



Seale & Associates

SEMICONDUCTOR INDUSTRY
Q2 2023
VALUATION UPDATE

Introduction

We are pleased to share our Semiconductor Industry Multiples Valuation Update for Q2 2023.

At Seale & Associates, we are committed to providing process-driven solutions designed to optimize value and achieve our clients' strategic objectives in a range of transactions including Mergers, Acquisitions, Divestitures and Carve-Outs, Business Sales, Recapitalizations, and Joint Ventures, among other corporate finance and strategy consulting services.

Over the course of 23+ years, we have successfully served clients all over the world, and we are delighted to continue providing investment banking advisory services to our Semiconductor Industry clients that are looking to grow through acquisitions or optimize their portfolios through strategic divestitures.

Seale has extensive experience advising leading multinational companies, private equity firms and family-owned businesses across a wide range of industries.



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Semiconductor Industry Growth Opportunities in Mexico

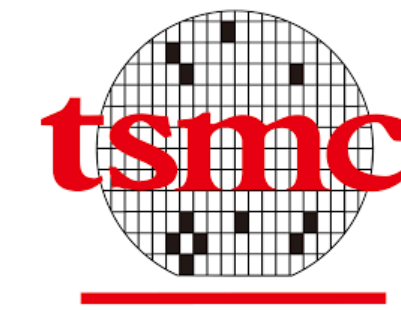
The **global semiconductor industry** is experiencing **strong growth, driven** by the **increasing demand** for **semiconductors** in various **applications** such as **automotive, healthcare, consumer electronics, and telecommunications**.

Top players in the **global semiconductor industry** include companies such as **Intel, Samsung Electronics, TSMC, NXP and Broadcom**, among others. These companies have a significant market share and are **continually expanding** their **manufacturing capabilities** to meet the increasing demand for semiconductors.

Mexico's domestic semiconductor industry has been **experiencing growth** as well, and **nearshoring** has **played a significant role** in this **development**. Nearshoring, the practice of moving operations closer to the primary market, has become increasingly attractive to U.S. companies seeking to reduce supply chain risk and costs. With the **ongoing U.S.-China trade war**, many **U.S. companies** are **looking for alternative sourcing and manufacturing options**, and **Mexico** is emerging as a **favorable destination** for nearshoring.

Nearshoring is a key factor **driving growth** in Mexico's semiconductor industry. With its **strategic location, lower labor costs, and favorable regulatory environment**, Mexico has become a preferred destination for U.S. companies seeking to reduce supply chain risk and costs. Top players such as NXP Semiconductors, Intel, and Samsung Electronics have set up manufacturing facilities across the country. **Regions** such as Guadalajara, San Luis Potosi, Cd. Juarez, Monterrey, Queretaro, and Tijuana have been **better-suited regions** for the semiconductor industry **with easy access to highways, airports, and seaports**.

Key Industry Players



Semiconductor Industry Growth Opportunities in Mexico

Mexico's **regulatory environment** has also played a **significant role** in driving **growth** in the semiconductor industry. The **government** has **implemented policies and programs** aimed at **attracting foreign investment** in the semiconductor industry, **including tax incentives** and **simplified registration** procedures. Furthermore, **Mexico's free trade agreement** with over 40 countries, including the United States and Canada, has **created a favorable business environment** for the semiconductor industry, **reducing trade barriers** and increasing market access for Mexican companies.

The enactment of the **CHIPS for America Act** will further **strengthen** the **semiconductor** industry in **Mexico**, providing new opportunities for growth and investment. **The act provides funding to increase domestic semiconductor production and strengthen the supply chain** in the United States. This has **encouraged U.S. semiconductor companies** to **invest** in **expanding** their **manufacturing capabilities** in Mexico, as they seek to comply with the new regulations and **reduce** their **dependence** on **Chinese** suppliers.

Advanced packaging manufacturing has **emerged** as a new **opportunity** for growth in Mexico's semiconductor industry. **Mexico's well-developed education system** produces a **steady stream** of **highly skilled** workers in **STEM** fields, who are well suited for advanced packaging operations.












The wider packaging ecosystem of components and materials also offers huge opportunities for growth as **western countries seek to build reliable and resilient nearshore supply chains**, especially in IC substrates which are produced almost exclusively in Asia today.

In conclusion, the semiconductor industry in **Mexico offers significant opportunities** for **growth** and **investment**, with regions such as Guadalajara, San Luis Potosi, Cd. Juarez, Monterrey, Queretaro, and Tijuana being better-suited regions for the industry. **Nearshoring, regulatory benefits**, and the **enactment** of the **CHIPS for America Act** have **strengthened the industry's growth trajectory**, with top players setting up manufacturing facilities across the country. While challenges such as the limitation of IC substrate capabilities in the United States exist, **Mexico's skilled workforce** and **favorable regulatory environment** make it an **attractive destination** for the semiconductor industry, which is poised for further growth and development in the coming years.

Better-suited regions











Manufacturers Global Comparable Public Companies



Company	Country	Market Cap. US\$M	Enterprise Value US\$M	Revenue US\$M	EBITDA Margin	Annual Average EV/EBITDA		Second Quarter Jun. 30, 2023		
						2021	2022	EV/EBITDA	EV/Revenue	
Broadcom Inc.	 BROADCOM	USA	\$357,976	\$385,854	\$35,454	57.7%	18.2x	15.0x	18.9x	11.0x
Infineon Technologies AG		DEU	\$53,737	\$56,321	\$17,798	35.3%	19.6x	10.2x	9.3x	3.3x
Intel Corporation		USA	\$139,478	\$163,140	\$54,044	16.2%	6.6x	5.5x	15.4x	2.9x
Micron Technology, Inc.		USA	\$69,124	\$71,709	\$18,173	28.2%	8.2x	4.2x	13.7x	3.9x
NVIDIA Corporation		USA	\$1,046,183	\$1,042,943	\$32,681	37.9%	65.0x	41.8x	165.6x	40.3x
NXP Semiconductors N.V.		NLD	\$53,164	\$60,691	\$13,177	37.4%	21.6x	12.6x	12.1x	4.6x
QUALCOMM Incorporated		USA	\$132,611	\$141,920	\$38,584	34.3%	16.3x	11.1x	9.7x	3.5x
Samsung Electronics Co., Ltd.		KOR	\$364,427	\$297,263	\$205,756	19.9%	6.2x	3.7x	5.7x	1.4x
SK hynix Inc.		KOR	\$60,182	\$78,871	\$23,574	23.3%	6.1x	3.5x	7.2x	2.8x
Texas Instruments Incorporated		USA	\$163,396	\$163,977	\$18,821	51.3%	22.2x	14.5x	15.6x	8.4x
Taiwan Semiconductor Manufacturing Company Limited		TWN	\$479,222	\$456,634	\$71,486	67.7%	15.7x	10.8x	9.1x	6.2x
■ Excluded from mean and median						Mean	14.1x	9.1x	11.7x	3.6x
						Median	16.0x	10.5x	10.9x	3.4x

Sources: Capital IQ, Mergermarket, TTR

Chip Designers Global Comparable Public Companies






Company	Country	Market Cap. US\$M	Enterprise Value US\$M	Revenue US\$M	EBITDA Margin	Annual Average EV/EBITDA		Second Quarter Jun. 30, 2023		
						2021	2022	EV/EBITDA	EV/Revenue	
Advanced Micro Devices, Inc.	 USA	\$183,436	\$180,345	\$21,876	14.2%	48.9x	29.2x	43.2x	7.8x	
Broadcom Inc.	 USA	\$357,976	\$385,854	\$35,454	57.7%	18.2x	15.0x	18.9x	11.0x	
Intel Corporation	 USA	\$139,478	\$163,140	\$54,044	16.2%	6.6x	5.5x	15.4x	2.9x	
Marvell Technology, Inc.	 USA	\$51,411	\$55,289	\$5,618	22.7%	63.6x	37.1x	33.8x	9.5x	
MediaTek Inc.	 TWN	\$35,137	\$30,719	\$14,249	21.6%	19.0x	8.4x	7.9x	1.9x	
NXP Semiconductors N.V.	 NLD	\$53,164	\$60,691	\$13,177	37.4%	21.6x	12.6x	12.1x	4.6x	
QUALCOMM Incorporated	 USA	\$132,611	\$141,920	\$38,584	34.3%	16.3x	11.1x	9.7x	3.5x	
Renesas Electronics Corporation	 JPN	\$33,624	\$36,105	\$10,416	35.0%	15.3x	8.4x	9.6x	3.4x	
■ Excluded from mean and median						Mean	16.2x	10.2x	12.3x	4.0x
						Median	17.3x	9.8x	10.9x	3.5x

Production Equipment Manufacturers Global Comparable Public Companies

Company	Country	Market Cap. US\$M	Enterprise Value US\$M	Revenue US\$M	EBITDA Margin	Annual Average EV/EBITDA		Second Quarter Jun. 30, 2023		
						2021	2022	EV/EBITDA	EV/Revenue	
Advantest Corporation		JPN	\$24,414	\$24,174	\$3,635	30.5%	21.8x	11.5x	18.5x	6.2x
Applied Materials, Inc.		USA	\$121,377	\$122,401	\$26,543	31.0%	19.4x	11.9x	14.5x	4.6x
ASML Holding N.V.		NLD	\$285,603	\$282,678	\$28,228	34.4%	43.1x	31.3x	30.1x	10.6x
KLA Corporation		USA	\$66,544	\$69,715	\$10,496	42.0%	19.7x	14.1x	15.2x	6.6x
Lam Research Corporation		USA	\$86,362	\$85,998	\$17,429	32.3%	19.5x	11.4x	13.1x	4.6x
Nikon Corporation		JPN	\$4,448	\$3,928	\$4,431	12.0%	24.9x	3.9x	6.4x	0.9x
SCREEN Holdings Co., Ltd.		JPN	\$5,325	\$4,355	\$3,173	17.7%	13.1x	5.6x	7.4x	1.4x
Tokyo Electron Limited		JPN	\$66,603	\$63,331	\$14,712	29.5%	19.5x	12.2x	13.8x	4.1x
■ Excluded from mean and median						Mean	19.7x	10.1x	12.7x	3.1x
						Median	19.5x	11.5x	13.8x	4.1x










Sources: Capital IQ, Mergermarket, TTR

Materials Providers Global Comparable Public Companies

Company	Country	Market Cap. US\$M	Enterprise Value US\$M	Revenue US\$M	EBITDA Margin	Annual Average EV/EBITDA		Second Quarter Jun. 30, 2023		
						2021	2022	EV/EBITDA	EV/Revenue	
BASF SE	 DEU	\$43,330	\$64,277	\$85,771	10.6%	14.4x	5.2x	9.5x	0.7x	
DuPont de Nemours, Inc.	 USA	\$32,792	\$36,940	\$12,533	24.2%	10.0x	9.8x	11.2x	2.9x	
JSR Corporation	 JSR Corporation JPN	\$5,901	\$6,668	\$2,771	12.5%	15.6x	12.4x	15.4x	2.4x	
Shin-Etsu Chemical Co., Ltd.	 JPN	\$66,533	\$56,720	\$19,029	42.1%	12.1x	6.7x	6.7x	2.9x	
Sumitomo Chemical Company, Limited	 JPN	\$4,937	\$14,912	\$18,565	-0.3%	8.4x	6.4x	20.8x	0.7x	
■ Excluded from mean and median						Mean	12.1x	8.1x	10.7x	1.9x
						Median	12.1x	6.7x	10.3x	2.4x

Sources: Capital IQ, Mergermarket, TTR

Testing & Packaging Global Comparable Public Companies


Company	Country	Market Cap. US\$M	Enterprise Value US\$M	Revenue US\$M	EBITDA Margin	Annual Average EV/EBITDA		Second Quarter Jun. 30, 2023 EV/		
						2021	2022	EBITDA	Revenue	
Amkor Technology, Inc.		USA	\$7,308	\$7,534	\$6,919	19.0%	5.3x	3.7x	5.1x	1.1x
ASE Technology Holding Co., Ltd.		TWN	\$15,246	\$19,408	\$20,315	18.3%	6.8x	4.5x	4.7x	0.9x
BE Semiconductor Industries N.V.		NLD	\$8,509	\$8,168	\$658	38.7%	24.4x	13.2x	28.2x	11.4x
ChipMOS TECHNOLOGIES INC.		TWN	\$852	\$993	\$641	29.4%	4.6x	3.2x	4.3x	1.4x
Cohu, Inc.		USA	\$1,975	\$1,718	\$746	19.4%	16.6x	6.6x	9.9x	2.2x
Hangzhou Changchuan Technology Co.,Ltd		CHN	\$3,970	\$4,045	\$297	8.5%	191.6x	109.0x	96.9x	12.4x
Kulicke and Soffa Industries, Inc.		SGP	\$3,364	\$2,677	\$826	16.3%	14.7x	4.0x	10.8x	2.7x
Powertech Technology Inc.		TWN	\$2,518	\$3,346	\$2,335	31.4%	4.1x	3.1x	4.1x	1.3x
Rorze Corporation		JPN	\$1,415	\$1,491	\$641	31.5%	14.7x	9.7x	7.6x	2.3x
■ Excluded from mean and median						Mean	9.5x	5.0x	6.6x	1.7x
						Median	6.8x	4.0x	5.1x	1.4x

Semiconductor - Q2 Global Transactions

Date	Target	Country	Description	Buyer	Seller	% Acquired	Size US\$M	EV/ EBITDA	EV/ Revenue
Jun-23	 IMS Nanofabrication	AUT	Develops, manufactures, and markets electron multi-beam mask writer systems to semiconductor chip manufacturers worldwide	 BainCapital	 intel	20.0%	\$4,300.0	-	-
Jun-23	 SMART Modular Technologies	BRA	Manufactures semiconductor memory components, DRAM memory modules, Solid State Drives (SSD's) and wireless communication modules	 Lexar	 SGH	81.0%	\$166.1	-	-
Jun-23	 RoadMicrotec	NLD	Provides semiconductor supply and quality services	 MICROTEST <small>breakthrough innovation</small>	-	100.0%	\$32.6	6.7x	1.6x
May-23	 eMagin	USA	Designs, develops, manufactures, and markets organic light emitting diode (OLED) miniature displays on-silicon micro displays and related products	 SAMSUNG SAMSUNG DISPLAY	-	100.0%	\$232.6	-	7.6x
May-23	Covergent Photonics, Covergent assets North America	USA	Designs and manufactures semiconductor lasers and laser diode packaging, as well as high-power fibre lasers for the medical sector	 LUMIBIRD <small>MORE THAN LASERS</small>	 PRIMA INDUSTRIE	100.0%	-	-	-
May-23	 Autotalks	ISR	Operates as a fabless semiconductor company devoted to vehicle-to-everything (V2X) communications for manned and autonomous vehicles	 QUALCOMM	-	100.0%	-	-	-
Apr-23	 BLUE SKY RESEARCH	USA	Manufactures innovative semiconductor laser products and solutions	 NECSEL <small>LASER COLOR</small>	-	100.0%	-	-	-

Sources: Capital IQ, Mergermarket, TTR

Private Equity Transactions

INDUSTRY CLASSIFICATION	PERIOD	AVERAGE ENTERPRISE VALUE (IN USD)	REVENUE (IN USD)	TTM REVENUE GROWTH	ENTERPRISE VALUE / REVENUE	EBITDA MARGIN	ENTERPRISE VALUE /EBITDA	NUMBER OF TRANSACTIONS
 Semiconductor and Other Electric Component Manufacturing <small>NAICS 33441- Semiconductor and Other Electric Component Manufacturing</small>	 2018-2021	 \$23.8M	 \$34.8M	 13.6%	 0.8x	 15.3%	 5.3x	 15
Semiconductor and Related Device Manufacturing <small>NAICS 334413- Semiconductor and Related Device Manufacturing</small>	2018-2019	\$36.2M	\$44.4M	20.7%	0.9x	19.2%	4.8x	6

Source: GF Data

Notes:

- Data obtained via GF Data, a subscription-based information platform, offering detailed information and metrics about the transactions of Private Equity funds in the U.S.
- The data is provided under a blind confidential format. Users of the data are unable to identify the exact company and transaction corresponding to the transaction details. Given this blind approach, the data submitted is less likely to be biased or manipulated.

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S U S C R I B E

Representative Global Engagements

 has acquired 	 has acquired 	 has sold Triumph Processing - Embee Division to 	 has sold Triumph Air Repair & Triumph Engines businesses to 	 has acquired unified brands from 	 has partnered with a company backed by 	 has acquired 	 has sold the North American guarding business of to 	 has sold to 	 has sold to 	 a subsidiary of has sold to
 has sold to Daives Baird Pty Ltd a sister company of 	 has acquired 	 has sold to Code Flower Inc.	 has sold its GRACE Membranes Business a subsidiary of 	 has sold and to 	 MOVING THE CIRCULAR ECONOMY FORWARD has sold a controlling interest to 	 has been acquired by 	 has sold SENSI CARE and ALOE+VESTA to 	 has sold their Sanitaryware Manufacturing Plant to 	 has acquired Multiple snack companies 	 has sold to
 has sold Commercial Flight Training Business to 	 WE DELIVER HEALTH has been acquired by 	 has sold Oxbow Sulphur, Inc. to 	 has been acquired by 	 has sold to 	 Engineers & Constructors has acquired 	 has acquired 	 has acquired 	 has sold its SYCAR Resins business to 	 has sold to Private Equity Partners	 has been acquired by
 has sold to 	 has acquired KFC Costa Rica from 	 has been acquired by 	 has sold to 	 has sold the Films Business of to 	 has been acquired by 	 has sold to 	 Oxbow's Senior Subordinated debt issued by was refinanced by 	 has sold to 	 has acquired from THE MOORE COMPANY	 sold its concrete pumping business to

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Please contact us if you would like further information about M&A trends and/or specific transaction multiples for your industry

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