

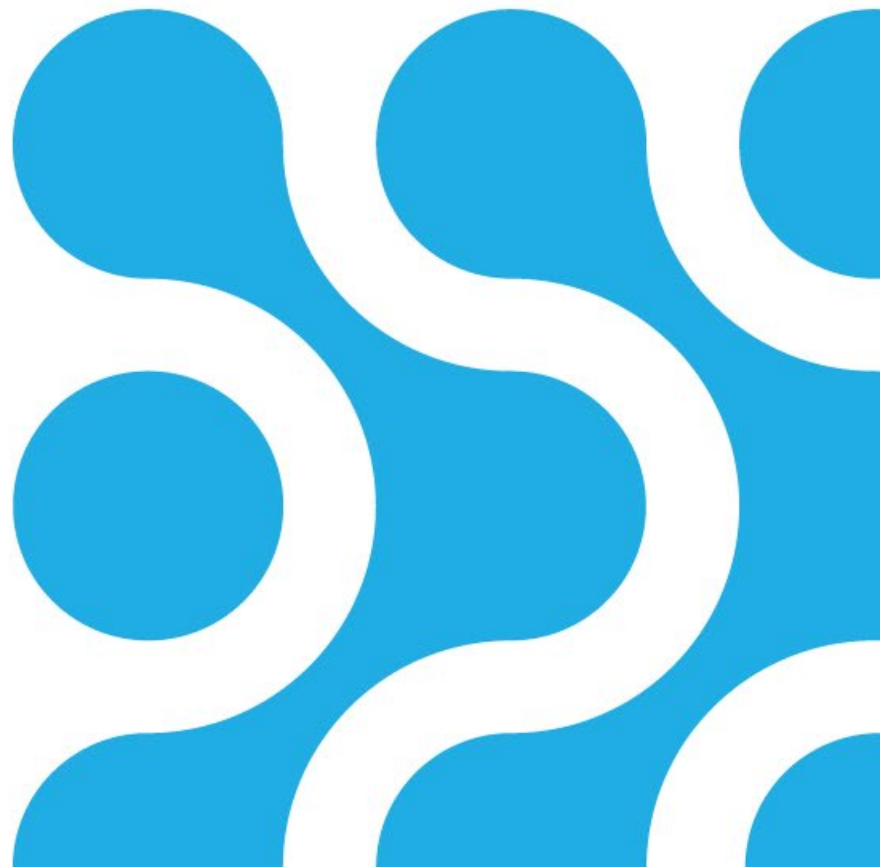
2021/22 Semiconductor Market Analysis & Outlook

SIA Roundtable

Dale Ford – Chief Analyst
February 28, 2021



Electronic Components Industry Association

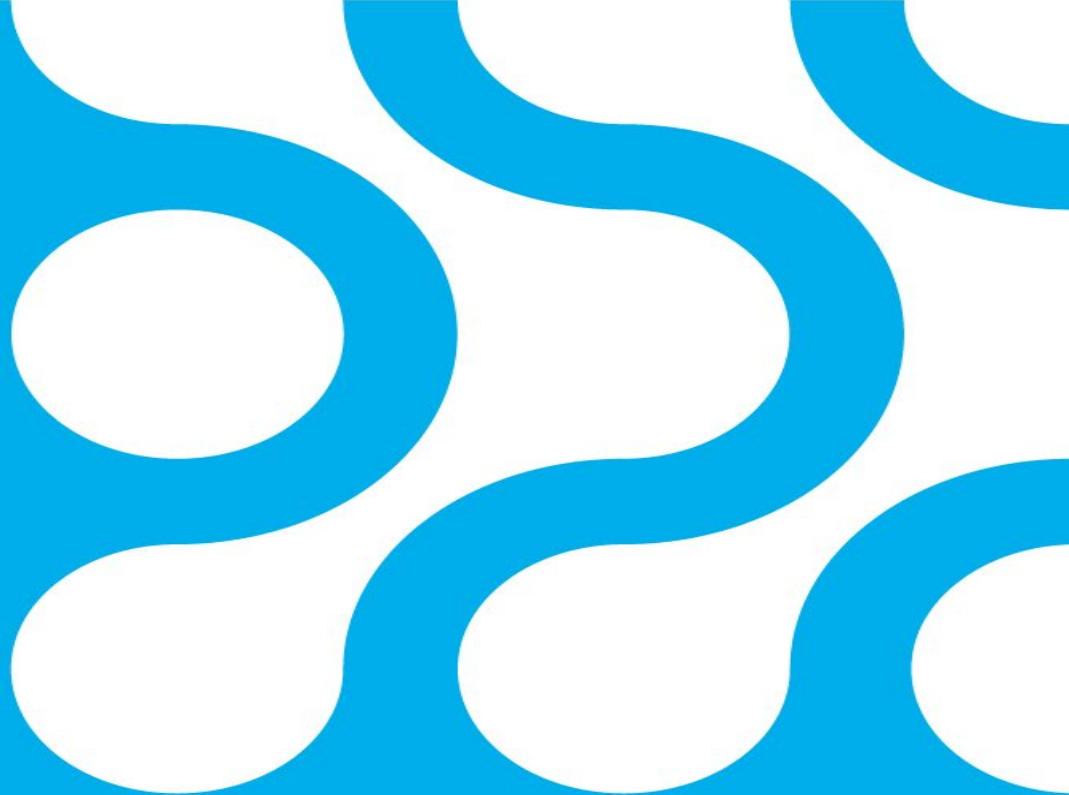


Where Are We Going?

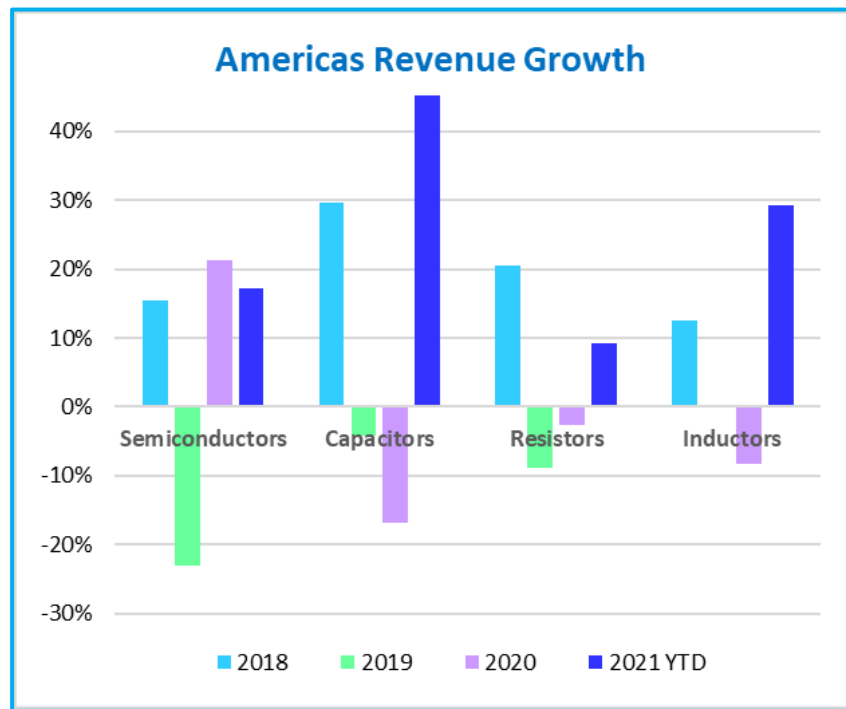
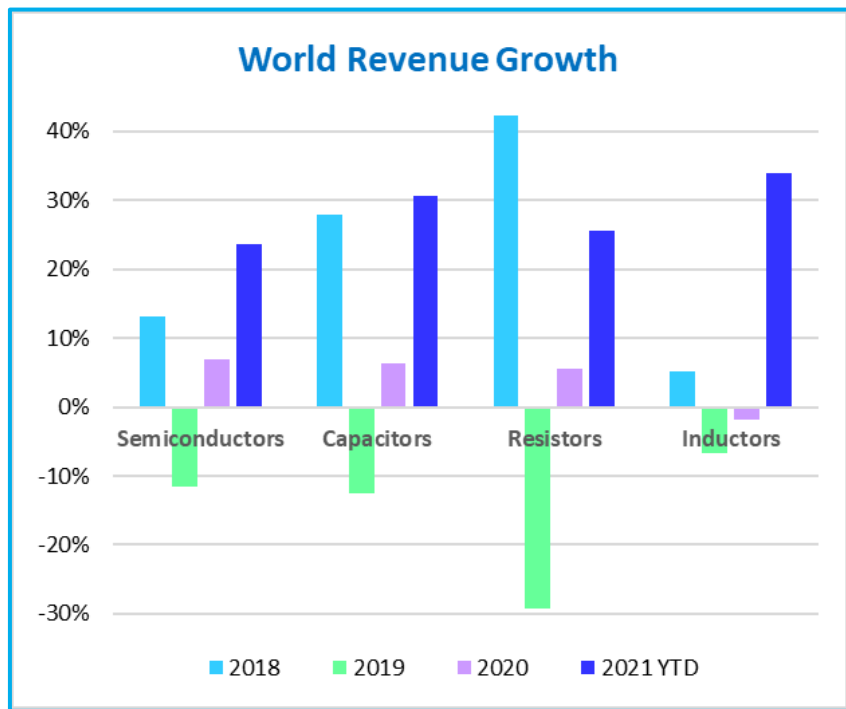
- Cycle Analysis 2021
- Looking Forward 2022
- What About the Electronics & Components Supply Chain?
- The Impact of Inflationary Pressures

Cycle Analysis

~ 2021 ~



Electronic Component Revenue Growth

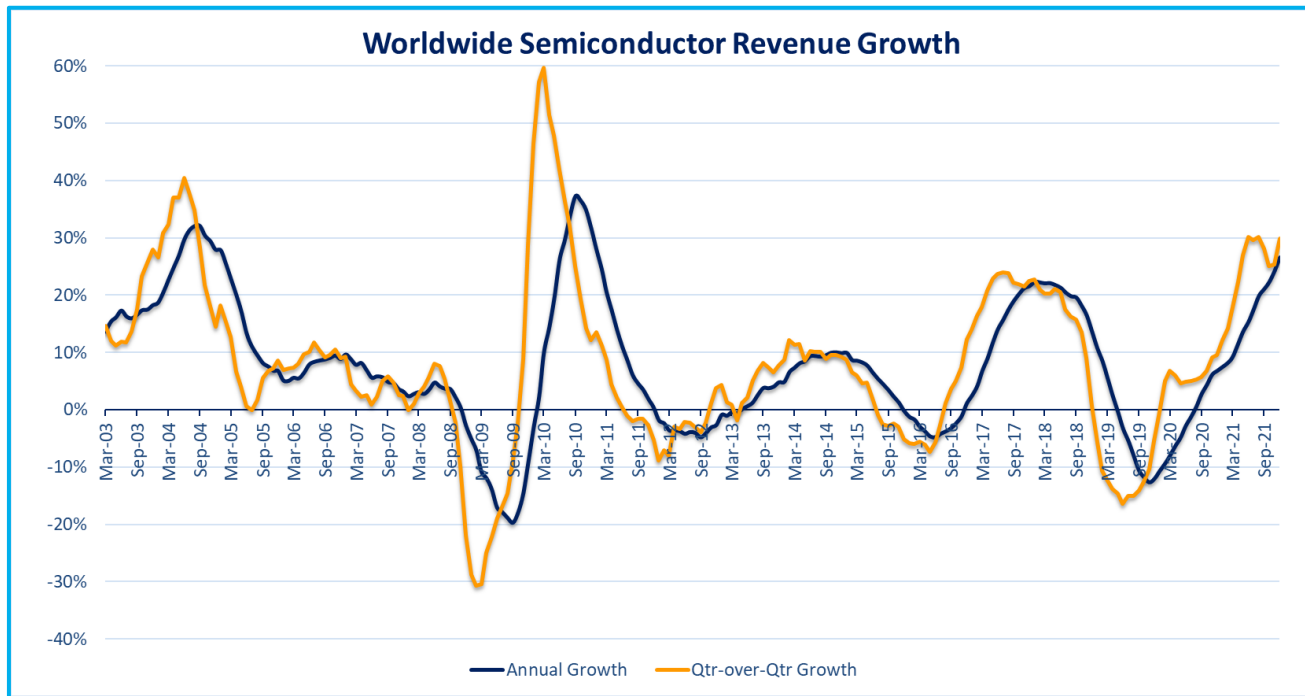


Source: World Semiconductor Trade Statistics (WSTS),
World Passive Trade Statistics (WPTS)

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Semiconductor Revenue Growth Cycle

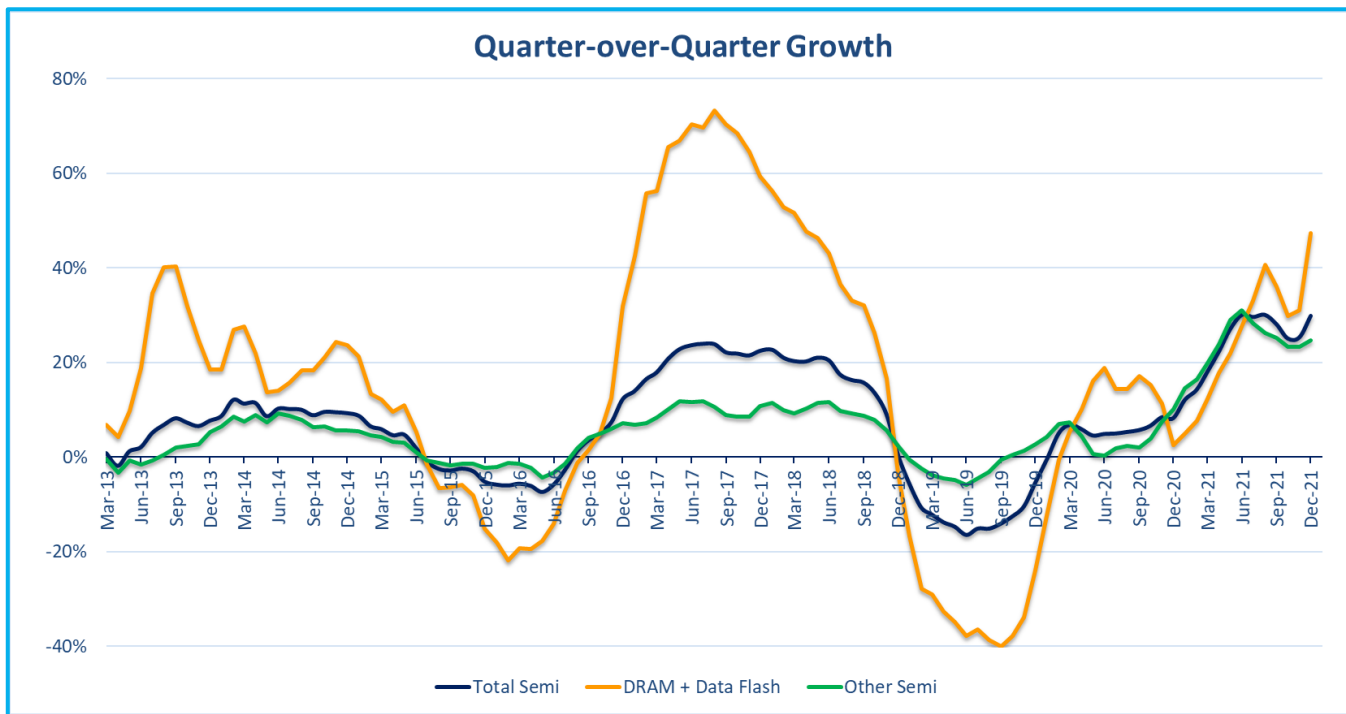
- Quarter-over-Quarter growth surges to highest level in over a decade
- Pause or peak in Q-over-Q growth?
- Annual revenue cycle appears to have legs through 2022
- Annual revenue growth breaks positive in August 2020
- Strong demand and technology drivers
- Boost from shift in consumer spending? Durable?



Source – WSTS

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Semiconductor Growth Trends

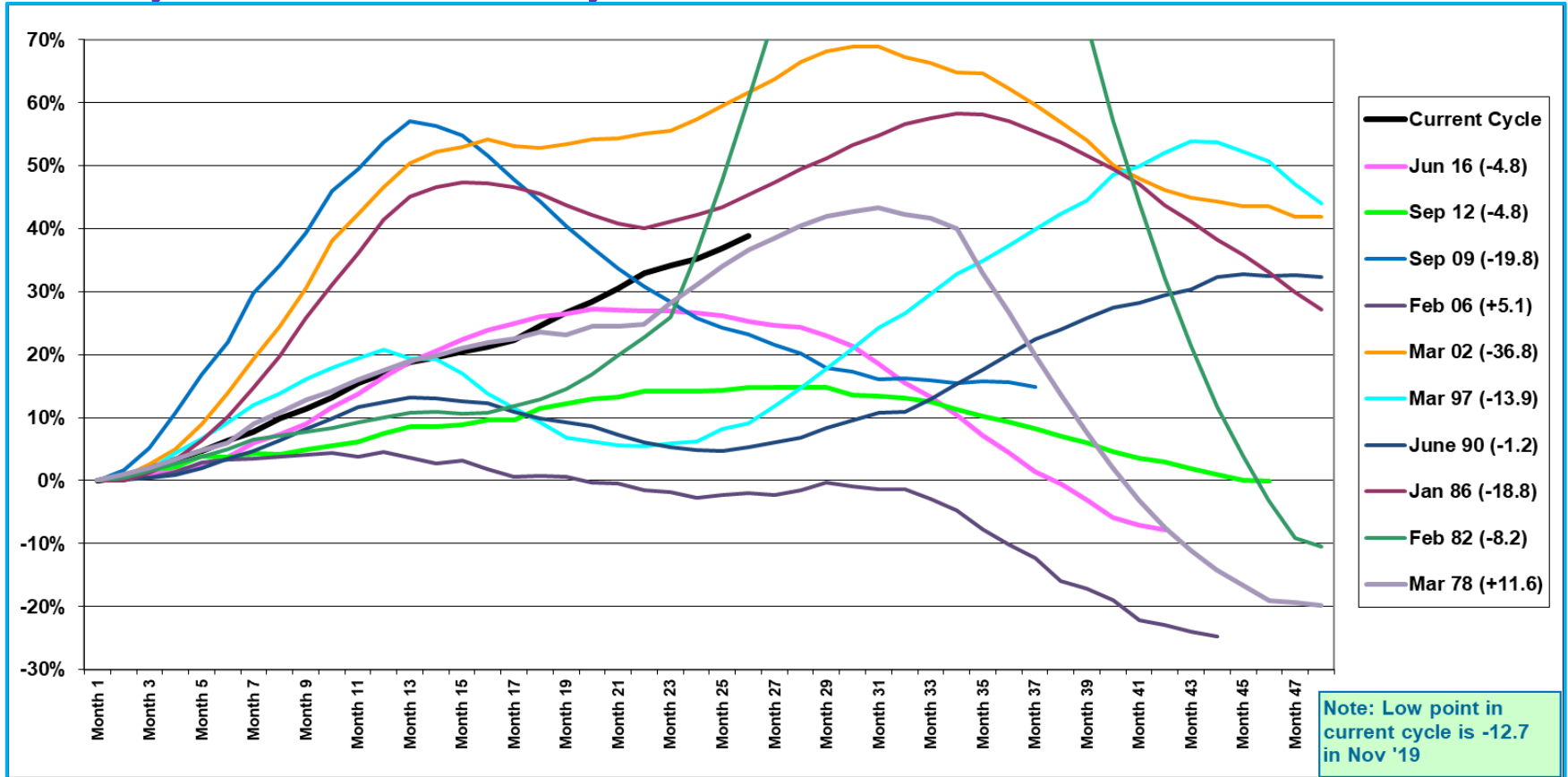


Source: WSTS

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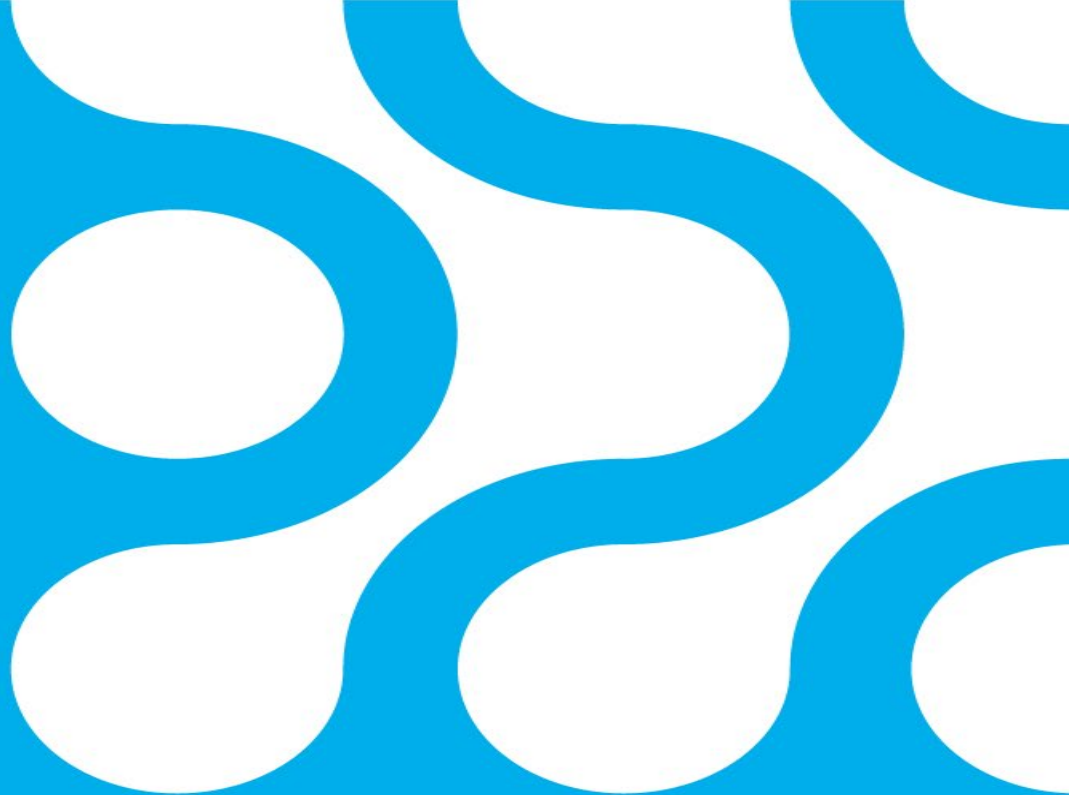
Current Cycle Extremely Robust and Durable

Most cycles last about four years

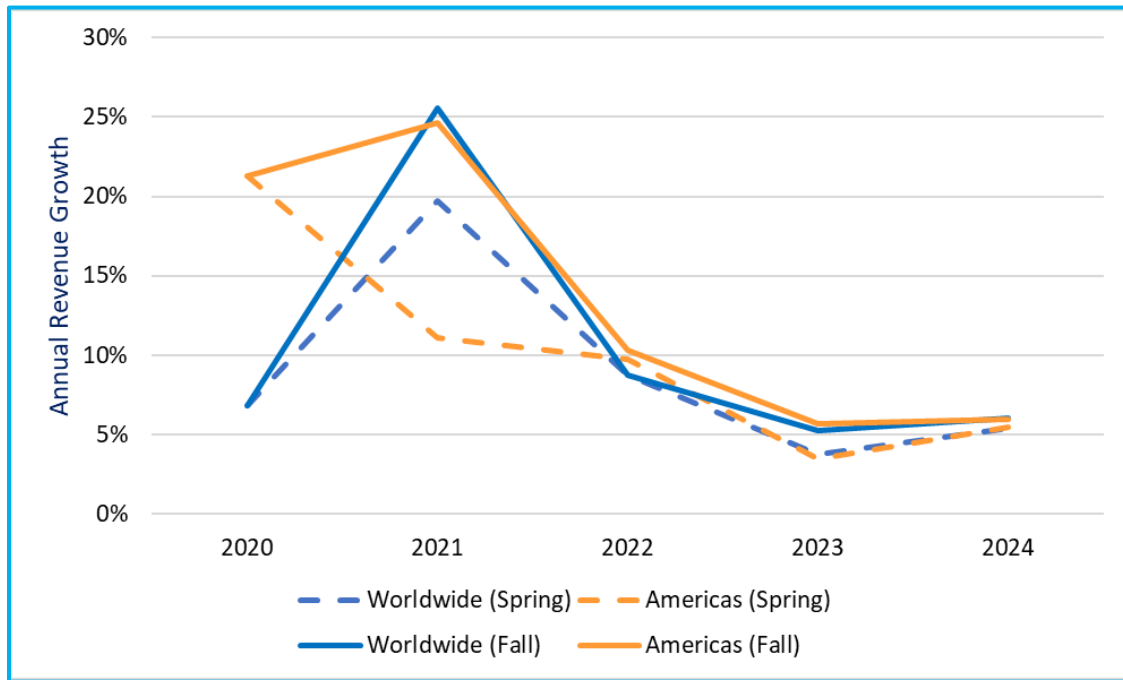


Looking Forward

~ 2022 + ~



WSTS Spring & Fall 2021 Semiconductor Forecast



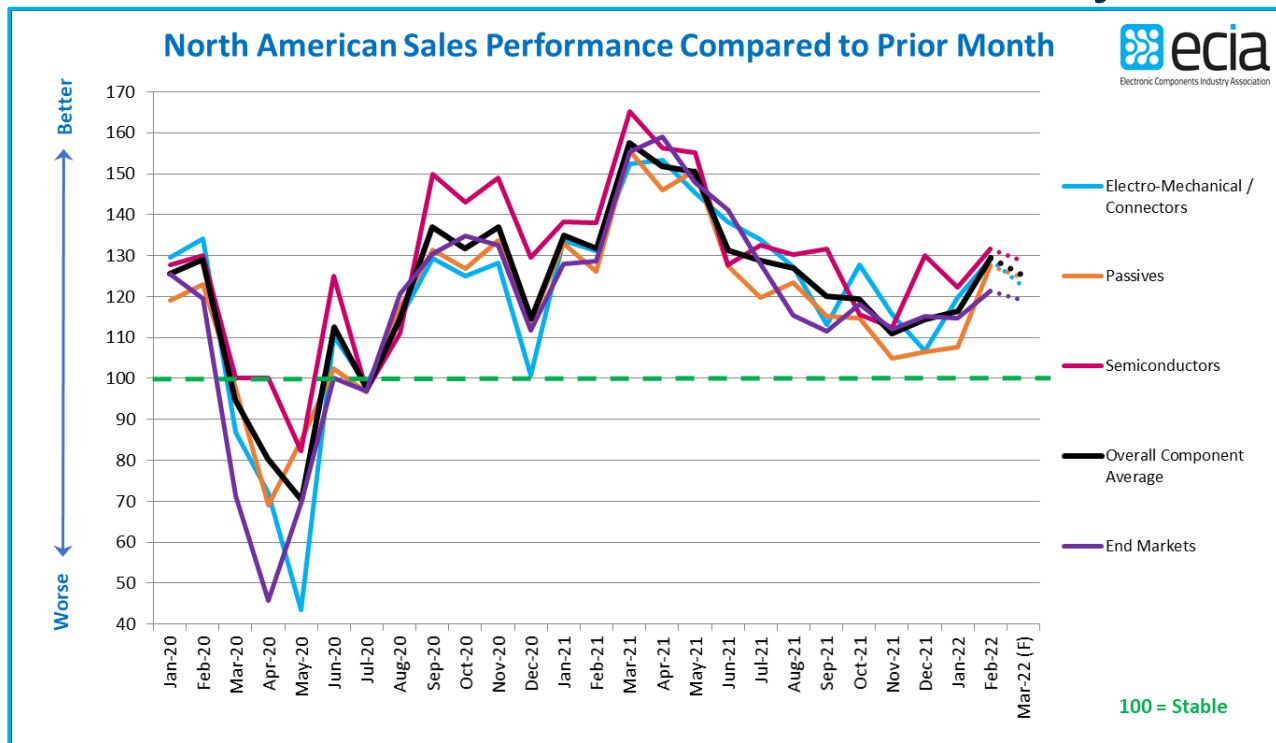
Source: WSTS

Observations:

- Forecast built up category-by-category with experienced analysts from all regions
- Typical semiconductor cycle pattern
- Memory IC drives Americas dramatic jump from Spring Fcst
- Early indicators of stronger current cycle manifest in 2021 results
- Expect will also result in stronger and more durable than common expectations in long-term
- At Fall Forecast, WSTS data still did not really reflect recent price increases

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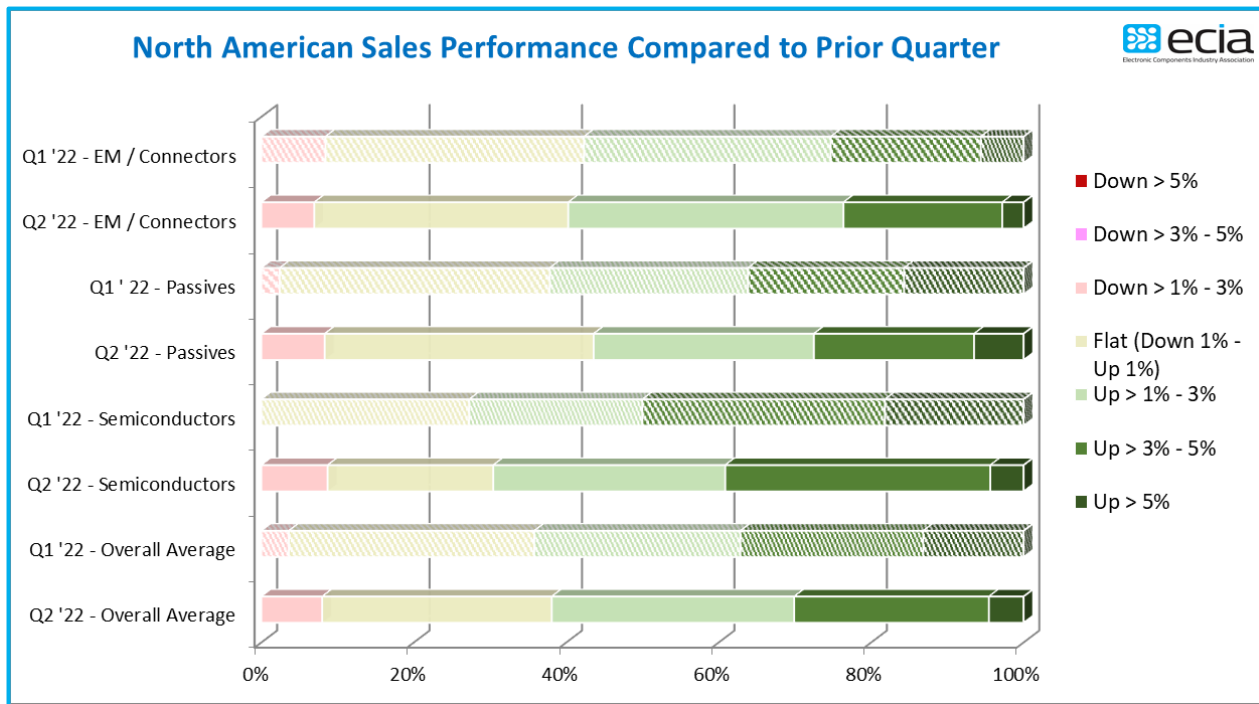
ECIA North America Sales Sentiment Survey Trends



Source: ECIA Electronic Component Sales Trends Survey

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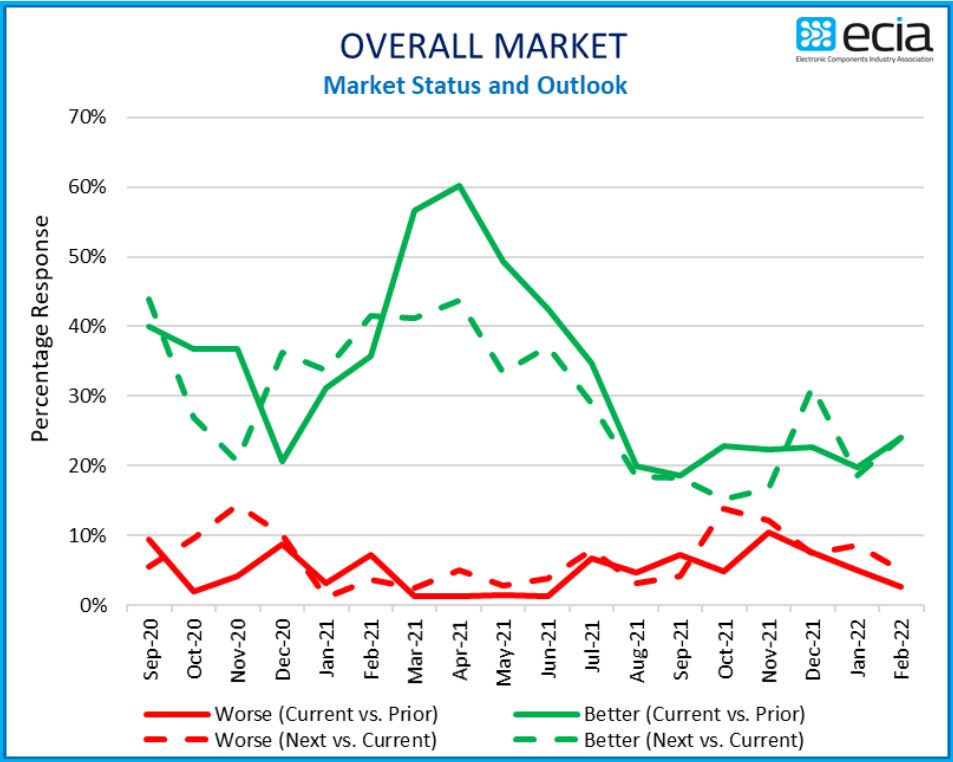
ECIA North America Sales Sentiment Survey Trends



Source: ECIA Electronic Component Sales Trends Survey

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ECIA North America Sales Sentiment Survey Trends



Source: ECIA Electronic Component Sales Trends Survey

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What About the Electronics Components Supply Chain?

~ Worldwide / Americas~

Supply Chain Disruptors

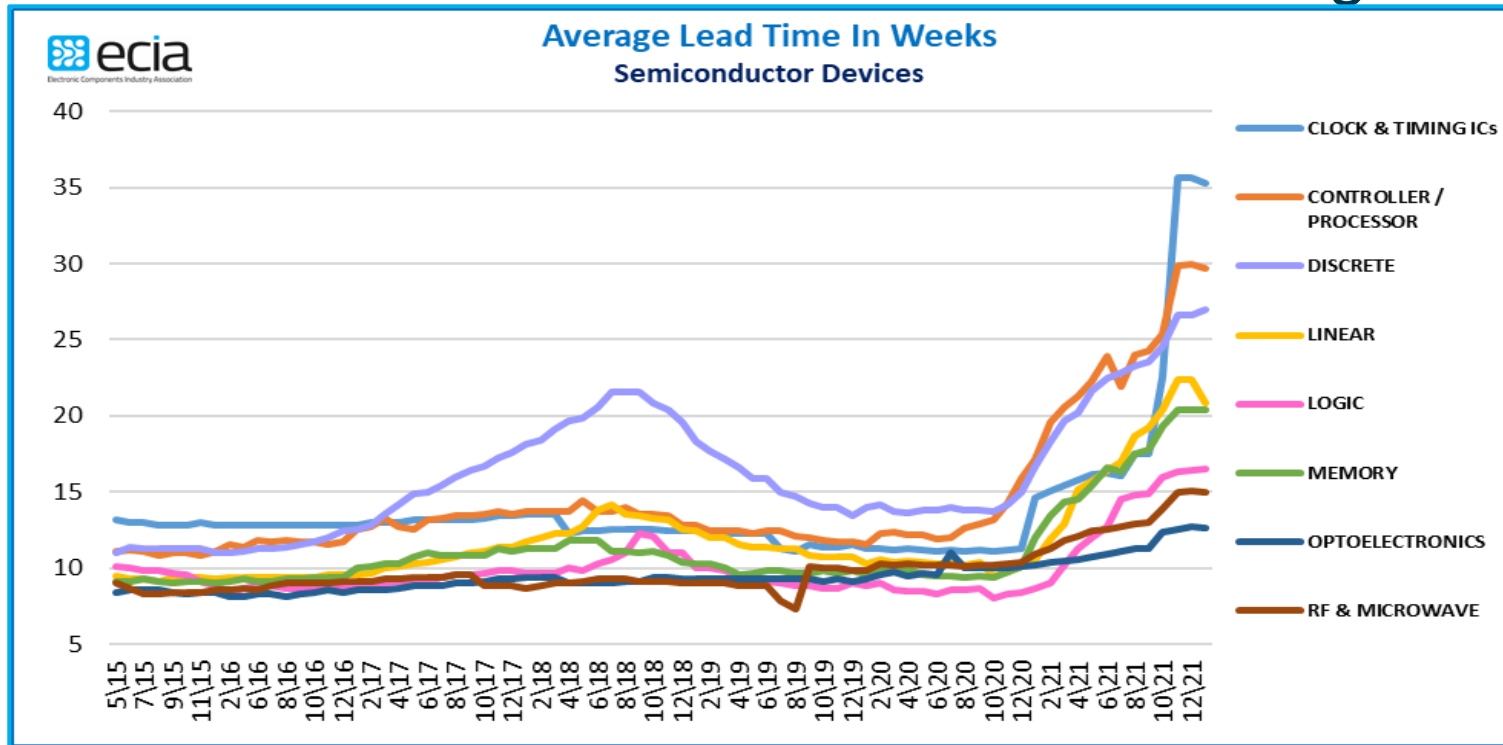
CLIMATE
POLITICS
SHIPPING
PANDEMIC
TRADE WARS
RAW MATERIALS
LABOR SCARCITY
GROWING DEMAND



Hot Wars

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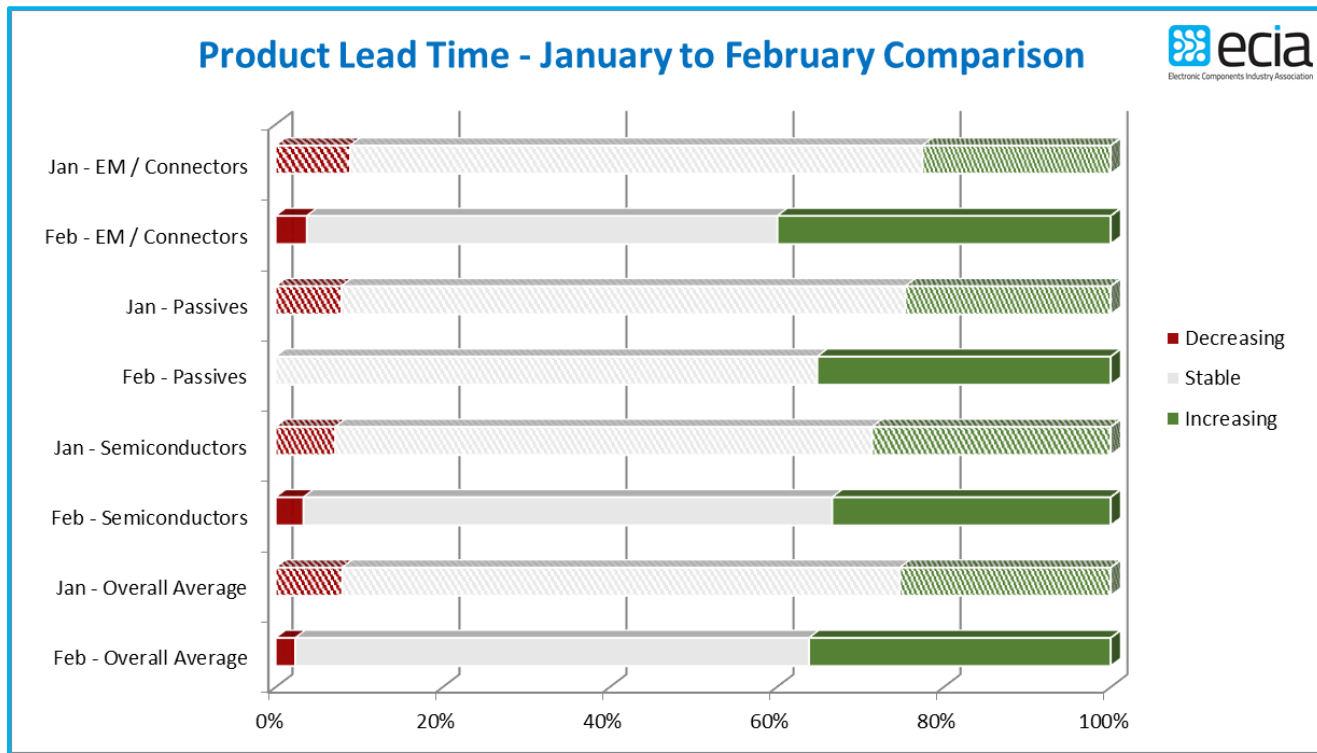
North America Lead Times – Record Shattering



Source: ECIA

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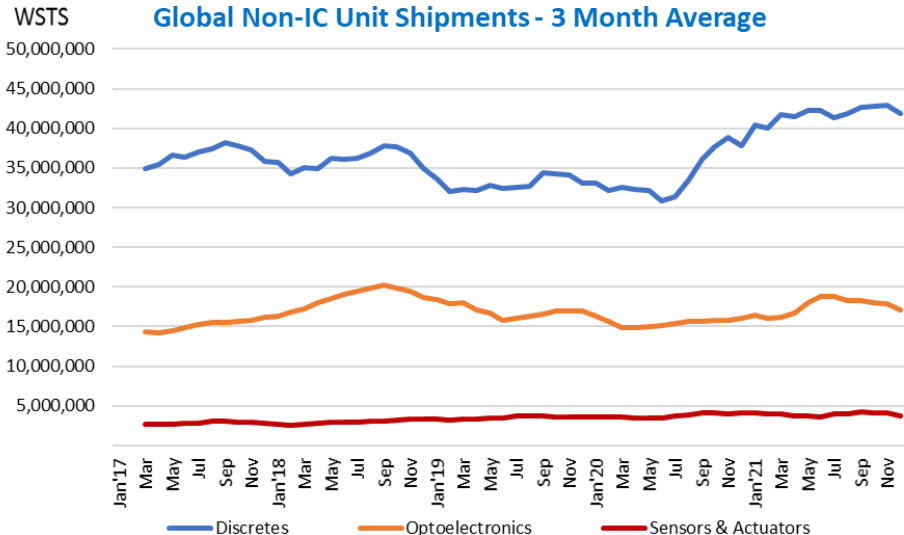
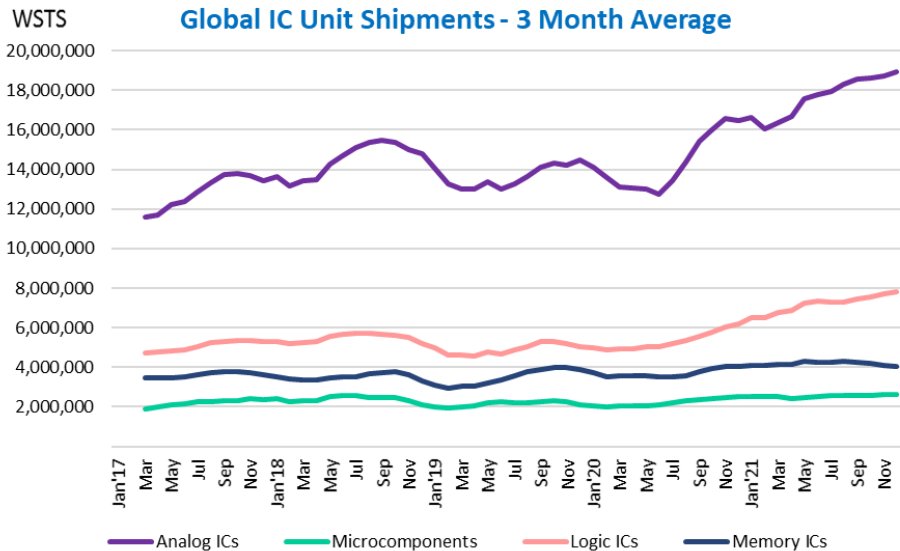
Lead Time Status – Hopes Dashed?



Source: ECIA

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Worldwide Semiconductor Unit Shipments



Source: WSTS

Increase From:

- Discretes
- Analog ICs
- Logic ICs

Previous Peak

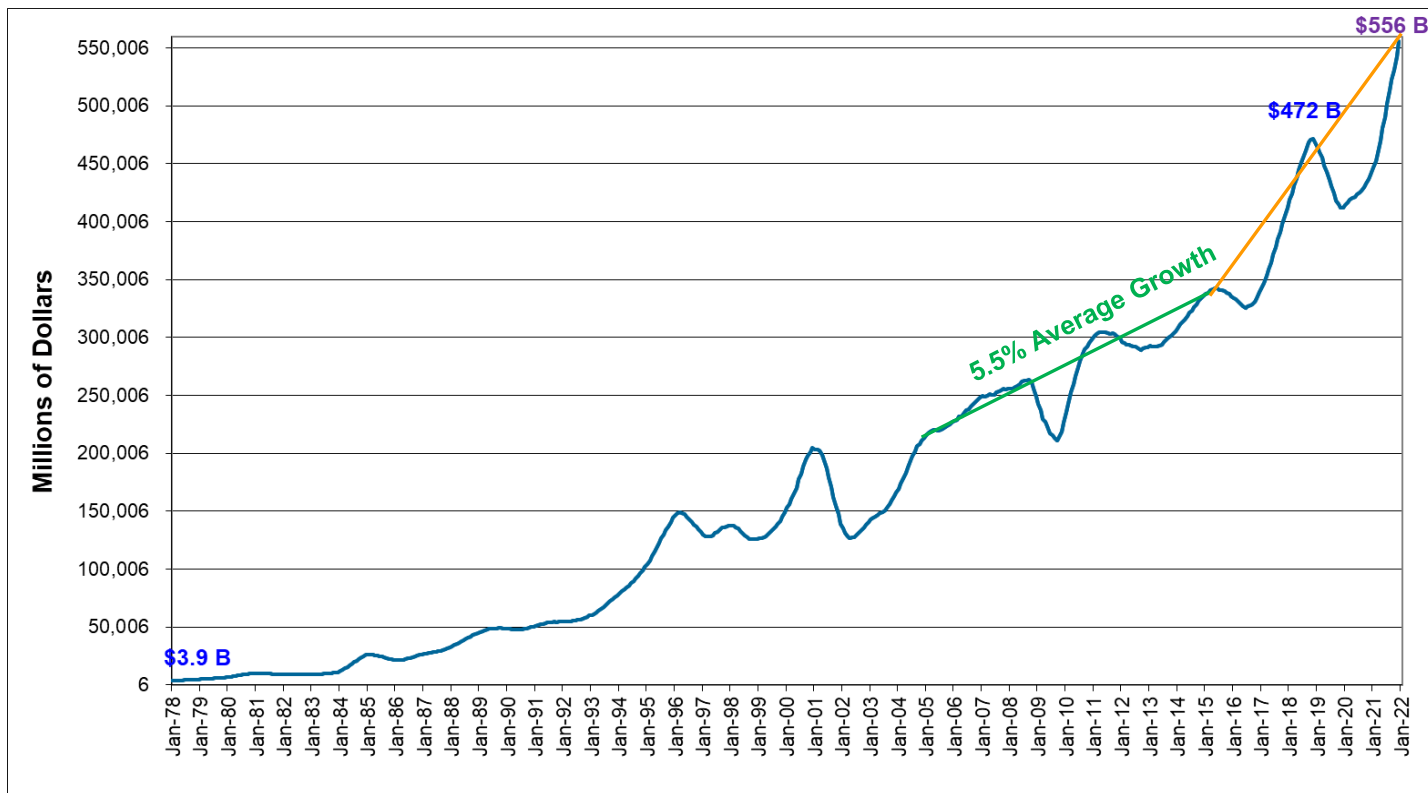
9.9%
22.4%
37.0%

Recovery Start

35.9%
48.7%
60.4%

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Worldwide Annualized Semiconductor Revenue



Source: WSTS

Connect. Influence. Optimize.

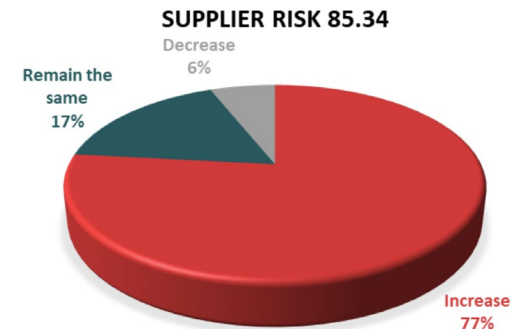
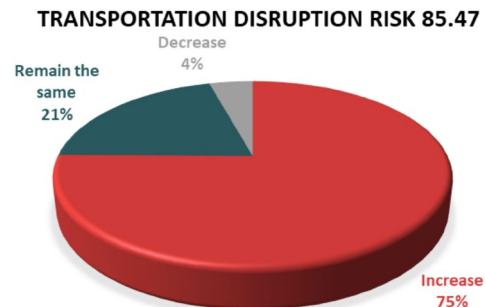
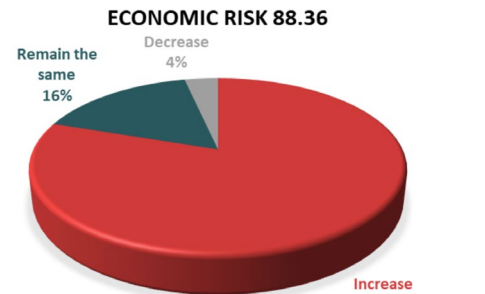
Growth Swings

- Jun '16 to Nov '18
 - 29 Months
 - +\$146B; +45%
- Nov '18 to Nov '19
 - 12 Months
 - -\$60B; -13%
- Nov '19 to Jul '21
 - 20 Months
 - +\$88B; +21%
- ^Volatility = ^Risk
- ^Risk = ^Required ROI

Lehigh University Supply Chain Risk Index – Q1 2022

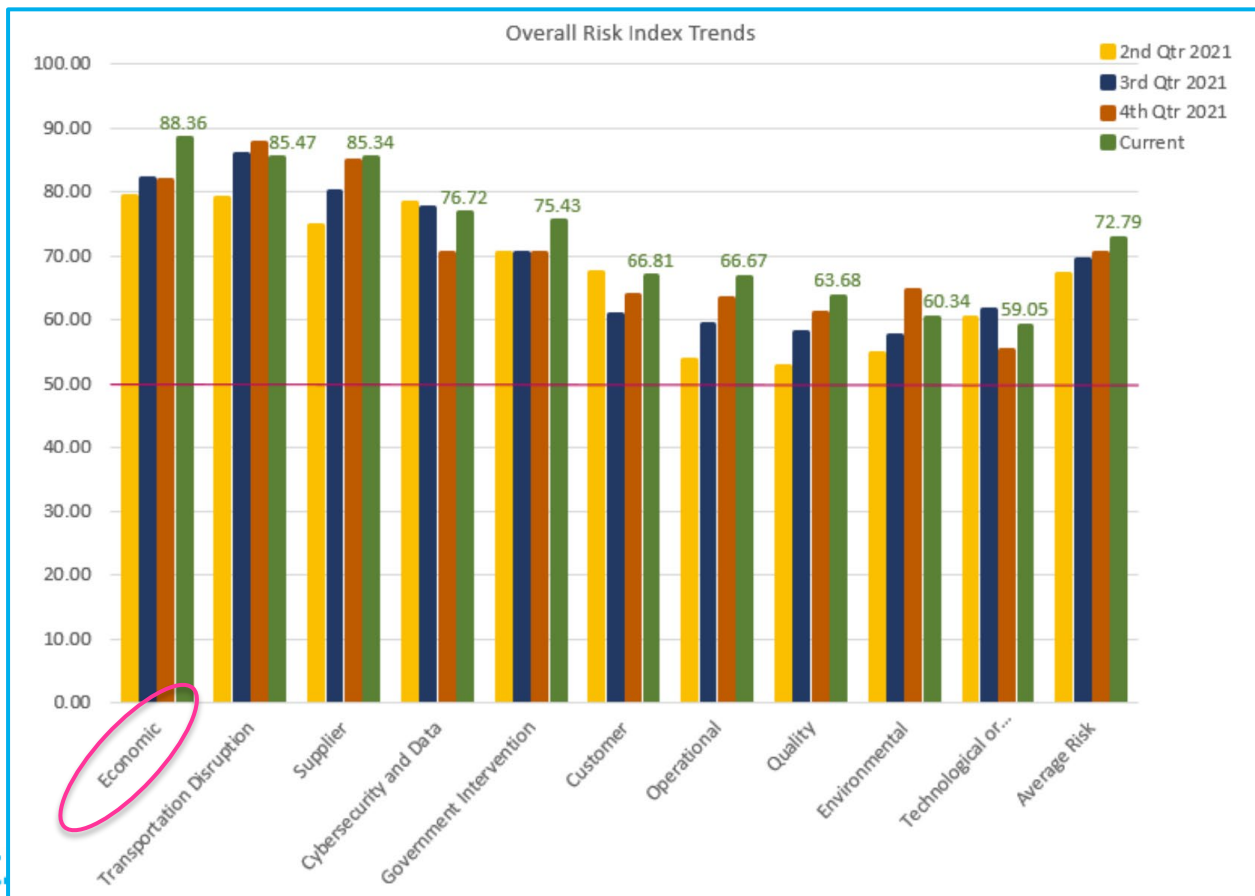
Risk Type	4th Quarter 2021	1st Quarter 2022	Trend	
	Risk Index	Risk Index		
Economic Risk	81.98	88.36	↑	+6.38
Transportation Disruption Risk	87.79	85.47	↓	-2.32
Supplier Risk	84.88	85.34	↑	+0.46
Cybersecurity and Data Risk	70.35	76.72	↑	+6.37
Government Intervention Risk	70.35	75.43	↑	
Customer Risk	63.37	66.81	↑	
Operational Risk	63.95	66.67	↑	
Quality Risk	61.05	63.68	↑	
Environmental Risk	64.53	60.34	↓	
Technological or Competitive Risk	55.23	59.05	↑	
Average Risk Index	70.35	72.79	↑	

Source: Lehigh Univ, CSCMP



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Lehigh University Supply Chain Risk Index – Q1 2022



Connect.

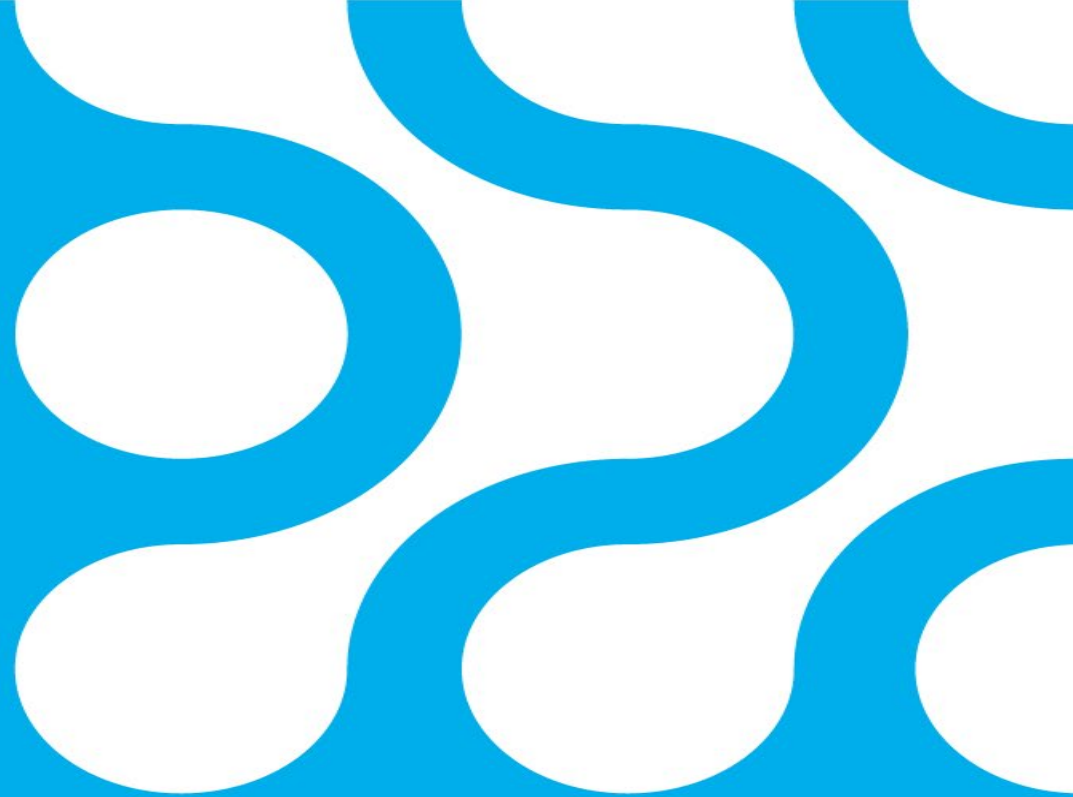
NAM Economic Assessment - Mixed

- Personal consumption expenditures jumped 2.1% in January / On a year-over-year basis, personal spending rose 11.8%.
- Personal saving rate decreased to 6.4% in January, the lowest rate since December 2013.
- Consumer confidence fell in the latest data, largely on inflation concerns.
 - The University of Michigan - lowest reading since October 2011
 - Conference Board - more mixed
- IHS Markit Flash U.S. Manufacturing PMI rebounded in February. Strongest reading since November 2020.
 - Optimism about production moving forward despite ongoing supply chain bottlenecks, workforce shortages and pricing pressures.
- U.S. economy rebounded very strongly in 2021
 - Real GDP soaring 5.7% following the 3.4% decline seen in 2020.
 - Forecast for 2022 is for 3.8% growth.

“Events in Russia and the Ukraine pose a notable downside risk to global growth”

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The Impact of Inflationary Pressures



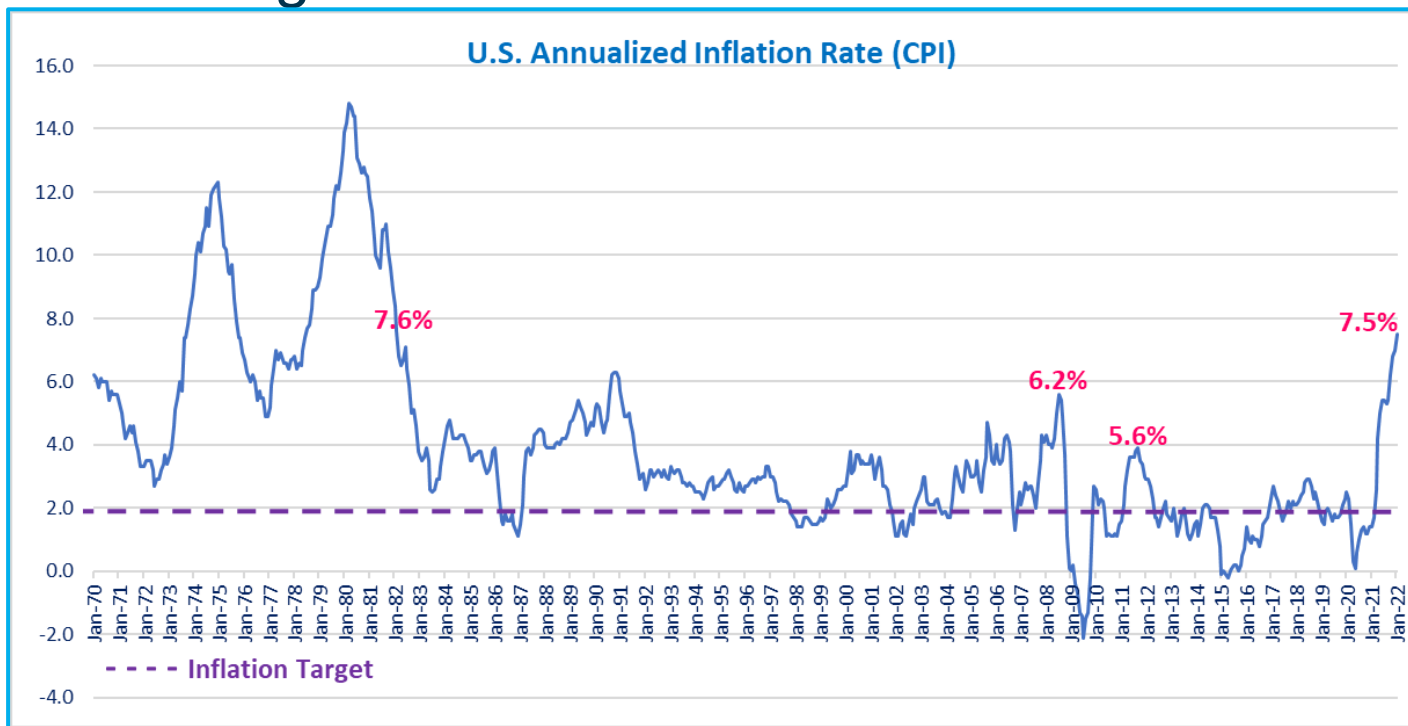
Fed “Beige Book” Report

“With pervasive resource shortages, input price pressures continued to be widespread,” the Fed said. “Even at greatly increased prices, many businesses reported having trouble sourcing key inputs. Some Districts reported that businesses are finding it easier to pass along more cost increases through higher prices. Several Districts indicated that businesses anticipate significant hikes in their selling prices in the months ahead.”

The Fed also noted that demand for labor remains strong but “all Districts noted extensive labor shortages that were constraining employment and, in many cases, impeding business activity.”

In a hint that the economy could be threatened with stagflation—a period of accelerating price hikes and low growth—the Fed also noted that the economy had “downshifted” in late July and August.

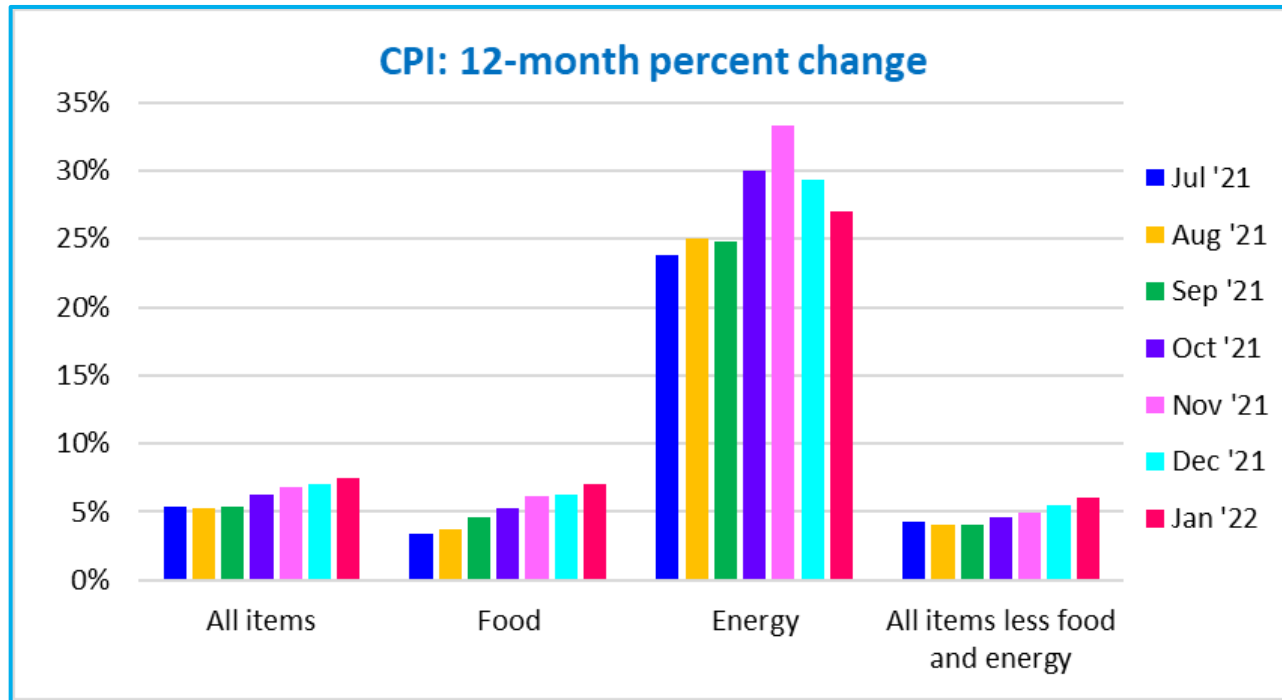
Inflation Hits Highest Rate in 40 Years



Source – Bureau of Labor Statistics (BLS)

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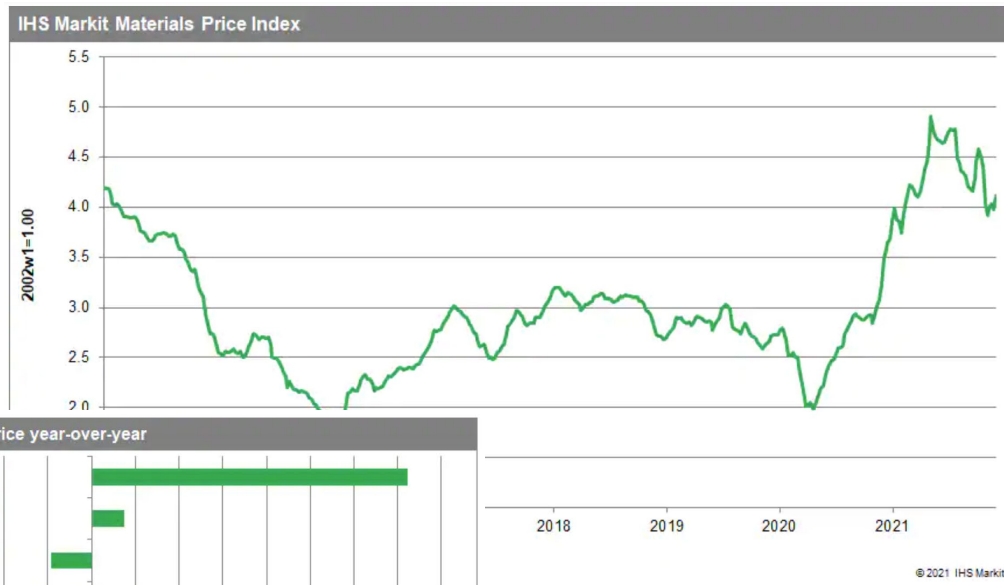
Twelve Month U.S. CPI Percent Change as of January 2022



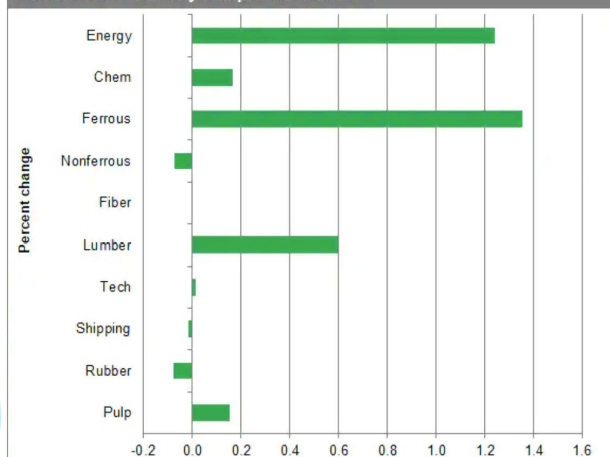
Source – Bureau of Labor Statistics (BLS)

Raw Material Pricing Trends – IHS Markit Index

- Data through mid-December 2021
- Price pressure easing in last 3 months
- Prices still very elevated
- Energy & Shipping extremely high
- Potential for increases with overall inflation pressure



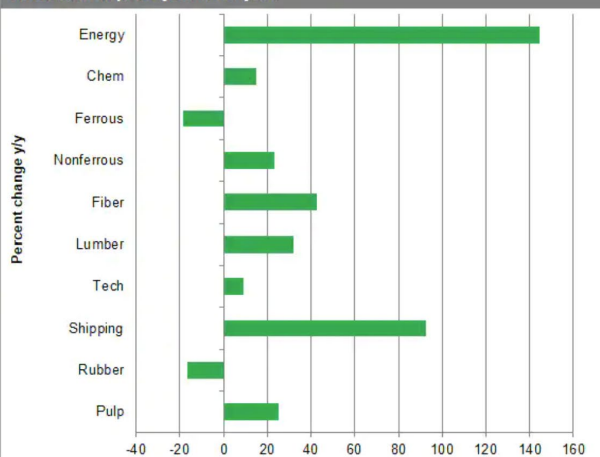
Contribution to MPI by component last week



Source: IHS Markit

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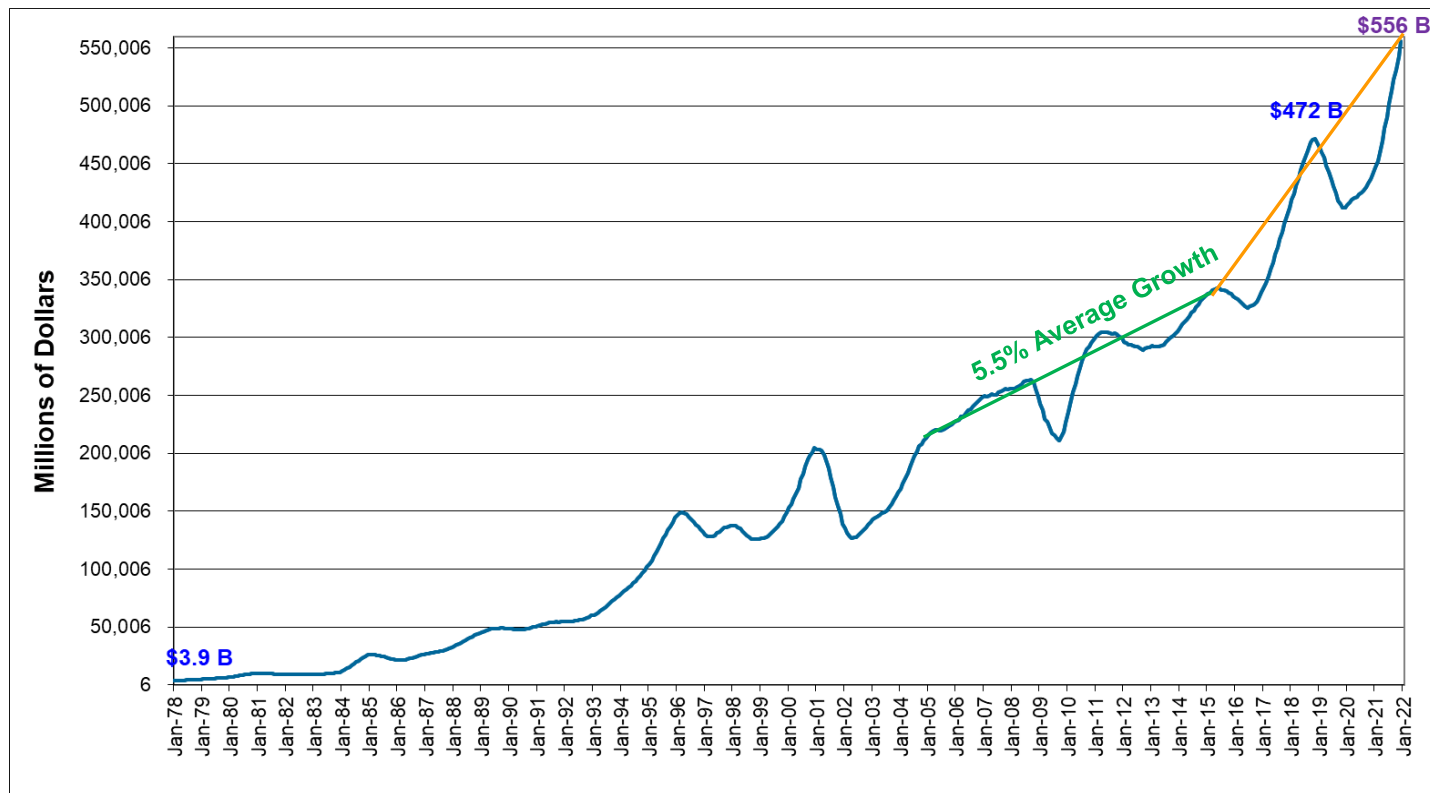
Movement in price year-over-year



Source: IHS Markit

© 2021 IHS Markit

Worldwide Annualized Semiconductor Revenue

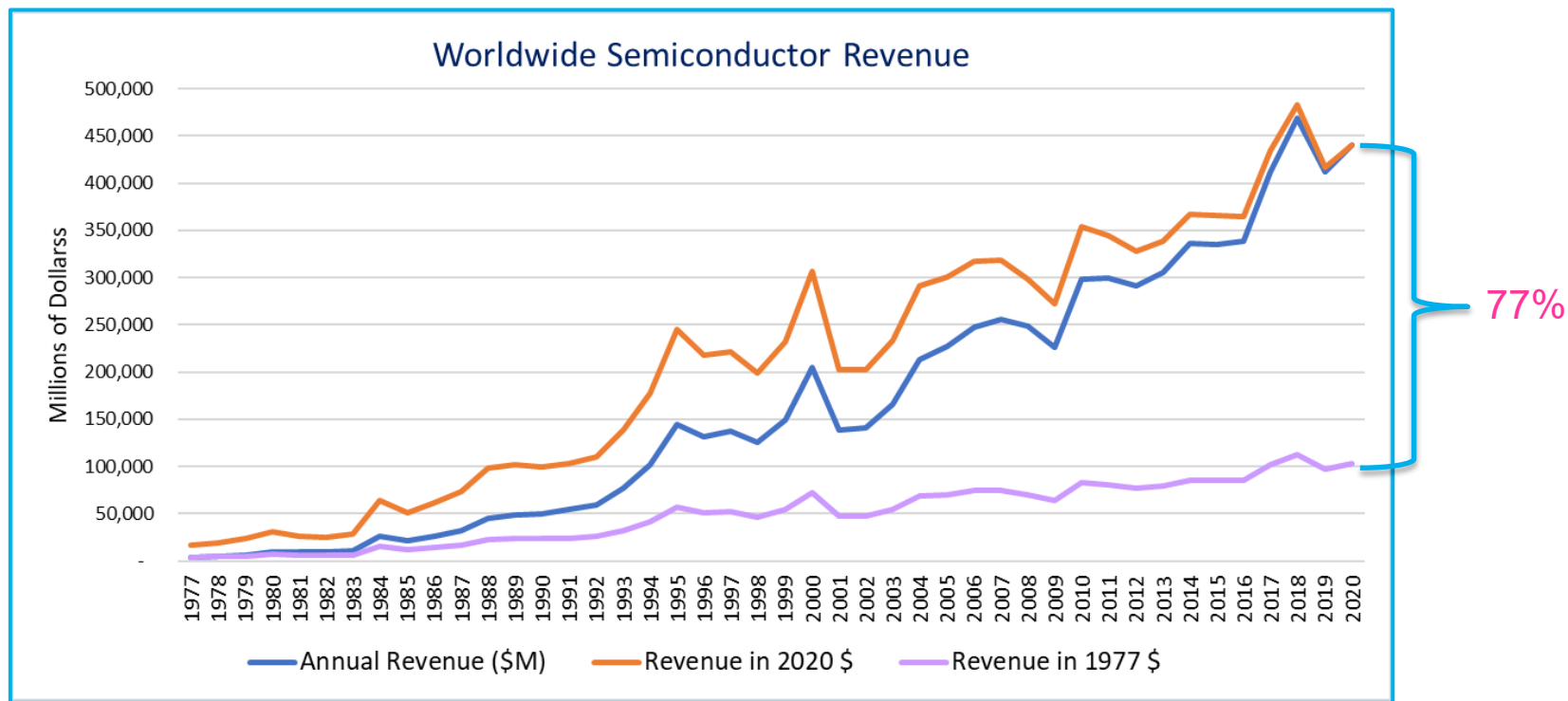


REAL GROWTH
+
INFLATION

Source: WSTS

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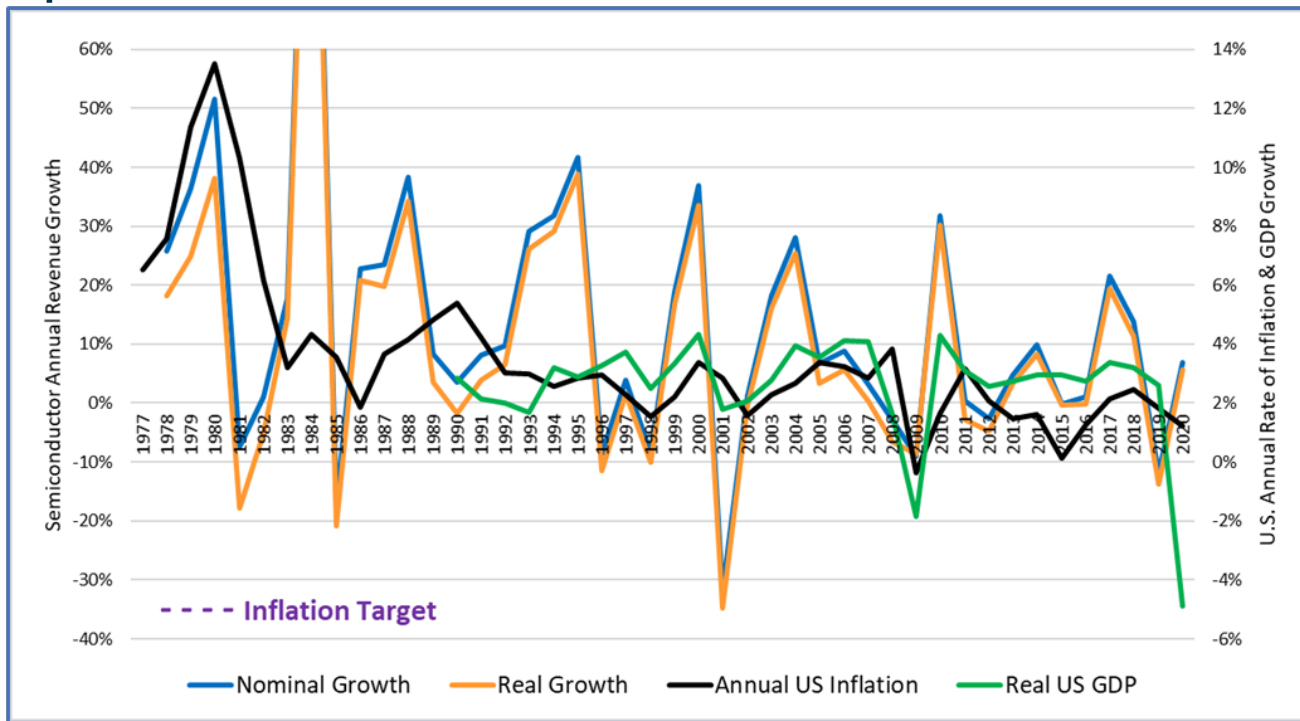
Semiconductor Revenues in Constant Dollar Value



Source – WSTS and Bureau of Labor Statistics (BLS)

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The Impact on Semiconductor Revenues



Source – WSTS and Bureau of Labor Statistics (BLS)

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Thank you!

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Electronic Components Industry Association

