



# Seale & Associates

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SEMICONDUCTOR INDUSTRY  
Q1 2024  
VALUATION UPDATE

25 years

# Introduction

We are pleased to share our Semiconductor Industry Multiples Valuation Update for Q1 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.



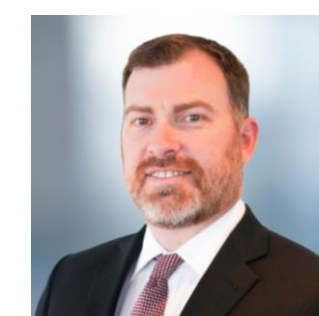
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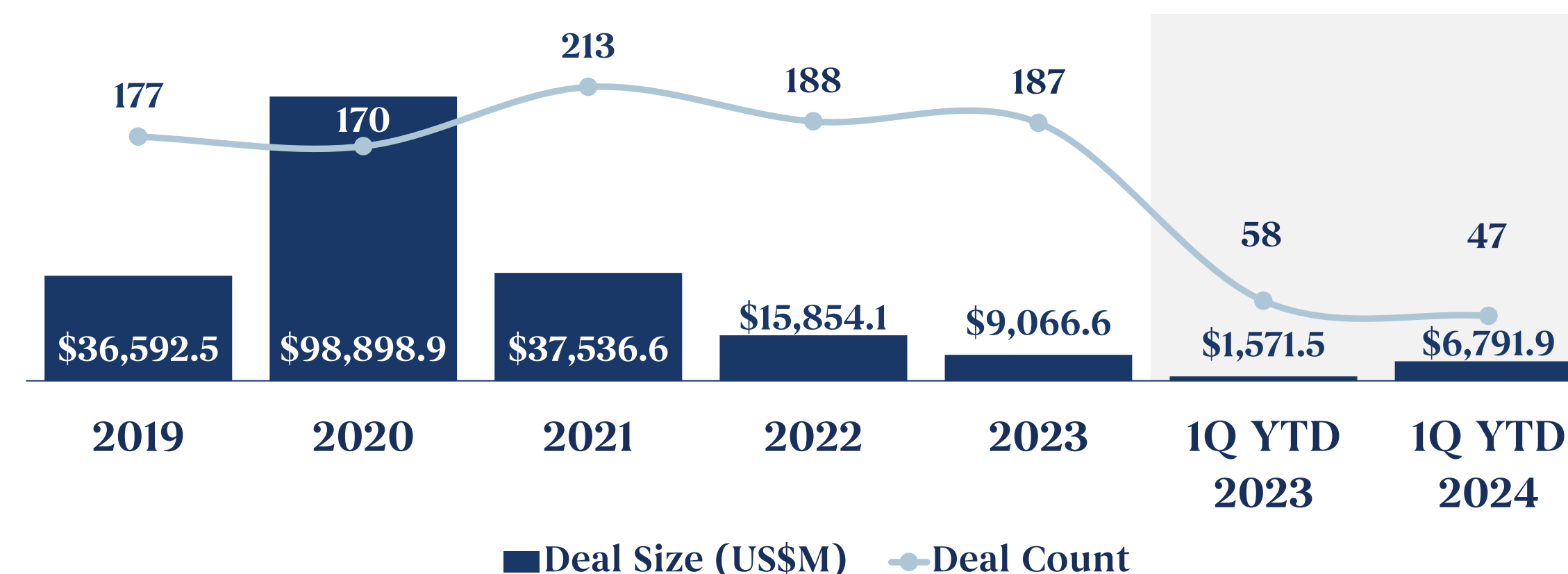
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# Semiconductor Industry Overview, M&A Trends and Market Intelligence

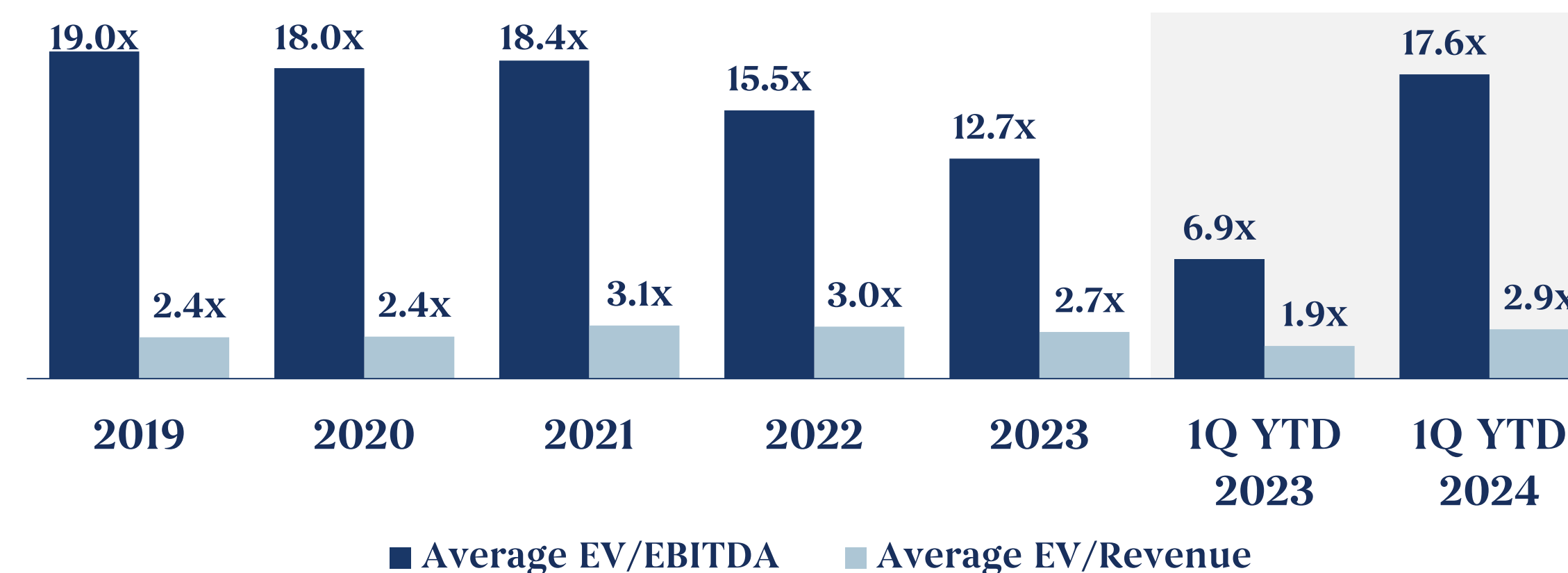
## Industry Overview

- The **Semiconductor market** is expected to **grow** from **US\$720 billion in 2024 to US\$1.21 trillion by 2029**, representing a **CAGR of 10.8%**
- Global revenues are expected to reach **US\$588 billion by 2024**. Not only would that **surpass 2023 by 13.0%**, but it would also surpass **2022's industry record** revenues of **US\$574 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
- Amid **rising geopolitical tensions** with China, in 2024, semiconductor companies must actively seek alternative sourcing locations, regularly reassess global supplier and distributor contracts, and consider direct customer engagements to mitigate disruptions











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		First Quarter Mar. 31, 2024		
						2022	2023	EV/EBITDA	EV/Revenue	
Infinion Technologies AG		DEU	\$44,171	\$47,472	\$17,327	34.3%	10.2x	8.6x	8.0x	2.7x
Intel Corporation		USA	\$188,026	\$215,906	\$54,228	18.5%	5.5x	15.0x	21.5x	4.0x
Micron Technology, Inc.		USA	\$130,548	\$135,295	\$18,312	20.7%	4.2x	16.8x	35.6x	7.4x
NVIDIA Corporation		USA	\$2,223,842	\$2,208,914	\$60,922	57.0%	41.8x	99.4x	63.6x	36.3x
NXP Semiconductors N.V.		NLD	\$63,543	\$71,029	\$13,276	36.9%	12.6x	11.4x	14.5x	5.4x
QUALCOMM Incorporated		USA	\$189,083	\$192,509	\$36,292	30.5%	11.2x	10.7x	17.4x	5.3x
Samsung Electronics Co., Ltd.		KOR	\$405,421	\$354,156	\$191,612	17.8%	3.7x	5.8x	10.4x	1.8x
SK hynix Inc.		KOR	\$93,188	\$110,744	\$24,247	17.4%	3.5x	11.0x	26.2x	4.6x
Texas Instruments Incorporated		USA	\$158,541	\$161,755	\$17,519	49.2%	14.5x	15.0x	18.8x	9.2x
Taiwan Semiconductor Manufacturing Company Limited		TWN	\$631,890	\$610,717	\$67,619	67.2%	10.8x	8.8x	13.4x	9.0x
						<b>Mean</b>	7.7x	10.8x	13.8x	4.5x
						<b>Median</b>	10.5x	11.2x	18.1x	5.3x

■ 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		First Quarter Mar. 31, 2024		
						2022	2023	EV/EBITDA	EV/Revenue	
Advanced Micro Devices, Inc.		USA	\$291,697	\$289,033	\$22,680	17.8%	28.9x	41.8x	71.5x	12.7x
Broadcom Inc.		USA	\$614,223	\$678,260	\$38,865	52.8%	15.0x	17.5x	33.1x	17.5x
Intel Corporation		USA	\$188,026	\$215,906	\$54,228	18.5%	5.5x	15.0x	21.5x	4.0x
Marvell Technology, Inc.		USA	\$61,382	\$64,833	\$5,508	18.6%	37.1x	31.6x	63.4x	11.8x
MediaTek Inc.		TWN	\$59,502	\$54,385	\$13,558	20.7%	8.4x	10.1x	19.3x	4.0x
NXP Semiconductors N.V.		NLD	\$63,543	\$71,029	\$13,276	36.9%	12.6x	11.4x	14.5x	5.4x
QUALCOMM Incorporated		USA	\$189,083	\$192,509	\$36,292	30.5%	11.2x	10.7x	17.4x	5.3x
Renesas Electronics Corporation		JPN	\$31,369	\$32,822	\$9,713	37.9%	8.4x	7.8x	8.9x	3.4x
■ Excluded from mean and median						<b>Mean</b>	10.2x	12.1x	16.3x	4.4x
						<b>Median</b>	11.9x	13.2x	20.4x	5.3x

# 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		First Quarter Mar. 31, 2024		
						2022	2023	EV/EBITDA	EV/Revenue	
Advantest Corporation	 JPN	\$33,272	\$33,367	\$3,293	24.7%	11.5x	17.0x	41.0x	10.1x	
Applied Materials, Inc.	 USA	\$171,356	\$169,853	\$26,485	31.1%	11.9x	13.5x	20.6x	6.4x	
ASML Holding N.V.	 NLD	\$378,414	\$376,233	\$29,732	36.1%	31.3x	28.7x	35.1x	12.7x	
KLA Corporation	 USA	\$94,470	\$97,211	\$9,671	41.3%	14.1x	14.6x	24.3x	10.1x	
Lam Research Corporation	 USA	\$127,376	\$126,722	\$14,317	32.8%	11.4x	13.2x	27.0x	8.9x	
SCREEN Holdings Co., Ltd.	 JPN	\$12,517	\$11,051	\$3,129	19.7%	5.6x	6.3x	17.9x	3.5x	
Tokyo Electron Limited	 JPN	\$121,076	\$118,747	\$12,173	28.0%	12.2x	13.6x	34.8x	9.8x	
■ Excluded from mean and median						<b>Mean</b>	11.1x	13.0x	22.5x	7.1x
						<b>Median</b>	11.9x	13.6x	27.0x	9.8x









# 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		First Quarter Mar. 31, 2024		
						2022	2023	EV/EBITDA	EV/Revenue	
BASF SE	 <b>BASF</b>	DEU	\$50,967	\$71,357	\$74,336	9.7%	5.2x	11.6x	9.8x	1.0x
DuPont de Nemours, Inc.	 <b>DUPONT</b>	USA	\$32,016	\$38,416	\$12,068	25.4%	9.8x	11.4x	12.5x	3.2x
JSR Corporation	 JSR Corporation	JPN	\$5,946	\$6,861	\$2,629	11.2%	12.3x	16.3x	23.2x	2.6x
Shin-Etsu Chemical Co., Ltd.	 <b>Shin-Etsu</b>	JPN	\$86,838	\$76,994	\$16,320	39.8%	6.7x	6.4x	11.9x	4.7x
Sumitomo Chemical Company, Limited	 <b>SUMITOMO CHEMICAL</b>	JPN	\$3,662	\$14,527	\$16,162	NM	6.4x	12.0x	NM	0.9x
						<b>Mean</b>	6.1x	10.3x	11.4x	1.9x
						<b>Median</b>	6.7x	11.6x	12.2x	2.6x

■ 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		First Quarter Mar. 31, 2024		
						2022	2023	EV/EBITDA	EV/Revenue	
Amkor Technology, Inc.		USA	\$7,928	\$7,717	\$6,503	18.2%	3.7x	4.5x	6.5x	1.2x
ASE Technology Holding Co., Ltd.		TWN	\$21,713	\$25,721	\$18,202	16.9%	4.5x	5.1x	8.3x	1.4x
BE Semiconductor Industries N.V.		NLD	\$11,790	\$11,689	\$625	38.9%	13.2x	28.8x	48.1x	18.7x
ChipMOS TECHNOLOGIES INC.		TWN	\$1,137	\$1,248	\$668	32.3%	3.2x	4.4x	5.8x	1.9x
Cohu, Inc.		USA	\$1,569	\$1,292	\$636	16.7%	6.6x	8.8x	12.2x	2.0x
Kulicke and Soffa Industries, Inc.		USA	\$2,835	\$2,173	\$737	12.6%	4.0x	11.1x	23.3x	2.9x
Powertech Technology Inc.		TWN	\$4,687	\$5,259	\$2,203	30.8%	3.1x	4.1x	7.7x	2.4x
Rorze Corporation		JPN	\$2,516	\$2,565	\$584	30.3%	9.7x	7.7x	14.5x	4.4x
						<b>Mean</b>	4.2x	5.8x	11.2x	2.3x
						<b>Median</b>	4.2x	6.4x	10.3x	2.2x

■ Excluded from mean and median



# Semiconductors – Global Transactions

Date	Target	Country	Description	Buyer	Seller	% Acquired	Size US\$M	EV/ EBITDA	EV/ Revenue
Mar-24	All Assets of Odyssey	USA	Manufactures vertical GaN semiconductors for power conversion	-	ODYSSEY SEMI 	100.0%	\$9.5	-	-
Mar-24	 CollabraTech SOLUTIONS	USA	Provides engineering and manufacturing solutions for semiconductor and high-tech sectors		-	100.0%	-	-	-
Feb-24	FormFactor's Shanghai	CHN	Provides semiconductor test and measurement technology	Grand Junction Semiconductor Pte. Ltd.		100.0%	\$25.0	-	-
Feb-24	Infineon Technologies Power Semitech Co.	KOR	Manufactures semiconductors for electronic components and devices	 ASE KOREA		100.0%	-	-	-
Feb-24	 GML GrAI Matter Labs	FRA	Designs AI system-on-chips for edge processing	<b>Snap Inc.</b>	Multiple Sellers	100.0%	-	-	-
Jan-24	 Anokiwave mmW Solutions. Enabling a new world	USA	Designs integrated millimeter-wave silicon integrated circuits	<b>QORVO</b>	Multiple Sellers	100.0%	-	-	-
Jan-24	 transphorm Highest Performance. Highest Reliability GaN	USA	Provides semiconductors for more efficient power devices	<b>RENESAS</b>	<b>KKR</b>	100.0%	\$339.0	-	20.5x
Jan-24	 RECIF Technologies	FRA	Manufactures and maintains advanced equipment for the semiconductor industry	 Accuron Technologies	-	100.0%	-	-	-
Jan-24	 invecas	USA	Provides engineering solutions for the semiconductor industry	<b>cadence</b>	-	100.0%	-	-	-

# Selected Transactions Commentary



*“By acquiring CollabraTech Solutions, we enhance our vertical integration, as their offerings seamlessly align with our Technology & Services business area. We are excited to welcome the CollabraTech Solutions employees to Exyte.”*

**Dr. Wolfgang Büchele, CEO of Exyte**



*“This acquisition of Infineon’s facilities in Cavite and Cheonan marks ASE’s strong commitment to form a strategic long-term partnership with Infineon in developing backend manufacturing solutions matching future growth opportunities.”*

**Dr. Tien Wu, CEO of ASE**



*“The addition of Transphorm’s GaN technology builds on our momentum in IGBT and SiC. It will fuel and expand our power portfolio as a key pillar of growth, offering our customers the full ability to choose their optimal power solutions.”*










**Hidetoshi Shibata, CEO of Renesas**



*“We are excited to join the Cadence team and to enhance the solutions available to customers, utilizing our core expertise to accelerate customer silicon and system development efforts.”*

**Dasaradha Gude, CEO of Invecas**

# 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
 <b>Semiconductor and Other Electric Component Manufacturing</b> <small>NAICS 33441 – Semiconductor and Other Electric Component Manufacturing</small>	 <b>2018-2023</b>	 <b>\$25.0M</b>	 <b>\$33.7M</b>	 <b>14.7%</b>	 <b>0.9x</b>	 <b>16.7%</b>	 <b>5.4x</b>	 <b>16</b>
<b>Semiconductor and Related Device Manufacturing</b> <small>NAICS 334413 – Semiconductor and Related Device Manufacturing</small>	<b>2018-2023</b>	<b>\$44.6M</b>	<b>\$50.9M</b>	<b>18.7%</b>	<b>0.8x</b>	<b>17.5%</b>	<b>4.7x</b>	<b>3</b>

**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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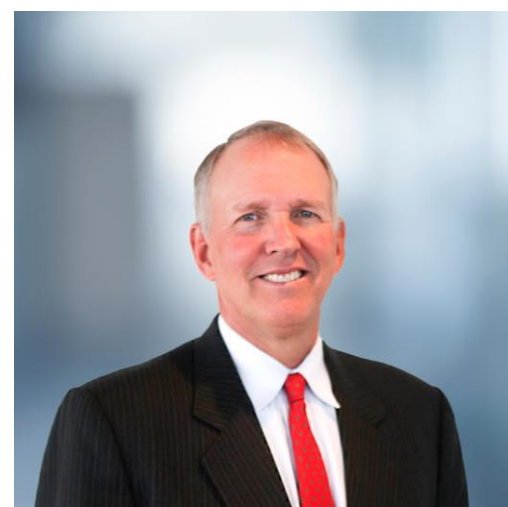
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# Global M&A Representative Engagements

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

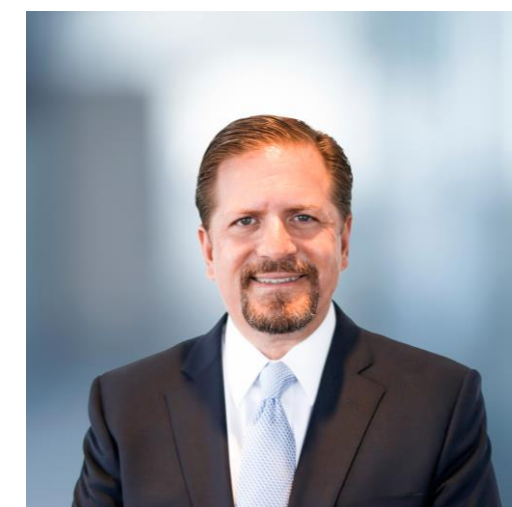


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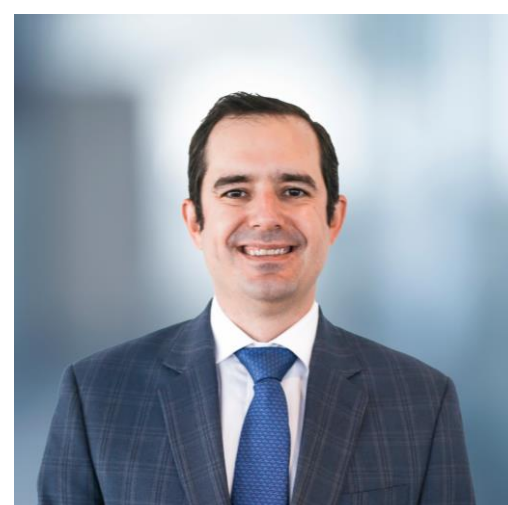


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University of Florida - BA in Political Science with High Honors

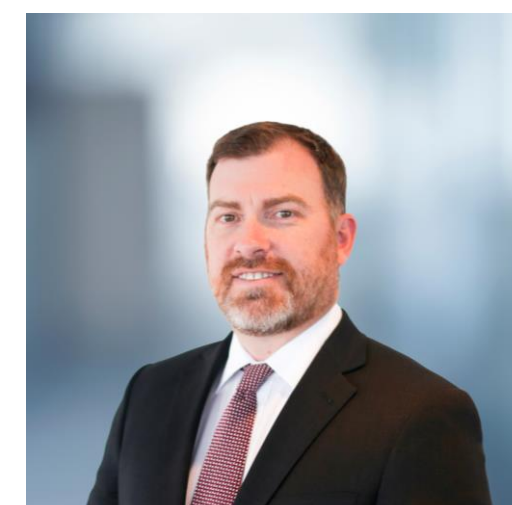


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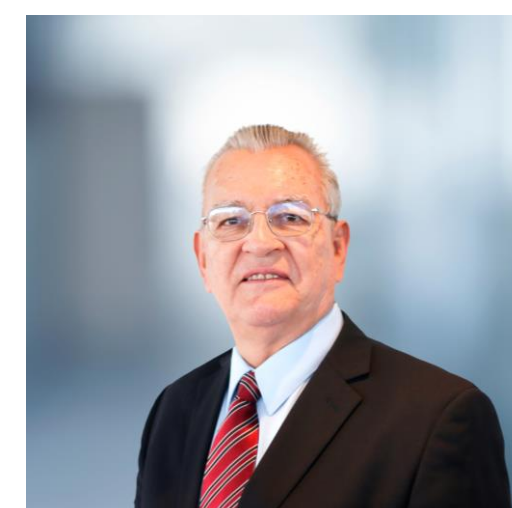


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**FELIPE BUENO**

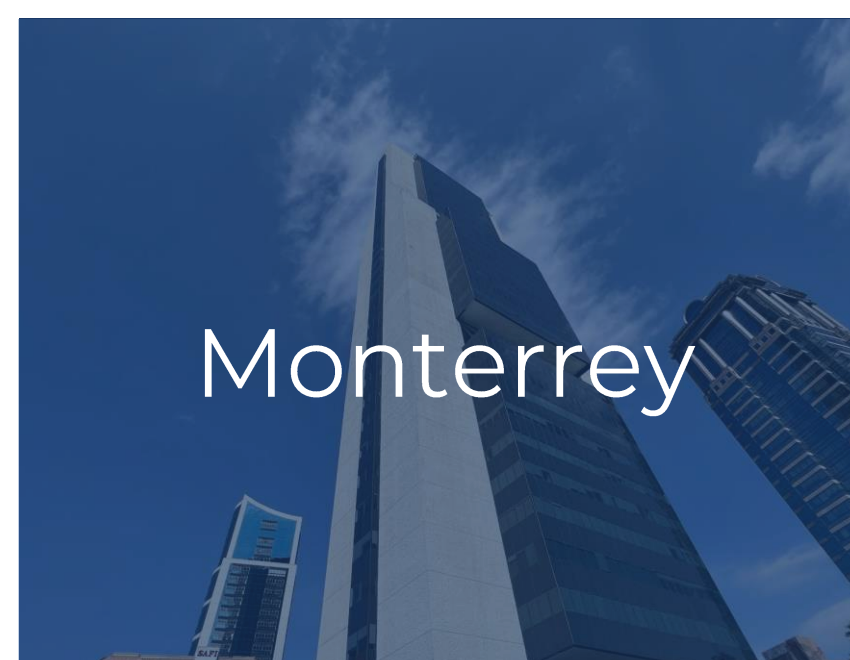
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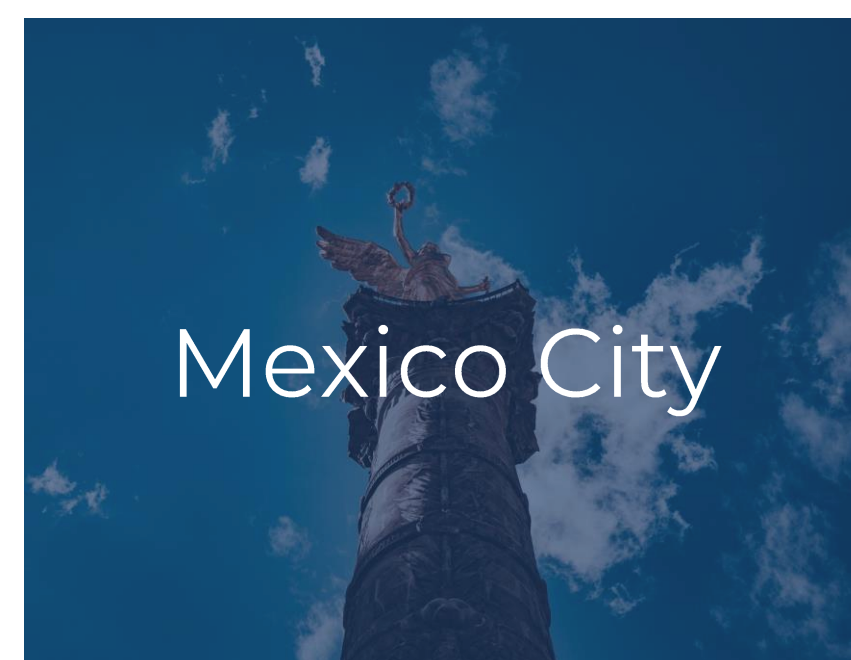
32+ years with Grupo Industrial Saltillo with experience as Director, Corp. Dev. and extensive global commercial experience  
Instituto Tecnológico y de Estudios Superiores de Monterrey  
MBA and BS in Industrial Engineering



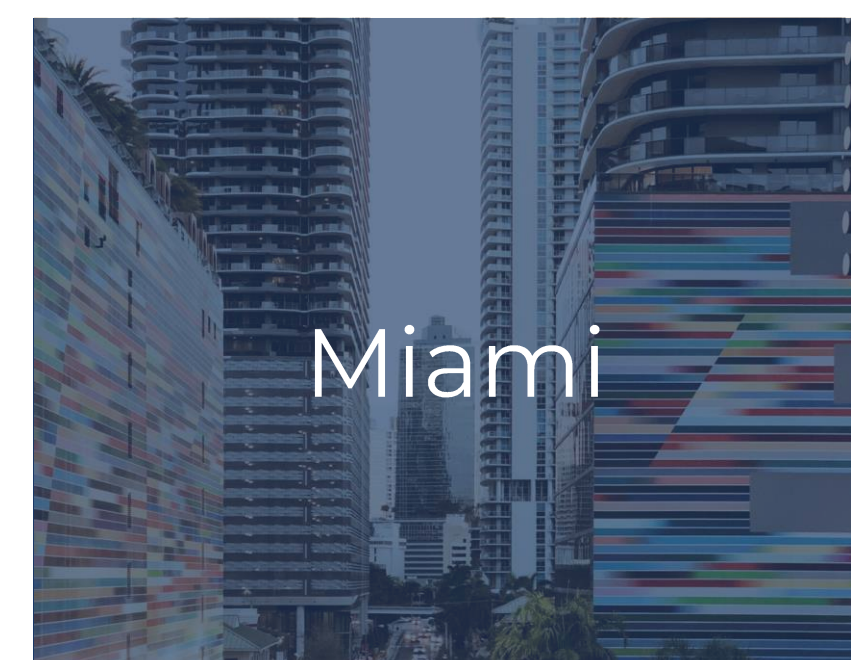
Washington D.C.



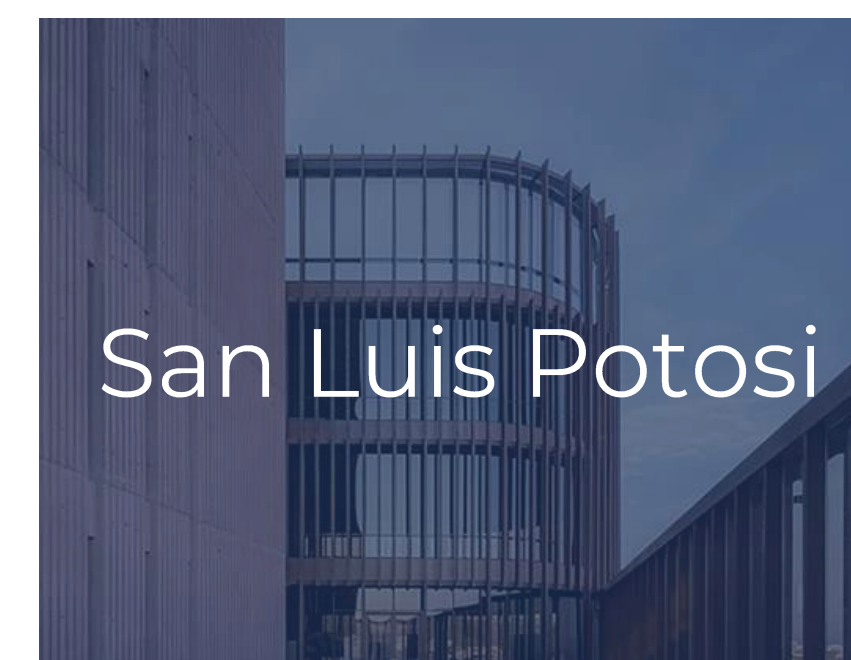
Monterrey



Mexico City



Miami



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**

YEARS OF EXPERIENCE

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

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# Seale & Associates

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