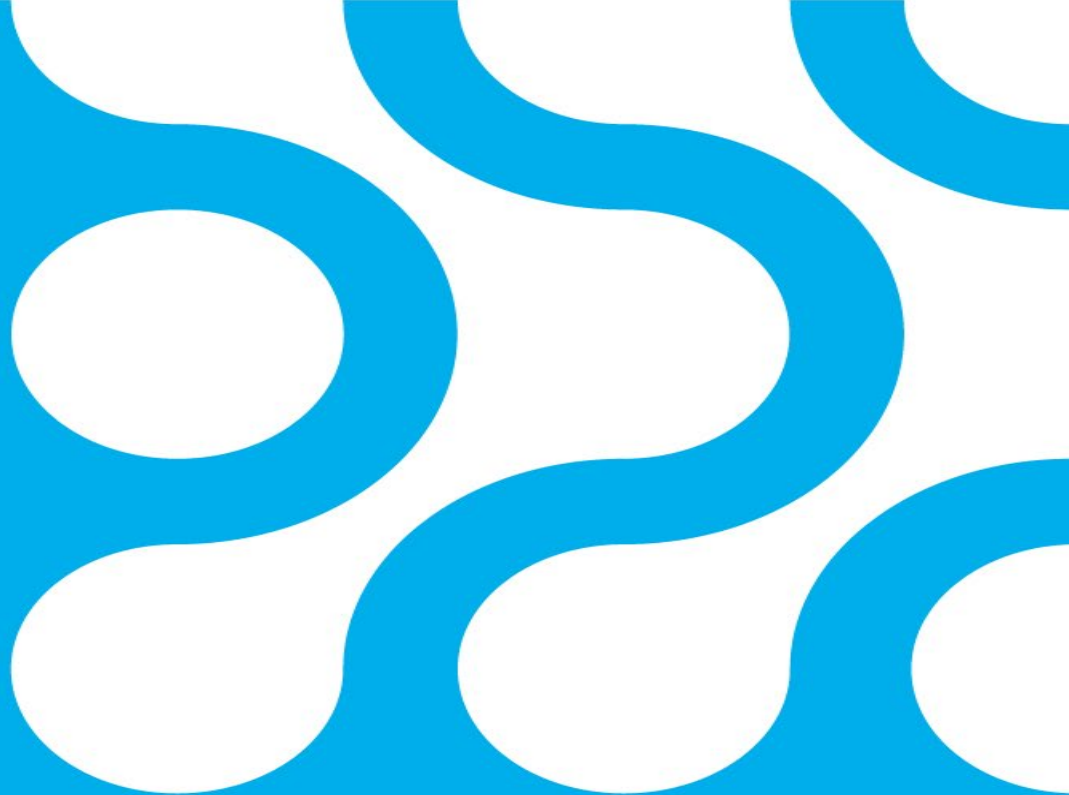
# Where Are We Going?

- Cycle Analysis 2023
- Looking Forward 2024
- What About the Electronics & Components Supply Chain?
- Economic Impact
- Driving the Future

Connect. Influence. Optimize.

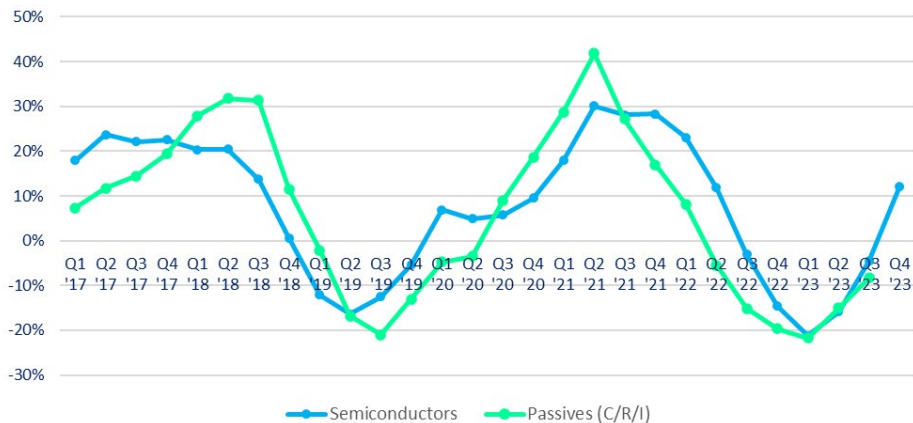
# Cycle Analysis

~ 2023 ~

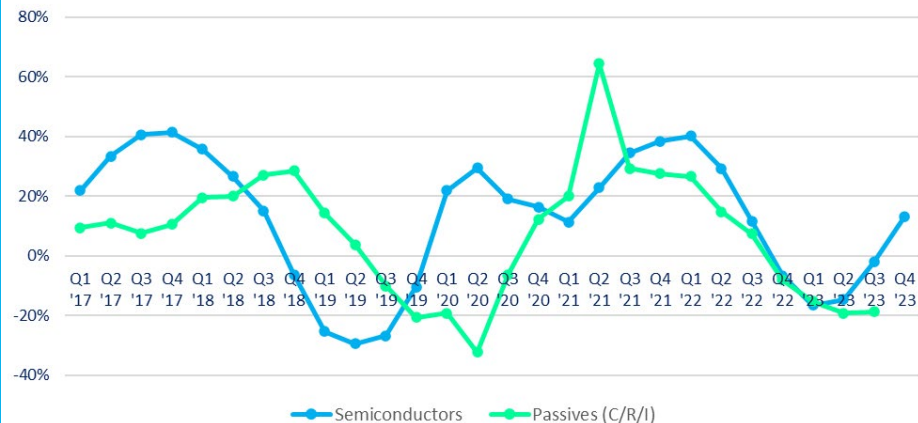


# Electronic Component Revenue Growth

Worldwide Quarter-over-Quarter Revenue Growth



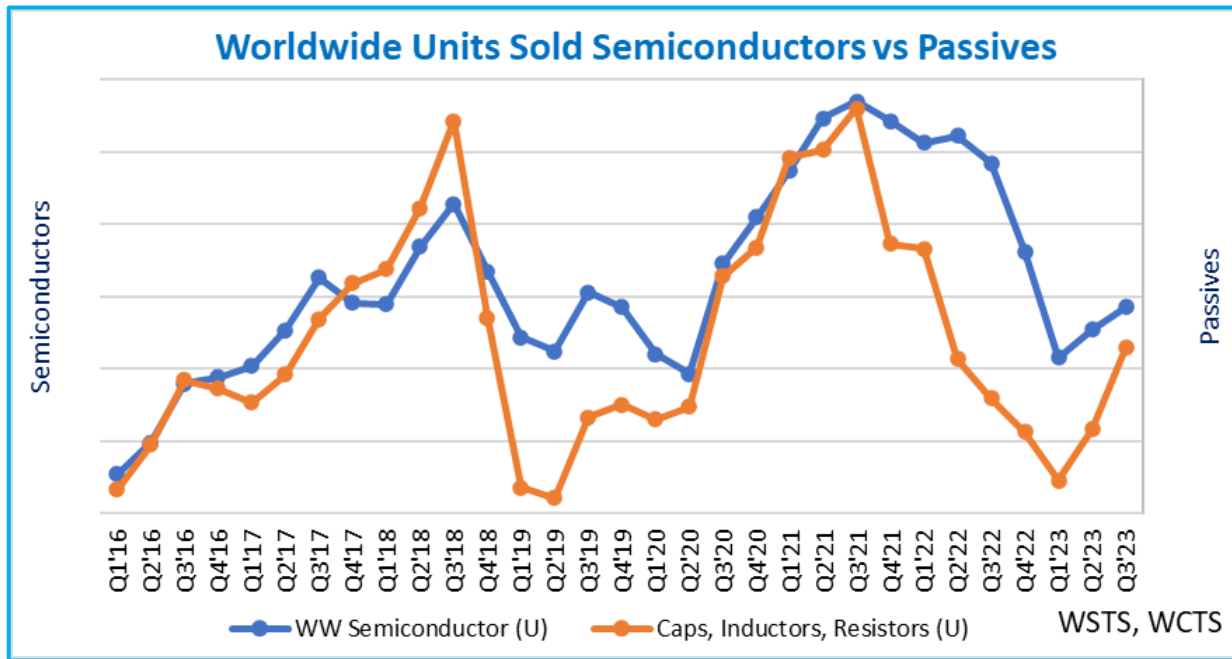
Americas Quarter-over-Quarter Revenue Growth



Source: World Semiconductor Trade Statistics (WSTS),  
World Passive Trade Statistics (WPTS)

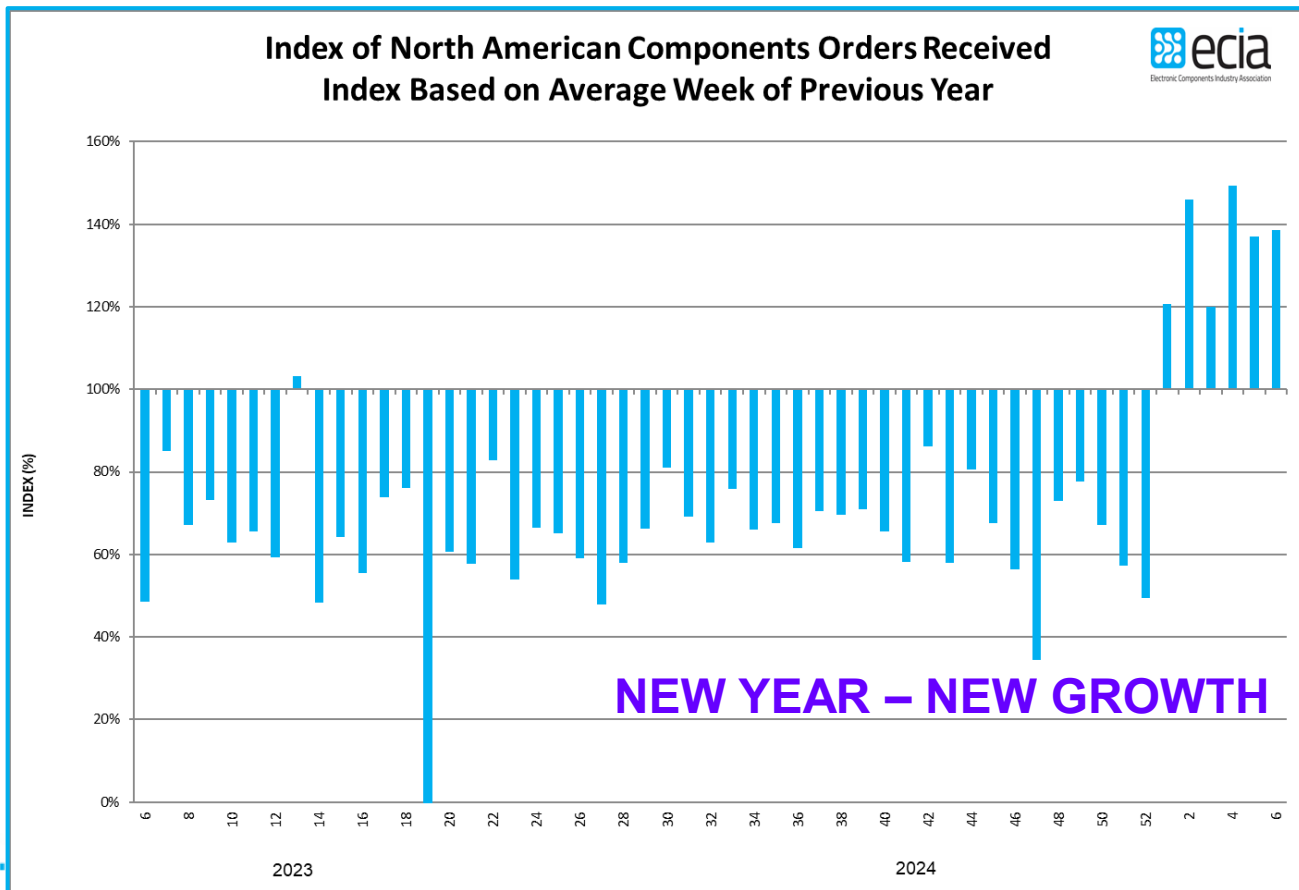
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# Semiconductors and Passive Comparisons



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# IP&E – Interconnect, Passive, Electro-Mechanical Orders



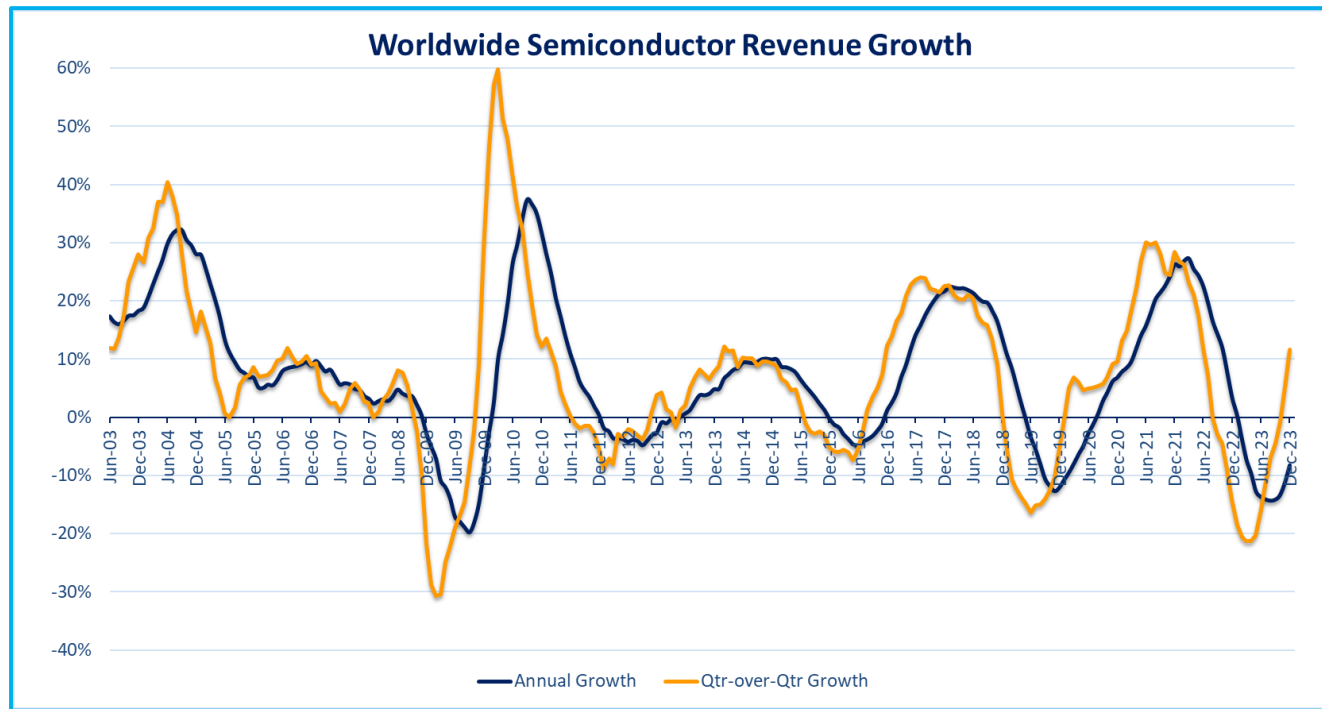
Connect.

ecia  
Electronic Components Industry Association

Source: ECIA

# Semiconductor Revenue Growth Cycle

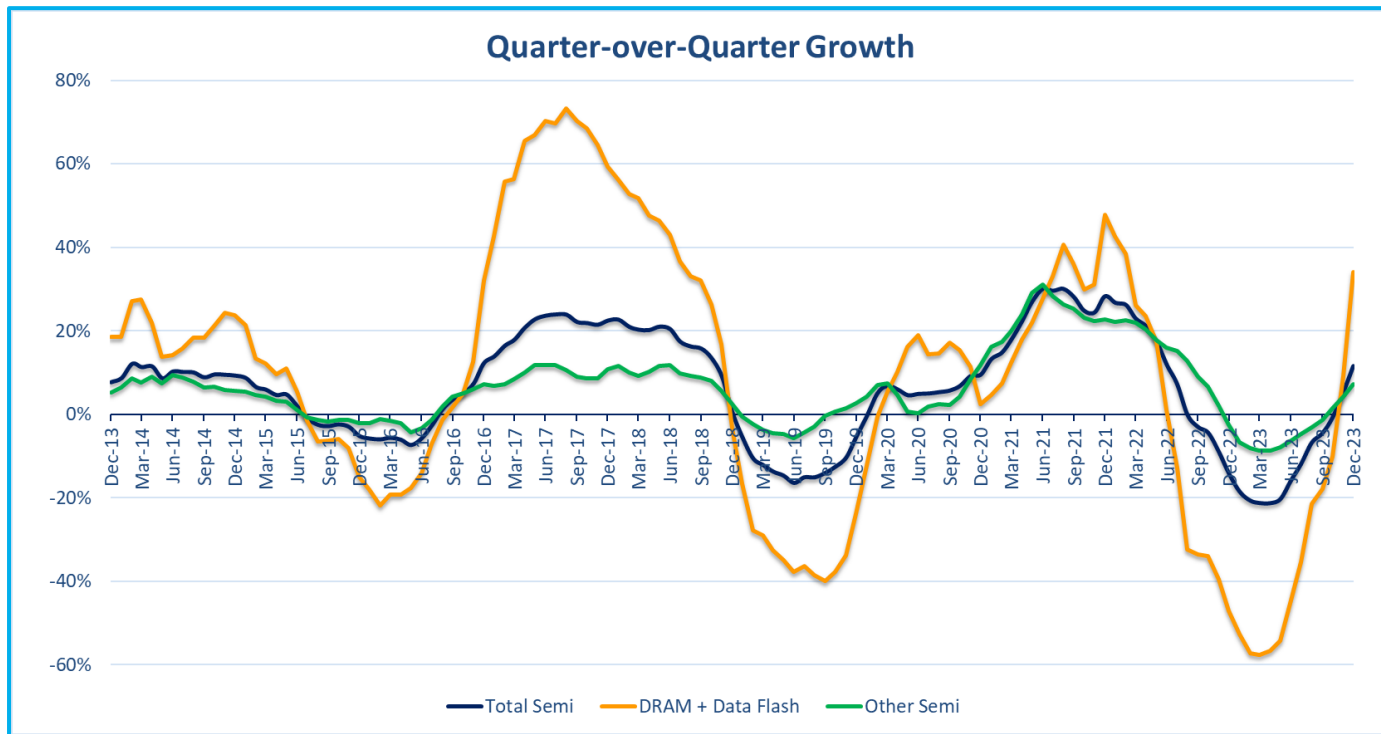
- Quarter-over-Quarter growth accelerates to +11.6% at end of 2023
- Annual revenue cycle outperforms expectations; ends year on the upswing at -8.2%
- Annual growth improves in 2023 – How long can the positive growth last?
- Demand drivers continue to shift from consumer markets
- Asia achieving recovery to boost global picture
- Question – How well is the supply chain balanced?



Source – WSTS

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# Semiconductor Growth Trends



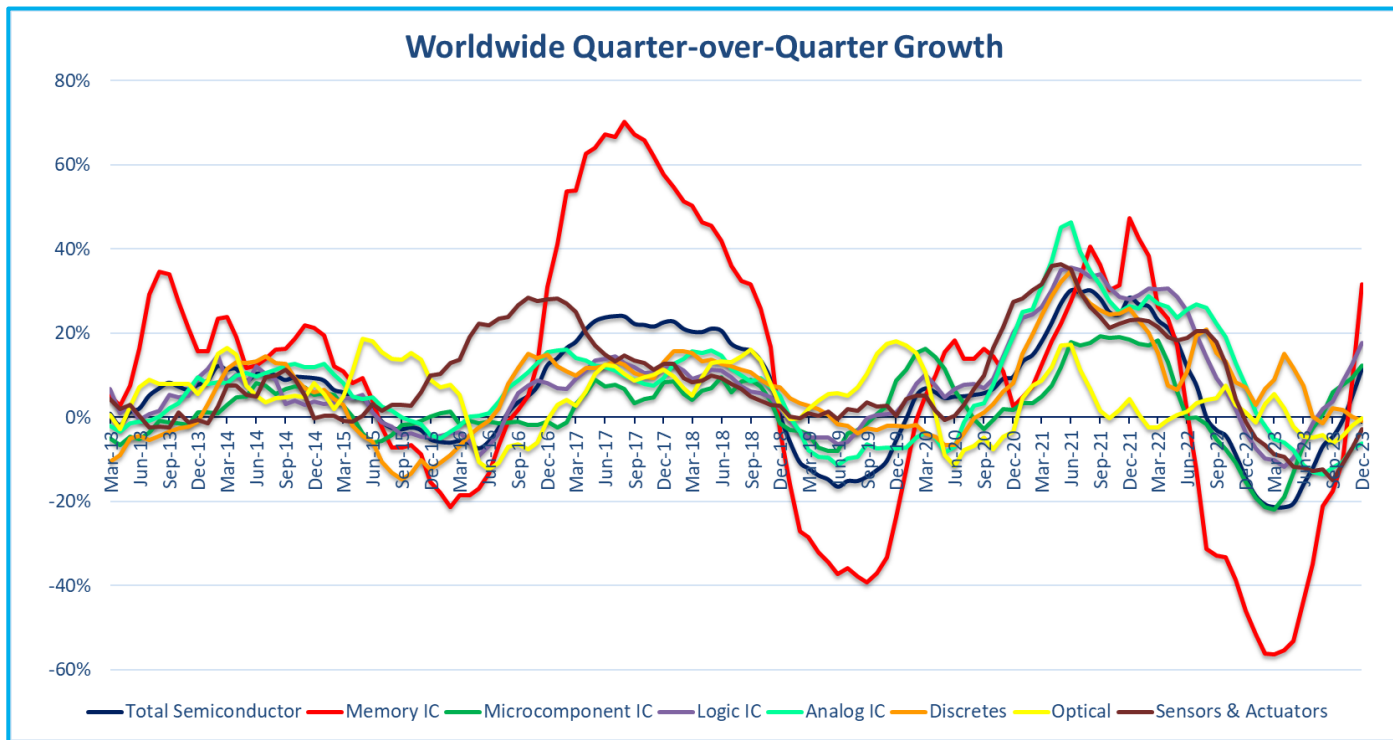
Source: WSTS

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# Unified Downward Slide – No Market is Immune

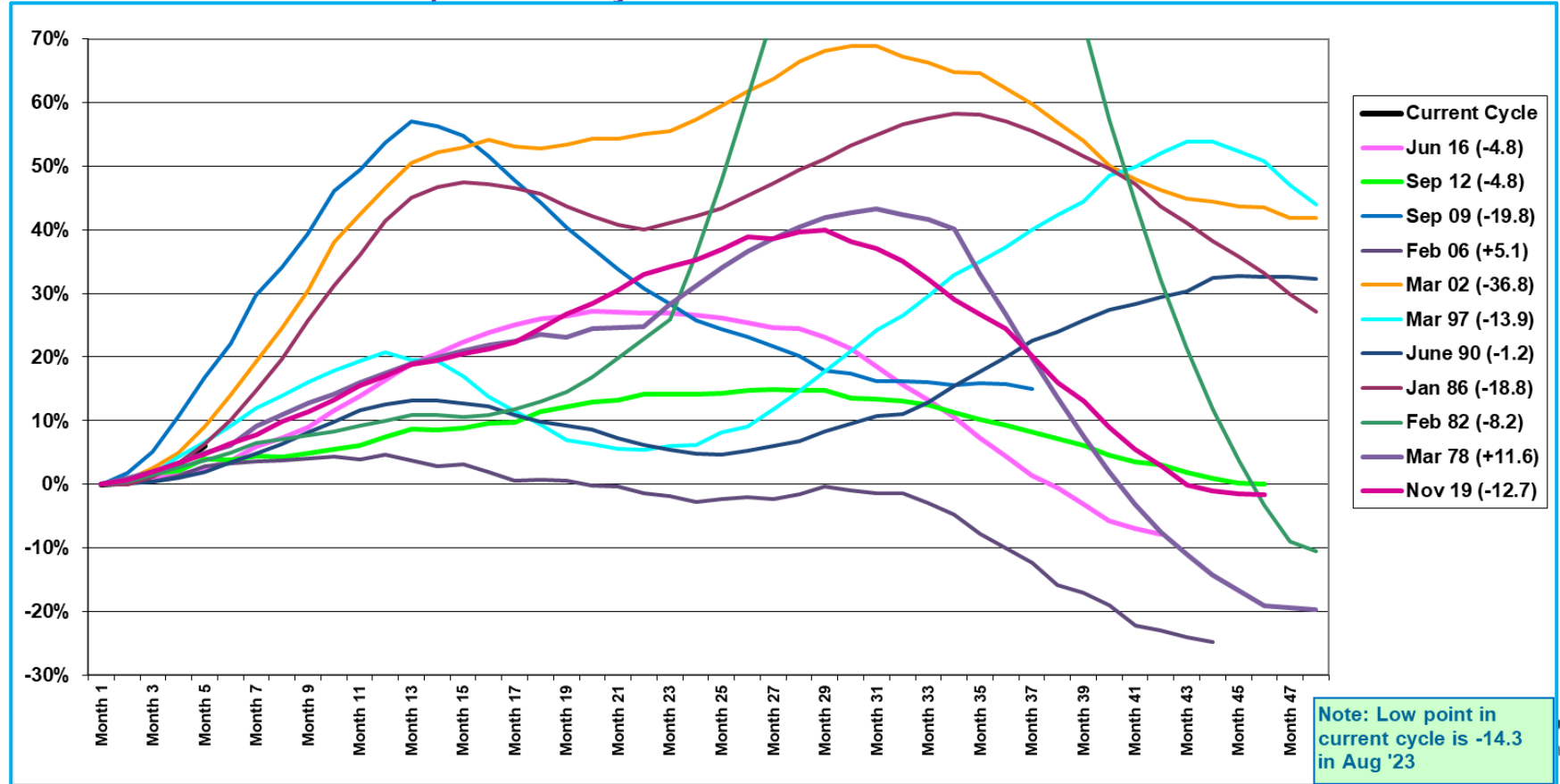
- Memory ICs Amplifying / Distorting the Cycle
- Memory, Micro, and Logic ICs showing strong growth
- Analog ICs and Discretes moving countercyclical in negative territory
- Americas growth profile mirrors Worldwide trend at the end of 2023
- Pricing dynamic now shifts role to drive recovery



Source – WSTS

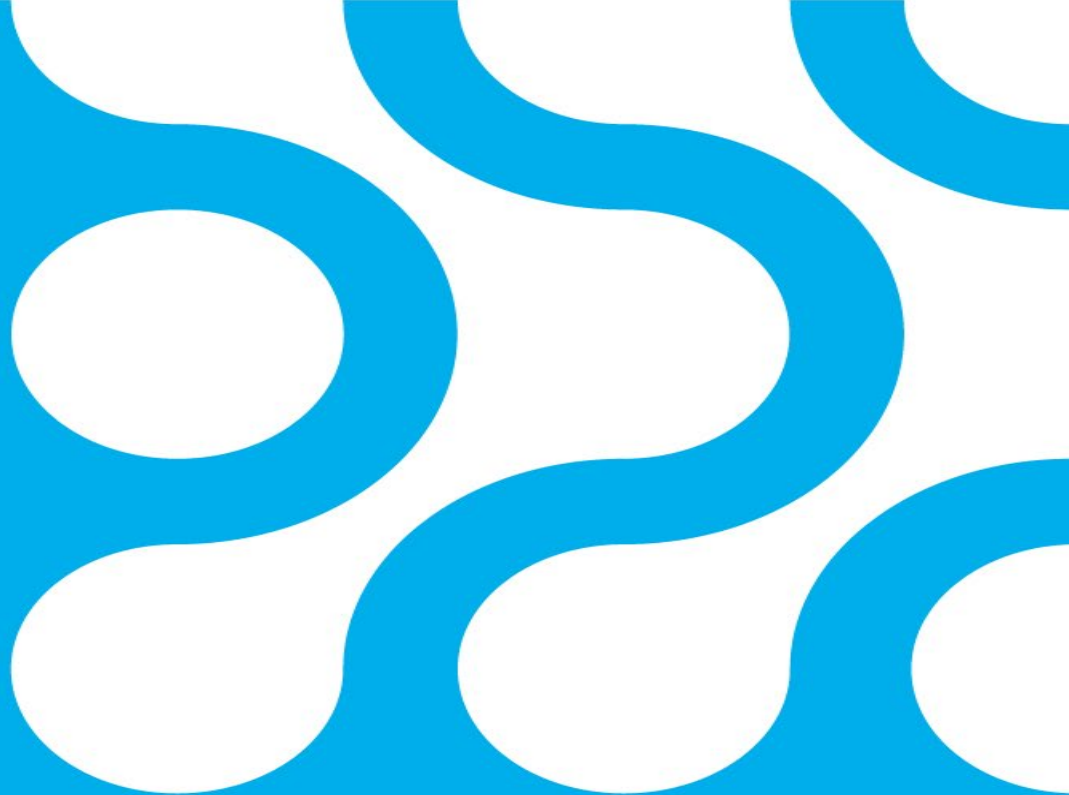
# New Cycle Began in August 2023

After five months improves by 6.1% above the bottom

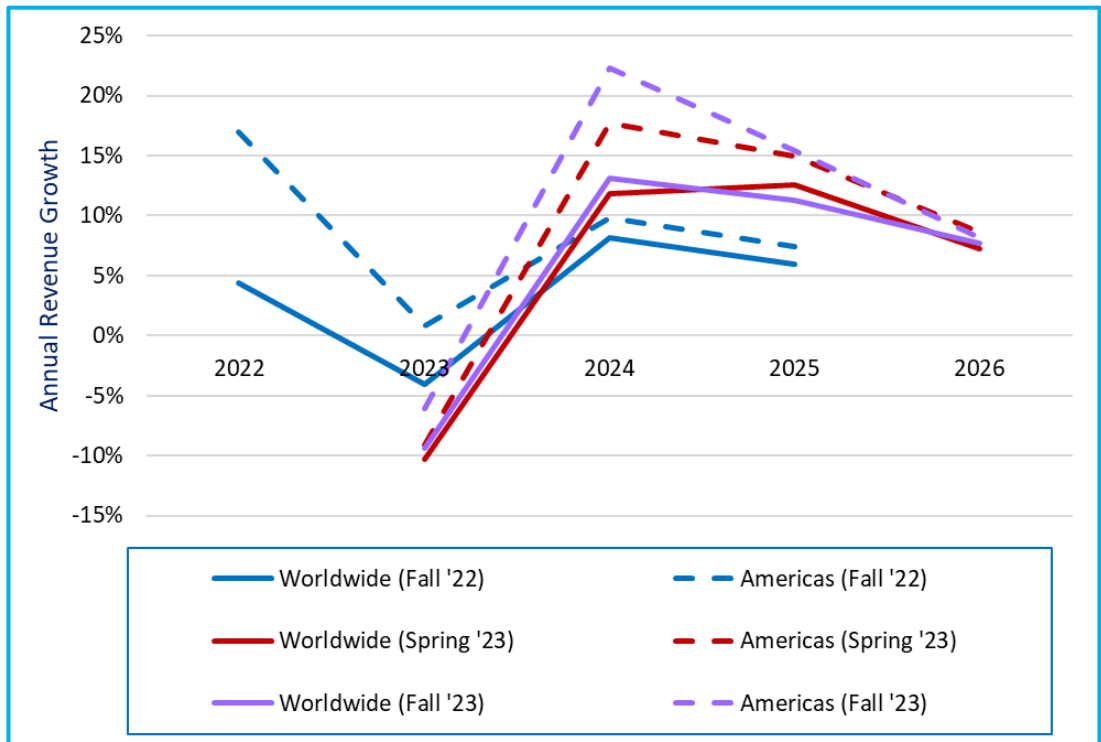


# Looking Forward

~ 2024 + ~



# WSTS Semiconductor Forecasts



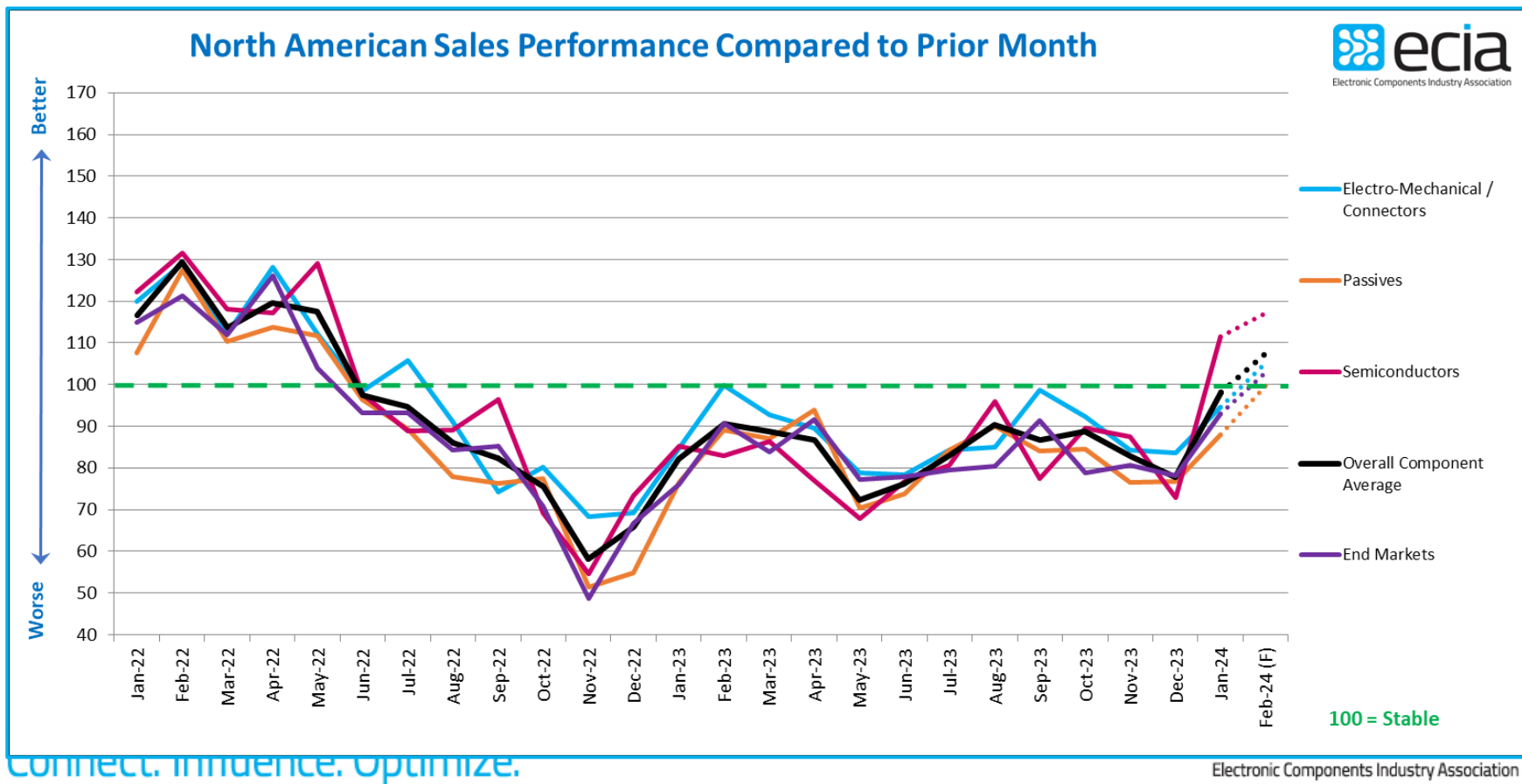
Source: WSTS

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## Observations:

- 2023 Worldwide and Americas annual growth beat Fall '23 forecast.
- Fall WSTS presents broad based optimism for 2024. Double digit growth sustained into 2025.
- Higher Americas outlook driven by larger market share of Memory ICs
- Non-Memory market growth expected but at more subdued levels
- The cyclical pattern endures!

# North America Sentiment Survey Trends

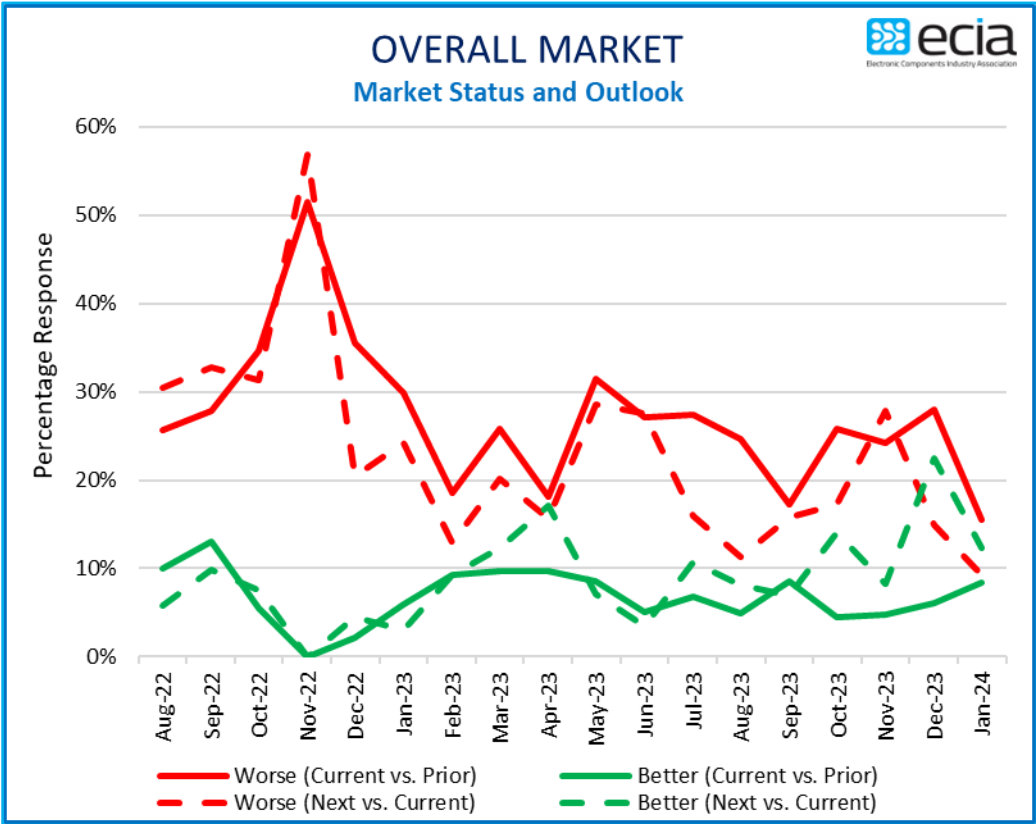


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Source: ECIA Electronic Component Sales Trends Survey

Electronic Components Industry Association

# North America Sales Sentiment Survey Trends

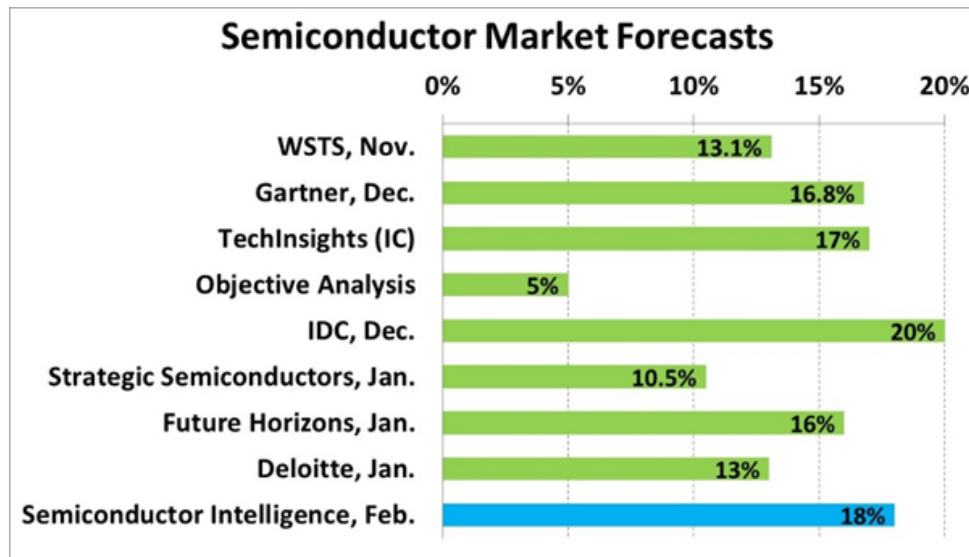


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# Semiconductor Forecasts

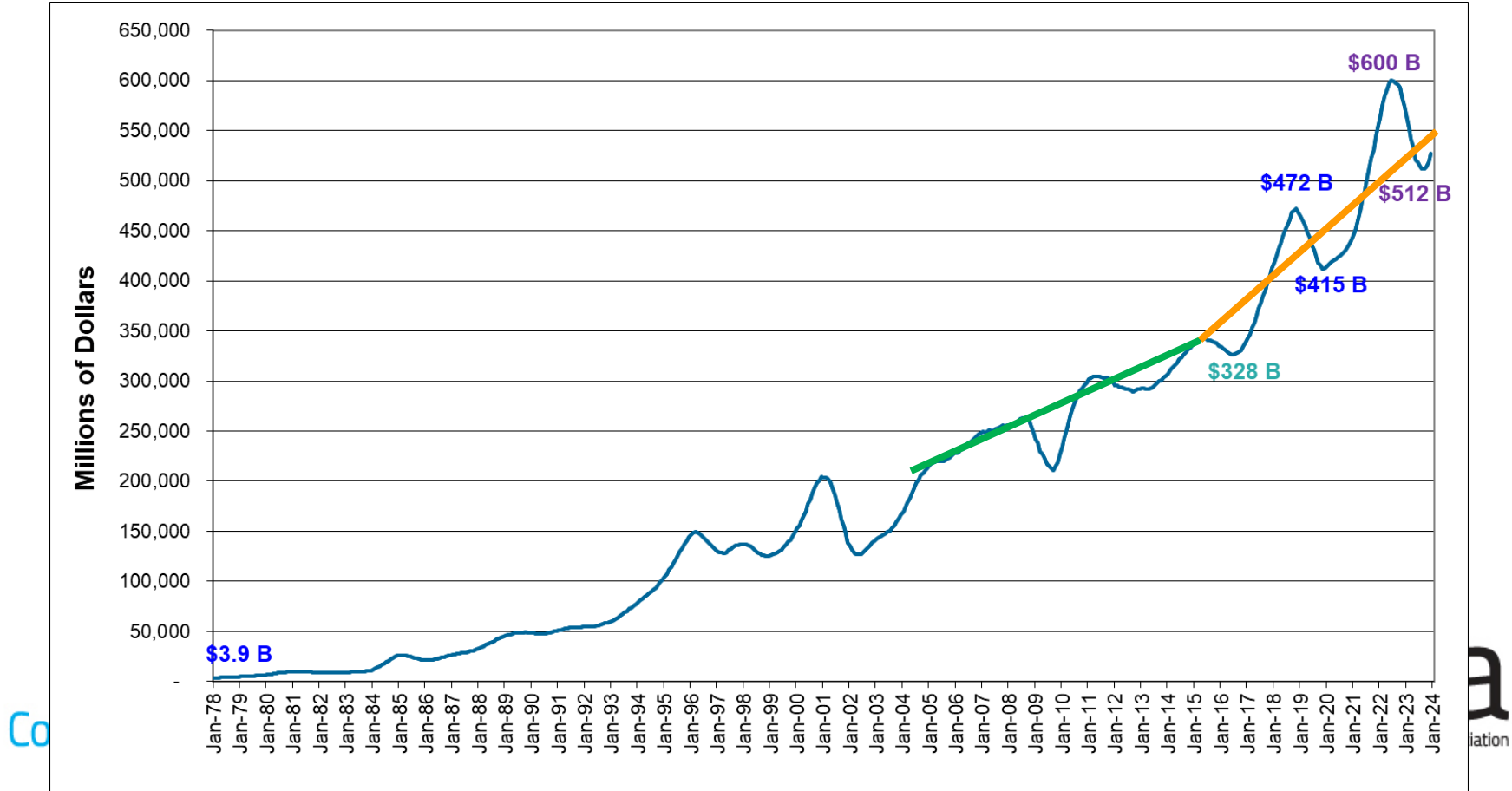
Top Semiconductor Companies' Revenue					
Change versus prior quarter in local currency					
	Company	US\$B 4Q23	Reported 4Q23	Guidance 1Q24	Comments on 1Q 2024
1	Nvidia	20.0	10.4%	n/a	4Q23 is guidance
2	Samsung SC	16.4	31.9%	n/a	growth in PC/mobile
3	Intel	15.4	8.8%	-17.6%	excess inventory
4	Broadcom	9.3	-0.3%	n/a	4Q23 is guidance
5	SK Hynix	8.6	24.7%	n/a	growth in PC/mobile
6	Qualcomm (IC)	8.4	14.2%	-6.2%	down due to seasonality
7	AMD	6.2	6.3%	-12.5%	down except data center
8	Micron	4.7	17.9%	12.1%	DRAM & NAND growth strong
9	STMicro	4.3	-3.4%	-15.9%	industrial inventory excess
10	TI	4.1	-10.0%	-11.7%	weakness in industrial
11	MediaTek	4.0	17.7%	-3.0%	mobile down
12	Infineon	3.7	-10.2%	-2.8%	industrial inventory excess
13	NXP	3.4	-0.3%	-8.7%	seasonality & inventory
14	Analog Devices	2.5	-8.0%	n/a	4Q23 is guidance
15	Renesas	2.5	-4.6%	-4.7%	industrial inventory excess
Total of above			11%		
Memory Cos. (US\$)			33%		Samsung, Hynix, & Micron
Non-Memory Cos.			4%	-11%	

Source: Semiconductor Intelligence




Source: Semiconductor Intelligence

# Long Term Trend = \$1 Trillion by 2033



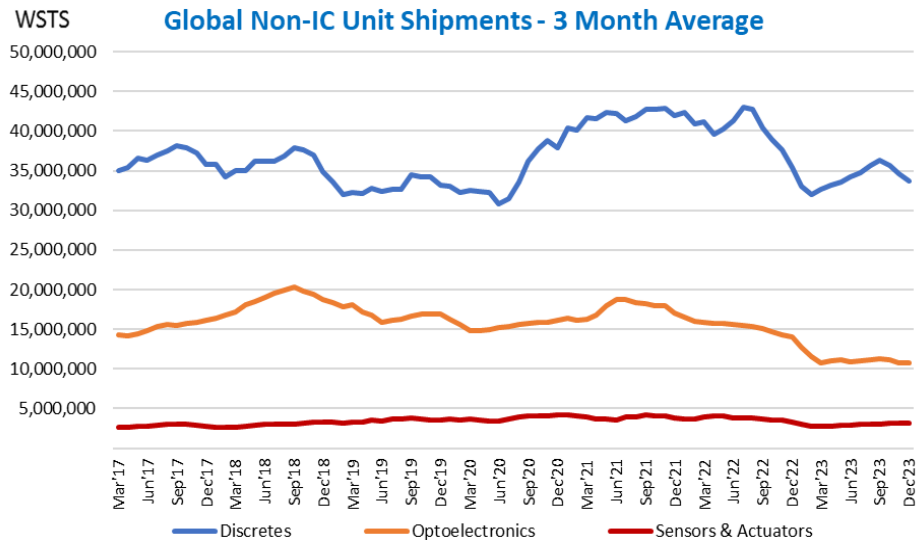
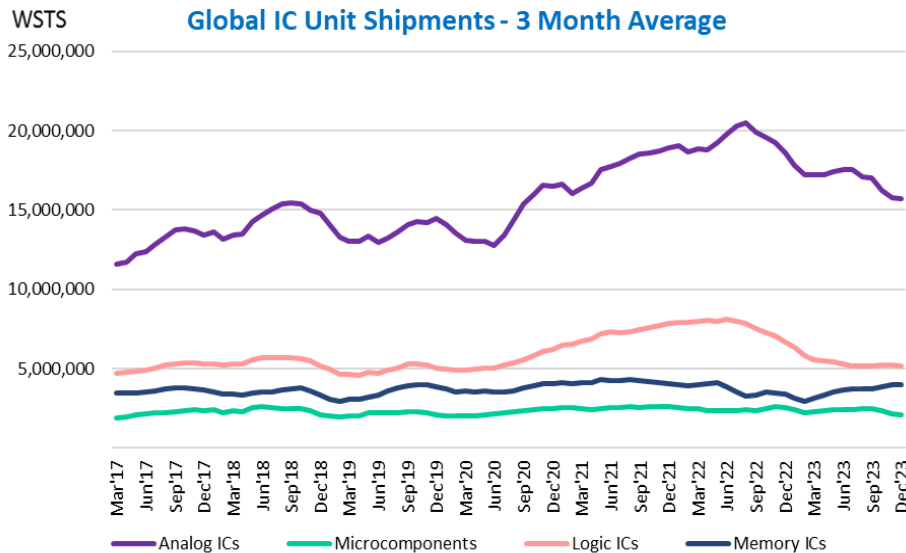




# **What About the Electronics Components Supply Chain?**

~ Worldwide / Americas~

# Worldwide Semiconductor Unit Shipments



Source: WSTS

## Increase From:

- Discretes
- Analog ICs
- Logic ICs

## Previous Peak

-11.7%

1.4%

-9.6%

## Recovery Start

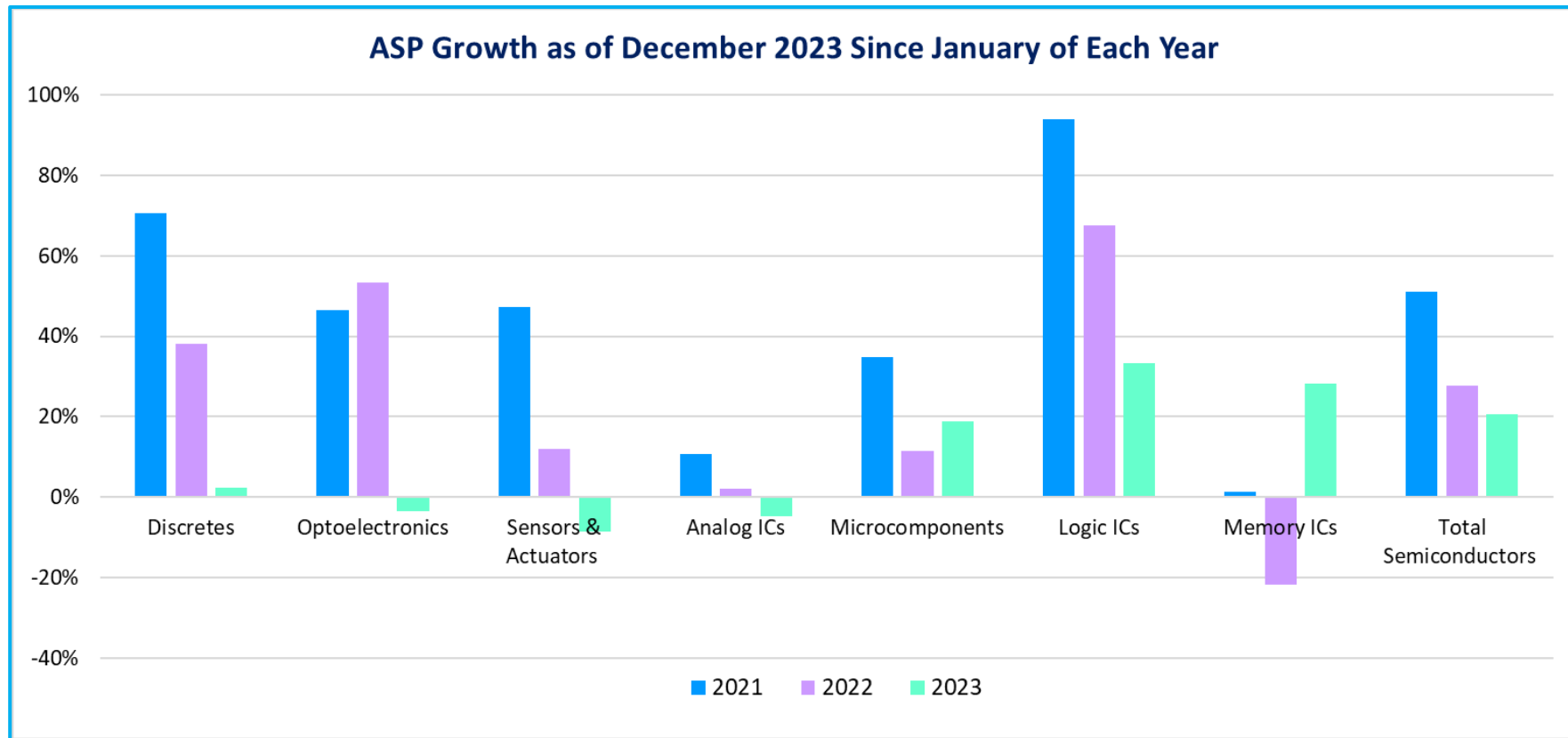
9.2%

23.2%

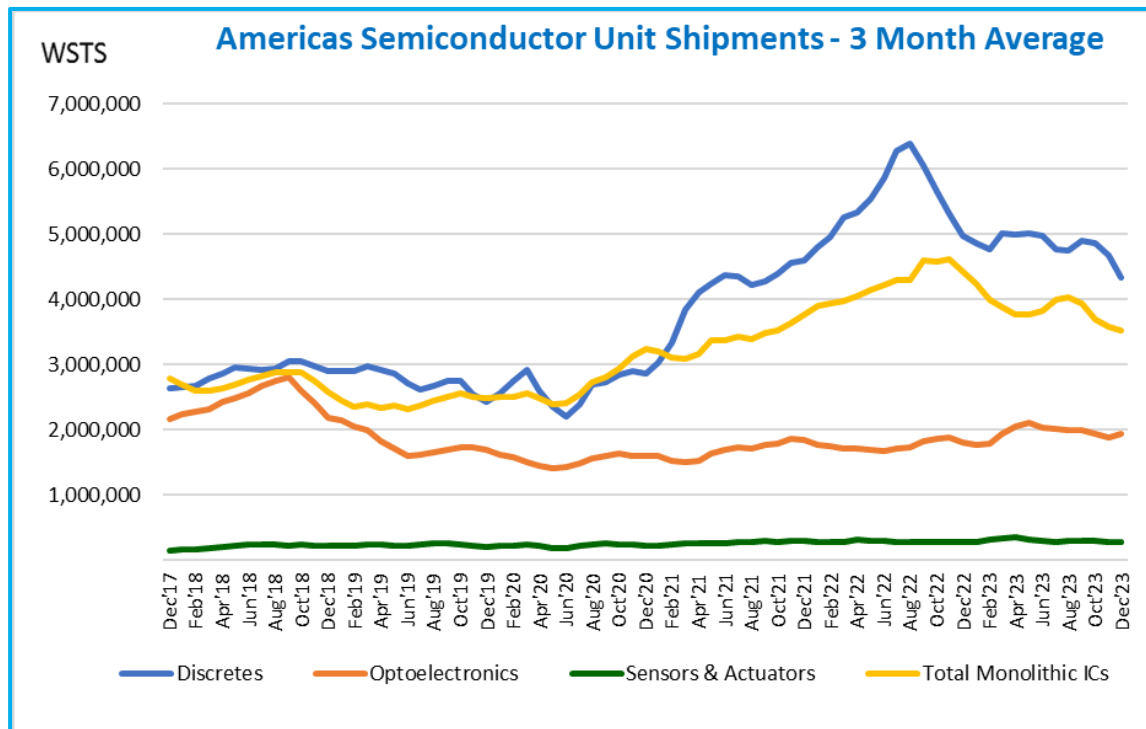
5.8%

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# An ASP Driven Semiconductor Cycle



# Americas Semiconductor Unit Shipments



Source: WSTS

**Increase From:**

- Discretes
- Monolithic ICs

**Previous Peak**

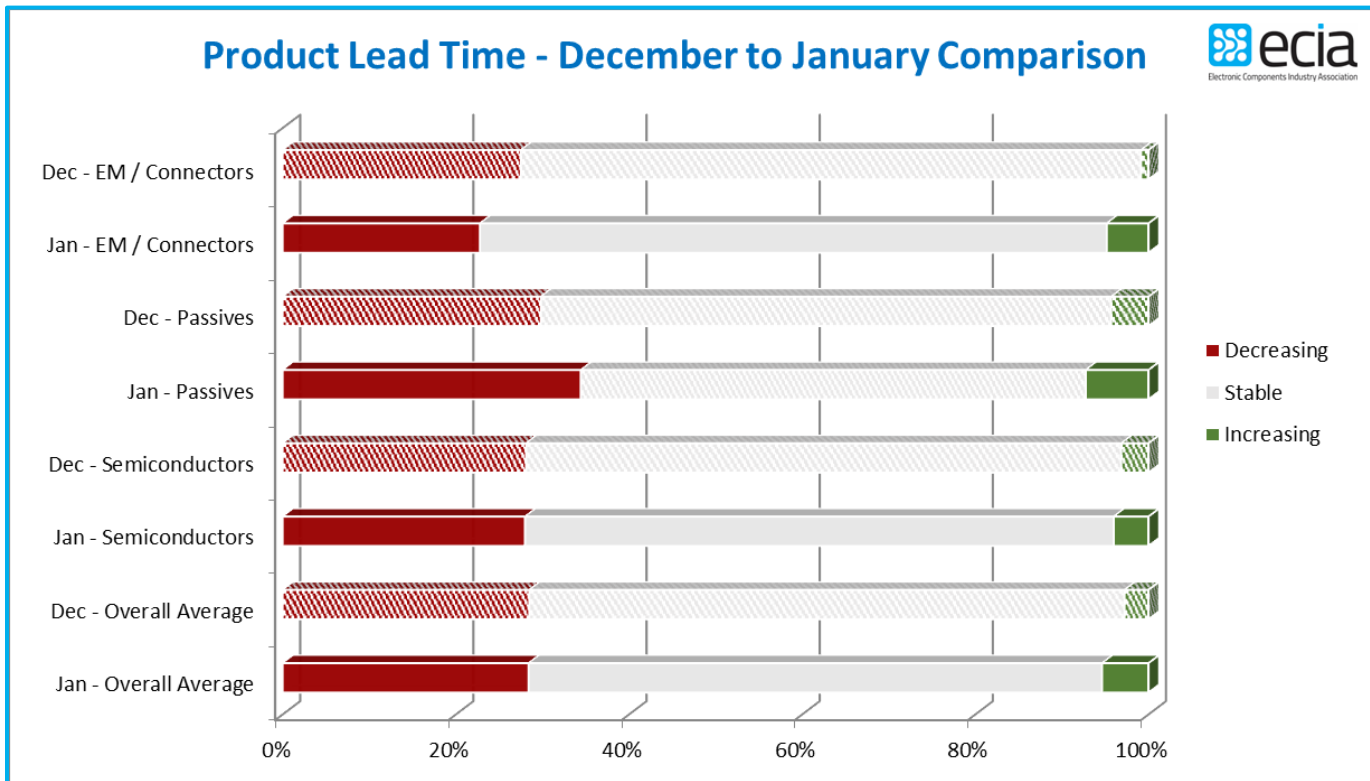
41.9%  
22.3%

**Recovery Start**

97.1%  
46.9%

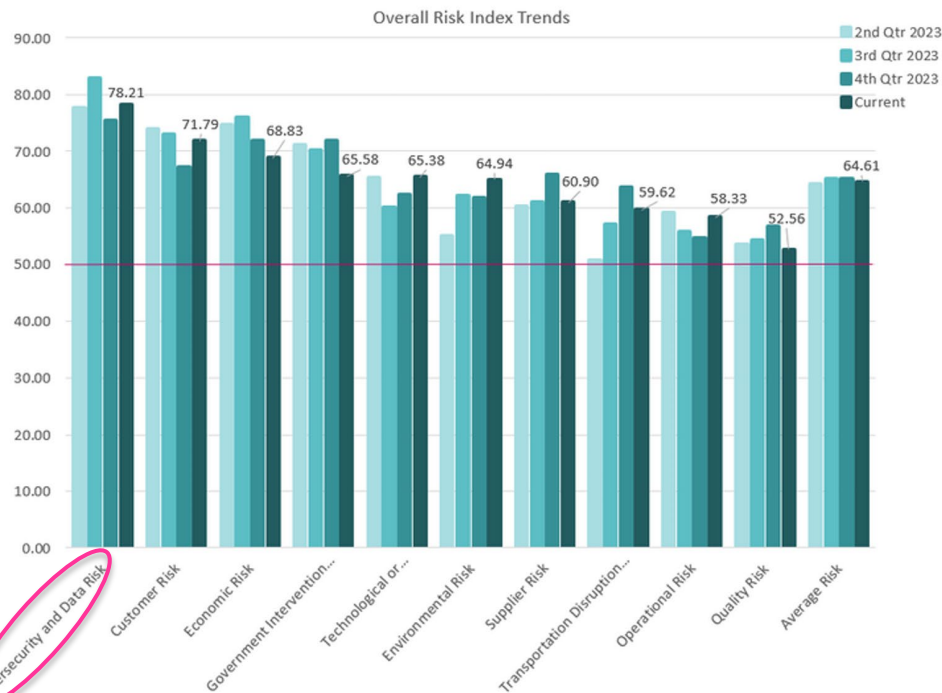
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# Hopeful Outlook for Moderating Pressure



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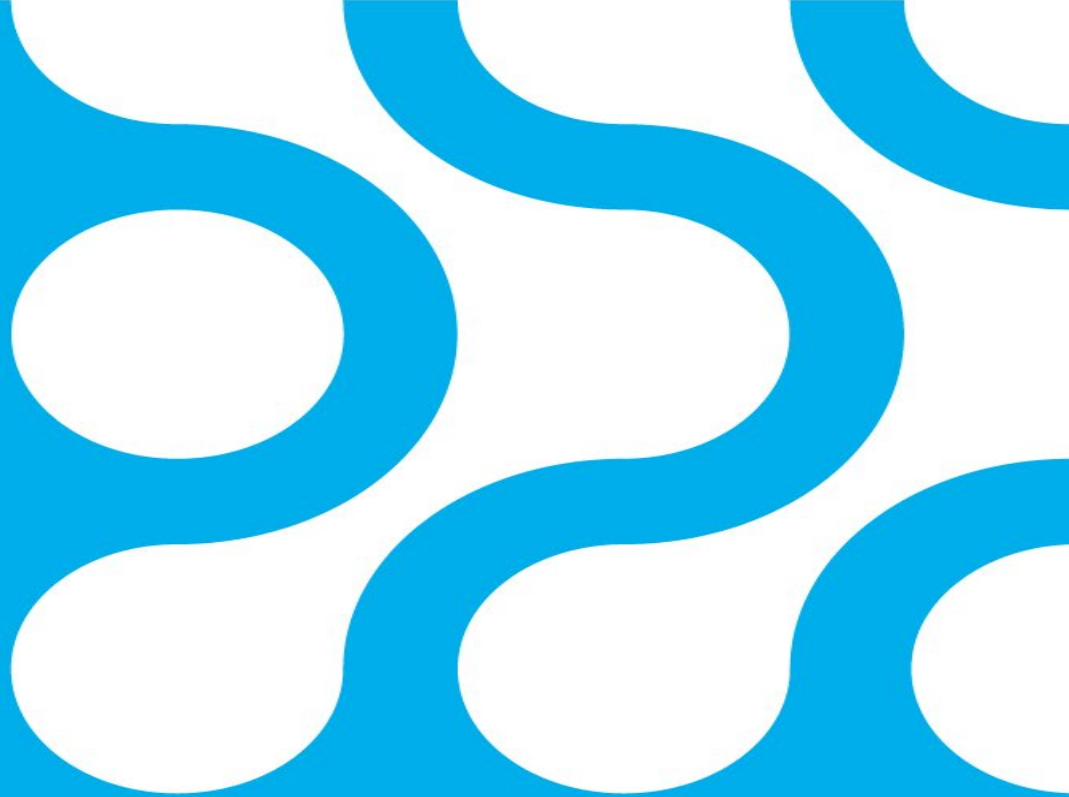
# Lehigh University Supply Chain Risk Index – Q1 2024



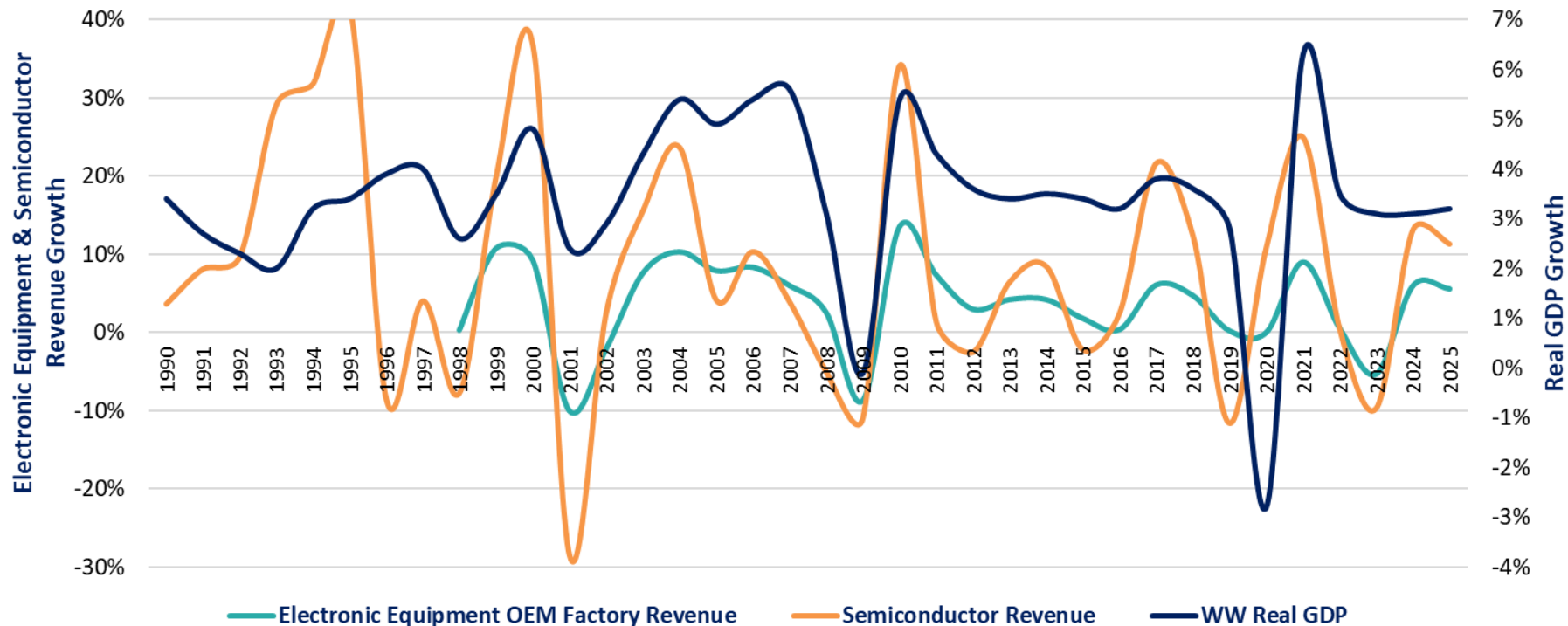
Risk Type	4th Quarter 2023 Risk Index	1st Quarter 2024 Risk Index	Trend
Cybersecurity and Data Risk	75.34	78.21	↑
Customer Risk	67.12	71.79	↑
Economic Risk	71.92	68.83	↓
Government Intervention Risk	71.92	65.58	↓
Technological or Competitive Risk	62.33	65.38	↑
Environmental Risk	61.64	64.94	↑
Supplier Risk	65.75	60.90	↓
Transportation Disruption Risk	63.51	59.62	↓
Operational Risk	54.69	58.33	↑
Quality Risk	56.76	52.56	↓
Average Risk Index	65.10	64.61	↓

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# Economic Impact



# WW GDP and Electronics & Semiconductor Growth



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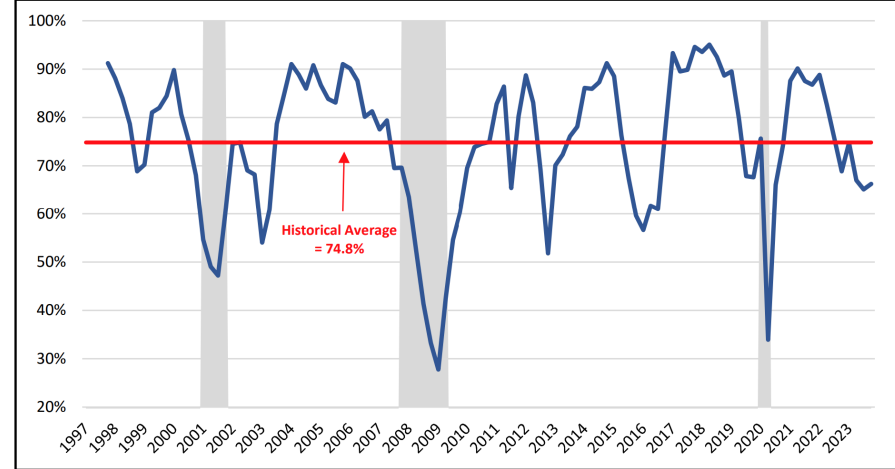


# NAM Economic Headlines

- NAM Q4 2023 Manufacturers' Outlook Survey
  - More than 66% of member companies have a positive economic outlook for 2024
  - Opinions are mixed on whether there will be a recession.
- The top economic challenge this year will be the workforce, with the labor market cooling substantially but remaining tight, Moutray said.
- Private manufacturing construction spending is at an all-time high of \$210 billion
  - Thanks to the production of semiconductors, electric vehicles and batteries, and general reshoring.
- Risks this year include:
  - Geopolitical turmoil
  - Slow global economic growth
  - Cost pressures
  - Talk of a recession
  - Labor issues

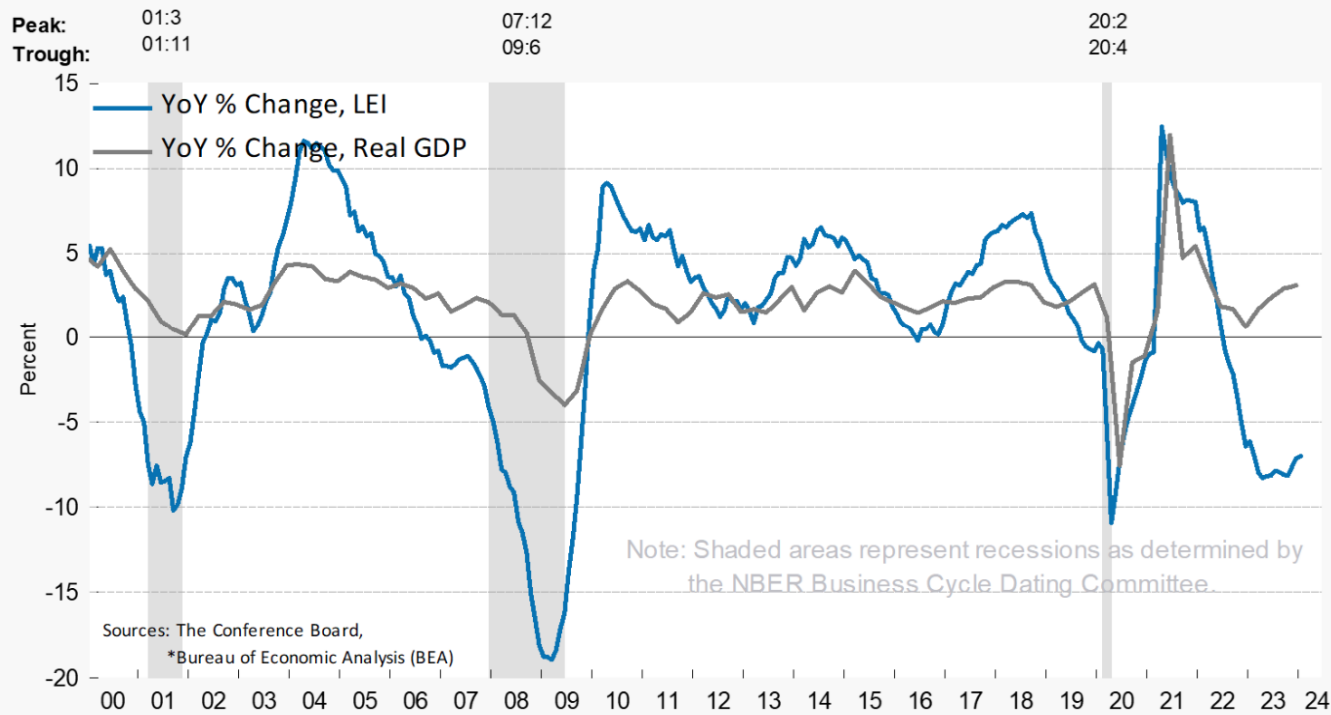
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Figure 1: Manufacturing Business Outlook by Quarter, Q4 1997 – Q4 2023  
(Recessions Are Highlighted with Gray Shading)



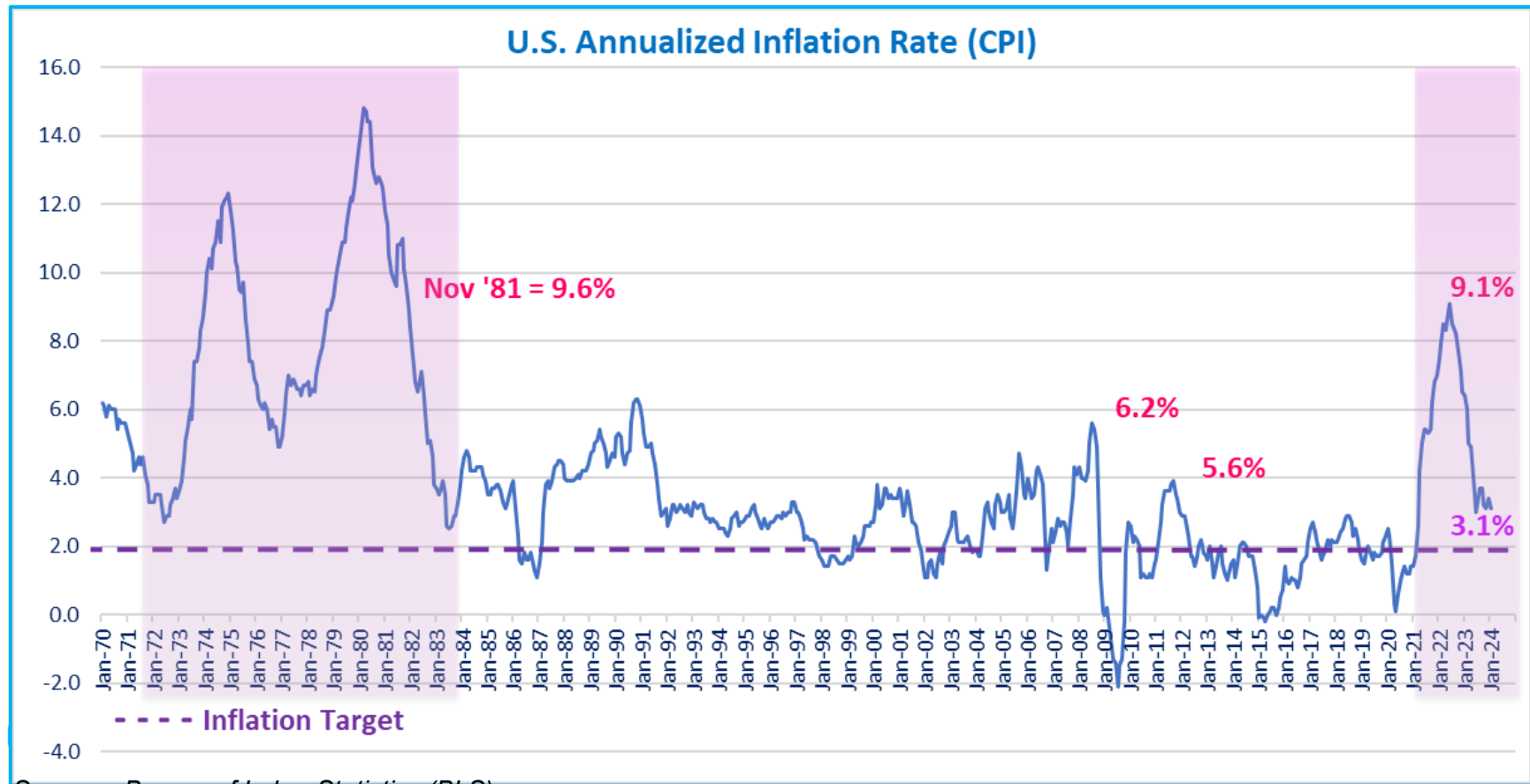
# The Conference Board Leading Economic Indicator (LEI)

The LEI still declined in January 2024 but at the slowest pace since March 2023



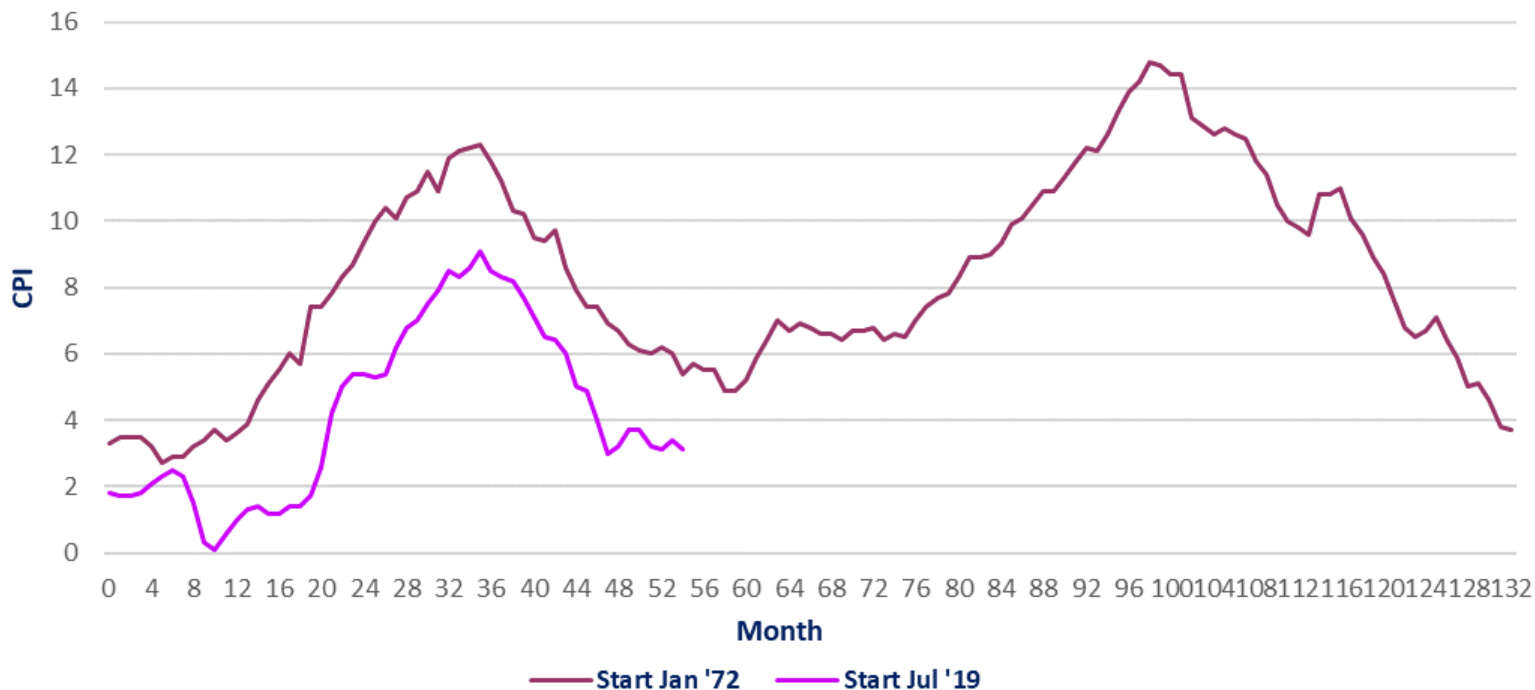
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# Inflation Falls from 40 Year High



Source – Bureau of Labor Statistics (BLS)

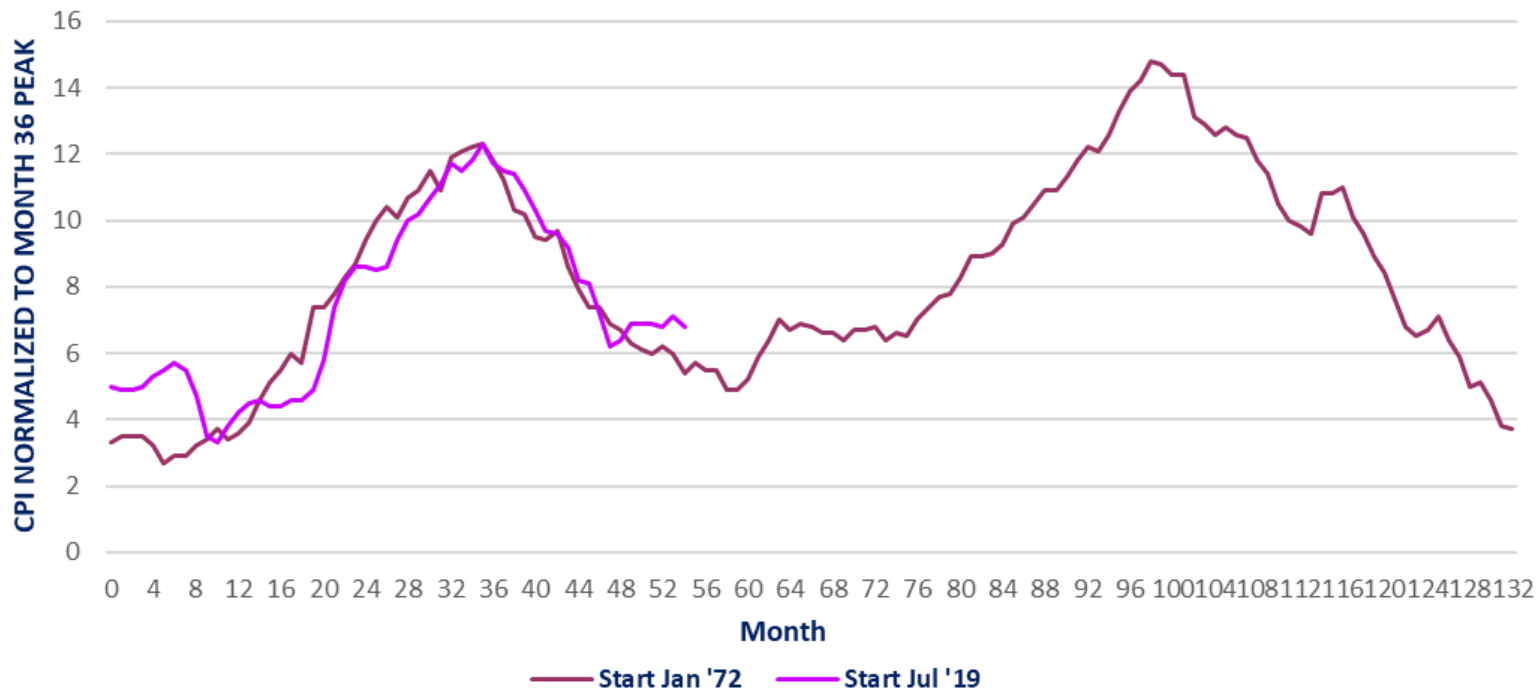
# The Danger of History Repeating



Source – Bureau of Labor Statistics (BLS)

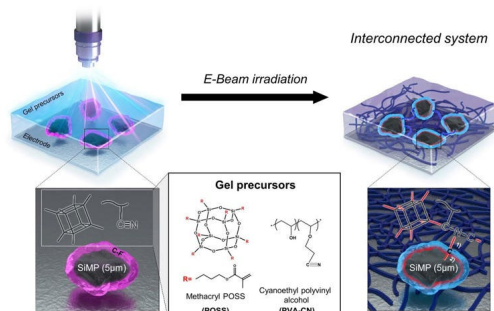
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# The Danger of History Repeating

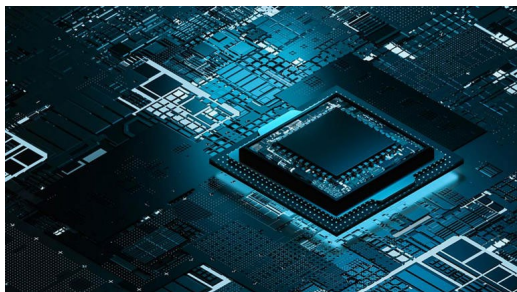


Source – Bureau of Labor Statistics (BLS)

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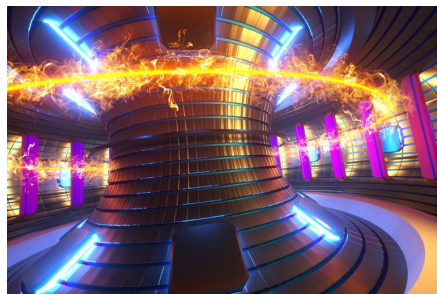


EVs That Go 1,000 Miles  
on a Single Charge

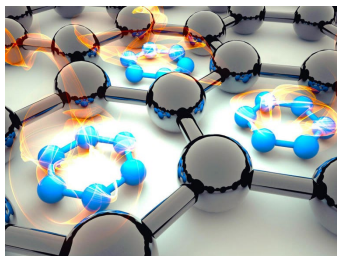


Universal Memory Emerges to Replace  
RAM and NAND - ULTRARAM

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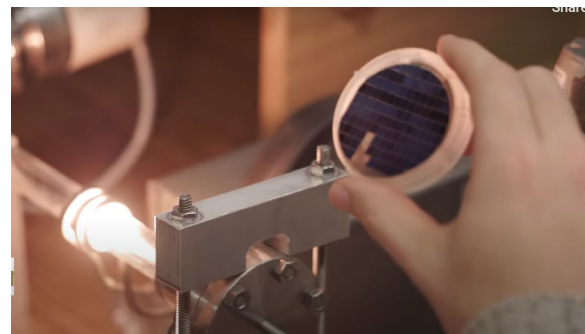


Near-Unlimited Energy  
Commercial Fusion Energy



Nanotech Material  
Passes Human Safety Tests

# Technology – Need for Speed and Power



First Operational Graphene-Based Chip  
Ten Times Faster Than Silicon

# Thank you!

Dale Ford – Chief Analyst  
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Electronic Components Industry Association

