

Semiconductor WEEK:

January 20, 2023

An overview of results and conclusions from recent reports at TechInsights

Chip Market Research Services

Visibility is low as the storm intensifies

- Order activity for semiconductor equipment held at a chilly 50 degrees
- Production and Capacity Plan

Semiconductor Analytics

Last Week in the Semiconductor Market:

Semiconductor sales grew as the industry headed to the Lunar New Year. The IC weather warmed 3°F in Cool conditions.

Zooming in on the 1st forecast update of the year, 2023 semiconductor sales are expected to slip 4%, dipping to \$595B – less than 1% difference from December's projections.

TechInsights' IC Supply/Demand rose to Tight conditions. More Moore Foundry went to Balanced from Saturated from Glut, as Foundry went from Saturated to Balanced. OSAT joined Auto IC in Shortage.

Electronics' Retail Prices are in a bullish rise.

Chip History Center

People: **Scott Kulicke**, discusses the challenges going forward in semiconductor packaging and assembly in this 2004 interview.

36 Years Ago: Timeline: February 21, 1987 - **TSMC** Founded

Semiconductor Stocks

- *TechInsights' Semiconductor Stock Indices were mixed this week*
- *Semiconductor Stock Index squeezed a gain*
 - *NVIDIA was this week's biggest winner*
- *Semiconductor Equipment Stock Index slipped*
 - *Advantest came out on top*
- *EDA Stock Index grew*
- *Electronics Materials Stock Index slipped*
- *Hottest Stocks: NVIDIA, Advantest, Cadence, TSMC, Panasonic, JCET*

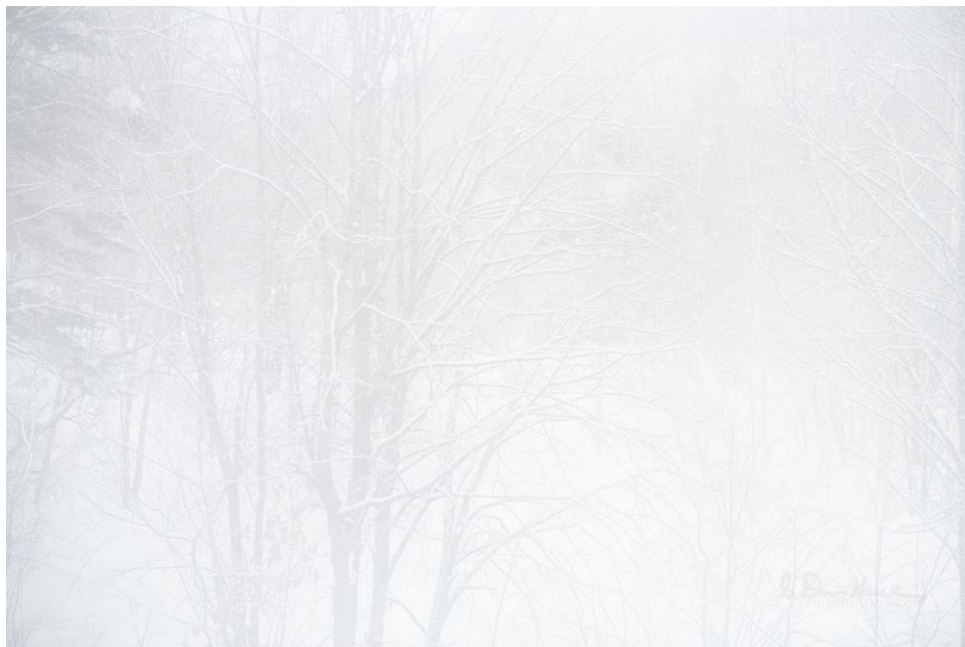
The Chip Insider[®] Graphics File



January 2023

Visibility is low as the storm intensifies

- Order activity for semiconductor equipment held at a chilly 50 degrees
- The decline for Subcons accelerated in December, declining 12% MoM and 10% YoY
- TechInsights' Chip Price Performance Index continued to lose ground, slipping 0.6 points in the second week of January.



This issue contains the latest forecast.

[Contact us to access more details](#)

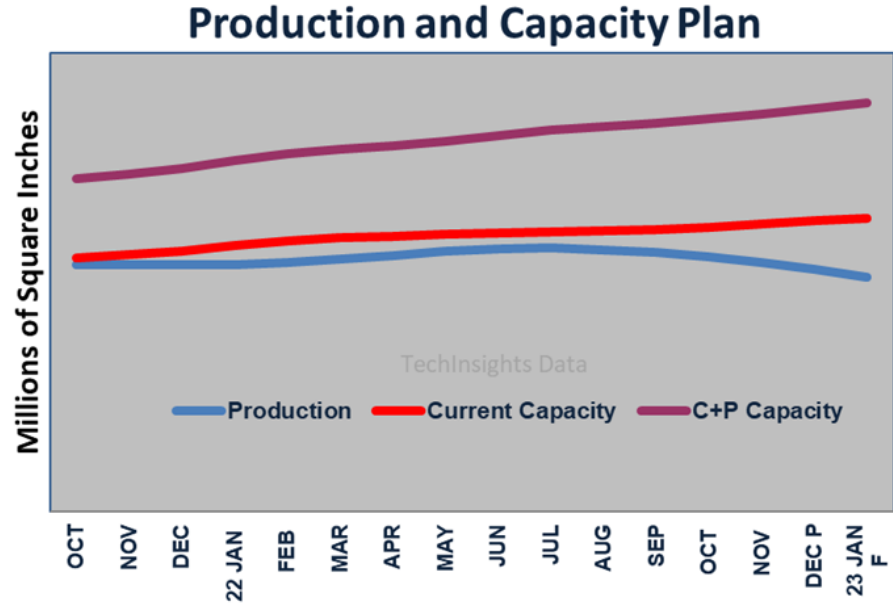
Forecast as of January 2023:	2022	2023
Semi Equipment (\$B):	\$ 135.3	\$ 115.8
Sequential Change	6.6%	-14.5%
Capacity Utilization:	94.1%	85.3%
ICs (\$B):	\$ 513.0	\$ 483.4
Sequential Change	4.2%	-5.8%
IC Units (BU):	406.7	402.6
Sequential Change	3.2%	-1.0%
Electronics (\$B) :	\$ 2,556	\$ 2,451
Sequential Change	-0.7%	-4.1%

The Chip Insider[®] Graphics

Production and Capacity Plan:

- Production cuts are happening in order to digest the inventory build-up

Production and Capacity Plan: chart gives rolling averages for semiconductor production, currently active capacity, and current plus planned capacity in millions of square inches of silicon wafers.



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Insights Interview:

Workforce Development Solutions...

with Ajit Manocha of SEMI



What the conversation is about:

- Labor shortages have become the echo pandemic from the ravages COVID has had on the economy.
- This is no truer than in the semiconductor industry, where Workforce Development has long been on the To-Do lists of many.
- Most industry efforts appear to be more about lobbying others to do something about workforce development.
- It's really hard to do something substantive about it but SEMI is.

[Click here to watch online](#)

Semiconductor Analytics

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Electronics’ Retail Prices are in a bullish rise.



IC Weather Measures Order Activity S/D Measures Pricing Power

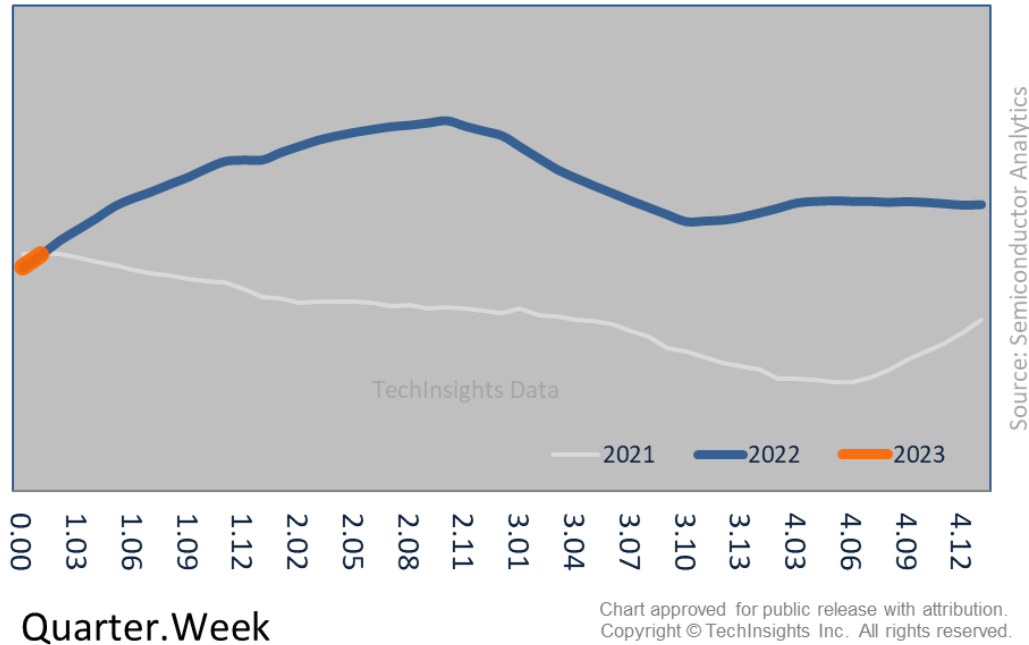
Electronics Retail Pricing Trends:

for PC notebooks Tablets Smartphones Cell phones Digital Cameras Appliances TVs

Electronics' Retail Prices are in a bullish rise.

Electronics Pricing Barometer

indexed 13 week moving average



Source: Semiconductor Analytics

Chart approved for public release with attribution.
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Semiconductors are to the information age what engines are to the industrial age. Chips are the steam engine, the internal combustion engine, and the fractional horsepower engine rolled up into one. The Chip History Center is dedicated to preserving that history for future generations.

People: [Scott Kulicke](#), discusses the challenges going forward in semiconductor packaging and assembly in this 2004 interview. Topics covered include: productivity, effect of new wafer fab processes, early efforts to replace gold wire with copper wire, flip-chip's failure to take hold, China's rise, ASE passing Amkor, offshoring semiconductor equipment manufacturing from the United States. And more.



30 Years Ago: [Time Line](#): February 21, 1987 - [TSMC Founded](#)

The founding of TSMC on February 21, 1987 marks an earthquake that would move the tectonic plates that formed the global structure of the semiconductor industry. That earthquake was the formation of what would come to be called 'the pure-play foundry' based on Morris Chang's vision that the only way to build a business out of selling finished wafers to chip companies was to base it on the strict principle of never competing with a customer ...

Supporters:

ADVANTEST



exyte



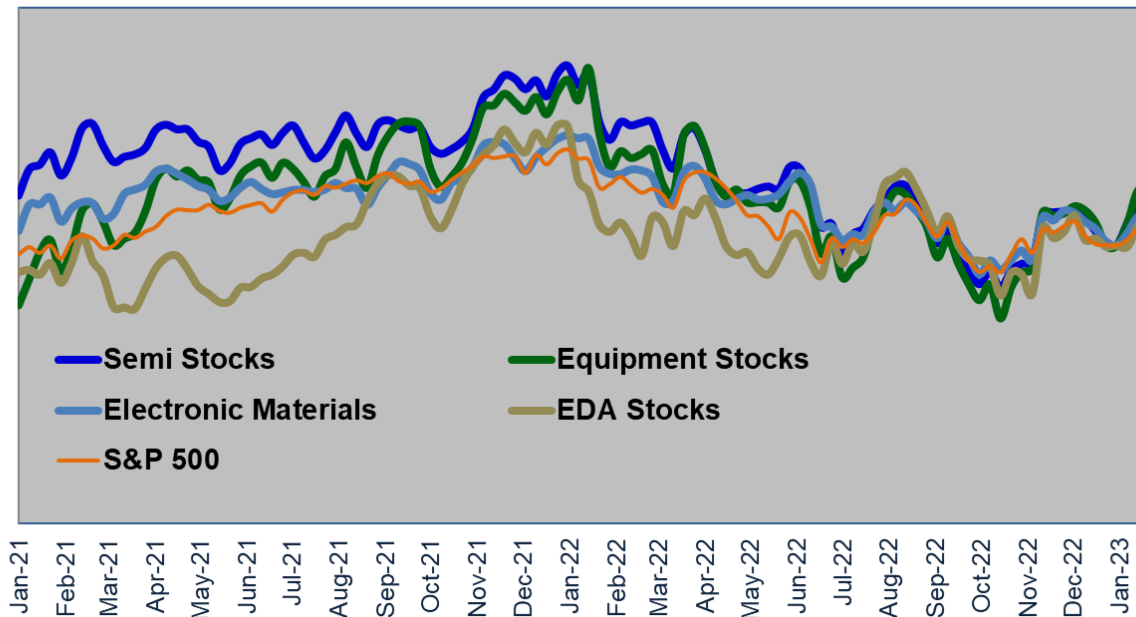
semiStockWEEK:

TechInsights' Semiconductor and EDA Stock Indices gained this week while the Equipment, Electronics Materials, and the S&P 500 slipped.



Semiconductor Industry Stock Performance Indices

(Stock Prices Indexed to 100 in last week of 2022)



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TechInsights' Stock Indices:

Semiconductors +0.7%

Equipment -0.3%

Electronic Materials -0.6%

EDA +3.0%

Semiconductor Stocks:

Weekly Growth and Forward P/E Ratios by Company

Weekly Gains			1/20/2023		
Semiconductor Stocks	Price Change	Forward P/E	Semiconductor Stocks	Price Change	Forward P/E
IDM			Fab-lite to Fabless		
Intel	-3.0%	16	AMD	-1.3%	20
Micron	2.7%	30	Analog Devices	-2.3%	16
ON Semiconductor	1.7%	14	Broadcom	-1.4%	13
Samsung Electronics	1.6%	–	IBM	-3.2%	15
SK hynix	2.2%		Infineon	-1.5%	15
STMicroelectronics	1.6%	11	MagnaChip Semiconductor	-0.6%	40
Western Digital	3.3%	12	MaxLinear	0.0%	9
Foundry & OSAT			MediaTek	-0.1%	–
Amkor	-6.4%	11	NVIDIA	5.6%	39
ASE	2.7%	9	Panasonic	4.1%	12
GLOBALFOUNDRIES	-4.5%	26	Qualcomm	2.2%	10
JCET	3.8%	15	Silicon Laboratories	-1.3%	41
SkyWater Technology	-4.6%	–	Skyworks	1.4%	9
SMIC	3.6%	13	Texas Instruments	-3.4%	22
TSMC	4.8%	13			
UMC	2.5%	10			

Above Avg
Top 4-6
Top 1-3

TechInsights' Semiconductor Stock Index squeezed a gain this week. NVIDIA became the biggest winner this week after a strong previous week. TSMC, Panasonic, and JCET were also top performers.

IDM +1.4%
Foundry & OSAT +0.2%
Fabless & Fablite -0.1%

AMD^{AMD} Analog Devices^{ADI} Amkor^{AMKR} ASE
ASX^{ASX} Broadcom^{AVGO} GLOBALFOUNDRIES^{GFS}
IBM^{IBM} Infineon^{IFNNY.PK} Intel^{INTC}
JCET^{600584.SS} Micron Technology^{MU} On
Semiconductor^{ON} Panasonic^{PC} MagnaChip
Semiconductor^{MX} MaxLinear^{MXL}
MediaTek^{2454.TW} NVIDIA^{NVDA} Qualcomm^{QCOM}
Samsung Electronics^{SLAB} SkyWater Technology^{SKYT}
Laboratories^{SWKS} SMIC^{SMI} STMicroelectronics^{STM}
Texas Instruments^{TXN} TSMC^{TSM} UMC^{UMC}
Western Digital^{WDC}

Chip Equipment & Related Stocks:

Weekly Growth and Forward P/E Ratios by Company

Weekly Gains			1/20/2023		
ment Stocks	Price Change	Forw ard P/E	Equipment Stocks	Price Change	Forw ard P/E
Wafer Fab:			Test:		
Applied Materials	-0.3%	16	Advantest	5.4%	-
ASM International	3.3%	27	Teradyne	0.1%	25
ASML	-1.6%	33	FormFactor	2.7%	30
KLA	-1.5%	23			
Lam Research	-0.2%	17	Assembly:		
Onto Innovation	-1.9%	-	BESI	-2.1%	-
Nikon	0.6%	-	Kulicke & Soffa	-2.9%	14
TEL	-1.4%	-	ASM Pacific Technology	-0.5%	
Veeco Instruments	-1.1%	16			

Above Avg

Top 4-6

Top 1-3

TechInsights' Semiconductor Equipment Stock Index slipped this week. Advantest came out on top with the other Test companies also ending the week in positive territory.

WFE -0.5%

Test +2.7%

Assembly -1.8%

Applied Materials ^{AMAT} Advantest ^{ATEYY}

ASM International ^{ASMIY}

ASM Lithography ^{ASML} ASM Pacific

^{0522.HK} BE Semiconductor ^{BESIIY.PK}

FormFactor ^{FORM} KLA ^{KLAC}

Kulicke & Soffa ^{KLIC} Lam Research

^{LRCX} Onto Innovation ^{ONTO}

Nikon ⁷⁷³¹ Teradyne ^{TER} Tokyo

Electron Limited ⁸⁰³⁵ Veeco ^{VECO}

Electronic Materials Stocks:

Weekly Growth and Forward P/E Ratios by Company

Weekly Gains			1/20/2023		
EDA & Electronic Materials Stocks	Price Change	Forward P/E	EDA & Electronic Materials Stocks	Price Change	Forward P/E
EDA			DNP	0.6%	–
Cadence	5.3%	36	DuPont de Nemours	-1.6%	5
Synopsys	2.8%	29	JSR	2.3%	–
Ansys	0.9%	30	Shin-Etsu	1.1%	–
Electronic Materials			SOITEC	-6.2%	–
BASF	-0.3%	2	Tokyo Ohka	0.6%	–
Entegris	-1.4%	24			

Above Avg Top 4-6 Top 1-3

TechInsights' EDA Stock Index continued to grow this week with Cadence growing the most.

TechInsights' Electronic Materials Stock Index slipped.

Ansys, Inc. ^{ANSS} BASF ^{BASFY}
 Entegris ^{ENTG} Cadence ^{CDNS} DNP
⁷⁹¹² DuPont ^{DD} JSR ⁴¹⁸⁵ Shin-
 Etsu ⁴⁰⁶³ SOITEC ^{SOI.PA} Synopsys
 SNPS Tokyo Ohka ⁴¹⁸⁶

The Prior Week's Close	TechInsights' Indices of Chip Industry Stocks				Weekly Growth				Companies Up	Max Growth	Companies Down	Min Growth	Range of Growth	S&P 500	S&P 500 Growth
	Semi Stocks	Equipment Stocks	Materials Stocks	EDA Stocks	Semi Stocks	Equipment Stocks	Materials Stocks	EDA Stocks							
17-Jun-22	104.7	98.0	105.1	92.4	-7.5%	-10.6%	-8.9%	-3.6%	2	4.0%	-53	-17.3%	21.3%	95.7	-5.8%
24-Jun-22	105.5	102.3	104.7	101.0	0.8%	4.3%	-0.3%	9.3%	41	12.8%	-14	-19.4%	32.2%	101.9	6.4%
01-Jul-22	97.7	92.0	101.3	95.4	-7.3%	-10.1%	-3.3%	-5.6%	3	6.1%	-52	-20.1%	26.2%	99.6	-2.2%
08-Jul-22	102.8	94.4	102.8	100.6	5.2%	2.7%	1.5%	5.5%	47	20.5%	-7	-4.8%	25.3%	101.6	1.9%
15-Jul-22	104.3	97.1	102.6	98.4	1.4%	2.8%	-0.2%	-2.2%	32	10.1%	-21	-9.1%	19.2%	100.6	-0.9%
22-Jul-22	108.9	105.9	108.5	105.8	4.4%	9.1%	5.7%	7.5%	52	66.7%	-3	-8.3%	75.0%	103.2	2.5%
29-Jul-22	111.4	109.4	110.8	115.3	2.4%	3.3%	2.1%	9.0%	39	12.4%	-16	-9.9%	22.3%	107.6	4.3%
05-Aug-22	114.8	113.6	108.7	116.9	3.1%	3.8%	-1.9%	1.5%	47	33.8%	-8	-17.1%	50.9%	108.0	0.4%
12-Aug-22	115.2	112.9	110.9	118.5	0.3%	-0.6%	1.9%	1.3%	33	22.3%	-22	-17.4%	39.7%	111.5	3.3%
19-Aug-22	111.1	109.2	108.7	114.2	-3.6%	-3.3%	-1.9%	-3.6%	9	17.4%	-46	-8.1%	25.5%	110.1	-1.2%
26-Aug-22	106.3	104.9	106.2	108.9	-4.3%	-3.9%	-2.3%	-4.7%	2	1.1%	-53	-17.8%	18.9%	105.7	-4.0%
02-Sep-22	100.6	97.0	101.7	103.0	-5.4%	-7.5%	-4.1%	-5.4%	1	2.1%	-54	-16.1%	18.2%	102.2	-3.3%
09-Sep-22	103.8	101.8	106.4	107.4	3.2%	4.9%	4.6%	4.2%	50	13.1%	-5	-9.5%	22.6%	105.9	3.6%
16-Sep-22	99.3	95.5	100.6	100.0	-4.3%	-6.2%	-5.4%	-6.9%	4	2.3%	-50	-24.2%	26.5%	100.9	-4.8%
23-Sep-22	93.8	90.3	97.1	96.6	-5.5%	-5.5%	-3.5%	-3.4%	3	1.6%	-52	-15.8%	17.4%	96.2	-4.6%
30-Sep-22	90.2	86.3	92.6	96.2	-3.9%	-4.4%	-4.7%	-0.4%	5	4.7%	-49	-11.7%	16.4%	93.4	-2.9%
07-Oct-22	93.5	90.2	96.2	95.0	3.7%	4.6%	3.9%	-1.3%	46	9.8%	-7	-7.8%	17.6%	94.8	1.5%
14-Oct-22	89.2	81.6	93.7	87.5	-4.6%	-9.5%	-2.6%	-7.9%	8	5.8%	-47	-16.1%	21.9%	93.3	-1.6%
21-Oct-22	93.6	89.5	96.2	93.2	4.9%	9.6%	2.8%	6.5%	45	21.9%	-10	-5.2%	27.1%	97.7	4.7%
28-Oct-22	95.3	93.3	98.6	92.8	1.8%	4.3%	2.5%	-0.5%	42	11.5%	-13	-24.7%	36.2%	101.6	4.0%
04-Nov-22	96.2	94.3	96.3	87.8	0.9%	1.0%	-2.4%	-5.3%	32	20.3%	-23	-21.5%	41.8%	98.2	-3.3%
11-Nov-22	107.8	108.4	107.2	104.5	12.1%	15.0%	11.3%	18.9%	53	37.4%	-2	-8.0%	45.4%	104.0	5.9%
18-Nov-22	108.3	107.5	106.2	101.9	0.5%	-0.8%	-0.9%	-2.5%	24	12.4%	-31	-22.2%	34.6%	103.3	-0.7%
25-Nov-22	108.5	108.1	108.7	103.4	0.2%	0.5%	2.4%	1.5%	36	5.6%	-19	-3.8%	9.4%	104.9	1.5%
02-Dec-22	108.7	109.9	108.2	107.6	0.1%	1.7%	-0.5%	4.0%	38	9.2%	-16	-7.5%	16.7%	106.0	1.1%
09-Dec-22	106.9	108.9	105.9	101.4	-1.7%	-0.9%	-2.1%	-5.7%	15	7.2%	-38	-8.5%	15.7%	102.5	-3.4%
16-Dec-22	103.6	105.8	104.1	101.7	-3.1%	-2.9%	-1.7%	0.3%	10	4.0%	-45	-10.6%	14.6%	100.3	-2.1%
23-Dec-22	100.4	100.0	100.9	99.7	-3.1%	-5.4%	-3.1%	-2.0%	3	1.2%	-51	-10.8%	12.0%	100.1	-0.2%
30-Dec-22	100.0	100.0	100.0	100.0	-0.4%	0.0%	-0.9%	0.3%	20	7.9%	-33	-5.3%	13.2%	100.0	-0.1%
06-Jan-23	105.6	105.5	103.1	99.6	5.6%	5.5%	3.1%	-0.4%	46	17.8%	-8	-4.3%	22.1%	101.4	1.4%
13-Jan-23	111.4	113.8	107.1	104.9	5.5%	7.9%	4.0%	5.3%	53	25.3%	-2	-1.6%	26.9%	104.2	2.7%
20-Jan-23	112.2	113.5	106.5	108.1	0.7%	-0.3%	-0.6%	3.0%	27	5.6%	-27	-6.4%	12.0%	103.5	-0.7%

Links to Conference Call Transcripts

January 20th

[United Microelectronics Corporation \(UMC\) Q4 2022 Earnings Call Transcript](#)

January 13th and before

[NVIDIA Corporation \(NVDA\) 41st Annual J.P. Morgan Healthcare Conference \(Transcript\)](#)

[Taiwan Semiconductor Manufacturing Company Limited \(TSM\) Q4 2022 Earnings Call Transcript](#)

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[NVIDIA Corporation \(NVDA\) J.P. Morgan 21st Annual Tech/Auto Forum Conference \(Transcript\)](#)

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[Semtech Corporation \(SMTC\) Q3 2023 Earnings Call Transcript](#)

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[NXP Semiconductors N.V. \(NXPI\) 6th Annual Wells Fargo TMT Summit](#)

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[Qorvo, Inc. \(QRVO\) Presents at 6th Annual Wells Fargo TMT Summit](#)

[Lam Research Corporation \(LRCX\) Presents at Credit Suisse 26th Annual Technology Conference \(Transcript\)](#)

[Texas Instruments Incorporated \(TXN\) Credit Suisse 26th Annual Technology Conference \(Transcript\)](#)

[International Business Machines Corporation \(IBM\) Management Presents at Credit Suisse 26th Annual Technology Conference Call Transcript](#)

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