



Seale & Associates

SEMICONDUCTOR INDUSTRY
Q2 2024
VALUATION UPDATE

25 years

Introduction

We are pleased to share our Semiconductor Industry Multiples Valuation Update for Q2 2024.

At Seale & Associates, we are committed to providing process-driven solutions designed to optimize value and achieve our client's 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 25+ years, we have successfully served clients all over the world, and we are delighted to continue providing investment banking advisory services to our clients who 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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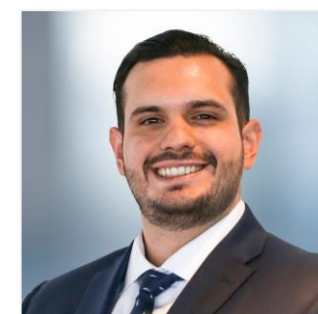
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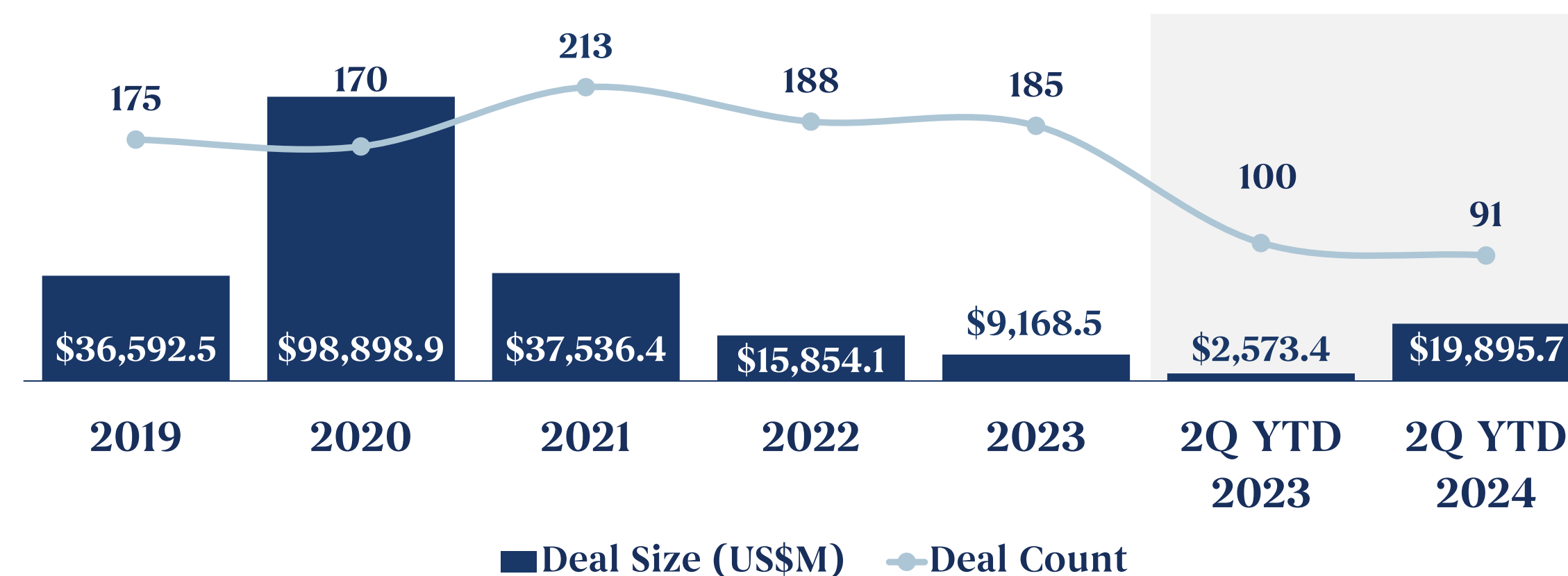
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Semiconductor Industry Overview, M&A Trends and Market Intelligence

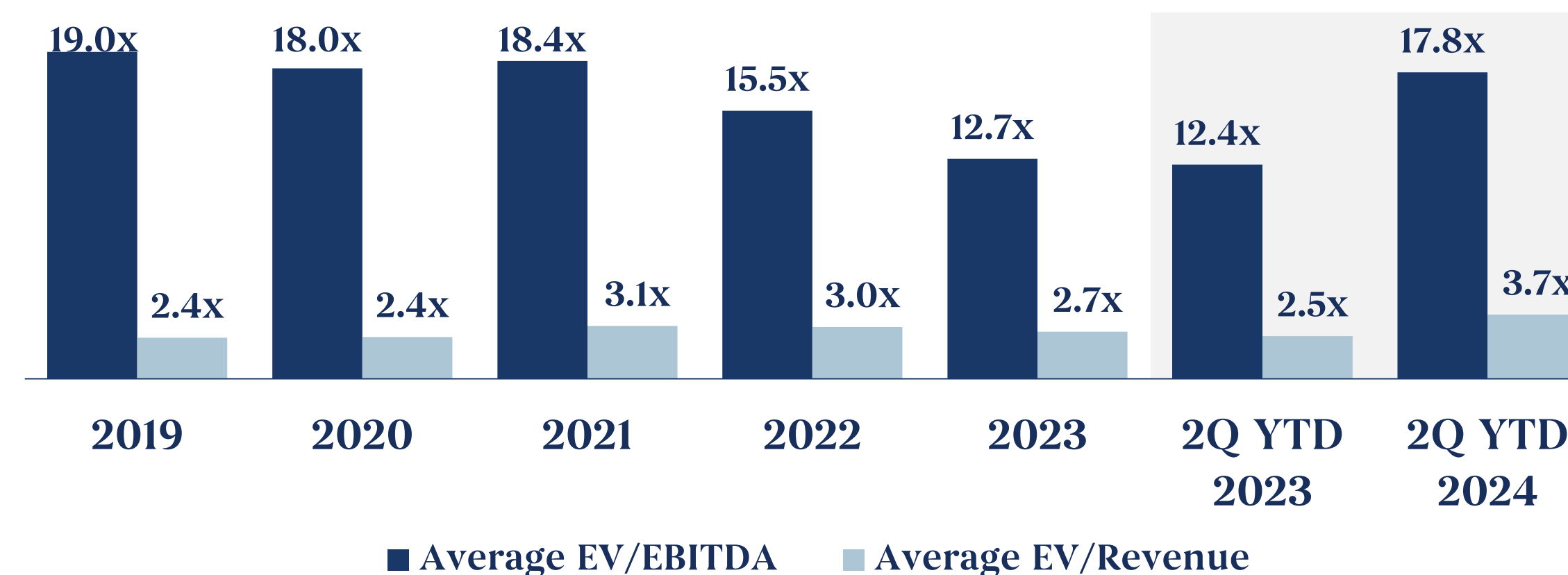
Industry Overview

- The **Semiconductor market** is expected to **grow** from **US\$720.0 billion in 2024 to US\$1,210.0 billion by 2029**, representing a **CAGR of 10.8%**
- Global revenues are expected to reach **US\$588.0 billion in 2024**. Not only would that **surpass 2023 by 13.0%**, but it would also surpass **2022's industry record** revenues of **US\$574.0 billion by 2.5%**
- The semiconductor industry is expanding as it becomes **integral to modern technology**, with a surge expected from its use in AI, autonomous vehicles, IoT, and 5G. Its developments are **pivotal to future technological progress**
- There are **significant opportunities for strategic M&A**. Companies are focusing on acquiring niche players and startups in areas like **design, AI, advanced materials, and components**
- Semiconductor companies engage in **domestic and cross-border M&As with four main goals**: to secure advanced technology; bolster and increase market presence; pursue innovative applications; and enhance their supply chains
- **TSMC secures US\$11.6 billion** in U.S. grants and loans to build a third advanced **semiconductor plant** in Arizona, significantly bolstering the domestic production of critical technology and marking a key milestone in the U.S. semiconductor industry's expansion










Semiconductor Industry M&A Deal Size and Volume



Semiconductor Industry M&A Average EV/EBITDA and EV/Revenue











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, 2024		
						2022	2023	EV/EBITDA	EV/Revenue	
Infineon Technologies AG		DEU	\$47,685	\$51,685	\$16,685	32.1%	10.2x	8.6x	9.6x	3.1x
Intel Corporation		USA	\$131,835	\$166,286	\$55,237	19.7%	5.5x	15.0x	15.2x	3.0x
Micron Technology, Inc.		USA	\$145,846	\$150,627	\$21,371	28.6%	4.2x	16.8x	24.6x	7.0x
NVIDIA Corporation		USA	\$3,036,038	\$3,015,837	\$79,774	62.1%	41.8x	99.4x	60.8x	37.8x
NXP Semiconductors N.V.		NLD	\$68,802	\$75,993	\$13,281	36.6%	12.6x	11.4x	15.6x	5.7x
QUALCOMM Incorporated		USA	\$222,285	\$223,891	\$36,407	30.3%	11.2x	10.7x	20.3x	6.1x
Samsung Electronics Co., Ltd.		KOR	\$393,377	\$340,607	\$194,987	19.6%	3.7x	5.8x	8.9x	1.7x
SK hynix Inc.		KOR	\$118,804	\$134,963	\$29,278	28.0%	3.5x	11.0x	16.4x	4.6x
Texas Instruments Incorporated		USA	\$177,116	\$180,912	\$16,801	47.2%	14.5x	15.0x	22.8x	10.8x
Taiwan Semiconductor Manufacturing Company Limited		TWN	\$771,053	\$743,868	\$69,124	67.6%	10.8x	8.8x	15.9x	10.8x
						Mean	7.7x	10.8x	13.6x	4.5x
						Median	10.5x	11.2x	16.2x	5.9x

■ Excluded from mean and median





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, 2024		
						2022	2023	EV/EBITDA	EV/Revenue	
Advanced Micro Devices, Inc.		USA	\$262,182	\$259,145	\$22,800	17.7%	28.9x	41.8x	64.2x	11.4x
Broadcom Inc.		USA	\$747,356	\$811,563	\$42,619	50.3%	15.0x	17.5x	37.9x	19.0x
Intel Corporation		USA	\$131,835	\$166,286	\$55,237	19.7%	5.5x	15.0x	15.2x	3.0x
Marvell Technology, Inc.		USA	\$60,505	\$64,038	\$5,347	18.5%	37.1x	31.6x	64.7x	12.0x
MediaTek Inc.		TWN	\$68,583	\$64,383	\$14,505	23.0%	8.4x	10.0x	19.3x	4.4x
NXP Semiconductors N.V.		NLD	\$68,802	\$75,993	\$13,281	36.6%	12.6x	11.4x	15.6x	5.7x
QUALCOMM Incorporated		USA	\$222,285	\$223,891	\$36,407	30.3%	11.2x	10.7x	20.3x	6.1x
Renesas Electronics Corporation		JPN	\$33,309	\$35,108	\$9,093	37.4%	8.4x	7.8x	10.3x	3.9x
■ Excluded from mean and median						Mean	10.2x	12.1x	15.1x	4.6x
						Median	11.9x	13.2x	19.8x	5.9x

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, 2024		
						2022	2023	EV/EBITDA	EV/Revenue	
Advantest Corporation	 JPN	\$29,500	\$29,424	\$3,026	24.0%	11.5x	17.0x	40.5x	9.7x	
Applied Materials, Inc.	 USA	\$195,394	\$193,835	\$26,501	30.9%	11.9x	13.5x	23.6x	7.3x	
ASML Holding N.V.	 NLD	\$406,042	\$405,191	\$27,968	35.1%	31.3x	28.7x	41.3x	14.5x	
KLA Corporation	 USA	\$111,012	\$113,541	\$9,599	41.0%	14.1x	14.6x	28.8x	11.8x	
Lam Research Corporation	 USA	\$139,220	\$138,531	\$14,241	33.2%	11.4x	13.2x	29.3x	9.7x	
SCREEN Holdings Co., Ltd.	 JPN	\$8,756	\$7,579	\$3,141	20.6%	5.6x	6.3x	11.7x	2.4x	
Tokyo Electron Limited	 JPN	\$100,128	\$97,189	\$11,386	28.0%	12.2x	13.6x	30.5x	8.5x	
■ Excluded from mean and median						Mean	11.1x	13.0x	23.4x	7.5x
						Median	11.9x	13.6x	29.3x	9.7x









Material 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, 2024		
						2022	2023	EV/EBITDA	EV/Revenue	
BASF SE	 BASF	DEU	\$43,211	\$66,034	\$71,214	9.9%	5.2x	11.6x	9.3x	0.9x
DuPont de Nemours, Inc.		USA	\$33,653	\$40,468	\$11,981	25.4%	9.8x	11.4x	13.3x	3.4x
Shin-Etsu Chemical Co., Ltd.		JPN	\$77,399	\$67,857	\$15,021	38.5%	6.7x	6.4x	11.7x	4.5x
Sumitomo Chemical Company, Limited	 SUMITOMO CHEMICAL	JPN	\$3,508	\$12,920	\$15,220	NM	6.4x	12.0x	NM	0.8x
						Mean	6.1x	6.4x	10.5x	1.7x
						Median	6.5x	11.5x	11.7x	2.2x

■ Excluded from mean and median

NM: Not Measurable

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, 2024		
						2022	2023	EV/EBITDA	EV/Revenue	
Amkor Technology, Inc.		USA	\$9,852	\$9,646	\$6,397	18.3%	3.7x	4.5x	8.2x	1.5x
ASE Technology Holding Co., Ltd.		TWN	\$22,403	\$26,102	\$17,970	16.9%	4.5x	5.1x	8.6x	1.5x
BE Semiconductor Industries N.V.		NLD	\$12,886	\$12,706	\$634	37.9%	13.2x	28.8x	52.8x	20.0x
ChipMOS TECHNOLOGIES INC.		TWN	\$960	\$1,065	\$682	31.6%	3.2x	4.4x	4.9x	1.6x
Cohu, Inc.		USA	\$1,559	\$1,323	\$565	12.0%	6.6x	8.8x	19.5x	2.3x
Kulicke and Soffa Industries, Inc.		USA	\$2,728	\$2,135	\$737	11.3%	4.0x	11.1x	25.7x	2.9x
Powertech Technology Inc.		TWN	\$4,325	\$4,737	\$2,248	29.9%	3.1x	4.1x	7.0x	2.1x
Rorze Corporation		JPN	\$3,477	\$3,501	\$580	28.9%	9.7x	7.7x	20.9x	6.0x
■ Excluded from mean and median						Mean	4.2x	5.8x	13.5x	2.6x
						Median	4.2x	6.4x	14.0x	2.2x

Semiconductors – Global Transactions

Date	Target	Country	Description	Buyer	Seller	% Acquired	Size US\$M	EV/ EBITDA	EV/ Revenue
Jun-24*	 Wimmic INTEGRATED CIRCUITS	ESP	Provides semiconductor integrated circuits	CELESTIA TST	-	100.0%	-	-	-
Jun-24	 FEMTO TOOLS	CHE	Provides semiconductor testing and measurement instruments	OXFORD INSTRUMENTS	-	100.0%	\$26.7	-	2.3x
Jun-24	 AMETHERM Circuit Protection Thermistors	USA	Provides semiconductor inrush current limiters and temperature sensors	VISHAY	-	100.0%	\$31.5	-	-
Jun-24	 SALLAND Engineering Test Technology Center	NLD	Provides semiconductor test solutions and engineering services	ADVANTEST	-	100.0%	-	-	-
Jun-24	Intel Fabrication Facility	IRL	Provides semiconductor manufacturing services and solutions	APOLLO		49.0%	\$11,228.7	-	-
May-24*	 YIS TECH	JPN	Provides high-purity chemicals for semiconductor manufacturing	JSR JSR Corporation	-	100.0%	-	-	-
May-24	Assets of Odyssey Semiconductor	USA	Provides GaN power devices for high-voltage semiconductor applications	power integrations	ODYSSEY SEMI 	100.0%	\$9.5	-	-
Apr-24	 TURIYA BERHAD	MYS	Provides semiconductor solutions and property management services	Multiple Buyers	بنك الإمارات Ithmaar Bank 	57.8%	\$11.2	-	-

*Announced

Selected Transactions Commentary



“We are delighted that FemtoTools will be joining Oxford Instruments to add to our armoury of materials analysis techniques. The specialist capabilities Felix, Simon and the team have developed will be an excellent addition to our portfolio, enabling us to provide our customers with an even richer range of insights.”

Richard Tyson, CEO of Oxford Instruments



“We are expanding our product portfolio and filling technology gaps through M&A and enhancing innovation to support deeper technical engagement with our customers. Ametherm brings Vishay small package sizes, high voltages, and high-quality PTC inrush current limiters and NTC temperature sensors required in all high energy applications.”

Joel Smejkal, President and CEO of Vishay



“Intel’s agreement with Apollo gives us additional flexibility to execute our strategy as we invest to create the world’s most resilient and sustainable semiconductor supply chain. Our investments in leading-edge capacity in the U.S. and Europe will be critical to meet the growing demand for silicon, with the global semiconductor market poised to double over the next five years.”



David Zinsner, CFO of Intel



“The Odyssey team and I are excited to join Power Integrations in accelerating their GaN technology roadmap. As the first company to commercialize high-voltage GaN, Power Integrations continues to lead the industry in driving the technology forward in terms of cost, voltage and current, as well as the design of system-level products that take full advantage of the capabilities of GaN.”

Dr. Richard Brown, Co-Founder and CEO of Odyssey

Private Equity Transactions

INDUSTRY CLASIFICATION	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>	2019-2024	\$19.7M	\$25.8M	15.1%	0.9x	17.3%	5.4x	13
 Semiconductor and Related Device Manufacturing <small>NAICS 334413 – Semiconductor and Related Device Manufacturing</small>	2018-2023	\$44.6M	\$50.9M	18.7%	0.8x	17.5%	4.7x	3

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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Transaction analysis and market trends

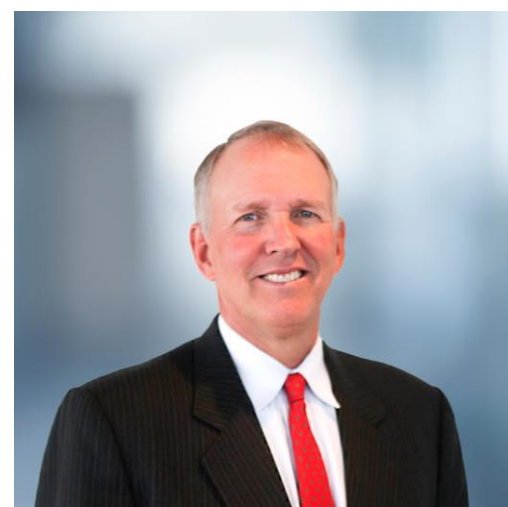
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Receive email updates with our proprietary data, reports, and insights as they are published for the industries that matter to you the most

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Global M&A Representative Engagements

<p>BEIJER REF</p> <p>has been acquired by</p>  <p>HERITAGE DISTRIBUTION HOLDINGS</p>	<p>avangardinnovative MOVING THE CIRCULAR ECONOMY FORWARD</p> <p>has sold a controlling interest to</p>  <p>WASTE MANAGEMENT</p>	<p>ZN ZINC NACIONAL</p> <p>has sold</p> <p>GSDKO</p> <p>Zinc Oxide Corporation a subsidiary of</p>  <p>Korea Zinc</p>	<p>Electrolux PROFESSIONAL</p> <p>has acquired</p> <p>unified brands a DOVER company</p> <p>from</p>  <p>DOVER</p>	<p>Port Contractors STEVEDORES - TERMINAL OPERATORS</p> <p>has been acquired by</p>  <p>ENSTRUCTURE</p>	<p>Oxbow</p> <p>Oxbow's Senior Subordinated debt issued by</p>  <p>H.J. BAKER ESTABLISHED 1880</p> <p>was refinanced by</p>  <p>BMO</p>	<p>Hertz</p> <p>has acquired</p>  <p>DONLEN</p>
<p>Standex</p> <p>has sold</p> <p>Enginetics</p> <p>to</p>  <p>Enjet AERO</p>	<p>ITT</p> <p>has sold</p> <p>BURNY KALIBURN PLASMA CUTTING INNOVATION</p> <p>and</p> <p>CNC Cleveland Motion Controls</p> <p>to</p>  <p>LINCOLN ELECTRIC</p>	<p>Honeywell</p> <p>has sold</p> <p>TENSOR</p> <p>to</p>  <p>GE Power Systems</p>	<p>TRIUMPH™</p> <p>has sold</p> <p>Triumph Processing - Embee Division</p> <p>to</p>  <p>AMP ALL METALS PROCESSING</p>	<p>TRIUMPH™</p> <p>has sold</p> <p>Triumph Air Repair, the APU Overhaul Operations of Triumph Aviation Services - Asia, and Triumph Engines businesses</p> <p>to</p>  <p>TGG THE GORES GROUP</p>	<p>Rheem</p> <p>has acquired</p>  <p>HTPG</p>	<p>GRACE</p> <p>has sold its GRACE Membranes business</p> <p>Uop a subsidiary of</p> <p>Honeywell</p>
<p>convatec - forever caring -</p> <p>has sold</p> <p>SENSI CARE</p> <p>and</p> <p>ALOE VESTA™</p> <p>to</p>  <p>MEDLINE</p>	<p>United Technologies</p> <p>has sold</p> <p>MobileView</p> <p>to</p> <p>SAFE FLEET Driving Safety Forward™</p>	<p>United Technologies</p> <p>has sold</p> <p>HTPG A division of Carrier Commercial Refrigeration, Inc.</p> <p>to</p> <p>MONOMOY CAPITAL PARTNERS and Starboard Capital Partners</p>	<p>LOCKHEED MARTIN</p> <p>has sold</p> <p>Commercial Flight Training Business</p> <p>to</p> <p>ALTEON A BOEING COMPANY</p>	<p>FLOWSERVE</p> <p>has sold</p> <p>D&B</p> <p>to</p> <p>DB DaviesBaird</p>	<p>KBR</p> <p>has acquired</p> <p>Wabi Wabi Development Corporation</p>	<p>H I G HARRISON GYPSUM, LLC</p> <p>has been recapitalized by</p> <p>H. I. G. PRIVATE EQUITY</p>

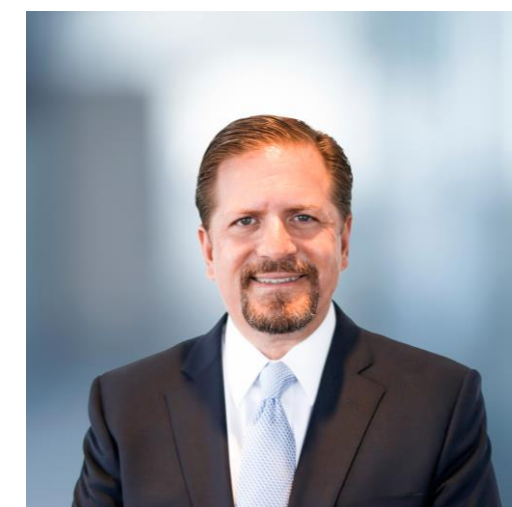


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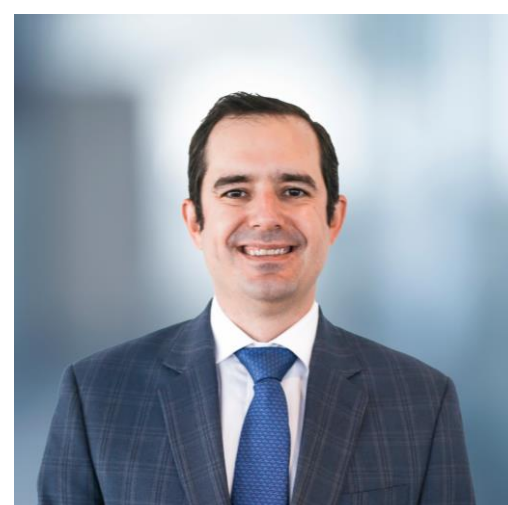


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University of Florida - BA in Political Science with High Honors

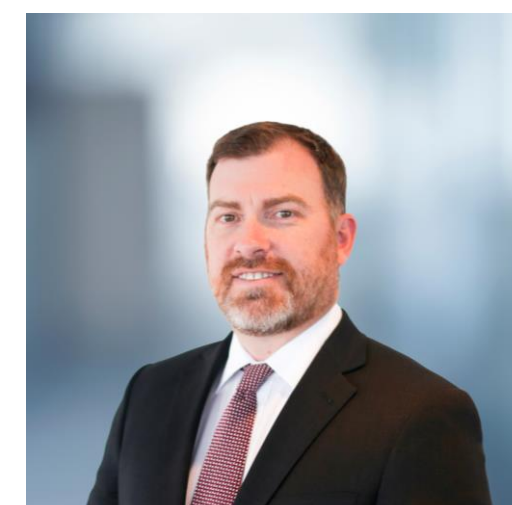


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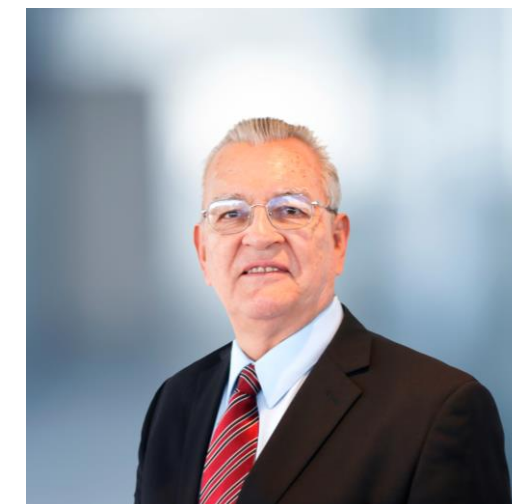


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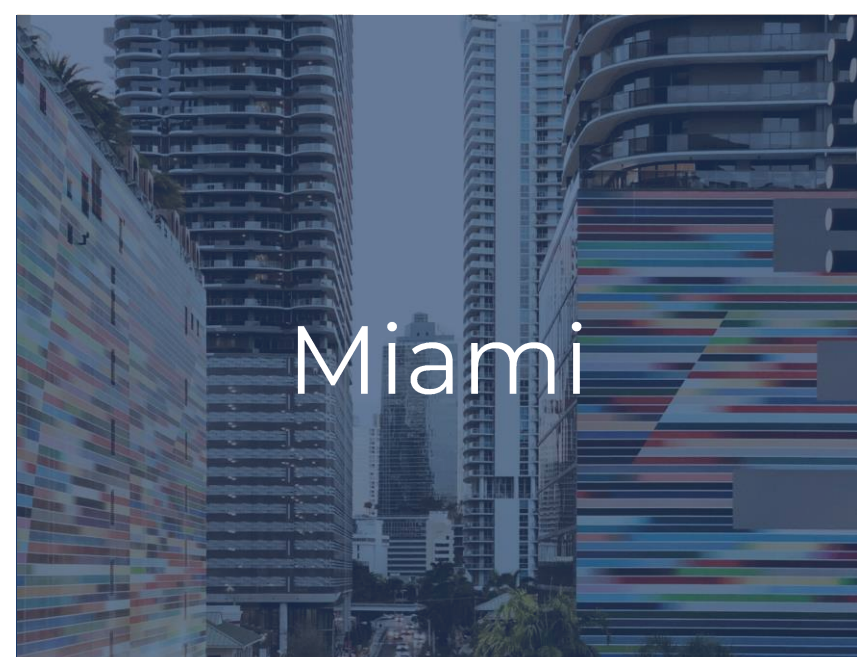
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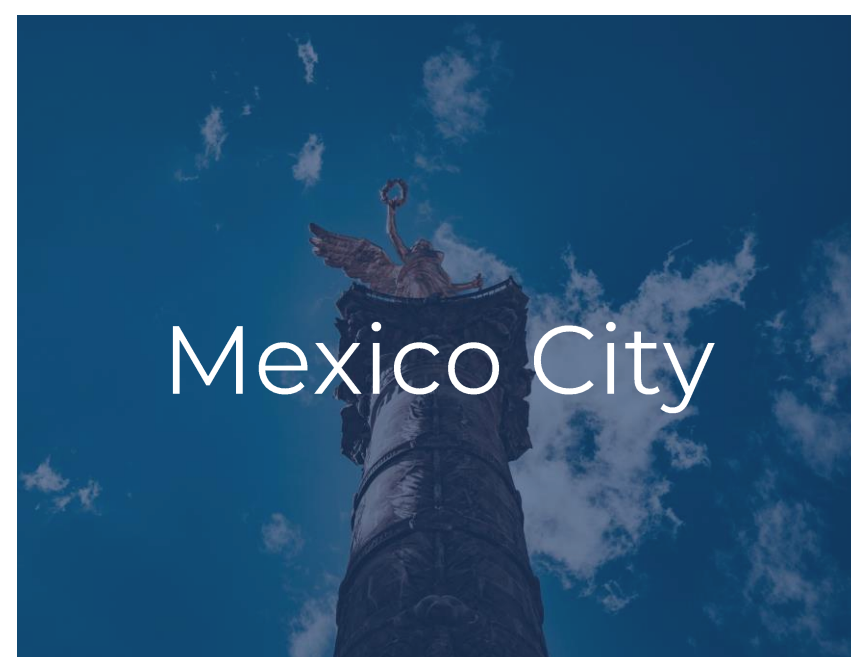
32+ years with Grupo Industrial Saltillo with experience as Director, Corp. Dev. and extensive global commercial experience
Instituto Tecnológico y de Estudios Superiores de Monterrey
MBA and BS in Industrial Engineering



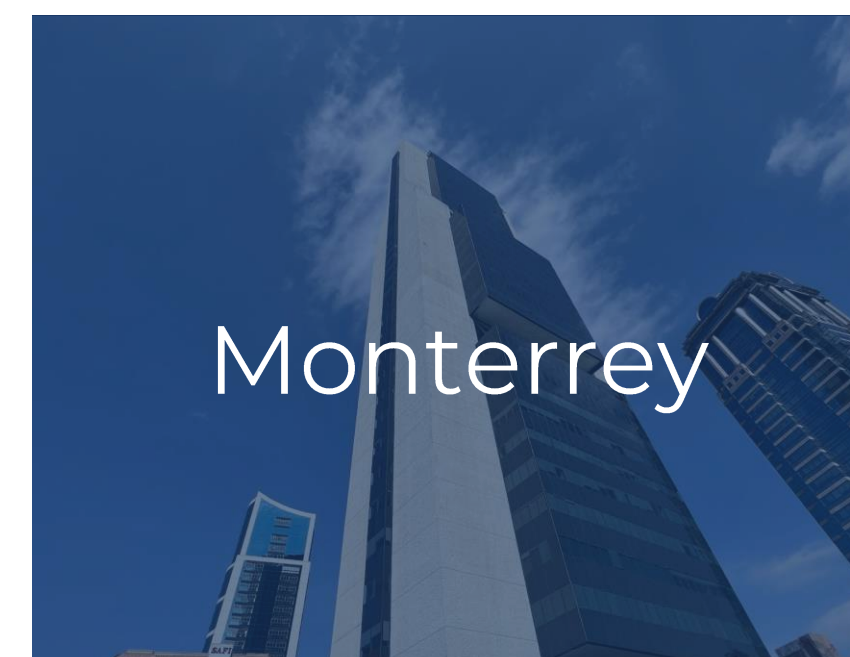
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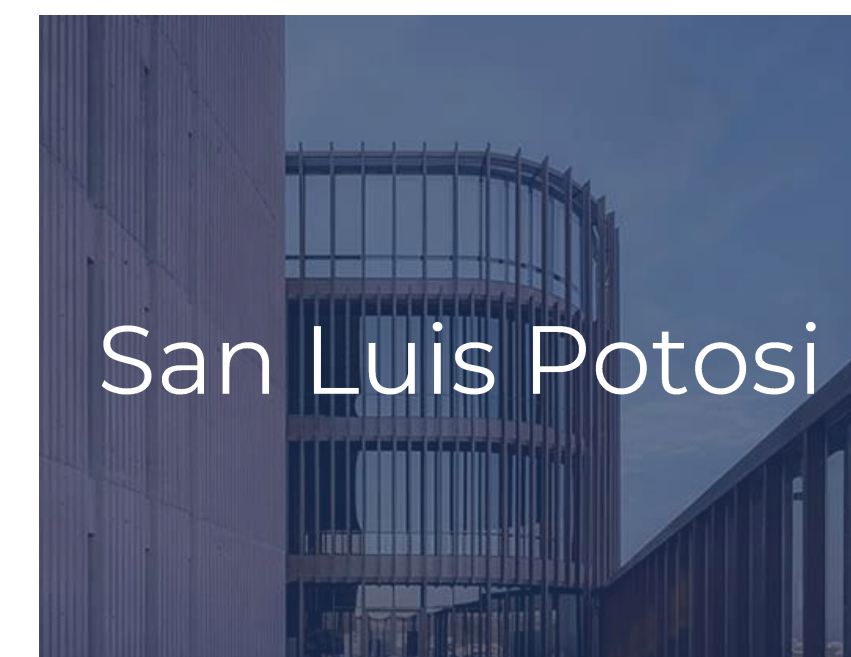
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San Luis Potosi

Creative Solutions. Trusted Advice.

For over 25 years, Seale & Associates has served leading public and private companies from around the world and operating in a broad range of industries with a high level of quality, integrity and independence while presenting innovative ideas and trusted solutions to address their most complex dealings.

25

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\$50B+

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We have worked repeatedly with many of the most well-known companies in the world...

...as well as with reputable funds, family-offices and privately held companies.



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