

Semiconductor WEEK

An Overview of Results and Conclusions From Recent Reports at TechInsights

Semiconductor Analytics



Last Week in the Semiconductor Market

Semiconductor sales fell 9% last week and were off 24% from this time in 2021. The IC weather warmed 1°F in Temperate conditions. Zooming in on Analog & Power this week, the 13-wk MA is up nearly 15%. TechInsights forecasts Analog & Power sales will reach \$117B in 2023 with a Y/Y increase of 3%, coming off a huge 20% increase in 2022.

TechInsights' IC Supply/Demand held in Tight conditions. DRAM improved to Saturated from Glut conditions. All of the other segments remain unchanged.

Electronics' Retail Prices are in a bullish rise.

Semiconductor Stocks and The Chip Insider®



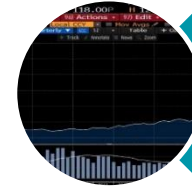
Semiconductor Stocks:

- TechInsights' Semiconductor Stock Indices fell this week
- Semiconductor Stock Index slipped
- Semiconductor Equipment Stock Index fell
- EDA Stock Index slid
- Electronics Materials Stock Index was led up by DNP
- Hottest Stocks: DNP, JSR, Skyworks, FormFactor, DuPont de Nemours, ON Semiconductor

Chip Market Research Services

Caution prevails as dark clouds linger

Order activity for semiconductor dropped to a chilly 48 IC Inventory Levels



Critical Subsystems

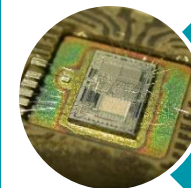
Updated Driving Forces Forecast



Chip History Center

How Japan Lost its Semiconductor Industry: The 5 strategic causes behind the long-term failure of Japan's Semiconductor industry are covered in this paper.

How Power, Performance, Area, and Cost relate to Moore's Law: Sunlin Chou discusses how managing these parameters have evolved over time in this 2004 conversation.





The Chip Insider's® Graphics File

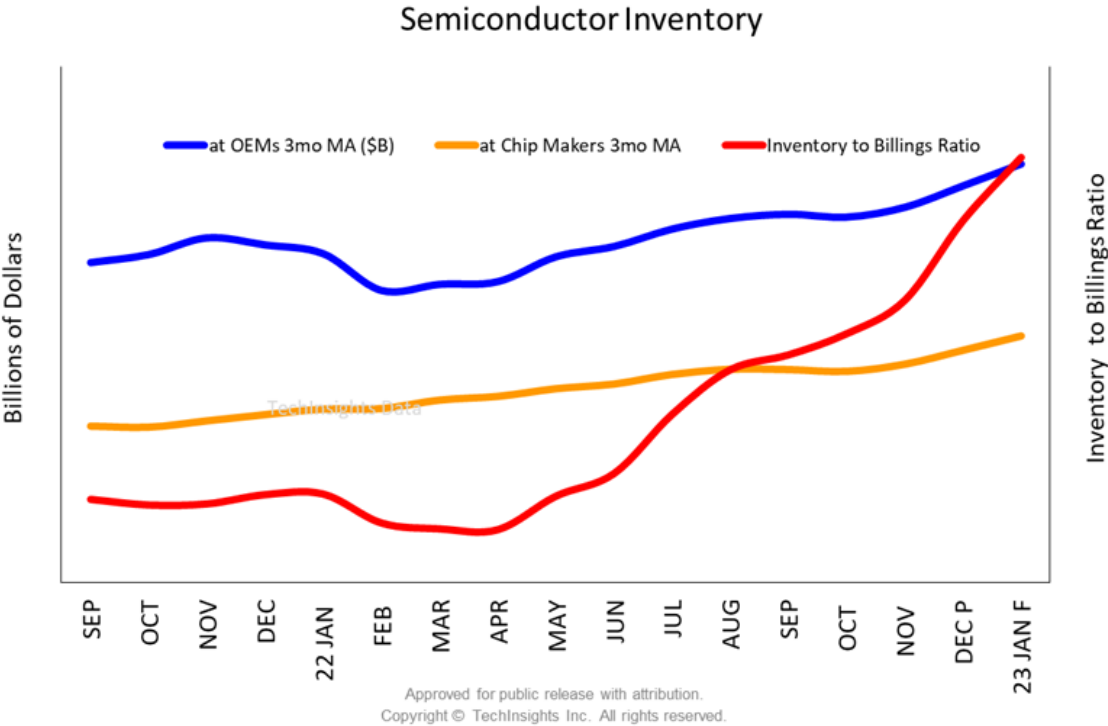
January 2023

Caution prevails as dark clouds linger

- Order activity for semiconductor dropped to a chilly 48
- Many Semiconductor companies have been reporting elevated inventory levels and the data supports this claim
- TechInsights' Chip Price Performance Index slipped last week

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



IC Inventory Levels

Inventory-to-Billings ratio continues to warn

IC Inventory Levels: chart gives rolling averages for semiconductor integrated circuit inventories held at OEMs, in Die Banks, and the total Inventory-to-Billing Ratio

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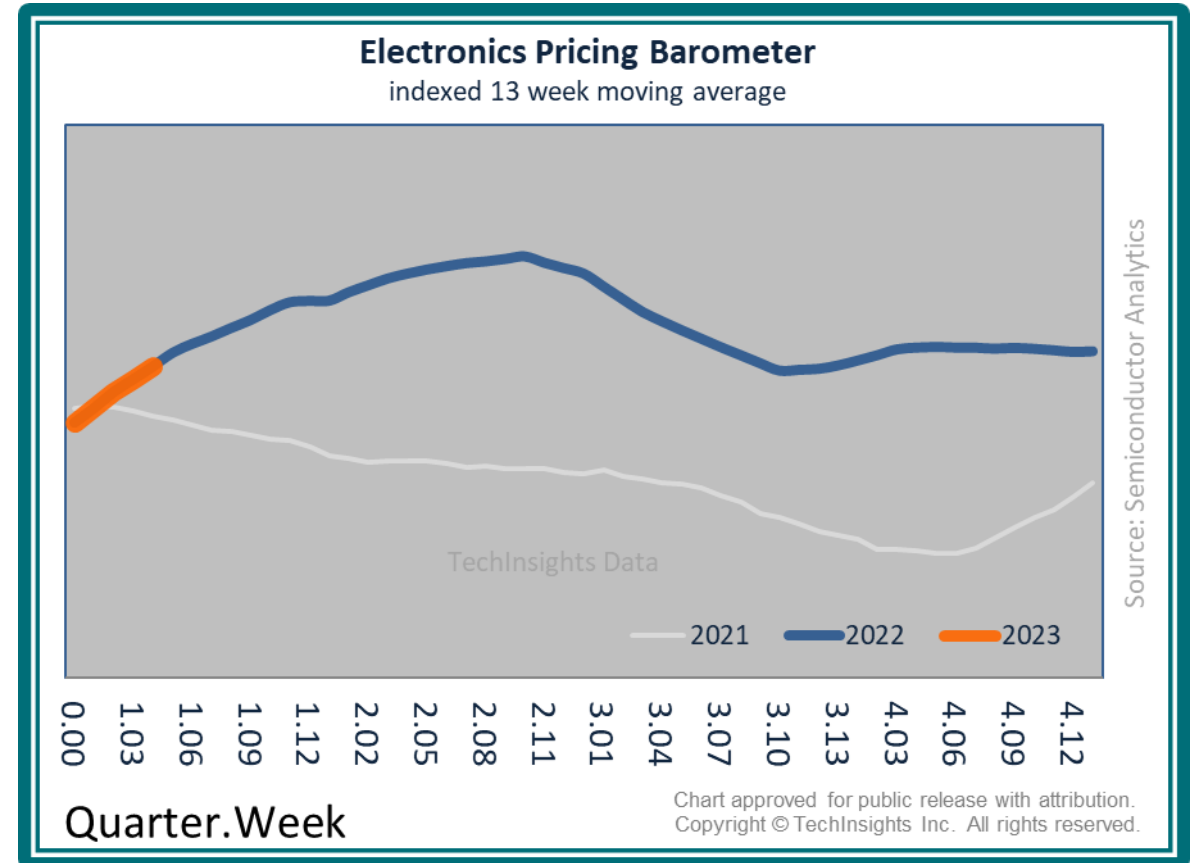
Electronics' Retail Prices are in a bullish rise.



Electronics Retail Pricing Trends

PC Notebooks Tablets, Smartphones, Cell Phones, Digital Cameras, Appliances, TVs

Electronics'
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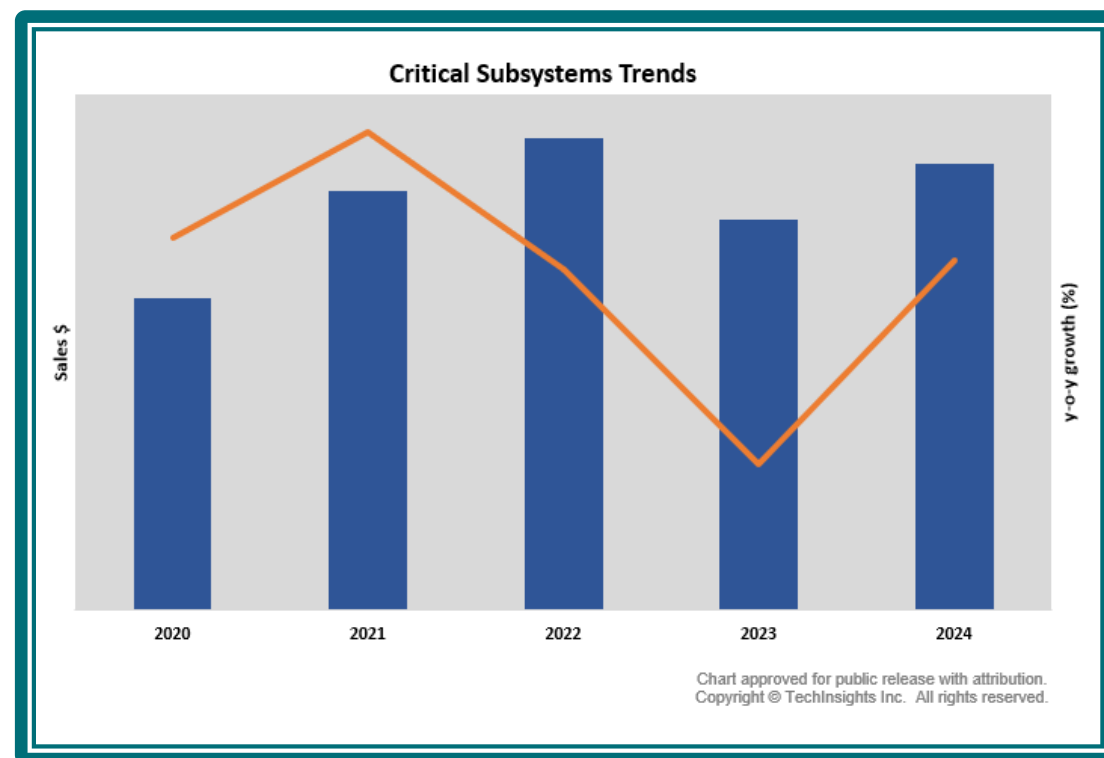


Critical Sub-systems

Updated CSUBS Driving Forces

Updated CSUBS Driving Forces files available today on the platform.

TechInsights has updated 2022 estimates for equipment and subsystems. Combined Critical Subsystems sales are expected to have grown 10% in 2022 (Y-o-Y), surpassing \$22B.



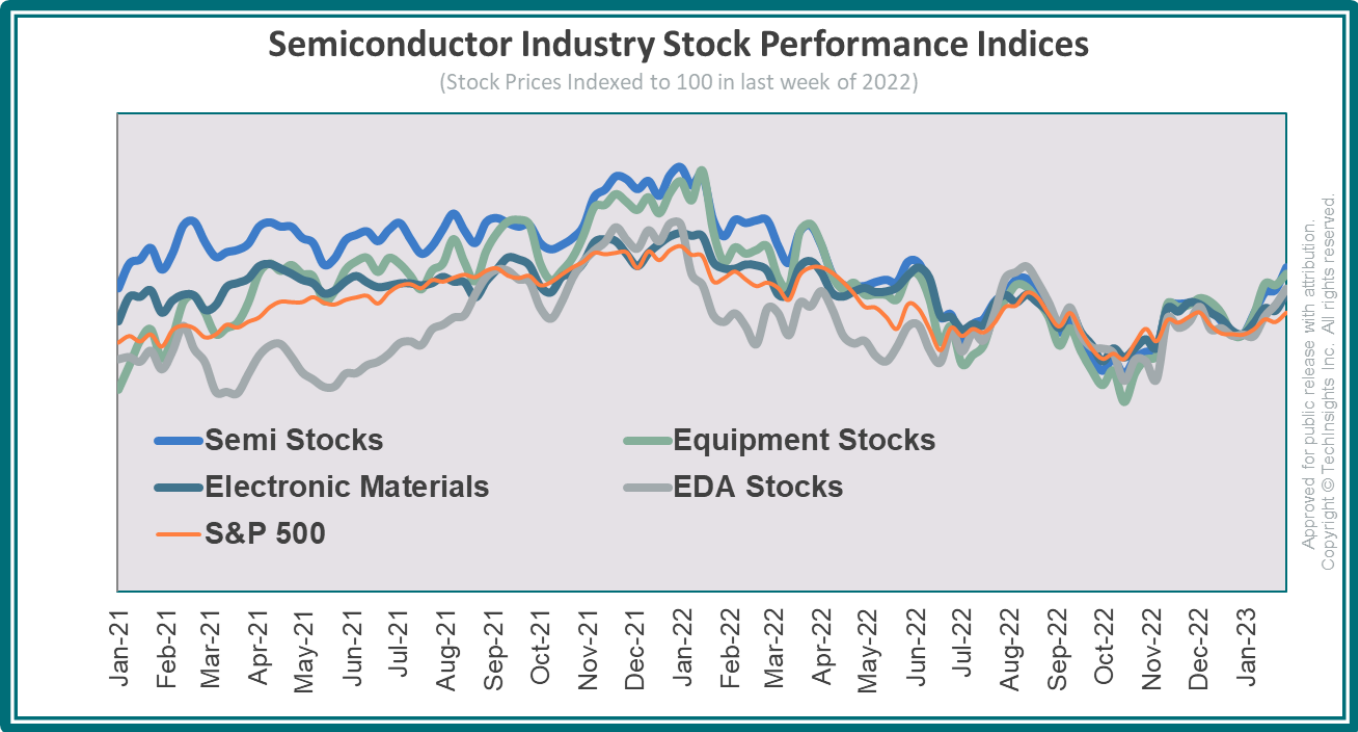


How Japan Lost its Semiconductor Industry: The 5 strategic causes behind the long-term failure of Japan's Semiconductor industry are covered in this paper. Some were of their own making. Others were macroeconomic tsunamis that could not have been avoided. But they could have been adapted to, as some companies did. It also provides the lessons that can be learned from the errors made.



How Power, Performance, Area, and Cost relate to Moore's Law: Sunlin Chou discusses how managing these parameters have evolved over time in this 2004 conversation. As semiconductor chips get larger it would seem they would consume more power. Learn why this is not the case. Also, the new issues that were emerging as semiconductors crossed the 100nm barrier.





TechInsights' Stock Indices

Semiconductors -1.9%

Equipment -2.9%

Electronic Materials +2.2%

EDA -1.6%

Semiconductor Stocks

Weekly Growth and Forward P/E Ratios by Company

TechInsights' Semiconductor Stock Index slipped this week. Skyworks and ON Semiconductor were the top performers as they both beat their quarterly estimate in recent earning call.

IDM -1.8%
Foundry & OSAT -1.3%
Fabless & Fablite -1.9%

Weekly Gains			2/10/2023		
Semiconductor Stocks	Price Change	Forward P/E	Semiconductor Stocks	Price Change	Forward P/E
IDM			Fab-lite to Fabless		
Intel (INTC)	-8.3%	16	AMD (AMD)	-5.4%	20
Micron (MU)	-4.1%	34	Analog Devices (ADI)	-0.2%	17
ON Semiconductor (ON)	3.6%	18	Broadcom (AVGO)	-0.7%	14
Samsung Electronics (005930.KS)	-1.6%	—	IBM (IBM)	-1.0%	14
SK hynix (XKRX)	1.4%		Infineon (IFNNY.PK)	-3.0%	16
STMicroelectronics (STM)	-2.8%	11	MagnaChip Semiconductor (MX)	-5.9%	40
Western Digital (WDC)	-0.6%	27	MaxLinear (MXL)	-8.1%	11
Foundry & OSAT			MediaTek (2454.TW)	-1.5%	—
Amkor (AMKR)	-8.8%	11	NVIDIA (NVDA)	0.8%	49
ASE (ASX)	-2.4%	9	Panasonic (PC)	-0.5%	11
GLOBALFOUNDRIES (GFS)	2.1%	28	Qualcomm (QCOM)	-4.5%	11
JCET (600584.SS)	1.1%	16	Silicon Laboratories (SLAB)	0.4%	35
SkyWater Technology (SKYT)	1.0%	—	Skyworks (SWKS)	6.3%	10
SMIC (SMI)	-2.5%	13	Texas Instruments (TXN)	-3.6%	22
TSMC (TSM)	0.7%	14			
UMC (UMC)	-1.5%	8			

Above Avg

Top 4-6

Top 1-3

Chip Equipment & Related Stocks

Weekly Growth and Forward P/E Ratios by Company

Weekly Gains			2/10/2023		
Equipment Stocks	Price Change	Forward P/E	Equipment Stocks	Price Change	Forward P/E
<i>Wafer Fab:</i>			<i>Test:</i>		
Applied Materials (AMAT)	-4.3%	18	Advantest (ATEYY)	2.6%	–
ASM International (ASMIY)	-3.7%	28	Teradyne (TER)	-2.3%	21
ASML (ASML)	-3.4%	28	FormFactor	5.5%	36
KLA (KLAC)	-3.1%	21			
Lam Research (LRCX)	-4.6%	20	<i>Assembly:</i>		
Onto Innovation (ONTO)	-6.0%	–	BESI (BESY.PK)	-4.4%	–
Nikon (7731)	0.8%	–	Kulicke & Soffa (KLIC)	-4.8%	16
TEL (8035)	1.6%	–	ASM Pacific Technology (0522.HK)	-3.2%	
Veeco Instruments (VECO)	-5.3%	16			

Above Avg

Top 4-6

Top 1-3

TechInsights' Semiconductor Equipment Stock Index fell this week. Formfactor came out on top and claimed one of the top six stock spots this week.

WFE -3.1%
Test +1.9%
Assembly -4.1%

Electronic Materials Stocks

Weekly Growth and Forward P/E Ratios by Company

TechInsights' EDA Stock Index slid this week.

TechInsights' Electronic Materials Stock Index was led up by DNP which is this week's biggest winner.

Weekly Gains			2/10/2023		
EDA & Electronic Materials Stocks	Price Change	Forward P/E	EDA & Electronic Materials Stocks	Price Change	Forward P/E
EDA			DNP (7912)	19.6%	—
Cadence (CDNS)	-1.1%	40	DuPont de Nemours (DD)	3.9%	5
Synopsys (SNPS)	-0.6%	31	JSR (4185)	8.2%	—
Ansys (ANSS)	-3.0%	33	Shin-Etsu (4063)	1.8%	—
Electronic Materials			SOITEC (SOLPA)	-11.0%	—
BASF (BASFY)	-5.5%	2	Tokyo Ohka (4186)	1.7%	—
Entegris (ENTG)	-1.0%	25			

Above Avg

Top 4-6

Top 1-3

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							
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%
27-Jan-23	118.2	116.6	111.4	112.5	5.4%	2.7%	4.6%	4.0%	48	19.8%	-5	-4.8%	24.6%	106.0	2.5%
03-Feb-23	121.6	122.4	113.1	114.3	2.8%	5.0%	1.5%	1.6%	44	15.9%	-11	-6.5%	22.4%	107.7	1.6%
10-Feb-23	119.2	118.9	115.6	112.5	-1.9%	-2.9%	2.2%	-1.6%	18	19.6%	-37	-11.0%	30.6%	106.5	-1.1%

Links to Conference Call Transcripts

February 10th

- [Nikon Corporation \(NINOY\) Q3 2023 Earnings Call Transcript](#)
- [ON Semiconductor Corporation \(ON\) Q4 2022 Earnings Call Transcript](#)
- [Alpha and Omega Semiconductor Limited \(AOSL\) Q2 2023 Earnings Call Transcript](#)
- [Nordic Semiconductor ASA \(NDCVF\) Q4 2022 Earnings Call Transcript](#)
- [Skyworks Solutions, Inc. \(SWKS\) Q1 2023 Earnings Call Transcript](#)
- [Renesas Electronics Corporation \(RNECF\) Q4 2022 Earnings Call Transcript](#)

February 3rd and before

- [MediaTek Inc. \(MDTKF\) Q4 2022 Earnings Call Transcript](#)
- [Microchip Technology Inc. \(MCHP\) Q3 2023 Earnings Call Transcript](#)
- [Apple, Inc. \(AAPL\) Q1 2023 Earnings Call Transcript](#)
- [Infineon Technologies AG \(IFNNY\) Q1 2023 Earnings Call Transcript](#)
- [Qualcomm Incorporated \(QCOM\) Q1 2023 Earnings Call Transcript](#)
- [Honeywell International Inc. \(HON\) Q4 2022 Earnings Call Transcript](#)
- [Hitachi, Ltd. \(HTHIY\) Q3 2023 Earnings Call Transcript](#)
- [Qorvo, Inc. \(QRVO\) Q3 2023 Earnings Call Transcript](#)
- [Western Digital Corporation \(WDC\) Q2 2023 Earnings Call Transcript](#)



Links to Conference Call Transcripts

- [Samsung Electronics Co., Ltd. \(SSNLF\) Q4 2022 Earnings Call Transcript](#)
- [NXP Semiconductors N.V. \(NXPI\) Q4 2022 Earnings Call Transcript](#)
- [ASML Holdings N.V. \(ASML\) Q4 2022 Earnings Call Transcript](#)
- [KLA Corporation \(KLAC\) Q2 2023 Earnings Call Transcript](#)
- [Intel Corporation \(INTC\) Q4 2022 Earnings Call Transcript](#)
- [Teradyne, Inc. \(TER\) Q4 2022 Earnings Call Transcript](#)
- [STMicroelectronics NV \(STM\) Q4 2022 Earnings Call Transcript](#)
- [Lam Research Corporation \(LRCX\) Q2 2023 Earnings Call Transcript](#)
- [Texas Instruments Incorporated \(TXN\) Q4 2022 Earnings Call Transcript](#)
- [NVIDIA Corporation \(NVDA\) 41st Annual J.P. Morgan Healthcare Conference \(Transcript\)](#)
- [Taiwan Semiconductor Manufacturing Company Limited \(TSM\) Q4 2022 Earnings Call Transcript](#)
- [Micron Technology, Inc. \(MU\) J.P. MORGAN 21ST ANNUAL TECH/AUTO FORUM \(Transcript\)](#)
- [Marvell Technology, Inc. \(MRVL\) J.P. Morgan 21st Annual Tech/Auto Forum Conference \(Transcript\)](#)
- [Skyworks Solutions, Inc. \(SWKS\) Presents at J.P. Morgan 21st Annual Tech/Auto Forum \(Transcript\)](#)
- [NVIDIA Corporation \(NVDA\) J.P. Morgan 21st Annual Tech/Auto Forum Conference \(Transcript\)](#)
- [ON Semiconductor Corporation \(ON\) CEO Hassane El-Khoury presents at J.P. Morgan CES Tech/Auto Forum \(Transcript\)](#)
- [Micron Technology, Inc. \(MU\) Q1 2023 Earnings Call Transcript](#)

Links to Conference Call Transcripts

- [Western Digital Corporation \(WDC\) CEO David Goeckeler Presents at Barclays 2022 Global Technology, Media and Telecommunications Conference \(Transcript\)](#)
- [Analog Devices, Inc. \(ADI\) Presents at Barclays 2022 Global Technology, Media and Telecommunications Brokers Conference \(Transcript\)](#)
- [Marvell Technology, Inc. \(MRVL\) Arete Tech Conference \(Transcript\)](#)
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- [ASML Holding N.V. \(ASML\) Presents at UBS 2022 Global TMT Conference \(Transcript\)](#)
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- [Semtech Corporation \(SMTC\) Q3 2023 Earnings Call Transcript](#)
- [Synopsys, Inc. \(SNPS\) Q4 2022 Earnings Call Transcript](#)
- [NXP Semiconductors N.V. \(NXPI\) 6th Annual Wells Fargo TMT Summit](#)
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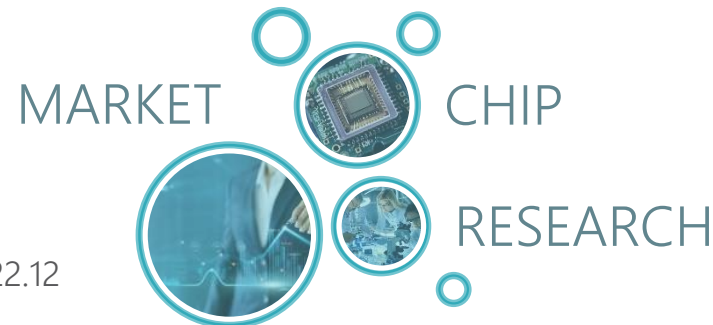
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- 2022 CSS Databases
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Test Connectivity Reports:

- Test and Burn-In Socket Report : V22.07
 - Quarterly Report: V22.12
- Probe Card Report: V22.05
 - Quarterly Report: V22.12
- Device Interface Board Report: V22.08
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