MPG | MADISON PARK GROUP

Insights

Market Update
Engineering Software

February 2022

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Trusted Advisor to the Industrial Software Market
History of Successful Transactions Supported by Broad Coverage Model

MADISON PARK GROUP

Growing Momentum with Tier-1 Clients

PE-Backed
Romax TECHNOLOGY
Strategic Sale
HEXAGON

Founding Team
VKI VISUAL KINEMATICS INC Accelerate CAE
Strategic Sale
TECHSOFT 3D Dependable. Dynamic. Durable.

Founding Team
VISTAGY engineer success
Strategic Sale
SIEMENS

Founding Team
Omnify Software
Strategic Sale
arena

PE-Backed
arena
Financial Sale
JMI EQUITY

PE-Backed
aras
Debt Placement
BAY CAPITAL INVESTMENT PARTNERS

Continuous Dialogue with Market Leaders & Key Executives within the Industrial Tech Ecosystem

Engineering
ALTAIR · Altium · Ansys · aras · AUTODESK · Bentley · cadence · DASSAULT SYSTEMES · esi · GAMMA TECHNOLOGIES · HEXAGON · Jama software · ptc · revalize · SIEMENS · synopsys · ZUKEN

Manufacturing
ABB · aptean · aspentech · AUTODESK · AVEVA · DASSAULT SYSTEMES · DÜRR · eci · EMERSON · EPICOR · FORTERRO · GE · GE Digital · HEXAGON · Honeywell · IFS Acumatica · infor · ORACLE · ptc · QAD · revalize · Rockwell Automation · Roper · Deltek · SANDVIK · SAP · Seeq · SIEMENS · WERUM

Construct Tech
AVEVA · Bentley · DASSAULT SYSTEMES · esri · FARO · FORTIVE · HEXAGON · IBM · NEMETSCHEK GROUP · ORACLE · PROCORE · Roper · Deltek · sage · Schneider Electric · TOPCON · Trimble

EHSQ
Alcumus · BENCHMARK ESG Gensuite · cority · EcoOnline · enhesa · etq · EVOTIX · FORTIVE · hsi Health & Safety Institute · Honeywell · Ideagen · ISOMETRIX · KPA · LISAM SYSTEMS · MasterControl · ProcessMAP · Quentic · SafetyCulture · sphera · UL · VectorSolutions · VelocityEHS · veriforce · Verisk · Wolters Kluwer

Dedication to Primary Research and In-Depth Market Knowledge

2018 · MPG MADISON PARK GROUP Insights · Market Update Engineering Software · January 2021

2019 · MPG MADISON PARK GROUP Insights · Market Update Engineering Software · January 2021

2020 · MPG MADISON PARK GROUP Insights · Market Update Engineering Software · January 2021

2021 · MPG MADISON PARK GROUP Insights · Market Update Engineering Software · January 2021

Note: Vistagy sale to Siemens represents proprietary transaction completed by MPG principal

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Market Drivers

Increasing Product Complexity Continues to Demand Improved Collaboration Capabilities and Specialized Engineering Knowledge

Select Identified Underlying Trends

1 Today's multi-disciplinary products require software tools specialized not just in specific engineering domains but across multi-physics systems

2 Rising adoption of low-code / no-code tools in industrial use-cases is increasing application flexibility and empowering more users within the organization

3 3D visualization applications are proliferating within both industrial (e.g., BIM, industrial AR / VR) and consumer-oriented (e.g., gaming, Metaverse) use-cases

4 Engineering tools specialized around physical infrastructure design are coming to the forefront amidst global initiatives towards sustainability

5 CAE applications are at an evolutionary inflection point with the increased calculation power of cloud computing and the predictive potential of AI / ML

6 Remote collaboration effected by the pandemic has accelerated the industry's shift, as well as industrial companies, to the cloud

7 The Digital Twin concept has expanded beyond the realm of products and single assets into major systems such as cities and the human body

8 The pandemic has driven large OEMs to look for ways to effectively collaborate with partners and suppliers on designs and quality management

In Case You Missed These...

M&A Transactions

Ansys acquired **Zemax** *Optical imaging system simulation*	*p. 16*
Autodesk acquired **Upchain** *Cloud-based product lifecycle management and product data management solutions*	*p. 18*
Bentley acquired **Seequent** *3D geological modeling and visual data software*	*p. 19*
Cadence acquired **Numeca** *Computational fluid dynamics software*	*p. 20*
Siemens acquired **Supplyframe** *Design-to-Source Intelligence*	*p. 28*

Fundraises

Tiger Global invests in **nTopology** *Generative design platform for additive manufacturing*	*p. 8*
Tiger Global invests in **Physna** *Product lifecycle management software*	*p. 8*
M12 invests in **Rescale** *Cloud-based software and hardware infrastructure platform*	*p. 8*
GI Partners invests in **Aras** *Product lifecycle management platform*	*p. 17*
Insight Partners invests in **Gamma Technologies** *Multi-physics CAE software platform*	*p. 23*

Robust Deal Activity Driving Increased Valuations
Investor Activity Surging to Compete with Highly Acquisitive Strategics

Engineering Software VC Investment Activity ($ in millions)[1]

Legend:
- Total Deal Volume
- Deal Count

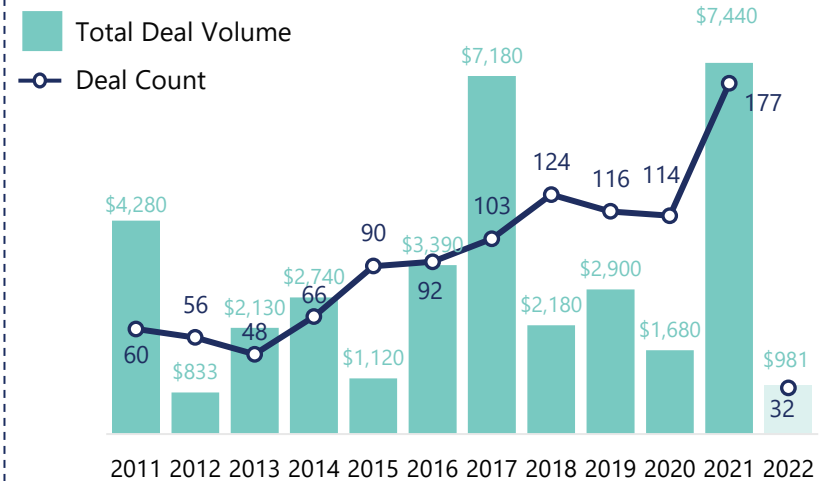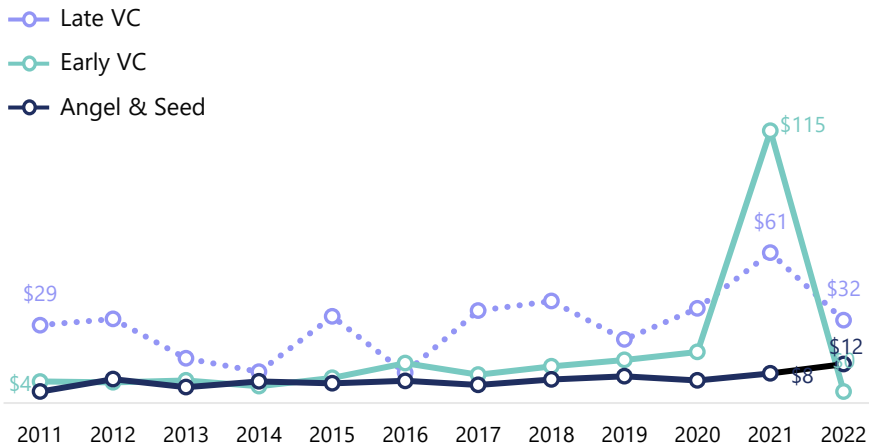| Year	Total Deal Volume	Deal Count
2011	$45	29
2012	$122	34
2013	$76	40
2014	$120	54
2015	$228	80
2016	$202	85
2017	$240	105
2018	$748	113
2019	$609	123
2020	$747	124
2021	$1,580	145
2022	$179	24
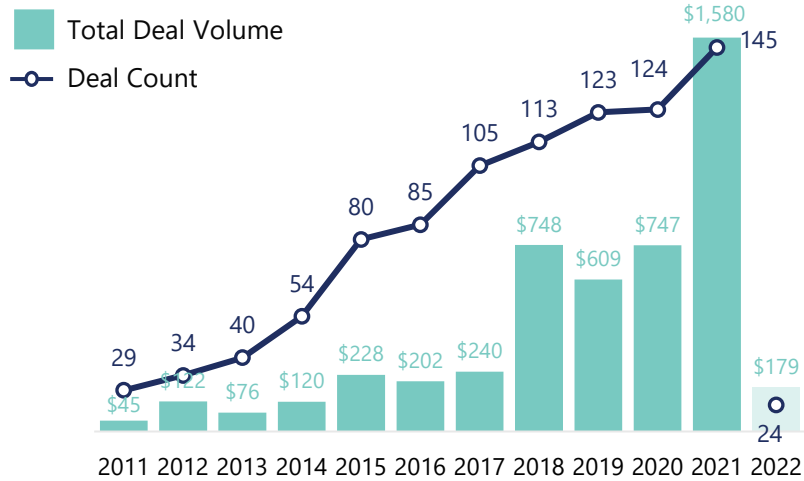
Engineering Software M&A Activity ($ in millions)

Legend:
- Total Deal Volume
- Deal Count

Year	Total Deal Volume	Deal Count
2011	$4,280	60
2012	$833	56
2013	$2,130	48
2014	$2,740	66
2015	$1,120	90
2016	$3,390	92
2017	$7,180	103
2018	$2,180	124
2019	$2,900	116
2020	$1,680	114
2021	$7,440	177
2022	$981	32

Median Engineering Software VC Pre-Money Valuations

Legend:
- Late VC
- Early VC
- Angel & Seed

Year	Late VC	Early VC	Angel & Seed
2011	$29	$4	
2021	$61	$115	
2022	$32		$12 / $8

Engineering Transactions by Buyer Type (% of Total Transactions)
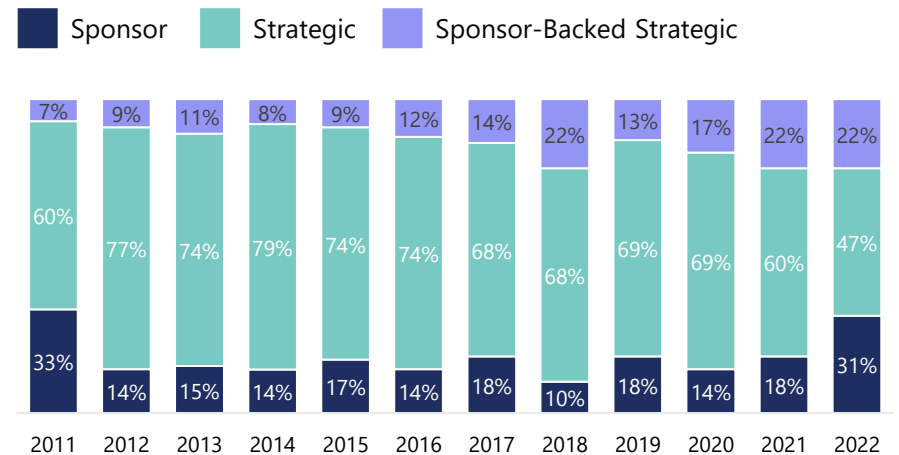
Legend:
- Sponsor
- Strategic
- Sponsor-Backed Strategic

Year	Sponsor	Strategic	Sponsor-Backed Strategic
2011	33%	60%	7%
2012	14%	77%	9%
2013	15%	74%	11%
2014	14%	79%	8%
2015	17%	74%	9%
2016	14%	74%	12%
2017	18%	68%	14%
2018	10%	68%	22%
2019	18%	69%	13%
2020	14%	69%	17%
2021	18%	60%	22%
2022	31%	47%	22%

Highlight Transactions
Diverse Strategic Activity Complementing Milestone Investment Outcomes

Zemax

Strategic Sale

Ansys

January 2022

$399m Valuation

- Supports Ansys' strategy towards acquiring domain-specific tools for its CAE portfolio
- Marks Ansys' third acquisition in recent years focused on adding capabilities in optical / photonic simulation

Supplyframe

Strategic Sale

SIEMENS

August 2021

$700m Valuation (10x Rev)

- Marks continued strategic prioritization of electronics vertical following 2016's acquisition of global EDA leader Mentor Graphics
- Supplyframe's electronics supply chain data solutions adds value across Siemens' existing PLM, CAE, EDA, and manufacturing portfolio

upchain

Strategic Sale

AUTODESK

May 2021

$139m Valuation

- Represents a significant investment into re-invigorating Autodesk's PLM business after years of relatively minimal activity

AUTOFORM
Forming Reality

Majority Investment

CARLYLE

October 2021

$2b Valuation

- Global leader in sheet metal formation software, with massive footprint in automotive vertical, previously owned by PE firm Astorg Partners
- Marks one of the largest private equity buyout deals in the history of the engineering software market

Physna

Minority Growth Investment

TIGERGLOBAL

July 2021

$460m Valuation

- Physna's technology searches, compares, and analyzes 3D models, creating engineering, industrial design and procurement processes for enterprises in a revolutionary self-serve way
- $56m Series C round brings total funding to ~$85m

aras

Majority Investment

GI PARTNERS

April 2021

Undisclosed Valuation

- New ownership focused on continuing to grow Aras' positioning in the PLM market as a low-code platform for industrial applications
- Following GI's investment, ex-PTC veteran Roque Martin assumed the role of CEO from Aras founder and long-time CEO Peter Schroer

Reference M&A Transactions

Strategic Premiums and Market Conditions Driving Record-High M&A Valuations in Engineering Software

Target	Acquirer	Date	Acquisitions[i]	Comments & Observations	Deal Size[ii]	EV / Revenue	EV / EBITDA
						Valuation Metrics	
COMSOFT	2020	Nov-21	5	• Merger combines two of the largest pure-play CAD software businesses focused on interior design / construction	-	-	-
POWER LINE SYSTEMS	Bentley	Nov-21	-	• Adds deep domain expertise within utility pole modeling and transmission simulation capabilities	$725.0	18.13x[iii]	-
Zemax	Ansys	Oct-21	-	• Marks Ansys' third acquisition in recent years focused on adding capabilities in optical / photonic simulation	$399.1	-	-
Supplyframe	SIEMENS	Aug-21	3	• Supplyframe's electronics supply chain data solutions dovetail with Siemens' existing EDA and manufacturing solutions for the electronics market	$700.0	10.00x	-
SEEQUENT	Bentley	Jun-21	8	• The acquisition marries Bentley's deep expertise in physical infrastructure design with Seequent's geophysical earth modeling capabilities for a Digital Twin extending sub-surface	$1,050.0	12.65x[iv]	n/m[iv]
GERBER TECHNOLOGY	LECTRA	Jun-21	5	• Acquisition creates a well-scaled engineering & manufacturing software platform with vertical expertise in the fashion, automotive, and furniture markets	$364.5	-	-
PHOENIX INTEGRATION	Ansys	May-21	-	• Complements Ansys' recent acquisition of Dynardo GmBH in the process integration and design optimization space	-	-	-
upchain	AUTODESK	May-21	-	• Represents a significant investment into re-invigorating Autodesk's PLM business after years of relatively minimal activity	$139.8	-	-
Innovyze	AUTODESK	Mar-21	3	• Extends Autodesk's construction software and AEC portfolio with vertical expertise in water infrastructure	$1040.0	-	-
NUMECA	cādence	Jan-21	-	• Marks significant investment into extending CAE capabilities to provide more multi-physics system oriented solutions to its core electronics customer base	$230.5	-	-
					Average	13.59x	n/m

Source: Pitchbook, Capital IQ, corporate websites, press releases, MPG proprietary knowledge
(i)   Represents number of acquisitions completed by the target for the trailing three years from transaction date
(ii) $ in millions
(iii)   Estimated $40m total revenue assumes "$30m of subscription revenue" reported in transaction PR represents 75% of total revenue
(iv)   Estimates based on "10% ... of Bentley Systems' key financial metrics (ARR, annual revenue, EBITDA)" in transaction PR derived as 10% of Bentley's LTM Mar-21 revenue of $828.9m and EBITDA of $245.9m

Reference Investment Transactions
Investor Interest in Engineering Software Spans Early-Stage Growth to Late-Stage Buyout

Target	Lead Investor	Date	Comments & Observations	Deal Type	Amount Raised[i]	Pre-Money Valuation[i]	Amount Raised To-Date[i]
GAMMA TECHNOLOGIES	INSIGHT PARTNERS	Feb-22	Insight joins existing investors TA Associates and Cove Hill, who made a significant new investment in the business	Minority	-	-	-
chaos	TA ASSOCIATES	Nov-21	In parallel with TA's acquisition, Chaos completed a Merger with Enscape, forming a sizable global platform in 3D visualization for AEC, VFX, and product design	Buyout	-	-	-
rescale	M12 MICROSOFT'S VENTURE FUND	Nov-21	Rescale reported +100% revenue growth in 2021 as demand for advanced engineering simulation in the cloud continues to surge	Series C	$105.0	-	$157.4
nTopology	TIGERGLOBAL	Nov-21	nTopology's generative design platform for additive manufacturing reported over 300 clients at the time, with the funding going towards expanding global reach	Series D	$65.0	$335.0	$135.9
AutoForm Forming Reality	CARLYLE	Nov-22	Marks one of the largest private equity buyout deals in the history of the engineering software market	Buyout	-	$2,000.0	-
Applied Intuition	COATUE	Nov-21	Significant funding and valuation for an engineering software business solely focused on the autonomous vehicle sub-segment	Series D	$175.0	$3,430.0	$351.5
propel	salesforce ventures	Sep-21	Salesforce Ventures' participation aligns with Propel's deep platform ties to the Salesforce ecosystem and Force.com	Series C	$20.0	$132.0	$48.2
MONOLITH	INSIGHT PARTNERS	Aug-21	Monolith seeking to democratize machine learning for product development in a low-code software environment for analyzing product simulation data	Series A	$11.9	$31.0	$14.7
Physna	TIGERGLOBAL	Jul-21	Physna's core offering is a free public geometric search called Thangs, which they position as the "Google of 3D"	Series C	$56.0	$460.0	$84.9
aras	GI PARTNERS	Apr-21	New ownership focused on continuing to grow Aras' positioning in the PLM market as a low-code platform for industrial applications	Buyout	-	-	$138.4

Source: Pitchbook, Capital IQ, corporate websites, press releases, MPG proprietary knowledge
(i) $ in millions

I.

Industry Trends

Engineering Tools Continue to Evolve

Horizontal Tools are Being Supplanted by Vertically Integrated Solutions Built Upon Deep Product / System-level Know-how

Legacy engineering software tools took a horizontal, "one-size-fits-all" approach, generally positioning around and specializing in a siloed domain of physical analysis

Modern engineering software tools are increasingly multi-domain, leveraging vertically-oriented CAD / CAE / PLM platforms to address design complexities and Digital Twins for ongoing operations

Mechanics

- ☑ **COMPUTATIONAL FLUID DYNAMICS**
- ☑ **FINITE ELEMENT ANALYSIS**
- ☑ **MULTIBODY DYNAMICS** ... AND MORE

Electromagnetics

- ☑ **LIGHT / OPTICAL ANALYSIS**
- ☑ **COMPUTATIONAL ELECTROMAGNETICS**
- ☑ **INTEGRATED CIRCUIT DESIGN** ... AND MORE

(?) **SOFTWARE ENGINEERING**

- **ELECTRIFIED MACHINES**
- **INDUSTRIAL ROBOTICS**
- **AUTONOMOUS ENGINEERING**
- **IIOT SENSORS**
- **MEDICAL DEVICES**
- **5G INFRA.**
- **CLOUD DATA CENTERS**
- **SMART CITIES**

... AND MORE

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Market of Interest: Next-Generation Mobility

Autonomy and Electrification Demands Incubating New Class of Software Tools Purpose-built for Next-Generation Mobility

Electrification

Ansys R1 2022 platform to feature MotorCAD upgrades
Ansys continues to invest in EV market via electric motor design CAD partner

Mar 2022

Ansys

Gamma acquires Exothermia
Acquisition introduces emissions impact as a key parameter for powertrain design & simulation

Nov 2021

GAMMA TECHNOLOGIES

Gamma acquires PDT
Acquisition extends EV development software portfolio with power converter design capabilities

Jul 2021

GAMMA TECHNOLOGIES

Autonomy

Apex.Ai raises $56.5m
AV safety operations management platform raises Series B led by major auto OEMs

Dec 2021

Apex.AI

Applied Intuition raises $175m Series D
AV performance simulation software platform brings total funding to +$350m within five years of founding

Nov 2021

Applied Intuition

Ansys acquires Zemax for ~$400m
Extends Ansys' optical simulation software portfolio with light simulation capabilities for LIDAR system development

Oct 2021

Ansys

- Stricter global emissions targets, increasing urban populations, improvements in charging infrastructure, and declining battery costs are rapidly encouraging significant adoption of EVs

- Driving nearly lofty production goals expected to exceed $300 billion over the next decade

- Engineering software tools previously used for internal combustion engine (ICE) vehicle development are largely unequipped for electro-mechanical physics environments

- Autonomous mobility beginning to see commercial adoption in the form automobiles enabled with advanced driver-assistance systems (ADAS)

- Many automakers are working towards achieving Level 4 autonomy, where the vehicle can drive itself under certain conditions only, over the next few years

- Given the unique complexities of this multi-disciplinary product system, AV engineers are using increasingly more tools across the entire value chain, from computer vision / sensing to safety & reliability and more, and this will likely expand as autonomy continues to proliferate across different modes of mobility

Unique pain-points requiring specialized software capabilities for the mobility market

DRIVETRAIN ELECTRIFICATION

BATTERY ANALYSIS / SIMULATION

ELECTRO-MECHANICAL SYSTEM INTEGRATION

EMISSIONS COMPLIANCE

LIDAR SYSTEM DEVELOPMENT

SYSTEM SAFETY & RELIABILITY

DRIVER VISUALIZATION & SIMULATION

HD LOCATION MAPPING

New Technology Paradigms are Emerging
Low-code / No-code Seeing Broad Applicability in Industrial Operations

Aras Announces Significant Growth Investment by GI Partners

"Investment further Accelerates low-code platform innovation, global expansion and customer success"

UK AI Engineering Software Company, Monolith AI Raises £8.5m in Series A Funding

"Monolith AI's mission is to build an intuitive coding free software that empowers every engineer to understand, predict, and optimize products dramatically faster using artificial intelligence algorithms"

Siemens to Acquire Mendix

"Accelerates and extends Mendix' leadership in low-code by doubling down on R&D investments and geographical expansion"

Tulip Interfaces Announces $100M Series C at +$1b Valuation

"Tulip's Frontline Operations platform provides a cloud-based, no-code platform with native edge capabilities that connects the people, machines, devices, and systems used in the operations of a variety of frontline industries"

- Recent acquisitions, fundraises, and product launches support a growing adoption of low-code / no-code technology for industrial applications

- Low-code / no-code technology offers significant benefits in democratizing software applications across the business that were once generally reserved for highly technical users, as well as increasing integration flexibility into a broader ecosystem

- These particular examples demonstrate low-code / no-code technology's broad applicability for the industrial ecosystem, including in product lifecycle management (Aras), engineering simulation & analysis (Monolith), IIoT (Mendix), and shop floor empowerment (Tulip)

II.

Featured Companies

Altair

Business Overview

($ in millions)

Headquarters:	Troy, MI
LinkedIn Employees (1-Yr. Growth):	3,069 (▲1%)
Website:	www.altair.com
Ownership Status:	Public (NasdaqGS: ALTR)
Acquisitions:	32
Enterprise Value (EV):	$4,901.8
TTM Revenue:	$524.8
LTM EBITDA:	$46.2
EV / TTM Revenue:	9.34x
EV / TTM EBITDA:	106.10x

Description:
Provider of software and cloud solutions in the areas of product development, high performance computing (HPC), and data analytics

TTM January 2022 Market Pricing

NASDAQ — ALTR

12.5%
8.9%

M&A Continues to Be Core to Growth Strategy

« **Recent acquisitions aim to converge domain expertise with advanced analysis technology**

- In February 2022, Altair announced the acquisition of Cassini Systems, a unified cloud product lifecycle management (PLM) platform, for an undisclosed amount
  - With the acquisition of Cassini, Altair adds a foundational PLM technology to solidify its footing in the development of digital thread solutions that span the Altair CAE portfolio

- In December 2021, Altair announced the acquisition of World Programming, a provider of data analytics software allowing clients to easily perform analysis on their data which may be specific to the domains or company processes
  - With the integration of World Programming's technology, Altair sees an opportunity to help firms with the transition to hybrid architectures using modern, open technologies and languages
  - The technology's open-source approach to data manipulation and analytics has potential to not only expand Altair's capacity for advanced engineering simulation but also expand its footprint in non-core verticals such financial services and insurance

- In August 2021, Altair announced the acquisition of S-FRAME Software, a provider of structural analysis and design software, for an undisclosed amount
  - With the addition of S-FRAME, Altair enhances its global capabilities for the architecture, engineering, and construction (AEC) market in analyzing structural ability to withstand external loads like wind, water, and snow, and meet design code requirements

- In February 2021, Altair announced the acquisition of GE Aviation's Flow Simulator assets, an integrated flow, heat transfer, and combustion design software, for an undisclosed amount
  - Altair's ownership will make the Flow Simulator software available to a broader customer base beyond aviation into markets like automotive, electromobility, battery, defense, and renewable energy
  - The acquisition also includes a memo of understanding (MOU), establishing a long-term strategic partnership between Altair and GE Aviation which will facilitate an increased level of collaboration between the two companies

Altium

Business Overview

($ in millions)

Headquarters:	La Jolla, CA
LinkedIn Employees (1-Yr. Growth):	796 (0%)
Website:	www.altium.com
Ownership Status:	Public (ASX:ALU)
Total Acquisitions:	12
Enterprise Value (EV):	$3,591.3
TTM Revenue:	$180.2
TTM EBITDA:	$53.57
EV / TTM Revenue:	19.93x
EV / TTM EBITDA:	67.1x

Description:
Printed circuit board (PCB) design software products and electronic component data management

TTM January 2022 Market Pricing

NASDAQ ALU

8.9%
6.8%

Jan-21 Feb-21 Mar-21 Apr-21 May-21 Jun-21 Jul-21 Aug-21 Sep-21 Oct-21 Nov-21 Dec-21 Jan-22
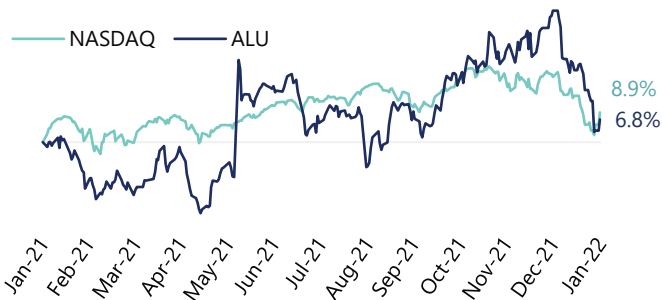
PCB Leader Rejects Premium Takeover Bid Amidst Flatlining Sales

« **Altium rejects $3.9b takeover bid From Autodesk**

• In June 2021, Altium rejected a $3.9b takeover bid from Autodesk
  – Autodesk's offer of $38.50 AUD per share represented a 41% premium to Altium's previous closing price
  – At a AUD $5.1 billion ($3.9 billion) valuation, the offer valued Altium at ~17x forecasted 2022 sales and ~44x forecasted 2022 earnings
  – Altium rejected the bid, citing that the offer "significantly undervalued" the company
  – CEO Aram Mirkazemi, whose material individual ownership in the company (~5%) made him an even more significant stakeholder in the decision, commented that other companies had expressed an interest in buying Altium, but reiterated that the company is "not for sale"

« **Product strategy focused on integration of PCB design, manufacturing, and supply chain**

• In January 2022, Altium announced the release of Altium Designer 22
  – The new release of Altium's core PCB design platform includes added features to help designers source component availability, enhanced capabilities that reduce manual design tasks, and advanced real-time lifecycle management tools used in conjunction with Altium 365
• In April 2021, Altium announced the launch of Nexar, a cloud-based partner platform aimed at building a connected ecosystem of design, supply chain, and manufacturing stakeholders to transform the engineering of smart and connected products
  – Partners can leverage Nexar's open API to integrate with Altium 365 and Altium NEXUS, present reliable up-to-date component data from the Octopart search engine, and embed ready-to-use "embeds" such as the Altium 365 ECAD viewer on web pages or within an application

Ansys

Business Overview

($ in millions)

Headquarters:	Canonsburg, PA
LinkedIn Employees (1-Yr. Growth):	5,284 (▲5%)
Website:	www.ansys.com
Ownership Status:	Public (NasdaqGS: ANSS)
Acquisitions Since 2010:	34
Enterprise Value (EV):	$30,518.7
TTM Revenue:	$1,874.7
TTM EBITDA:	$644.7
EV / TTM Revenue:	16.28x
EV / TTM EBITDA:	47.3x

Description:
Engineering simulation software solutions for product design and development across aerospace & defense, automotive, electronics, semiconductors, energy, and more

TTM January 2022 Market Pricing
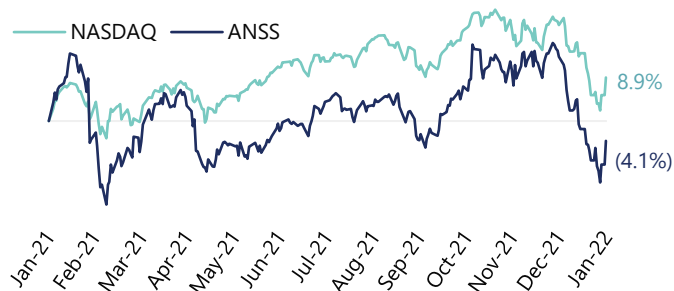
2021 M&A Activity Builds Upon Recent Acquisitions

« **Recent acquisitions support initiatives towards simulation of multi-disciplinary products**

- In August 2021, Ansys announced it entered into a definitive agreement to acquire Zemax, an optical imaging system simulation, for $399.1m
  - The acquisition will expand Ansys' portfolio to provide comprehensive, end-to-end solutions for simulating sophisticated optical- and photonics-enabled products
  - Zemax immediately augments Ansys' solutions geared towards to the development of embedded optical system products across verticals such as robotic surgery-assist systems, autonomous vehicles, machine vision cameras, and A&D applications
  - The acquisition marks the third major acquisition Ansys has made in recent years in adding specific capabilities in optical and photonic-related simulation, following 2021's acquisition of Lumerical and 2018's acquisition of Optis World
  - Zemax was previously owned by major global private equity firm EQT Partners
- In May 2021, Ansys announced the acquisition of Phoenix Integration, provider of software that enables model-based engineering and model-based systems engineering, for an undisclosed amount
  - This acquisition expands the scope of Ansys' solution offering, enabling users to connect to a range of engineering tools together in multi-tool workflows for broad and robust model-based engineering
  - The acquisition complements Ansys' recent acquisition of Dynardo GmBH in the process integration and design optimization space as well as Analytical Graphics, Inc., a long-time partner of Phoenix Integration's, in the aerospace & defense space

Aras

Business Overview

($ in millions)

Headquarters:	Andover, MA
LinkedIn Employees (1-Yr. Growth):	433 (▲1%)
Website:	www.aras.com
Ownership Status:	PE-backed (GI Partners)
Total Acquisitions:	3
Enterprise Value (EV):	$58,468.2
TTM Revenue:	$4,214.0
TTM EBITDA:	$784.7
EV / TTM Revenue:	13.87x
EV / TTM EBITDA:	74.5x

Description:
Open product lifecycle management platform that connects users in all disciplines and functions to critical product data and processes across the lifecycle and throughout the extended supply chain

Select Funding / Transaction History

Date	Lead Investor	Amount
Apr-21	GI PARTNERS	n/a (buyout)
Nov-18	Goldman Sachs	$70.0 million (Series D)
Oct-18	SCP SAVANO CAPITAL PARTNERS	$1.5 million (Series C?)
Sep-17	SILVERLAKE	$39.5 million (Series C)
Nov-17	BLUE CLOUD VENTURES	$2.79 million (Series B)

New Ownership Catalyzes New Regime at Aras

« **Acquisition adds critical domain expertise in high-growth technology verticals**

- In January 2022, Aras announced the acquisition of Minerva Group, a value added reseller and implementation provider of product lifecycle management (PLM) software solutions, for an undisclosed amount
  - The acquisition brings extensive vertical industry expertise in medical devices and high-tech electronics, two of the strongest verticals for PTC's recently acquired Arena Solutions platform
  - Minerva has long been Aras' leading implementation partner for the Aras Innovator PLM platform
  - The acquisition marks Aras' first in over three years

« **Aras takes on majority institutional investor**

- In April 2021, Aras was acquired by software-focused private equity firm GI Partners, for an undisclosed amount
  - This significant growth investment will accelerate Aras' low-code platform innovation and help further expand Aras' global footprint
  - The majority investment comes within only two and a half years of Aras' most recent growth fundraising, a $70m Series D led by Goldman Sachs at a reported $450m pre-money valuation

« **New leadership in-place with deep industrial software pedigree**

- In October 2021, Aras announced Roque Martin as new Chief Executive Officer
  - Martin joins Aras from PTC, where he most recently served as SVP & General Manager of the Systems & Software Engineering business unit
  - Prior to PTC, Martin spent over 25 years at IBM in a variety of business unit management roles, most recently as the GM for IBM's Emptoris Strategic Supply Management Solutions unit
  - Martin succeeds the founder of Aras, Peter Schroer, who will continue to be actively engaged with Aras as a member of the Board of Directors

Autodesk

Business Overview

($ in millions)

Headquarters:	San Rafael, CA
LinkedIn Employees (1-Yr. Growth):	13,465(▲1%)
Website:	www.autodesk.com
Ownership Status:	Public (NasdaqGS: ADSK)
Total Acquisitions:	106
Enterprise Value (EV):	$58,468.0
TTM Revenue:	$4,214.0
TTM EBITDA:	$784.7.0
EV / TTM Revenue:	13.87x
EV / TTM EBITDA:	74.5x

Description:
Computer-aided design software for architecture, engineering, construction, manufacturing, and media

TTM January 2022 Market Pricing

NASDAQ — ADSK

8.9%
(10.0%)

Autodesk Ramps Growth Across its Full Portfolio

« **Autodesk accelerates acquisition activity across a range of key business units**

- In December 2021, Autodesk announced the acquisition of ProEst, a cloud-based cost estimating solution for the construction industry, for an undisclosed amount
  – Autodesk plans to integrate ProEst with Autodesk Construction Cloud, strengthening Autodesk's preconstruction offerings, allowing users to manage all their critical workflows on one platform
- In November 2021, Autodesk announced the acquisition of Tangent Labs, a cloud-based production software pipeline tool, for an undisclosed amount
  – With the incorporation of cloud-based workflows, Autodesk can support artists, producers, and supervisors to work more efficiently and scale with the pace of production
- In May 2021, Autodesk announced the acquisition of Upchain, provider of cloud-based product lifecycle management (PLM) and product data management (PDM) solutions, for $139.8m
  – Upchain offers a differentiated data experience that bridges gaps in data and process management workflows, accelerating Autodesk's mission to remove collaboration barriers and increase efficiency for customers
- In February 2021, Autodesk announced it entered into a definitive agreement to acquire Innovyze, provider of water infrastructure modeling and simulation software, for $1.0b
  – The acquisition puts Autodesk in a position to offer end-to-end water infrastructure solutions, paving the way for a more sustainable and digitized water industry

« **Transformative acquisition bid for PCB leader falls through**

- In July 2021, Autodesk announced the termination of discussions to acquire Altium
  – At a AUD $5.1 billion ($3.9 billion) valuation, the offer valued Altium at ~17x forecasted 2022 sales and ~44x forecasted 2022 earnings
  – Autodesk's offer of $38.50 AUD per share represented a 41% premium to Altium's previous closing price
  – Altium rejected the bid, citing that the offer "significantly undervalued" the company

Source: Pitchbook, Capital IQ, corporate websites, press releases, LinkedIn, market data as of 1/4/2022

Bentley Systems

Business Overview

($ in millions)

Headquarters:	Exton, PA
LinkedIn Employees (1-Yr. Growth):	4,474 (▲1%)
Website:	www.bentley.com
Ownership Status:	Public (NasdaqGS: BSY)
Total Acquisitions:	40
Enterprise Value (EV):	$13,631.8
TTM Revenue:	$913.0
TTM EBITDA:	$178.7
EV / TTM Revenue:	14.93x
EV / TTM EBITDA:	76.3x

Description:
Software solutions for engineers, architects, geospatial professionals, constructors and owner-operators for the design, construction, and operations of infrastructure

TTM January 2022 Market Pricing
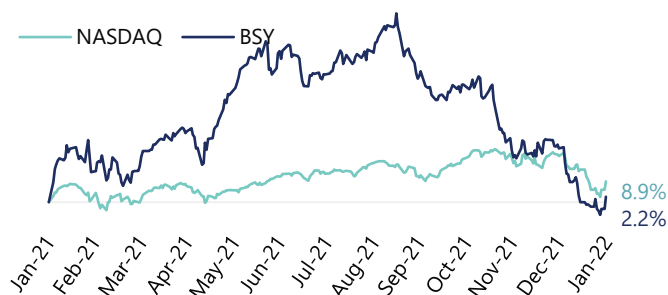
Post-IPO M&A Spree Continues

« Record M&A year totals nearly $2 billion in acquisitions

- In November 2021, Bentley announced it entered into an agreement to acquire Power Line Systems, provider of electric power transmission engineering software, for $725.0m
    - The acquisition will complete the reach of Bentley systems' comprehensive portfolio for the lifecycle integration of grid infrastructure across electrical transmission, substation, distribution assets and communications towers
    - Bentley noted that the acquisition adds approximately "$30 million in subscription revenue"
- In September 2021, Bentley announced its Seequent business unit acquired Minalytix, developer of MX deposit, for $8.0m
    - The acquisition enhances Seequent's cloud capabilities and solutions for mining
    - Prior to the acquisition, Seequent held a minority shareholding in Minalytix, including exclusive global rights to sell MX deposit
- In August 2021, Bentley announced its Seequent business unit acquired Imago, developer of cloud-based software for the capture and management of geoscientific imagery, for an undisclosed amount
    - The acquisition enhances Seequent's cloud capabilities, helping geoscientists and engineers solve earth, environment, and energy challenges
- In June 2021, Bentley announced the completion of its acquisition of Seequent, developer of 3D geological modeling and visual data software, for $1.05b
    - The $1.05b purchase price consisted of $900m in cash as well as 3.1 million of Class B shares
    - The acquisition values Seequent at approximately 12.65x revenue based on Bentley's guidance that the "acquisition of Seequent is expected to initially add approximately 10% to each of Bentley Systems' key financial metrics (ARR, annual revenue, and EBITDA)
    - Bentley believes that the integration of its solutions with Seequent can create deeper infrastructure digital twins, marrying physical and geological infrastructure and making it possible for infrastructure digital twins to reach full subsurface depths, augmenting environmental resilience against flood, seismic, climate, and water security threats
    - Strategically, Bentley expects the acquisition to contribute to building a "multiplied ESG handprint" to improve the world's environment while improving the world's economies

Cadence Design

Business Overview

($ in millions)

Headquarters:	San Jose, CA
LinkedIn Employees (1-Yr. Growth):	8,260 (▲2%)
Website:	www.cadence.com
Ownership Status:	Public (NasdaqGS: CDNS)
Total Acquisitions:	42
Enterprise Value (EV):	$44,551.0
LTM Revenue:	$2,975.1
LTM EBITDA:	$923.6
EV / LTM Revenue:	14.97x
EV / LTM EBITDA:	48.2x

Description:
Electronic design automation (EDA) tools, IP portfolio for chip designs, and comprehensive suite of verification tools and hardware to verify the chip, package, board, and design

TTM January 2022 Market Pricing

NASDAQ — CNDS

16.7%
8.9%

Jan-21 Feb-21 Mar-21 Apr-21 May-21 Jun-21 Jul-21 Aug-21 Sep-21 Oct-21 Nov-21 Dec-21 Jan-22
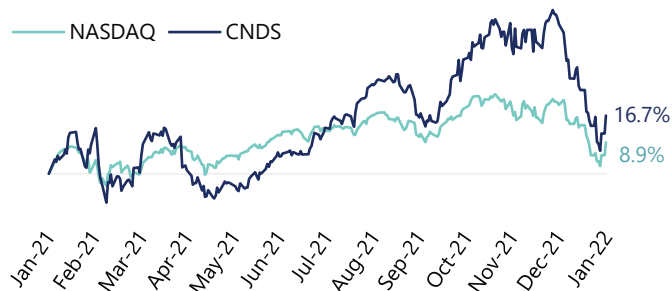
EDA Leader Exploring Market Growth Avenues

« **Recent acquisitions expand Cadence's footprint in CAE solutions**

- In April 2021, Cadence announced the acquisition of Pointwise, developer of mesh generation software with focus on computational fluid dynamics applications, for $31.4m
  - The acquisition incorporates Pointwise's mesh generation software and builds further upon its recent NUMECA acquisition, further enhancing Cadence's already established multi-physics product simulation capabilities
- In February 2021, Cadence announced the completion of its acquisition of NUMECA International, developer of computational fluid dynamics software, for $229.1m
  - The acquisition helps broaden both Cadence's CFD solutions and system analysis capabilities
  - Cadence sees these added CFD capabilities as being highly complementary with existing capabilities in electromagnetic simulation and integrated circuit design in providing holistic simulation & design solutions for multi-physics electronics-oriented systems

« **Leadership transition in-place**

- In July 2021, Cadence announced Anirudh Devgan would transition into the CEO role on December 15, 2021
  - Current CEO, Lip-Bu Tan will transition to executive chairman once Devgan takes over
  - Devgan will assume the role of president and CEO of Cadence

Dassault Systemes

Business Overview

($ in millions)

Headquarters:	Vèlizy-Villacoublay, France
LinkedIn Employees (1-Yr. Growth):	17,781 (▲4%)
Website:	www.3ds.com
Ownership Status:	Public (PAR: DSY)
Total Acquisitions:	50
Enterprise Value (EV):	$69,713.6
TTM Revenue:	$5,460.7
TTM EBITDA:	$1,406.5
EV / TTM Revenue:	12.77x
EV / TTM EBITDA:	49.60x

Description:
3D modeling applications, simulation applications creating virtual twins of products or production systems, social and collaborative applications, and information intelligence applications

TTM January 2022 Market Pricing

NASDAQ — DSY

18.9%

8.9%
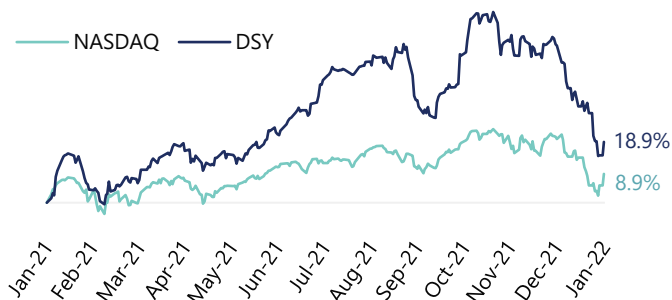
Dassault Stays Quiet Following Transformative Medidata Deal

« **2021 acquisitions expand Centric PLM business and foundational technology capabilities**

- In November 2021, Dassault Systemes' Centric PLM business unit acquired Armonica Retail, an end-to-end retail planning software solution, for an undisclosed amount
  - Armonica's operational capabilities in merchandise financial planning, range planning, assortment planning and buying, store allocation and replenishment, forecasting and vendor replenishment, and wholesale planning / forecasting complement Centric's core capabilities in retail product design, development, and supply chain management
  - The acquisition enables Dassault / Centric's retail, fashion, and apparel customers to orchestrate an integrated process for planning to development to delivery to omni-channel sales

- In July 2021, Dassault Systemes acquired Iterop, provider of business process management software, for an undisclosed amount
  - Iterop focuses on optimizing and automating business process by leveraging BPMN 2.0 standards
  - The acquisition follows Dassault's 2020 acquisition of NuoDB, a cloud-native distributed SQL database leader, in adding foundational technology capabilities applicable across Dassault's vast solution portfolio
  - These acquisitions take Dassault away from what has traditional been their core business of PLM, CAD and simulation

« **Dassault Launches SOLIDWORKS 2022**

- In September 2021, Dassault Systemes released *SOLIDWORKS 2022*, the latest addition to the Company's 3D design and engineering application portfolio
  - *SOLIDWORKS 2022* provides hundreds of new enhancements that foster innovation and streamline the product development process from concept to manufacturing
  - The performance improvements were inspired by the existing community of users, allowing for innovators to create better quality products with increased speed and efficiency

ESI Group

Business Overview

($ in millions)

Headquarters:	Paris, France
LinkedIn Employees (1-Yr. Growth):	1,756 (0%)
Website:	www.esi-group.com
Ownership Status:	Public (PAR: ESI)
Total Acquisitions:	19
Enterprise Value (EV):	$545.2
TTM Revenue:	$158.4
TTM EBITDA:	$9.2
EV / TTM Revenue:	3.44x
EV / TTM EBITDA:	59.4x

Description:
Virtual prototyping software that simulates a product's behavior during testing, manufacturing, and real-life use

TTM January 2022 Market Pricing

NASDAQ — ESI — 64.2% — 8.9%

Jan-21 Feb-21 Mar-21 Apr-21 May-21 Jun-21 Jul-21 Aug-21 Sep-21 Oct-21 Nov-21 Dec-21 Jan-22
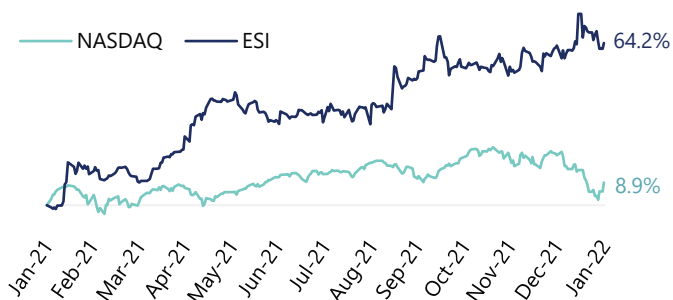
European CAE Leader Focused on Organic Growth Initiatives

« **Long-term planning focused around financial objectives**

- In October 2021, ESI Group announced its 3-year strategic plan *OneESI 2024 – Focus to Grow*
  - Acknowledging in the announcement that the company's profit and growth are below industry benchmarks set by peers in the engineering software space, the company's 3-year plan is focused on driving high single digit revenue growth and an adjusted EBIT margin expansion beyond 20%
  - ESI management believes that in order to execute on this goal, the company "must focus on its core business to invest to win in key simulation markets" and "must globalize its distribution to serve global customers, including a globally coordinated value packaging & pricing strategy"

« **New sales leadership put in-place to stimulate go-to-market reinvigoration**

- In September 2021, ESI Group appointed Francis Griffiths as new Executive Vice President of Sales
  - Griffiths joins ESI Group from National Instruments, a producer of automated test equipment and virtual instrumentation software, where he served for 29 years in a variety of roles including European VP of Sales and SVP of Global Sales, Field Marketing, and Operations

« **No acquisitions in 2021**

- ESI Group did not complete any acquisitions in 2021
- The company's most recent M&A activity came in 2017 with the acquisition of Scilab Enterprises, an open source software platform for analytical numerical solutions

Gamma Technologies

Business Overview

($ in millions)

Headquarters:	Westmont, IL
LinkedIn Employees (1-Yr. Growth):	171 (▲4%)
Website:	www.gtisoft.com
Ownership Status:	PE-backed (*TA*, *Insight*, *Cove Hill*)
Acquisitions:	3
Enterprise Value (EV):	n/a
TTM Revenue:	n/a
TTM EBITDA:	n/a
EV / TTM Revenue:	n/a
EV / TTM EBITDA:	n/a

Description:
Multi-physics CAE system simulation software spanning fluid flow, thermal, mechanical, electrical, magnetic, chemistry, and controls primarily for engines, vehicle systems & components, and more

Select Funding / Transaction History

Date	Lead Investor	Amount
Feb-22	INSIGHT PARTNERS	n/a (minority transaction)
May-18	COVE HILL PARTNERS	n/a (secondary transaction)
Jun-15	TA ASSOCIATES	n/a (buyout)

CAE Leader Ramps Up Acquisition Activity and Adds New Investor

« **Acquisitions focused around electrification**

- In November 2021, Gamma Technologies announced the acquisition of Exothermia, developer of predictive thermo-electro-chemical solutions for zero-impact emissions technologies, for an undisclosed amount
  - The acquisition extends Gamma's existing vehicle simulation-oriented portfolio in adding capabilities to power the development of next generation "ultra-clean" vehicle architecture systems focused on high efficiencies, decarbonization, and zero emissions
- In July 2021, Gamma Technologies announced the acquisition of Power Design Technologies, makers of PowerForge, a power converter design software, for an undisclosed amount
  - PowerForge extends efficient power converter design across various industries including aerospace, automotive and power generation early in the product development cycle
  - The addition of PowerForge strengthens Gamma Technologies' product suite, continuing the transition toward an electrified future

« **Insight Partners joins the party**

- In February 2022, Gamma Technologies announced a strategic growth investment from Insight Partners of an undisclosed amount
  - The investment will further accelerate Gamma Technologies' strategic initiatives in technology research, product development, and market expansion within the software simulation space
  - Insight joins existing investor Cove Hill as a "significant minority" shareholder, while existing investor TA Associates, who made a significant new investment as part of the transaction, retains the largest shareholding

Hexagon

Business Overview

($ in millions)

Headquarters:	Stockholm, Sweden
LinkedIn Employees (1-Yr. Growth):	2,910[1] (▲8%)
Website:	www.hexagon.com
Ownership Status:	Public (STO: HEXA-B)
Acquisitions:	101
Enterprise Value (EV):	$41,658.3
TTM Revenue:	$4,831.6
TTM EBITDA:	$1,705.5
EV / TTM Revenue:	8.62x
EV / TTM EBITDA:	24.4x

Description:
Global leader in sensor, software, and autonomous solutions for industrial, manufacturing, infrastructure, safety, and mobility applications

TTM January 2022 Market Pricing
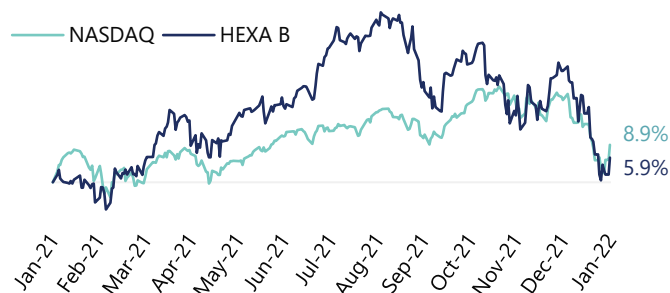
8.9%
5.9%

NASDAQ — HEXA B

Jan-21, Feb-21, Mar-21, Apr-21, May-21, Jun-21, Jul-21, Aug-21, Sep-21, Oct-21, Nov-21, Dec-21, Jan-22

Infor EAM Acquisition Marks Major Growth Investment

« **Acquisitions augment capabilities across Manufacturing Intelligence portfolio**

- In October 2021, Hexagon announced the completion of its acquisition of Infor's Enterprise Asset Management (EAM) business, for $2.75b
  - Infor EAM is a SaaS-based asset management solution that digitalizes maintenance operations and tracks assets, enabling optimum operational efficiency
  - The $2.75b consideration consists of $792m in cash and the remainder paid in 132.6m Series B shares issued to Infor, amounting to ~4.9% equity ownership and ~3.6% voting shares in Hexagon
  - With an expected 2021 revenue of $184m, the acquisition values Infor's EAM business at nearly 15x expected revenues

- In September 2021, Hexagon announced the acquisition of Jovix, developer of material tracking software for the construction industry, for an undisclosed amount
  - Jovix provides both transparency and traceability into the status and location of materials throughout the engineering, procurement, and construction (EPC) lifecycle

- In July 2021, Hexagon announced the acquisition of Immersal, developer of spatial mapping and visual positioning tool intended to enhance Augmented Reality (AR) infrastructure and applications, for an undisclosed amount
  - Hexagon inherits Immersal's experience developing AI and machine learning-based spatial anchor technology, further expanding its AR application capabilities

- In April 2021, Hexagon announced the acquisition of CADLM SAS, an engineering design software platform utilizing simulation in product development processes and lifecycles, for an undisclosed amount
  - CADLM's *ODYSSEE* software platform takes real-world sensor data and physics-based simulation data, applies AI and machine learning, resulting in enhanced accuracy for predictive models of a product at efficient computing power levels
  - CADLM will operate as part of Hexagon's Manufacturing Intelligence division

Jama Software

Business Overview

($ in millions)

Headquarters:	Portland, OR
LinkedIn Employees (1-Yr. Growth):	224 (▲11%)
Website:	www.jamasoftware.com
Ownership Status:	PE-backed (*Insight*)
Total Acquisitions:	1
Enterprise Value (EV):	n/a
LTM Revenue:	n/a
LTM EBITDA:	n/a
EV / LTM Revenue:	n/a
EV / LTM EBITDA:	n/a

Description:
Global leader in sensor, software, and autonomous solutions for industrial, manufacturing, infrastructure, safety, and mobility applications

Select Funding / Transaction History

Date	Lead Investor	Amount
Jun-18	INSIGHT PARTNERS	$200.0 million (majority)
May-17	n/a	$10.0m (Series B2)
Mar-15	updata PARTNERS	$19.5 million (Series B1)
Aug-13	Trinity VENTURES	$2.79 million (Series B)

Requirements Management Leader Focuses on Organic Growth

« **New product initiatives center around automation and verticalization**

- In June 2021, Jama Software announced the release of the beta version of its *Jama Software Requirements Advisor,* intended to enhance requirements quality within the product development lifecycle
  - *Jama Software Requirements Advisor* leverages the power of natural language processing to analyze and improve the quality requirements utilized within the product development lifecycle, accelerating time to market and overall product quality
- In November 2020, Jama Software announced the launch of *Jama Connect for Airborne Systems,* a software solution intended to assist systems engineering teams minimize barriers associated with the compliance process for aircraft and aviation development
  - This solution supports mission-and-safety-critical standards, allowing users to seamlessly manage requirements, risks, and tests all in one convenient platform

PTC

Business Overview

($ in millions)

Headquarters:	Boston, MA
LinkedIn Employees (1-Yr. Growth):	7,006 (▼4%)
Website:	www.ptc.com
Ownership Status:	Public (NasdaqGS: PTC)
Total Acquisitions:	36
Enterprise Value (EV):	$14,823.0
TTM Revenue:	$1,807.2
TTM EBITDA:	$452.2
EV / TTM Revenue:	8.20x
EV / TTM EBITDA:	32.8X

Description:
Portfolio of computer-aided design (CAD) modeling, product lifecycle management (PLM), service lifecycle management (SLM) and industrial-focused AR / VR and IoT solutions

TTM January 2022 Market Pricing
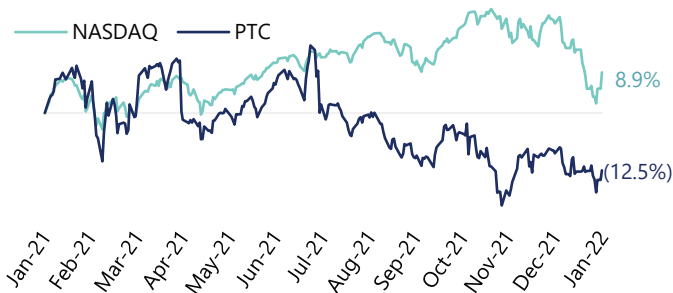
NASDAQ ── PTC

8.9%

(12.5%)

Jan-21 Feb-21 Mar-21 Apr-21 May-21 Jun-21 Jul-21 Aug-21 Sep-21 Oct-21 Nov-21 Dec-21 Jan-22

PTC Re-orients for SaaS Following Recent Acquisitions

« **Organic product and sales initiatives center around SaaS offerings**

- In September 2021, to meet growing demand, PTC announced the expansion of Arena product life management (PLM) in Europe, increasing the product's global footprint
  - Since PTC's acquisition of Arena Solutions, Arena PLM has seen rapid growth and significant increase in demand
  - To keep up with the adoption of SaaS solutions, Arena now offers EMEA customers cloud-based software systems hosted in Europe
- In April 2021, PTC announced the expansion of its PTC Atlas™ SaaS platform with the addition of two new product extensions, Vuforia Expert Capture and Creo Generative Design Extension
  - The extensions provide richer-featured products and propel PTC's time-to-market above industry-standard statistics
  - PTC's Atlas platform was formed through the 2019 acquisition of Onshape, a native-cloud 3D CAD software platform
- In January 2021, PTC announced the completion of its acquisition of Arena Solutions, a SaaS product lifecycle management (PLM) solution
  - Together, the combine company will provide a pure SaaS CAD and PLM solution, capturing the accelerating shift toward software for product design, development, and realization

Revalize

Business Overview

($ in millions)

Headquarters:	Jacksonville, FL
LinkedIn Employees (1-Yr. Growth):	274 (▲496%)
Website:	revalizesoftware.com
Ownership Status:	PE-backed (TA)
Acquisitions:	11
Enterprise Value (EV):	n/a
LTM Revenue:	n/a
LTM EBITDA:	n/a
EV / LTM Revenue:	n/a
EV / LTM EBITDA:	n/a

Description:
Configure, price, quote, and supply chain software helping manufacturers streamline and accelerate their revenue processes

Select Funding / Transaction History

Date	Lead Investor	Amount
Nov-21	✖Hg	$25.5 million
Jun-21	TA ASSOCIATES	n/a (buyout)
Dec-18	Luminate CAPITAL PARTNERS	n/a (buyout)

New Engineering & Manufacturing Portfolio Comes to Market

« **New platform completes nearly ten acquisitions in debut year**

- In June 2021, TA Associates purchased AutoQuotes, a CPQ (configure, price, quote) and product design analytics software platform, ultimately forming a new cloud-based platform for manufacturers called Revalize
  - In the following months, TA executed nearly ten add-on acquisitions to the platform, forming a global portfolio of software solutions addressing critical pain-points in design, engineering, manufacturing, and sales for vertically-oriented product manufacturers across a range of end verticals
- In November 2021, Revalize announced the acquisition of three European Software companies, Procad Group, SpecPage, and Tenado
  - **Procad Group** is a developer of a product and document lifecycle management platform designed to digitalize business processes in product development and management
  - **SpecPage** is a developer of PLM and quality assurance solutions for recipe-based, process manufacturers
  - **Tenado** provider of computer-aided design (CAD) software solutions for the metal and wood fabrication trades, mechanical engineering, fore protection and traffic management sectors
- In November 2021, Revalize announced the acquisition of Sofon, provider of Guided Selling and CPQ software solutions
  - The acquisition further strengthens Revalize's CPQ and revenue operations solutions for manufactured products
- In August 2021, Revalize announced the acquisition of four companies that extends the reach of the Company's solution portfolio and increases their global customer base to 9,000+ users
  - **Attainia** a medical equipment planning solution, connecting hospitals, suppliers, consultants, and group purchasing organizations (GPOs) with a catalog that includes over 70,000 medical devices and healthcare equipment
  - **BCA Technologies** a platform connecting building product manufacturers to the architecture, engineering, and construction (AEC) value chain
  - **LeadMethod** a lead management solution that strengthens distributor engagement
  - **MicroD** is a platform with eCommerce, CPQ, and visualization capabilities, that connects home furnishing manufacturers with distribution channels

Siemens

Business Overview

($ in millions)

Headquarters:	Munich, Germany
LinkedIn Employees (1-Yr. Growth):	252,064 (▲3%)
Website:	siemens.com
Ownership Status:	Public (ETR: SIE)
Total Acquisitions:	62
Enterprise Value (EV):	$182,628.8
TTM Revenue:	$72,166.2
TTM EBITDA:	$9,924.0
EV / TTM Revenue:	2.53x
EV / TTM EBITDA:	18.40x

Description:
Silicon chip design, verification, IP integration, and application security testing solutions

TTM January 2022 Market Pricing

NASDAQ — SIE

8.9%

0.9%
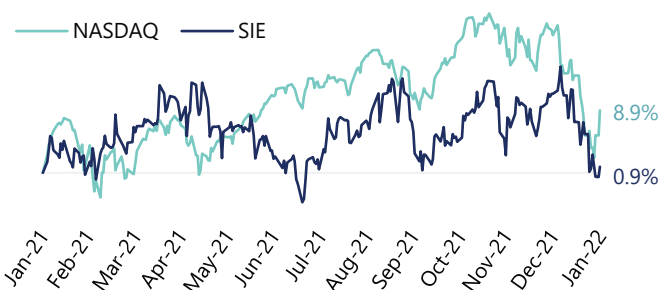
Diversified Engineering Leader Invests Across Market Segments

« **Acquisition activity highlighted by Supplyframe deal**

- In October 2021, Siemens announced the completion of its acquisition of French startup Wattsense, a developer of IoT management software solutions designed to control and monitor small and mid-size buildings, for an undisclosed amount
  – The acquisition allows Siemens to expand its building automation offering, reducing energy use and increasing the adoption of IoT management solutions

- In June 2021, Siemens announced the acquisition of Nextflow Software, developer of computational fluid dynamics (CFD) simulation software, for an undisclosed amount
  – The acquisition of Nextflow expands the Simcenter software portfolio with rapid meshless CFD capabilities to accelerate the analysis of complex transient applications in the automotive, aerospace, and marine industries such as gear box lubrication, tank sloshing, or electric motor spray cooling

- In May 2021, Siemens announced it signed an agreement to acquire Supplyframe, provider of Design-to-Source Intelligence (DSI) for the global electronics value chain, for $700.0m
  – The integration of Siemens EDA and PCB portfolio with Supplyframe's marketplace intelligence will help customers reduce costs, increase agility, and make highly informed decisions relating to electronics-oriented manufacturing
  – Supplyframe's ecosystem touches over 10 million engineering and supply chain professionals worldwide, transforming how businesses design, source, market, and sell product in the global electronics value chain
  – Prior to the acquisition, Supplyframe's SaaS offerings had been growing at a ~40% CAGR in recent years

Synopsys

Business Overview

($ in millions)

Headquarters:	Mountain View, CA
LinkedIn Employees (1-Yr. Growth):	16,017 (▲5%)
Website:	synopsys.com
Ownership Status:	Public (NasdaqGM: SNPS)
Total Acquisitions:	78
Enterprise Value (EV):	$49,342.4
TTM Revenue:	$4,204.2
TTM EBITDA:	$921.8
EV / TTM Revenue:	11.74x
EV / TTM EBITDA:	53.5x

Description:
Silicon chip design, verification, IP integration, and application security testing solutions

TTM January 2022 Market Pricing
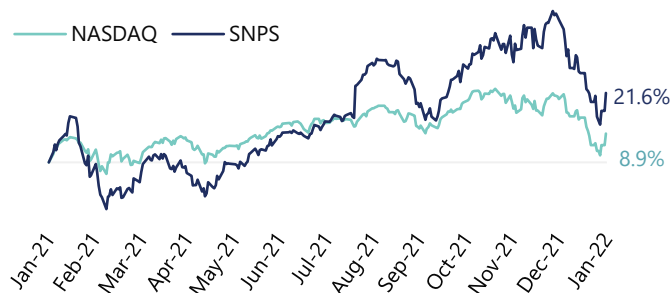
EDA Leader Maintains Core Focus

« **Acquisitions round out capabilities in semiconductor design and simulation lifecycle**

- In November 2021, Synopsys announced the acquisition of Concertio, provider AI-powered performance optimization software, for an undisclosed amount
  - The acquisition further enhances Synopsys' SiliconMAX™ Silicon Lifecycle Manament (SLM) platform, helping maximize all aspects of silicon performance across the entire lifecycle
- In September 2021 , Synopsys announced the completion of its acquisition of the semiconductor and flat panel display solutions from BISTel, for an undisclosed amount
  - The acquisition combines Synopsys' machine learning, big data management and semiconductor process simulation with BISTel's technology and products
- In June 2021, Synopsys announced the acquisition of Code Dx, provider of security risk management solution that automates and accelerates the discovery, prioritization, and remediation of software vulnerabilities, for an undisclosed amount
  - With the addition of Code DX, Synopsys can now deliver consolidated risk reporting and prioritization across correlated software vulnerability data produced by Synopsys solutions
- In May 2021 , Synopsys announced the completion of its acquisition of MorethenIP, provider of Ethernet Digital Controller IP supporting data rates from 10G to 800G, for an undisclosed amount
  - The acquisition enables Synopsys to provide users with a complete low-latency, high-performance Ethernet IP solution for networking, AI, and cloud computing SoCs through the expansion of its DesignWare Ethernet Controller IP portfolio

Zuken

Business Overview

($ in millions)

Headquarters:	Yokohama, Japan
Employees (1-Yr. Growth):	384 (▼2%)
Website:	zuken.com
Ownership Status:	Public (TKS: 6497)
Acquisitions:	3
Enterprise Value (EV):	$367.2
TTM Revenue:	$275.5
TTM EBITDA:	$41.9
EV / TTM Revenue:	1.33x
EV / TTM EBITDA:	8.80x

Description:
Software products and consulting services for electrical and electronic engineering design processes

TTM January 2022 Market Pricing

NASDAQ — ZUKEN

8.9%
(1.7%)

New Vitech COO Looks to Accelerate Expansion of MBSE Business

« **Leadership appointment oriented around MBSE business unit**

- In September 2021, Zuken announced the appointment of Enrique Krajmalnik as new Chief Operating Officer of Zuken Vitech Inc.
  - Previously, Krajmalnik held the role of Vice President of Business Development at Zuken USA
  - With the new appointment, Zuken is aiming to enhance support for customers intended to utilize model-based systems engineering (MBSE) to transform their product development process
  - Zuken is well positioned to offer both MBSE and detailed design solutions for electrical and electronic systems

« **No acquisitions in 2021**

- Zuken did not complete any acquisitions in 2021
- The company's most recent M&A activity came in 2019 with the acquisition of Vitech, a model-based systems engineering (MBSE) software platform

III.

Comparable Transactions &
Public Companies

Public Companies
Engineering & Design

Company(1)	Share Price 1/31/2022	% 52-Wk High	Market Cap	Enterprise Value	Revenue Metrics(2) CY21A	CY22E	Y/Y	Profitability Margins(2) TTM GM	TTM EBITDA	CY22E	EV / Revenue CY21A	CY22E	EV / EBITDA(3) CY21A	CY22E	Dry Powder(4)	TTM Acqs.
Altair Engineering	$62.92	75.8%	$5,112	$4,885	$519	$571	10.1%	75.5%	8.8%	15.9%	9.41x	8.55x	n/m	n/m	$1,740	1
Altium	$25.15	78.8%	$3,306	$3,126	$198	$228	14.9%	47.0%	29.7%	35.4%	15.76x	13.72x	49.2x	38.8x	$1,067	-
ANSYS	$340.01	82.1%	$29,839	$29,638	$1,913	$2,100	9.8%	89.3%	34.4%	44.3%	15.49x	14.12x	36.0x	31.9x	$9,497	3
Aspen Technology	$150.16	88.7%	$10,079	$10,187	$731	$769	5.2%	91.0%	44.6%	53.1%	13.93x	13.24x	26.3x	24.9x	$3,589	2
Autodesk	$249.79	72.5%	$54,947	$56,248	$4,320	$5,072	17.4%	91.7%	18.6%	39.1%	13.02x	11.09x	39.5x	28.4x	$16,698	4
AVEVA Group	$39.16	68.8%	$11,803	$12,661	$1,525	$1,778	16.6%	79.0%	19.0%	31.9%	8.30x	7.12x	29.0x	22.3x	$3,564	-
Bentley Systems	$40.17	55.9%	$12,653	$13,850	$959	$1,091	13.8%	77.4%	19.6%	33.5%	14.45x	12.70x	44.2x	37.8x	$3,657	4
Cadence Design Systems	$152.14	79.0%	$42,618	$41,952	$2,973	$3,232	8.7%	89.6%	31.0%	40.8%	14.11x	12.98x	35.1x	31.8x	$14,225	2
Dassault Systèmes	$47.55	74.7%	$63,302	$65,015	$5,527	$6,166	11.6%	83.7%	33.2%	35.5%	11.76x	10.54x	31.0x	29.7x	$20,264	2
ESI	$85.13	95.2%	$491	$517	$157	$168	7.0%	75.0%	5.8%	13.6%	3.29x	3.07x	28.3x	22.5x	$283	-
Procore	$62.56	57.5%	$8,674	$7,691	$507	$630	24.3%	81.8%	n/m	n/m	15.17x	12.20x	n/m	n/m	$2,869	3
PTC	$116.26	75.6%	$13,704	$15,054	$1,837	$1,982	7.9%	79.3%	25.0%	37.4%	8.19x	7.59x	29.2x	20.3x	$4,906	1
Synopsys	$310.50	82.2%	$48,267	$47,505	$4,297	$4,846	12.8%	80.7%	21.9%	34.9%	11.06x	9.80x	45.6x	28.1x	$15,234	5
Trimble	$72.16	74.8%	$18,135	$19,072	$3,943	$4,280	8.5%	58.4%	21.7%	25.9%	4.84x	4.46x	19.2x	17.2x	$7,067	-
Unity Software	$105.15	50.1%	$33,631	$34,395	$1,111	$1,496	34.7%	77.7%	n/m	2.0%	30.97x	22.99x	n/m	n/m	$8,642	5
Zuken	$25.58	60.8%	$595	$375	$274	$297	8.4%	69.3%	15.2%	16.8%	1.37x	1.26x	9.4x	7.5x	$481	-
Mean		73.3%	$22,322	$22,636	$1,924	$2,169	13.2%	77.9%	23.5%	30.7%	11.94x	10.34x	32.5x	26.3x	$7,111	2.9
Median		75.2%	$13,178	$14,452	$1,318	$1,637	10.8%	79.2%	21.8%	34.9%	12.39x	10.82x	31.0x	28.1x	$4,282	3.0

(1) Currency normalized to USD, on share price date
(2) Wall Street consensus estimates
(3) EV / Revenue and EV / EBITDA multiples in excess of 50.0x or less than 0.0x are considered not meaningful
(4) Dry Powder - Greater of: [(125% of Rec. Rev. less Debt) + (50% of Cash & C.E.) + (20% of Mkt. Cap.)] or [(6x EBITDA less Debt) + (50% of Cash & C.E.) + 20% of Mkt. Cap.)]

Precedent Engineering & Design M&A Transactions
Public Companies & Leading Platforms

MADISON PARK GROUP

Altair	Gamma Technologies
Altium	Hexagon
Ansys	Jama Software
Aras	PTC
Autodesk	Revalize
Bentley	Siemens
Cadence	Synopsys
Dassault	Zuken
ESI Group	

($ in Millions) — Target Overview / Transaction Statistics

Date	Target	Description	Estimated Revenue	EBITDA	Deal Value	Deal Value / Estimated Revenue	EBITDA
Altair					**Total Disclosed M&A Deal Value: $250.7 Million**		
Feb-22	Cassini	Unified cloud product lifecycle management platform	n/a	n/a	n/a	n/a	n/a
Dec-21	World Programming	Data analytics software	n/a	n/a	n/a	n/a	n/a
Aug-21	S-Frame Software	Dtructural analysis and design software solutions	n/a	n/a	n/a	n/a	n/a
Feb-21	GE Aviation (Flow Simulator Software)	Integrated flow, heat transfer, and combustion design software	n/a	n/a	n/a	n/a	n/a
Oct-20	M-Base	Material information systems	n/a	n/a	n/a	n/a	n/a
Sep-20	Ellexus	Input/output (I/O) analysis	n/a	n/a	n/a	n/a	n/a
Sep-20	Univa	Enterprise-grade workload management	n/a	n/a	n/a	n/a	n/a
Jul-20	S&WISE	Polyurethane foaming simulation software	n/a	n/a	n/a	n/a	n/a
May-20	WRAP	Spectrum management and radio network planning	n/a	n/a	n/a	n/a	n/a
Jan-20	newFASANT	Electromagnetic simulation software	n/a	n/a	n/a	n/a	n/a
Oct-19	Polliwog Co.	EDA verification and evaluation	n/a	n/a	n/a	n/a	n/a
Apr-19	Cambridge Collaborative	High-frequency noise and vibration simulation	n/a	n/a	n/a	n/a	n/a
Nov-18	Datawatch	Enterprise data preparation & visualization	$41.7	($9.3)	$183.43	4.40x	n/m
Oct-18	SIMSOLID	Structural analysis simulation software	n/a	n/a	$22.1	n/a	n/a
May-18	FluiDyna GmbH	Fluid dynamics simulation software	n/a	n/a	$2.7	n/a	n/a
Mar-18	CANDI Controls	Real-time device control and data management	n/a	n/a	$2.4	n/a	n/a
Sep-17	Runtime	EDA software optimizing application computing	n/a	n/a	$25.5	n/a	n/a
Sep-17	Componeering	Composites analysis and design software	n/a	n/a	n/a	n/a	n/a
Jun-17	Carriots	IoT device enablement platform	n/a	n/a	$6.7	n/a	n/a
May-17	MODELiiS	EDA for circuit modelling & systems design	n/a	n/a	$2.0	n/a	n/a
Sep-16	Solid Iris Technologies	Rendering software for architecture applications	n/a	n/a	n/a	n/a	n/a
May-16	CEDRAT	Simulation software for mechatronic systems	n/a	n/a	$5.1	n/a	n/a
Mar-16	Awe Communications	Product design software for cellular devices	n/a	n/a	n/a	n/a	n/a
Sep-15	Click2Cast	Casting process simulation software	n/a	n/a	$0.7	n/a	n/a
Apr-15	Multiscale Design Systems	Modeling, simulation, and testing software	n/a	n/a	n/a	n/a	n/a
Jul-14	Visual Solutions	Commercial simulation software	n/a	n/a	n/a	n/a	n/a
Dec-13	EM Software & Systems	Consulting services for electromagnetic analysis	n/a	n/a	n/a	n/a	n/a
Nov-12	Synopsis Consulting	Business consulting services for product dev.	n/a	n/a	n/a	n/a	n/a
Jan-11	ACUSIM Software	Computation fluid dynamics software	n/a	n/a	n/a	n/a	n/a
Oct-10	SimLab Corporation	Auto industry modeling and simulation software	n/a	n/a	n/a	n/a	n/a
Jan-07	solidThinking	Integrated rendering engine design software	n/a	n/a	n/a	n/a	n/a
Jan-07	Hiqube	Simulation-driven business analytics suite	n/a	n/a	n/a	n/a	n/a
Mar-03	PBS Works	Secure workload management for computing	n/a	n/a	n/a	n/a	n/a
Altium					**Total Disclosed M&A Deal Value: $54.1 Million**		
Apr-19	Gumstix	Hardware development and manufacturing	$2.3	n/a	$4.9	2.13x	n/a
Jul-18	PCB:NG	PCB manufacturing	n/a	n/a	$4.8	n/a	n/a
May-18	FluiDyna	Predictive aerodynamic simulation tools	n/a	n/a	n/a	n/a	n/a
May-18	CANDI Controls	Data protocol management for edge devices	n/a	n/a	n/a	n/a	n/a
Feb-18	TES International	Thermal solutions for complex flow mapping	n/a	n/a	n/a	n/a	n/a
Aug-17	Upverter	Online circuit design platform	n/a	n/a	$5.6	n/a	n/a
Jan-17	Premier EDA Solutions	Electronic design automation	n/a	n/a	$4.0	n/a	n/a
Sep-16	Transfer	Electronics design software	n/a	n/a	$1.8	n/a	n/a
Aug-16	Perception Software	Engineering productivity application	n/a	n/a	$7.9	n/a	n/a
Aug-15	Octopart	Electronics parts search	n/a	n/a	$18.0	n/a	n/a
Aug-15	Ciiva	Electronic component management	n/a	n/a	$4.0	n/a	n/a
Sep-10	Morfik Technology	Cloud application development	n/a	n/a	$3.1	n/a	n/a
ANSYS					**Total Disclosed M&A Deal Value: $4.5 Billion**		
Oct-21	Zemax	Optical imaging and photonics simulation	n/a	n/a	$411.5	n/a	n/a
May-21	Phoenix Integration	Process integration and design optimization	n/a	n/a	n/a	n/a	n/a
Oct-20	Analytical Graphics Inc.	Mission-driven simulation, testing, and analysis	$80.0	n/a	$722.5	9.03x	n/a
Mar-20	Lumerical	Photonic simulation software	$11.3	n/a	$107.5	9.49x	n/a
Oct-19	Dynardo	Process integration and design tools	n/a	n/a	$33.2	n/a	n/a
Sep-19	Livermore Software	Multi physics simulation software	$62.5	n/a	$777.8	12.44x	n/a
May-19	DfR Solutions	EDA design reliability analysis software	n/a	n/a	n/a	n/a	n/a
Feb-19	Granta Design	Engineering materials information management	$20.0	$2.0	$208.7	10.44x	n/m

Source: Pitchbook, Capital IQ, corporate websites, press releases

Precedent Engineering & Design M&A Transactions
Public Companies & Leading Platforms

MADISON PARK GROUP

Altair	Gamma Technologies
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Ansys	Jama Software
Aras	PTC
Autodesk	Revalize
Bentley	Siemens
Cadence	Synopsys
Dassault	Zuken
ESI Group	

($ in Millions) — Target Overview / Transaction Statistics

Date	Target	Description	Estimated Revenue	Estimated EBITDA	Deal Value	Deal Value / Estimated Revenue	Deal Value / Estimated EBITDA
ANSYS					**Total Disclosed M&A Deal Value: $4.5 Billion**		
Jan-19	Helic	Electro-magnetic cross-talk analysis software	n/a	n/a	n/a	n/a	n/a
Mar-18	Optis World	Optics engineering & simulation software	$24.7	n/a	$291.0	11.78x	n/a
Nov-17	3DSIM	Additive manufacturing process software	n/a	n/a	n/a	n/a	n/a
Jul-17	Computational Engineering	Scientific data visualization software	n/a	n/a	$6.0	n/a	n/a
Mar-17	CLK Design Automation	Static timing and power analysis software	n/a	n/a	n/a	n/a	n/a
Nov-16	KPIT	Automotive engineering software	n/a	n/a	n/a	n/a	n/a
Sep-15	Delcross	CEM & RF analysis software	n/a	n/a	n/a	n/a	n/a
Jul-15	Gear Design	Semiconductor & electric design solutions	n/a	n/a	$30.0	n/a	n/a
Feb-15	Newmerical	In-flight icing simulation software	n/a	n/a	$10.9	n/a	n/a
Nov-14	Parsec Holdings	Technology-driven engineering services	n/a	n/a	$8.4	n/a	n/a
May-14	SpaceClaim	3D direct modeling software	$18.0	n/a	$85.0	4.72x	n/a
Jan-14	Reaction Design	Chemical modeling & simulation software	n/a	n/a	$19.1	n/a	n/a
May-13	Tedaka Technologies	Telecom transmission & networking	n/a	n/a	$2.8	n/a	n/a
Apr-13	Evolutionary Engineering	Aerospace and mechanical engineering	n/a	n/a	$8.1	n/a	n/a
Jul-12	Esterel Technologies	Embedded software design	$21.0	n/a	$58.2	2.77x	n/a
Jun-11	Apache Design	Semiconductor design and verification	$44.0	n/a	$314.0	7.13x	n/a
Aug-08	Ansoft	Electronic design automation software	$103.4	$41.7	$823.8	7.97x	19.7x
Nov-07	Emerging Signals	Railway signaling services	n/a	n/a	$2.2	n/a	n/a
May-06	Fluent	Computational fluid dynamics	n/a	n/a	n/a	n/a	n/a
Feb-06	Aavid Thermal Technologies	Thermal management software solutions	n/a	n/a	$565.0	n/a	n/a
Dec-05	Harvard Thermal	Thermal management software solutions	n/a	n/a	n/a	n/a	n/a
Jan-05	Century Dynamics	Hydro-dynamics simulation	n/a	n/a	$10.0	n/a	n/a
Feb-03	CFX Group	Computational fluid dynamics software	$19.0	n/a	$21.7	1.14x	n/a
Mar-02	IceBreaker	Online informational management software	n/a	n/a	n/a	n/a	n/a
Nov-01	Cadoe	CAD & acoustic testing	n/a	n/a	$3.9	n/a	n/a
Aug-00	ICEM CFD	Aeronautics & automobile design	$6.8	n/a	$12.4	1.82x	n/a
Aras Corporation					**Total Disclosed M&A Deal Value: n/a**		
Jan-22	Minerva Group	PLM for medical devices and high-tech electronics companies	n/a	n/a	n/a	n/a	n/a
Sep-18	Comet Solutions	Process automation for CAE / simulation	n/a	n/a	n/a	n/a	n/a
Aug-18	SofTech (Italy)	Public administration information systems	n/a	n/a	n/a	n/a	n/a
Jan-18	Info Spectrum (Impressa)	MRO management suite	n/a	n/a	n/a	n/a	n/a
Autodesk					**Total Disclosed M&A Deal Value: $4.5 Billion**		
Jan-22	Moxion	Digital media platform for filmmaking process	n/a	n/a	n/a	n/a	n/a
Dec-21	ProEst	Construction estimating and digital takeoff software	n/a	n/a	n/a	n/a	n/a
Nov-21	Tangent Labs	Production software pipline tool for artists and studios	n/a	n/a	n/a	n/a	n/a
Sep-21	iOFFICE	Workplace experience and asset management software	n/a	n/a	n/a	n/a	n/a
May-21	Upchain	Cloud product lifecycle management	n/a	n/a	$139.8	n/a	n/a
Mar-21	Innovyze	Business analytics and performance monitoring software	n/a	n/a	$1,038.3	n/a	n/a
Nov-20	Spacemaker	Generative design for real estate project sites	n/a	n/a	$252.9	n/a	n/a
Aug-20	Pype	Construction data ingestion	n/a	n/a	n/a	n/a	n/a
Jan-19	BuildingConnected	Preconstruction planning solutions	n/a	n/a	$253.2	n/a	n/a
Nov-18	PlanGrid	Digital blueprint solutions	$100.0	n/a	$777.6	7.78x	n/a
Jul-18	Assemble Systems	BIM solutions for construction management	n/a	n/a	$93.6	n/a	n/a
Nov-17	BioLite	Carbon credit license permits	n/a	n/a	n/a	n/a	n/a
Nov-16	Seebo	IoT development modules	n/a	n/a	n/a	n/a	n/a
Jun-16	CadSoft	PCB Design	n/a	n/a	n/a	n/a	n/a
Apr-16	Solid Angle	Animation & visual effects rendering	n/a	n/a	n/a	n/a	n/a
Feb-16	Monolith	Voxel modeling	n/a	n/a	n/a	n/a	n/a
Jan-16	Autodesk Substation Design	AutoCAD software developer	n/a	n/a	n/a	n/a	n/a
Jan-16	SDS	AutoCAD software systems	n/a	n/a	n/a	n/a	n/a
Oct-15	Configure One	CPQ software	n/a	n/a	n/a	n/a	n/a
Oct-15	Indeeo	Apple graphic design applications	n/a	n/a	n/a	n/a	n/a
Sep-15	NetFabb	3D printing software and services	$18.6	n/a	$44.5	2.39x	n/a
Aug-15	SeeControl	IoT business applications platform	n/a	n/a	n/a	n/a	n/a

Source: Pitchbook, Capital IQ, corporate websites, press releases

Precedent Engineering & Design M&A Transactions
Public Companies & Leading Platforms

MADISON PARK GROUP

Altair	Gamma Technologies
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ESI Group	

($ in Millions)

		Target Overview				Transaction Statistics		
Date	Target	Description	Estimated Revenue	EBITDA	Deal Value	Deal Value / Estimated Revenue	EBITDA
Autodesk					**Total Disclosed M&A Deal Value: $4.5 Billion**		
Feb-15	Tweak Software	PLM software hosting	n/a	n/a	n/a	n/a	n/a
Jan-15	Synthicity	Urban planning data processing	n/a	n/a	n/a	n/a	n/a
Dec-14	Magestic Systems	3D nesting of composites	$3.0	n/a	$10.0	3.33x	n/a
Nov-14	Terrible Labs	Mobile and web application development	n/a	n/a	n/a	n/a	n/a
Nov-14	TeamUp Technologies	Three dimensional cloud platform	n/a	n/a	$60.0	n/a	n/a
Nov-14	Lagoa	3D rendering platform	n/a	n/a	$60.0	n/a	n/a
Oct-14	Modio	Character animation software	n/a	n/a	n/a	n/a	n/a
Oct-14	Robobat Polska	Structural engineering software	n/a	n/a	n/a	n/a	n/a
Jun-14	Shotgun Software	Animation & creative software	n/a	n/a	$54.5	n/a	n/a
Jun-14	The Living	Building design studio	n/a	n/a	n/a	n/a	n/a
Jun-14	Bitsquid	Mobile game engine	n/a	n/a	n/a	n/a	n/a
May-14	Within Technologies	Engineering design optimization	n/a	n/a	$88.8	n/a	n/a
May-14	NEi Nastran Solver	Engineering analysis and simulation	n/a	n/a	n/a	n/a	n/a
Apr-14	Ilesfay Technology	PLM data replication	n/a	n/a	n/a	n/a	n/a
Mar-14	Creative Market Labs	Digital content design marketplace	n/a	n/a	n/a	n/a	n/a
Feb-14	Delcam	Automated multi-vertical CAD/CAM	$75.6	n/a	$285.4	3.78x	n/a
Jan-14	Schrauwen Bruneel	Electronic circuits design software	n/a	n/a	n/a	n/a	n/a
Jan-14	Circuits.io	Application for designing electronic circuits	n/a	n/a	n/a	n/a	n/a
Jan-14	Majestic Systems	Industrial manufacturing software	n/a	n/a	n/a	n/a	n/a
Dec-13	Azalient	Traffic simulation modeling	n/a	n/a	n/a	n/a	n/a
Dec-13	Graitec Innovation	Structural building construction CAD	n/a	n/a	$88.1	n/a	n/a
Nov-13	Virtual Shape	Automotive modeling & design	n/a	n/a	n/a	n/a	n/a
Oct-13	for-each	Software focused on mobile development	n/a	n/a	n/a	n/a	n/a
Aug-13	Bestech Systems	Bridge span analysis	n/a	n/a	n/a	n/a	n/a
Aug-13	Savoy Computing	Transportation path analysis	n/a	n/a	n/a	n/a	n/a
May-13	Tinkercad	Cloud-based 3D design tools	n/a	n/a	n/a	n/a	n/a
Mar-13	Firehole Technologies	Composite materials design	n/a	n/a	$10.0	n/a	n/a
Jan-13	Allpoint	3D data processing	n/a	n/a	n/a	n/a	n/a
Jan-13	PI-VR	Automotive visualization	n/a	n/a	$49.3	n/a	n/a
Oct-12	Qontext	Enterprise social collaboration	n/a	n/a	$26.0	n/a	n/a
Oct-12	HSMWorks	Computer aided manufacturing	n/a	n/a	n/a	n/a	n/a
Aug-12	Inforbix	Product data searching	n/a	n/a	n/a	n/a	n/a
Aug-12	Exotic Matter	3D fluid solver and dynamics framework	n/a	n/a	n/a	n/a	n/a
Jul-12	Socialcam	Video data capture	n/a	n/a	$60.0	n/a	n/a
Jun-12	Vela Systems	Construction field software	n/a	n/a	$76.0	n/a	n/a
Dec-11	T-Splines	Surface modeling software	n/a	n/a	n/a	n/a	n/a
Dec-11	Horizontal Systems	BIM platform	n/a	n/a	n/a	n/a	n/a
Nov-11	GRIP Entertainment	Artificial intelligence games	n/a	n/a	n/a	n/a	n/a
Oct-11	Micro Application	CAD/CAM for fabrication & construction	n/a	n/a	$23.0	n/a	n/a
Aug-11	Numenus	High-end visualization	n/a	n/a	n/a	n/a	n/a
Aug-11	Darwin Dimensions	3D character modeling	n/a	n/a	n/a	n/a	n/a
Aug-11	Instructables	User-generated DIY content	n/a	n/a	$30.2	n/a	n/a
Jul-11	Code Mine	Cloud-based image tools and utilities	n/a	n/a	n/a	n/a	n/a
May-11	Datastay	PLM software	n/a	n/a	n/a	n/a	n/a
Mar-11	Blue Ridge Numerics	Fluid dynamics and simulation	n/a	n/a	$39.0	n/a	n/a
Mar-11	Scaleform	UI software for consumer electronics	n/a	n/a	$36.0	n/a	n/a
Dec-10	Sim Ops	3D gaming technology	n/a	n/a	n/a	n/a	n/a
Jul-10	Illuminate Labs	Game lighting technology	n/a	n/a	n/a	n/a	n/a
May-10	3am Solutions (Assets)	Project visualization	n/a	n/a	n/a	n/a	n/a
Dec-09	PlanPlatform	2D & 3D engineering software	n/a	n/a	$25.0	n/a	n/a
Aug-09	Boss International	Water analysis & engineering	n/a	n/a	n/a	n/a	n/a
Jan-09	ALGOR	Mechanical/civil engineering software	n/a	n/a	$30.4	n/a	n/a
Dec-08	BIMWorld	BIM solutions	n/a	n/a	n/a	n/a	n/a
Dec-08	Logimetrix	Design/engineering automation	n/a	n/a	n/a	n/a	n/a
Nov-08	SoftImage	3D animation	n/a	n/a	$36.0	n/a	n/a
Sep-08	Bigvan	Develops Computer Aided Design software	n/a	n/a	n/a	n/a	n/a

Source: Pitchbook, Capital IQ, corporate websites, press releases

Precedent Engineering & Design M&A Transactions
Public Companies & Leading Platforms

MADISON PARK GROUP

Altair	Gamma Technologies
Altium	Hexagon
Ansys	Jama Software
Aras	PTC
Autodesk	Revalize
Bentley	Siemens
Cadence	Synopsys
Dassault	Zuken
ESI Group	

($ in Millions)		Target Overview				Transaction Statistics		
Date	Target	Description	Estimated Revenue	EBITDA		Deal Value	Deal Value / Estimated Revenue	EBITDA
Autodesk					**Total Disclosed M&A Deal Value: $4.5 Billion**			
Sep-08	3D Geo	3D urban modeling software	n/a	n/a		n/a	n/a	n/a
Aug-08	ECS	Digital schematic prototyping	n/a	n/a		n/a	n/a	n/a
Jul-08	Moldflow	Design-to-manufacture automation	$61.3	$10.3		$267.3	4.36x	n/m
Jun-08	Square One Research	Architectural software	n/a	n/a		n/a	n/a	n/a
May-08	Kynogon	Interactive application intelligence	n/a	n/a		n/a	n/a	n/a
May-08	Realviz	Digital content creation	n/a	n/a		n/a	n/a	n/a
Jan-08	Carmel Software	HVAC mechanical engineering software	n/a	n/a		n/a	n/a	n/a
Jan-08	Hanna Strategies	AutoCAD and AutoDesk software	n/a	n/a		$13.5	n/a	n/a
Oct-07	Skymatter	Mudbox 3D modelling software	n/a	n/a		$19.0	n/a	n/a
Oct-07	Intelisolve	Hydrology and hydraulic analysis software	n/a	n/a		n/a	n/a	n/a
Aug-07	PlassoTech	3D simulation application software	n/a	n/a		n/a	n/a	n/a
Aug-07	Opticore	Graphics communication software	$12.9	$7.3		n/a	n/a	n/a
Aug-07	NavisWorks	Computer-aided design software	$3.9	$2.0		$26.2	6.76x	13.3x
Aug-07	Cumulate Labs	CAD diagramming software	n/a	n/a		n/a	n/a	n/a
Oct-06	ImpactXoft	Product development software	n/a	n/a		n/a	n/a	n/a
Mar-06	Constructware	Construction collaboration	n/a	n/a		$45.7	n/a	n/a
Jan-06	Alias Systems	Digital content creation	n/a	n/a		$197.0	n/a	n/a
Oct-05	Engineering Intent	Enterprise engineering automation services	n/a	n/a		n/a	n/a	n/a
Aug-05	Solid Dynamics	Kinematics and dynamics technology	$1.3	$0.0		n/a	n/a	n/a
Jul-05	c-plan	Geographic information systems	n/a	n/a		n/a	n/a	n/a
Mar-05	Compass Systems	Data management services	n/a	n/a		$17.2	n/a	n/a
Mar-04	VIA Development	Engineering automation software	n/a	n/a		n/a	n/a	n/a
Feb-04	Mechsoft	Automated component creation software	n/a	n/a		n/a	n/a	n/a
Mar-03	Linius Technologies	CAD connectivity	n/a	n/a		n/a	n/a	n/a
Dec-02	TruEInnovations	File and data management software	n/a	n/a		n/a	n/a	n/a
Aug-02	CAiCE Software	Surveying and engineering applications	n/a	n/a		$10.0	n/a	n/a
Feb-02	Revit Technology	AEC parametric building modeler	n/a	n/a		$133.0	n/a	n/a
Aug-01	Buzzsaw	Construction data management	n/a	n/a		$15.0	n/a	n/a
Mar-97	Softdesk	Integrated AEC software	$34.5	n/a		$90.6	2.63x	n/a
Mar-87	Cadetron	Solids modeling	n/a	n/a		$6.0	n/a	n/a
Bentley					**Total Disclosed M&A Deal Value: $1.8 Billion**			
Nov-21	Power Line Systems	Structural and geometric deisgn software for electric power lines	$40.0	n/a		$725.0	18.13x	n/a
Jun-21	Seequent	3D geological modeling and visual data software	$83.0	n/a		$1,050.0	12.65x	n/a
Jun-21	Spida software	Utility engineering and business processes software	n/a	n/a		n/a	n/a	n/a
May-21	Sensemetrics	Centralized sensor data software	n/a	n/a		n/a	n/a	n/a
Apr-21	Vista Data Vision	Instrumentation data monitoring and management software	n/a	n/a		n/a	n/a	n/a
Apr-21	Inro Consultants	Mobility simulation and modeling for transport sector	n/a	n/a		n/a	n/a	n/a
Feb-21	E7	Field-based construction delivery solutions	n/a	n/a		n/a	n/a	n/a
Jul-20	Cohesive Solutions	IBM Maximo reseller	n/a	n/a		n/a	n/a	n/a
Jun-20	Notevault	Voice-based field automation application	n/a	n/a		n/a	n/a	n/a
Mar-20	GroupBC	Document and information management tools	n/a	n/a		n/a	n/a	n/a
Oct-19	Citilabs	Mobile analytics platform	n/a	n/a		n/a	n/a	n/a
Oct-19	Orbit GeoSpatial Technologies	Geospatial 3D mapping software	n/a	n/a		n/a	n/a	n/a
May-19	Keynetix	Geotechnical data management software	n/a	n/a		n/a	n/a	n/a
Feb-19	SignCAD Systems	Traffic sign design software	n/a	n/a		n/a	n/a	n/a
Nov-18	Alworx	Machine learning & IoT technologies	n/a	n/a		n/a	n/a	n/a
Oct-18	Agency9	Advanced digital twin modelling	n/a	n/a		n/a	n/a	n/a
Oct-18	Legion	Pedestrian simulation software	n/a	n/a		n/a	n/a	n/a
Jun-18	Synchro Software	4D building information modelling	n/a	n/a		n/a	n/a	n/a
Apr-18	Plaxis	Geotechnical software tools	n/a	n/a		n/a	n/a	n/a
Apr-18	SoilVision Systems	Software database for geotechnical engineers	n/a	n/a		n/a	n/a	n/a
Jan-18	S-Cube Futuretech	Structural engineering management tools	n/a	n/a		n/a	n/a	n/a
Oct-17	ACTION Modulers	Water Modeling Software Business	n/a	n/a		n/a	n/a	n/a
Nov-16	Comply Serve	Infrastructure compliance management	n/a	n/a		n/a	n/a	n/a
Sep-15	E-On Software	3D system simulation	n/a	n/a		n/a	n/a	n/a

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Precedent Engineering & Design M&A Transactions
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($ in Millions)		Target Overview				Transaction Statistics		
Date	Target	Description	Estimated Revenue	EBITDA	Deal Value	Deal Value / Estimated Revenue	EBITDA	
Bentley					**Total Disclosed M&A Deal Value: $1.8 Billion**			
Mar-15	EADOC	Construction project management software	n/a	n/a	n/a	n/a	n/a
Feb-15	Acute3D	High-resolution 3D modelling	n/a	n/a	n/a	n/a	n/a
Jan-15	C3 Global	Asset performance improvement applications	n/a	n/a	n/a	n/a	n/a
Sep-14	BLUERIDGE Analytics	3D civil / site design software	n/a	n/a	n/a	n/a	n/a
Nov-13	Engineering Systems	Structural analysis & design software	n/a	n/a	n/a	n/a	n/a
Nov-12	EuResearch	Software for pressure vessels & exchangers	n/a	n/a	n/a	n/a	n/a
Sep-12	IVARA Corporation	Asset performance management software	n/a	n/a	n/a	n/a	n/a
May-12	InspectTech Systems	Mobile inspection & asset management solutions	n/a	n/a	n/a	n/a	n/a
Mar-12	Hannappel Software	CAD software for electrical installations	n/a	n/a	n/a	n/a	n/a
Nov-11	Pointools	Point cloud conversion applications and plug-ins	n/a	n/a	n/a	n/a	n/a
Nov-11	Formation Design Systems	3D modelling & analysis software	n/a	n/a	n/a	n/a	n/a
Mar-11	Engineering Dynamics	Offshore simulation software	n/a	n/a	n/a	n/a	n/a
Jul-10	BLUERIDGE Analytics	3D civil / site design software	n/a	n/a	n/a	n/a	n/a
Feb-10	Enterprise Informatics	Document and records management software	n/a	n/a	n/a	n/a	n/a
Feb-10	Exor Corporation	Infrastructure asset management software	n/a	n/a	n/a	n/a	n/a
Oct-09	gINT Software	Environmental and geotechnical software	n/a	n/a	n/a	n/a	n/a
Cadence Design					**Total Disclosed M&A Deal Value: $3.8 Billion**			
Apr-21	Pointwise	Mesh generation software	n/a	n/a	$31.4	n/a	n/a
Jan-21	NUMECA	Computational fluid dynamics software	n/a	n/a	$198.8	n/a	n/a
Aug-20	InspectAR	Augmented reality platform for circuit board mfgs.	n/a	n/a	n/a	n/a	n/a
Feb-20	Integrand Software	RF solution for analysis and abstraction based	n/a	n/a	n/a	n/a	n/a
Jan-20	AWR Corp	Electronic design automation software	n/a	n/a	$160.0	n/a	n/a
Nov-17	nusemi	Communications IP Developer	n/a	n/a	n/a	n/a	n/a
Jul-16	Rocketick	Chip verification software	n/a	n/a	$38.0	n/a	n/a
Jan-16	Sibridge Technologies	Media software designer	n/a	n/a	n/a	n/a	n/a
Jun-14	Jasper Design Automation	Electronic design automation technology	n/a	n/a	$139.4	n/a	n/a
Feb-14	Forte Design Systems	Semiconductor design software	n/a	n/a	n/a	n/a	n/a
Feb-14	TranSwitch	Intellectual Property Service	n/a	n/a	n/a	n/a	n/a
Jun-13	Evatronix	Mixed signal intellectual property developer	n/a	n/a	n/a	n/a	n/a
May-13	Cosmic Circuits	Silicon based IP cores manufacturer	n/a	n/a	$48.0	n/a	n/a
Apr-13	Tensilica	Provider of controllers, CPU, and specialty DSP processor cores	n/a	n/a	$326.0	n/a	n/a
Jul-12	Sigrity	Signal and power integration technology provider	n/a	n/a	$78.5	n/a	n/a
Jul-11	Azuro	Electronic design automation software	n/a	n/a	n/a	n/a	n/a
May-11	Altos Design Automation	Electronic data automation service	n/a	n/a	n/a	n/a	n/a
Jun-10	Denali Software	Electronic design automation software	$41.9	n/a	$309.4	7.39x	n/a
Mar-10	Taray	Computer system designer	n/a	n/a	n/a	n/a	n/a
Mar-08	Chip Estimate	Integrated circuit prediction technology	n/a	n/a	n/a	n/a	n/a
Aug-07	Clear Shape Technologies	DFM software	n/a	n/a	$41.3	n/a	n/a
Jul-07	Invarium	Advanced layout print service	n/a	n/a	n/a	n/a	n/a
Jan-06	CommandCAD	Integrated circuits layout optimization	n/a	n/a	$25.8	n/a	n/a
Apr-05	Verisity	Verification process automation	$58.0	($5.6)	$325.4	5.61x	n/m
Apr-04	Neolinear	Analog silicon design software	n/a	n/a	$78.1	n/a	n/a
Jan-04	Q Design Atuomation	Integrated circuit layout provider	n/a	n/a	n/a	n/a	n/a
Aug-03	Verplex Systems	Functional verification software	n/a	n/a	$85.1	n/a	n/a
May-03	K2 Technologies	Semiconductor design software	n/a	n/a	n/a	n/a	n/a
Apr-03	Get2Chip	Architectural platform for chip manufactures and IP Provider	n/a	n/a	n/a	n/a	n/a
Mar-03	SpinCircuit	B2B e-commerce portal operator	n/a	n/a	n/a	n/a	n/a
Jan-03	Celestry	Physical design software	n/a	n/a	$64.4	n/a	n/a
Nov-02	Antrim Design Systems	Analog design software	n/a	n/a	n/a	n/a	n/a
Jun-02	Simplex Solutions	Electronic chip design and verification software	n/a	n/a	$329.7	n/a	n/a
Apr-02	Plato Design Systems	Routing and physical design optimization solution	n/a	n/a	$75.0	n/a	n/a
Dec-01	Silicon Perspective	Electronic design automation software	n/a	n/a	n/a	n/a	n/a
Feb-01	CadMos Design Technology	Noise analysis products	n/a	n/a	$105.3	n/a	n/a
Mar-00	Westport Technology	IP Development Services	n/a	n/a	$3.5	n/a	n/a
Dec-99	Diablo Research Company	High tech product development services	n/a	n/a	$80.8	n/a	n/a

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Precedent Engineering & Design M&A Transactions
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ESI Group	

($ in Millions)		Target Overview				Transaction Statistics		
Date	Target	Description	Estimated Revenue	EBITDA		Deal Value	Deal Value / Estimated Revenue	EBITDA
Cadence Design						**Total Disclosed M&A Deal Value: $3.8 Billion**		
Jul-99	OrCAD	Electronic design software	$11.6	$17.2		$122.2	10.55x	7.1x
May-99	Quickturn Design Systems	Level verification solutions	n/a	n/a		$253.0	n/a	n/a
Sep-98	Ambit Design Systems	EDA software for electronic design	n/a	n/a		$255.0	n/a	n/a
May-97	Cooper & Chyan Technology	Semiconductor designer	n/a	n/a		$422.0	n/a	n/a
Dec-91	Valid Logic	CAD Equipment Manufacturer	n/a	n/a		$200.0	n/a	n/a
Oct-89	Gateway Design Automation	CAE Software	n/a	n/a		n/a	n/a	n/a
Dassault Systemes						**Total Disclosed M&A Deal Value: $11.0 Billion**		
Nov-21	Armonica Retail	Cloud retail planning software	n/a	n/a		n/a	n/a	n/a
Jul-21	Iterop	Business process management software	n/a	n/a		n/a	n/a	n/a
Nov-20	NuoDB	Cloud-based SQL database platform	$6.0	n/a		n/a	n/a	n/a
Jul-20	Proxem	Big data semantic analysis	n/a	n/a		n/a	n/a	n/a
Jun-19	Medidata Solutions	Cloud-based solutions for clinical development	$661.0	$85.4		$5,763.8	8.72x	n/m
Mar-19	Argosim	System requirements validation software	n/a	n/a		n/a	n/a	n/a
Feb-19	Trace Software (Assets)	Electrical design and automation software	n/a	n/a		n/a	n/a	n/a
Dec-18	IQMS	Mid-market manufacturing ERP / MES	$56.0	n/a		$425.0	7.59x	n/a
Jun-18	Centric Software	Lifecycle management software	$61.0	n/a		n/a	n/a	n/a
Oct-17	No Magic	Model-based systems for engineering design	n/a	n/a		n/a	n/a	n/a
Sep-17	Exa Corporation	Simulation software for vehicle manufacturers	$72.7	$1.5		$400.3	5.51x	n/m
Jun-17	Outscale	Cloud security and operations management	n/a	n/a		n/a	n/a	n/a
Jun-17	AITAC	Marine and offshore engineering software	n/a	n/a		n/a	n/a	n/a
Dec-16	Xflow CFD	Dynamic fluid flow simulation	n/a	n/a		n/a	n/a	n/a
Jul-16	Computer Simulation	Multiphysics simulation	$51.2	n/a		$247.3	4.83x	n/a
Jun-16	Ortems	Production scheduling and dispatching	$5.4	n/a		n/a	n/a	n/a
Apr-16	3DPLM Software	Product development and QA	n/a	n/a		n/a	n/a	n/a
Apr-15	Modelon	Transportation & mobility modeling	n/a	n/a		n/a	n/a	n/a
Sep-14	Quintiq	Production, logistics, and workforce	$97.6	n/a		$322.7	3.31x	n/a
Jul-14	Simpack	Multi-body industrial simulation	n/a	n/a		n/a	n/a	n/a
Jan-14	Accelrys	Process discovery & simulation	$168.5	($2.2)		$750.0	4.45x	n/m
Dec-13	RTT	3D visualization technology	$111.1	$9.0		$274.1	2.47x	n/m
Sep-13	Safety Technology	Product durability simulation	n/a	n/a		$1.0	n/a	n/a
Jul-13	SFE	Transportation & mobility modeling	n/a	n/a		n/a	n/a	n/a
Jul-13	Apriso	Manufacturing operations execution	n/a	n/a		$205.0	n/a	n/a
Apr-13	Archivideo	3D images & maps	n/a	n/a		n/a	n/a	n/a
Apr-13	Fe-Design	Non-parametric optimization	n/a	n/a		n/a	n/a	n/a
Apr-13	Simpoe	Plastic injection-molding simulation	n/a	n/a		n/a	n/a	n/a
Jan-13	SquareClock	3D space planning	n/a	n/a		n/a	n/a	n/a
Dec-12	Tuscany Design Automation	Visualization services for circuit design	n/a	n/a		n/a	n/a	n/a
Dec-12	Pinpoint	Semiconductor design collaboration	n/a	n/a		n/a	n/a	n/a
Jul-12	Gemcom	Supply chain planning and optimization	$80.4	n/a		$354.9	4.41x	n/a
Feb-12	Netvibes	Personalized dashboard publishing	n/a	n/a		n/a	n/a	n/a
Oct-11	Elsys	Electrical engineering schematics	n/a	n/a		n/a	n/a	n/a
Oct-11	Simulayt	Draping simulation technology	n/a	n/a		n/a	n/a	n/a
Apr-11	Enginuity PLM	Chemical product development	n/a	n/a		n/a	n/a	n/a
Mar-11	Intercim	Supply chain operations management	n/a	n/a		$36.5	n/a	n/a
Oct-10	Inceptra LLC	Product lifecycle management solutions	n/a	n/a		n/a	n/a	n/a
Jun-10	Geensoft	Embedded systems development	n/a	n/a		$6.7	n/a	n/a
Jun-10	Exalead	Unified search platform	n/a	n/a		$164.9	n/a	n/a
Apr-10	IBM (PLM)	PLM sales & support operations	n/a	n/a		$600.0	n/a	n/a
Jul-08	Engineous	Process integration & design software	n/a	n/a		$40.0	n/a	n/a
Jan-08	Deneb Robotics	Multi-computer manufacturing CAD	n/a	n/a		$105.0	n/a	n/a
Sep-07	Seemage	Automotive & aerospace ALM	n/a	n/a		n/a	n/a	n/a
Jun-07	ICEM	Automotive & industrial visualization	n/a	n/a		$108.2	n/a	n/a
May-06	MatrixOne	Collaborative PLM	$135.5	($18.2)		$410.0	3.03x	n/m
Oct-05	Abaqus	Advanced finite element analysis	$100.0	n/a		$413.0	4.13x	n/a
Jul-05	Virtools	3D application development	$3.1	n/a		$14.5	4.63x	n/a

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($ in Millions)

		Target Overview			Transaction Statistics		
Date	Target	Description	Estimated Revenue	EBITDA	Deal Value	Deal Value / Estimated Revenue	EBITDA
Dassault Systemes					**Total Disclosed M&A Deal Value: $11.0 Billion**		
Nov-00	Spatial	Data translation and visualization technology	n/a	n/a	n/a	n/a	n/a
Jan-00	SRAC	CAD analysis programs	n/a	n/a	$22.0	n/a	n/a
Jul-97	Solidworks	Mechanical design software	n/a	n/a	$325.0	n/a	n/a
ESI Group					**Total Disclosed M&A Deal Value: $35.7 Million**		
Feb-17	Scilab Enterprises	Numerical computation platform	n/a	n/a	n/a	n/a	n/a
Sep-16	Correct Checks	Background screening services	n/a	n/a	n/a	n/a	n/a
Feb-16	Mineset	Technological data management	n/a	n/a	$4.7	n/a	n/a
Jan-16	ITI	Simulation tools & software	n/a	n/a	$19.3	n/a	n/a
May-15	Amoeba Technologies	Cooling simulation & design optimization	n/a	n/a	n/a	n/a	n/a
Apr-15	Ciespace	Web-based CAE modeling solutions	n/a	n/a	n/a	n/a	n/a
Apr-15	Picviz Labs	Data mining & cybersecurity services	n/a	n/a	n/a	n/a	n/a
Mar-15	Civitec	Embedded perception system design	n/a	n/a	n/a	n/a	n/a
Feb-14	Cam Mechanical Solutions	Technical assistance services	n/a	n/a	n/a	n/a	n/a
Oct-13	CyDesign Labs	Modelling systems for engineers	n/a	n/a	n/a	n/a	n/a
Sep-12	OpenCFD	Open source CFD software package	n/a	n/a	$3.1	n/a	n/a
Dec-11	Efield	Integrated modelling & simulation environments	$0.5	n/a	n/a	n/a	n/a
Aug-11	ICIDO	Virtual reality engineering solutions	n/a	n/a	n/a	n/a	n/a
Apr-11	Comet Technology	Vibro-acoustic simulation software	n/a	n/a	n/a	n/a	n/a
Dec-08	Mindware Engineering	Engineering & customized software services	$5.6	n/a	$5.6	1.00x	n/a
Dec-08	Vdot	Project management & execution platform	n/a	n/a	n/a	n/a	n/a
Aug-06	ATE Technology International	Contract for difference (CFD) product distributor	n/a	n/a	n/a	n/a	n/a
Sep-02	Vibro-Acoustic Sciences	Digital high-frequency noise simulation software	n/a	n/a	$3.0	n/a	n/a
Aug-01	Liquid Process Performance	Materials & composites simulation software	n/a	n/a	n/a	n/a	n/a
Gamma Technologies					**Total Disclosed M&A Deal Value: n/a**		
Nov-21	Exothermia	Exhaust systems simulation software	n/a	n/a	n/a	n/a	n/a
Jul-21	Power Forge	Electrical engineering software	n/a	n/a	n/a	n/a	n/a
Feb-18	AutoLion	Lithium-ion battery simulation software	n/a	n/a	n/a	n/a	n/a
Hexagon					**Total Disclosed M&A Deal Value: $7.6 Billion**		
Jan-22	Minnovare	Industrial drilling technology and software	n/a	n/a	n/a	n/a	n/a
Oct-21	Infor Global Solutions	Enterprise asset management software	n/a	n/a	$2,820.0	n/a	n/a
Sep-21	Jovix	Material tracking software	n/a	n/a	n/a	n/a	n/a
Jul-21	Immersal	Spatial mapping and visual positioning solutions	n/a	n/a	n/a	n/a	n/a
Apr-21	CADLM	Engineering design software	n/a	n/a	n/a	n/a	n/a
Dec-20	OxBlue	High resolution contruction camera systems	n/a	n/a	n/a	n/a	n/a
Nov-20	PAS Global	Process safety & cybersecurity	$39.8	n/a	n/a	n/a	n/a
Oct-20	DP Technology	CAM software for CNC machine tools	$39.2	n/a	n/a	n/a	n/a
Jul-20	Tacticaware	LIDAR-based 3D surveillance software	n/a	n/a	n/a	n/a	n/a
Mar-20	CAEfatigue	Mechanical fatigue simulation solutions	n/a	n/a	n/a	n/a	n/a
Feb-20	Romax Technology	Electromechanical drivetrain design and simulation services	$30.4	n/a	n/a	n/a	n/a
Jan-20	COWI	Mapping and geospatial data services	$15.8	n/a	n/a	n/a	n/a
Jan-20	Blast Movement	Blast movement monitoring technology	$21.4	n/a	n/a	n/a	n/a
Jan-20	Geopraevent	Sensors and measuring technologies for navigating natural hazards	n/a	n/a	n/a	n/a	n/a
Jan-20	Volume Graphics	Software for testing industrial computed tomograph	$29.3	n/a	n/a	n/a	n/a
Jun-19	AMendate	Generative design for additive manufacturing	n/a	n/a	n/a	n/a	n/a
Feb-19	Thermopylae	Govt. & defense geospatial applications	$48.0	n/a	n/a	n/a	n/a
Jan-19	j5 International	Operational risk management software	n/a	n/a	n/a	n/a	n/a
Jan-19	Etalon	Machine / equipment calibration solutions	n/a	n/a	n/a	n/a	n/a
Oct-18	Bricsys	CAD software for AEC market	$14.7	$1.5	n/a	n/a	n/a
Sep-18	External-Array Software	Metrology software for CMM manufacturers	n/a	n/a	n/a	n/a	n/a
Jun-18	Geocloud (Assets)	Ski slope infrastructure measurement	n/a	n/a	n/a	n/a	n/a
Jun-18	SPRING Technologies	Machine tool simulation & verification software	$9.5	$0.4	n/a	n/a	n/a
Jun-18	AutonomouStuff	Integrated autonomous vehicle solutions	$45.0	n/a	n/a	n/a	n/a
May-18	Nextsense	Non-contact profile measurement & inspection	$13.5	n/a	n/a	n/a	n/a
Apr-18	Licom Systems	German distributor of Alphacam CAM software	n/a	n/a	n/a	n/a	n/a

Source: Pitchbook, Capital IQ, corporate websites, press releases

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Precedent Engineering & Design M&A Transactions
Public Companies & Leading Platforms

Altair	Gamma Technologies
Altium	**Hexagon**
Ansys	Jama Software
Aras	PTC
Autodesk	Revalize
Bentley	Siemens
Cadence	Synopsys
Dassault	Zuken
ESI Group	

($ in Millions)	Target Overview				Transaction Statistics		
				Estimated		Deal	Deal Value / Estimated
Date	Target	Description	Revenue	EBITDA	Value	Revenue	EBITDA
Hexagon					**Total Disclosed M&A Deal Value: $7.6 Billion**		
Apr-18	ProCAM Group	Italian distributor of Vero Software	n/a	n/a	n/a	n/a	n/a
Mar-18	AGTEK	Construction project modeling software	n/a	n/a	n/a	n/a	n/a
Jan-18	Plant Design Solutions	Distributor of CADWorx & Analysis software	n/a	n/a	n/a	n/a	n/a
Jan-18	Industrial Business Solutions	Digital project completion & commissioning	n/a	n/a	n/a	n/a	n/a
Oct-17	Luciad	Real-time geospatial information visualization	$21.7	n/a	n/a	n/a	n/a
Jun-17	InfraMeasure	Laser-based rail measurement system	n/a	n/a	n/a	n/a	n/a
Jun-17	DST Computer Services	Pipe stress analysis software	n/a	n/a	n/a	n/a	n/a
Jun-17	FASys Industrie	System integration specialist for production tasks	n/a	n/a	n/a	n/a	n/a
May-17	VIRES	Driver-assisted & autonomous simulation	n/a	n/a	n/a	n/a	n/a
May-17	Catavolt	Mobile app development & edge computing	n/a	n/a	n/a	n/a	n/a
Apr-17	MSC Software	Computer aided engineering software	$230.0	n/a	$834.0	3.63x	n/a
Jan-17	MiPlan Consulting	Mobile mine production management software	n/a	n/a	n/a	n/a	n/a
Sep-16	GISquadrat	Location-based geospatial software	n/a	n/a	n/a	n/a	n/a
Aug-16	Apodius	Composite component measurement solutions	n/a	n/a	n/a	n/a	n/a
Aug-16	Multivista	Construction visual documentation services	n/a	n/a	n/a	n/a	n/a
Aug-16	p3d systems	Laser scanning system & 3D modeling software	n/a	n/a	n/a	n/a	n/a
Jun-16	Ingegneria dei Sistemi (Assets)	Radar solutions for structural health monitoring	$20.0	n/a	n/a	n/a	n/a
Jun-16	Nestix	Prefabrication and production control software	n/a	n/a	n/a	n/a	n/a
Mar-16	AICON 3D Systems	Industrial 3D optical measuring systems	$21.1	$1.8	n/a	n/a	n/a
Mar-16	Forming Technologies (FTI)	Manufacturing software for sheet metal forming	n/a	n/a	n/a	n/a	n/a
Mar-16	M&P Survey Equipment	Surveying equipment & construction lasers	n/a	n/a	n/a	n/a	n/a
Feb-16	Sigma Space	Optoelectronic aerospace instrumentation	$25.0	n/a	n/a	n/a	n/a
Jan-16	SCCS	Provider of survey equipment for Leica	$15.0	$7.8	n/a	n/a	n/a
Apr-15	Q-Das	Statistical process control (SPC) services	n/a	n/a	n/a	n/a	n/a
Jul-14	Vero Software	CAD/CAM software	$106.2	n/a	n/a	n/a	n/a
Jul-14	Geodata Diffusion	Real time kinematic correction services	$4.0	$1.8	n/a	n/a	n/a
Jun-14	North West Geomatics	Digital remote sensing/aerial photography	$13.5	n/a	n/a	n/a	n/a
Jun-14	iLab Sistemas	Planning/optimization for agro-businesses	n/a	n/a	n/a	n/a	n/a
Jun-14	Mintec	Software services for mining industry	n/a	n/a	n/a	n/a	n/a
Apr-14	Arvus Tecnologia	Software services for agro businesses	n/a	n/a	n/a	n/a	n/a
Mar-14	Veripos	Satellite position software/hardware/services	$44.0	$15.8	n/a	n/a	n/a
Mar-14	SAFEmine	Traffic safety products and services	$17.2	n/a	n/a	n/a	n/a
Feb-14	Aibotix	Manufacturer of flying robots	n/a	n/a	n/a	n/a	n/a
Dec-13	Pixis	Provider of digital engineering services	n/a	n/a	n/a	n/a	n/a
Oct-13	Devex Tecnologia e Sistemas	Mine-management software services	n/a	n/a	n/a	n/a	n/a
Jun-13	Geosoft	Software for cartography/photogrammetry	n/a	n/a	n/a	n/a	n/a
May-13	Navgeokom	Surveying and mapping products	n/a	n/a	n/a	n/a	n/a
Apr-13	Manfra & Companhia	Topography software systems	$9.2	n/a	n/a	n/a	n/a
Jan-13	LISTECH	Developer of construction software	n/a	n/a	n/a	n/a	n/a
Jan-13	New River Kinematics	3D analysis software for metrology application	$13.3	n/a	n/a	n/a	n/a
Dec-12	GTA Geoinformatik	Provider of 3D city mapping technologies	n/a	n/a	n/a	n/a	n/a
Jan-12	Microsurvey Software	Developer of surveying and mapping software	$2.6	n/a	n/a	n/a	n/a
Aug-11	Sisgraph	Supplier of engineering and geospatial software	$14.3	n/a	n/a	n/a	n/a
Jul-10	Intergraph	Engineering and geospatial software	n/a	n/a	$2,130.0	n/a	n/a
Dec-09	MYCRONA	Manufacturer of multi-sensor machines	n/a	n/a	n/a	n/a	n/a
Oct-09	Mahr Multisensor	Industrial measuring instruments	n/a	n/a	n/a	n/a	n/a
Oct-08	Rinex Technology	Yield mapping tools for agro businesses	$4.5	n/a	n/a	n/a	n/a
Jul-08	Serein Metrology	Manufacturer of precision measuring equipment	$4.0	n/a	n/a	n/a	n/a
Jun-08	m&h Group	Manufacturer of machine tool probes	$13.3	n/a	n/a	n/a	n/a
Jun-08	Messtechnik Wetzlar	Software for quality control of mechanical parts	$3.3	n/a	n/a	n/a	n/a
Jun-08	Viewserve	Web based fleet management system	$1.1	n/a	n/a	n/a	n/a
Jun-08	Advanced Metrology Solutions	Distributor of precision metrology products	$4.5	n/a	n/a	n/a	n/a
Feb-08	Santiago & Cintra	Positioning applications for construction/agro	$20.7	n/a	n/a	n/a	n/a
Feb-08	Haselbach Surveying Instruments	Distributor and seller of surveying equipment	$750.0	n/a	n/a	n/a	n/a
Feb-08	Surveyors Service Company	Distributor of surveying equipment	n/a	n/a	n/a	n/a	n/a
Dec-07	Leica Geosystems Hungary	Surveying and construction equipment	n/a	n/a	n/a	n/a	n/a

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($ in Millions) — Target Overview | Transaction Statistics

Date	Target	Description	Estimated Revenue	Estimated EBITDA	Deal Value	Deal Value / Estimated Revenue	Deal Value / Estimated EBITDA
Hexagon						Total Disclosed M&A Deal Value: $7.6 Billion	
Nov-07	NovAtel	Satellite system components	$76.0	$17.8	$438.9	5.78x	24.6x
Nov-07	Junglas	Construction and machine control equipment	n/a	n/a	n/a	n/a	n/a
Nov-07	Rudolf & August Rost Vertriebs	Surveying and construction equipment	n/a	n/a	n/a	n/a	n/a
Nov-07	Elcome Technologies	GPS and navigation surveying services	$14.8	n/a	n/a	n/a	n/a
Sep-07	CogniTens	3D non-contact measurement systems	$8.0	n/a	$20.0	2.50x	n/a
Jul-07	Jingjiang Measuring Tools	Manufacturer of linear measuring tools	$10.9	n/a	n/a	n/a	n/a
Jun-07	IONIC Software	Software for geospatial information systems	$12.6	n/a	n/a	n/a	n/a
May-07	Transmetal	Distributor of metrology products	$5.4	n/a	n/a	n/a	n/a
May-07	Jigsaw Technologies	GPS-based machine automation software	$9.0	n/a	n/a	n/a	n/a
May-07	GAMFI International	Construction laser tools and instruments	$1.5	n/a	n/a	n/a	n/a
May-07	D&P Systems	Developer of multidimensional systems	n/a	n/a	n/a	n/a	n/a
May-07	Allen Precision Equipment	Surveying and construction products	$24.0	n/a	n/a	n/a	n/a
Apr-07	Topolaser System	Distributor of survey equipment	n/a	n/a	n/a	n/a	n/a
Apr-07	Acquis	Data editing and management software	$3.0	n/a	n/a	n/a	n/a
Jan-07	Svensk ByggnadsGeodesi	Software systems for measuring and planning	$6.8	$0.8	n/a	n/a	n/a
Jan-07	Willi Geßwein	Manufacturer of surveying instruments	$1.3	n/a	n/a	n/a	n/a
Oct-05	Leica Geosystems	Surveying and mapping equipment	n/a	n/a	$1,140.0	n/a	n/a
May-02	Newport	Metrological tools and technology	n/a	n/a	n/a	n/a	n/a
May-01	Brown & Sharpe	Manufacturer of metrological tools	n/a	n/a	$170.0	n/a	n/a
Jama Software						Total Disclosed M&A Deal Value: n/a	
Jan-18	Notion Data	Product development intelligence	n/a	n/a	n/a	n/a	n/a
PTC						Total Disclosed M&A Deal Value: $3.3 Billion	
Dec-20	Arena Solutions	Cloud-based PLM platform	$50.0	n/a	$715.0	14.30x	n/a
Sep-20	ioxp	Augmented reality content creation software	n/a	n/a	n/a	n/a	n/a
Nov-19	Onshape	Cloud-based 3D CAD platform	n/a	n/a	$470.0	n/a	n/a
Jun-19	TWNKLS	Augmented reality solutions & services	n/a	n/a	n/a	n/a	n/a
Apr-19	Factora Solutions	Manufacturing execution & operations mgmt.	n/a	n/a	n/a	n/a	n/a
Nov-18	Frustum	Topology optimization & generative design	n/a	n/a	$69.6	n/a	n/a
Feb-18	Waypoint Labs	Augmented reality for frontline workers	$20.0	n/a	n/a	n/a	n/a
Jan-16	Kepware	Manufacturing device connectivity	$20.0	n/a	$118.0	5.90x	n/a
Nov-15	Vuforia	Vision-based AR platform	n/a	n/a	$64.8	n/a	n/a
May-15	ColdLight Solutions	Machine learning predictive analytics	$7.1	n/a	$103.8	14.56x	n/a
Jan-15	Caugnate	Augmented reality technologies services	n/a	n/a	n/a	n/a	n/a
Jul-14	ITA Holdings	Sensor connectivity	n/a	n/a	$170.0	n/a	n/a
Jul-14	Atego	Model-based systems applications	$20.0	n/a	$49.3	2.47x	n/a
Dec-13	ThingWorx	IoT platform for machines	$6.0	n/a	$130.0	21.67x	n/a
Sep-13	NetIDEAS	Product development and PLM	$1.0	n/a	$20.0	20.00x	n/a
Jul-13	Enigma	Manufacturing content management	n/a	n/a	$10.0	n/a	n/a
Oct-12	Servigistics	Strategic service management	$80.0	n/a	$220.0	2.75x	n/a
Sep-11	4CS	Warranty lifecycle management	n/a	n/a	$14.9	n/a	n/a
Jan-11	Mortice Kern Systems	Configuration management software	$67.9	$10.1	$304.0	4.48x	n/m
Feb-10	Planet Metrics	Carbon information management	n/a	n/a	n/a	n/a	n/a
Jun-09	Relex	Reliability analysis software	n/a	n/a	$24.3	n/a	n/a
Feb-09	Synapsis	Manufacturing supply chain optimization	n/a	n/a	$7.5	n/a	n/a
Dec-08	Synapsis Technology	Software applications and consulting services	n/a	n/a	$7.5	n/a	n/a
Feb-08	Digital Human	Human simulation model	n/a	n/a	$1.1	n/a	n/a
Dec-07	CoCreate Software	Flexible CAD & PLM for electronics	$78.0	n/a	$247.5	3.17x	n/a
Nov-07	LBS	Integrated logistics support software	n/a	n/a	n/a	n/a	n/a
Sep-07	NetRegulus	Enterprise regulatory management	n/a	n/a	$2.3	n/a	n/a
May-07	NC Grpahics	High-speed machining and engineering tools	n/a	n/a	n/a	n/a	n/a
Apr-06	Mathsoft	Calculation management	$24.0	$0.9	$63.0	2.62x	n/m
Nov-05	Cadtrain	E-learning courses for engineers	n/a	n/a	n/a	n/a	n/a
Jul-05	Arbortext	Code authoring & publishing	$40.0	n/a	$190.0	4.75x	n/a
Jun-05	Aptavis Technologies	Life cycle management software	n/a	n/a	n/a	n/a	n/a

Precedent Engineering & Design M&A Transactions
Public Companies & Leading Platforms

MADISON PARK GROUP

Left column list:
- Altair
- Altium
- Ansys
- Aras
- Autodesk
- Bentley
- Cadence
- Dassault
- ESI Group

Second column list:
- Gamma Technologies
- Hexagon
- Jama Software
- **PTC**
- **Revalize**
- **Siemens**
- Synopsys
- Zuken

($ in Millions)	Target Overview					Transaction Statistics		
				Estimated		Deal	Deal Value / Estimated	
Date	Target	Description	Revenue	EBITDA		Value	Revenue	EBITDA
PTC					Total Disclosed M&A Deal Value: $3.3 Billion			
Apr-04	OHIO Design Automation	Electronics design collaboration software	n/a	n/a		$12.0	n/a	n/a
Mar-99	Auxilium	Manufacturing collaboration	n/a	n/a		$79.0	n/a	n/a
Oct-98	InPart	Industrial 3D CAD	n/a	n/a		$26.4	n/a	n/a
Aug-95	Rasna	Design optimization & simulation	$22.7	n/a		$163.4	7.19x	n/a
Revalize					Total Disclosed M&A Deal Value: $14.0 Billion			
Nov-21	Procad	Product and document lifecycle management (PDM and PLM) platform	n/a	n/a		n/a	n/a	n/a
Nov-21	Tenado	Computer-aided design (CAD) software for 2D and 3D technical drawings	n/a	n/a		n/a	n/a	n/a
Oct-21	Sofon	Uided Selling and configure price quote software	n/a	n/a		n/a	n/a	n/a
Oct-21	Specpage	Product lifecycle management and product data management software	n/a	n/a		n/a	n/a	n/a
Aug-21	Attainia	Capital equipment planning software	n/a	n/a		n/a	n/a	n/a
Aug-21	BCA Technologies	Cloud pricing and quoting software	n/a	n/a		n/a	n/a	n/a
Aug-21	LeadMethod	Channel sales management software	n/a	n/a		n/a	n/a	n/a
Aug-21	MicroD	Website development and digital marketing services	n/a	n/a		n/a	n/a	n/a
Jun-21	Configure One	Configure, price, and quote (CPQ) software	n/a	n/a		n/a	n/a	n/a
Jun-21	FPX	Cloud-based configure-price-quote (CPQ) platform intended for manufacturers	n/a	n/a		n/a	n/a	n/a
Nov-18	Axonom	Cloud-based quoting, ordering and configuration solutions	n/a	n/a		n/a	n/a	n/a
Siemens					Total Disclosed M&A Deal Value: $15.1 Billion			
Oct-21	Wattsense	IoT management software	n/a	n/a		n/a	n/a	n/a
Aug-21	SupplyFrame	Design-to-source intelligence	n/a	n/a		$700.0	n/a	n/a
Aug-21	Sqills	Freight railway management and maintenance workflow software	n/a	n/a		$650.4	n/a	n/a
Jun-21	Nextflow Software	Computational fluid dynamics simulation software	n/a	n/a		n/a	n/a	n/a
May-21	Padam Mobility	TAD software to facilitate public transport system	n/a	n/a		n/a	n/a	n/a
Feb-21	Fourkind	Management consulting and advisory services	n/a	n/a		n/a	n/a	n/a
Nov-20	Culgi	Computational chemistry software for material simulation	n/a	n/a		n/a	n/a	n/a
Jul-20	Avatar Integrated Systems	IC place and route software	n/a	n/a		n/a	n/a	n/a
Jun-20	UltraSoC Technologies	System-on-chip analytics software	n/a	n/a		n/a	n/a	n/a
Jun-20	Vizendo	Virtual operator training for CAD & PLM systems	n/a	n/a		n/a	n/a	n/a
Jan-20	C&S Electric	Manufacturer of low voltage products	n/a	n/a		n/a	n/a	n/a
Jan-20	AIT Goehner	IT consultancy and development service	n/a	n/a		n/a	n/a	n/a
Nov-19	MultiMechanics	Materials modeling and simulation software	n/a	n/a		n/a	n/a	n/a
Nov-19	Atlas 3D	3D printing parts design software	n/a	n/a		n/a	n/a	n/a
Jul-19	Process Systems Enterprise	Advanced modeling software	n/a	n/a		n/a	n/a	n/a
Jul-19	Innovation Systems (IST)	Industrial transport planning software	n/a	n/a		n/a	n/a	n/a
Jun-19	ESTEQ (South Africa)	Developer and distributor of PLM and MOM	n/a	n/a		n/a	n/a	n/a
Jun-19	Saab Medav (Assets)	NVH testing products and services	n/a	n/a		n/a	n/a	n/a
Dec-18	Comsa	Wire-harness engineering software	n/a	n/a		n/a	n/a	n/a
Oct-18	Mendix	Low code application development platform	n/a	n/a		$579.7	n/a	n/a
Sep-18	Lightwork Design	3D rendering designs and visualization systems	n/a	n/a		n/a	n/a	n/a
Jul-18	Omative	Factory optimization system	n/a	n/a		n/a	n/a	n/a
Jun-18	Comfy	Smart building management software	n/a	n/a		n/a	n/a	n/a
Jun-18	Austemper Design	Electronic design tools for circuit components	n/a	n/a		n/a	n/a	n/a
Mar-18	Agilion	Real-time location systems (RTLS)	n/a	n/a		n/a	n/a	n/a
Feb-18	Sarokal Test Systems	Testing equipment platform for ASIC & FPGA	n/a	n/a		n/a	n/a	n/a
Jan-18	Milanovic Engineering	Engineering and manufacturing services	n/a	n/a		n/a	n/a	n/a
Dec-17	Solido Design Automation	Variation-aware design and characterization	n/a	n/a		n/a	n/a	n/a
Oct-17	Mentor Infolytica	Electromagnetic and thermal analysis	n/a	n/a		n/a	n/a	n/a
Oct-17	Wi-Tronix	Predictive maintenance for rail services	n/a	n/a		n/a	n/a	n/a
Aug-17	Tass International	Design and testing software for automotive	n/a	n/a		n/a	n/a	n/a
Mar-17	Mentor Graphics	Electronic design automation	$1,282.5	$267.2		$4,500.0	3.51x	16.8x
Nov-16	Conworx Technology	Lab device interfaces	n/a	n/a		n/a	n/a	n/a
Mar-16	CD-adapco	Specialized simulation based on CFD	$190.0	n/a		$970.0	5.11x	n/a
Mar-16	Neo New Oncology	Medical diagnostic technology	n/a	n/a		n/a	n/a	n/a
Nov-15	Polarion Software	Application lifecycle management	n/a	n/a		n/a	n/a	n/a
Jul-15	Zenco Systems	Traffic enforcement technology	n/a	n/a		n/a	n/a	n/a

Source: Pitchbook, Capital IQ, corporate websites, press releases

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($ in Millions) — Target Overview / Transaction Statistics

Date	Target	Description	Estimated Revenue	EBITDA	Deal Value	Deal Value / Estimated Revenue	EBITDA
Siemens					**Total Disclosed M&A Deal Value: $15.1 Billion**		
Mar-15	AxIT	Order management & logistics	n/a	n/a	n/a	n/a	n/a
Oct-14	Camstar	Manufacturing execution systems	n/a	n/a	$160.0	n/a	n/a
Jan-14	IBS	Industrial productivity software	n/a	n/a	n/a	n/a	n/a
Dec-13	TESIS PLMware	Product lifecycle management	n/a	n/a	n/a	n/a	n/a
Jun-13	Sky Eye	Transport fleet management	n/a	n/a	n/a	n/a	n/a
Jun-13	Preactor	Manufacturing planning & scheduling	n/a	n/a	n/a	n/a	n/a
May-13	Invensys Rail	Railway design & system automation	$1,179.5	n/a	$2,660.0	2.26x	n/a
Nov-12	LMS	PLM simulation & testing	$241.7	n/a	$870.0	3.60x	n/a
Sep-12	VRcontext	Visualization technology	n/a	n/a	n/a	n/a	n/a
Jan-12	eMeter	Energy information management	n/a	n/a	n/a	n/a	n/a
Dec-11	Vistagy	Specialized engineering environments	$18.0	n/a	n/a	n/a	n/a
Aug-11	Advanced Telemetry	Energy management	n/a	n/a	n/a	n/a	n/a
Oct-09	Energy4u	Energy IT services	n/a	n/a	n/a	n/a	n/a
Sep-09	YSNC	Machine engineering	n/a	n/a	n/a	n/a	n/a
Apr-09	Elan Software	Process control software	n/a	n/a	n/a	n/a	n/a
Nov-08	Syncos	Digital manufacturing engineering	n/a	n/a	n/a	n/a	n/a
May-07	UGS	2D & 3D PLM and industry automation	$1,150.0	n/a	$3,500.0	3.04x	n/a
Feb-07	ETM	Supervisory & data acquisition systems	n/a	n/a	n/a	n/a	n/a
Oct-06	VistaScape	Surveillance video analysis	n/a	n/a	n/a	n/a	n/a
Sep-05	Garderos	Local area network management	n/a	n/a	n/a	n/a	n/a
Aug-05	Transmitton	Railway infrastructure management	n/a	n/a	n/a	n/a	n/a
Apr-05	Myrio	IP video networking	n/a	n/a	$50.0	n/a	n/a
Dec-04	Chantry Networks	Mobility-enabled wireless networking	n/a	n/a	$85.0	n/a	n/a
Apr-03	Cycos	Unified messaging systems	n/a	n/a	$45.6	n/a	n/a
Apr-02	Symbian	Mobile operating system	n/a	n/a	$309.0	n/a	n/a
Synopsys					**Total Disclosed M&A Deal Value: $3.9 Billion**		
Nov-21	Concertio	System performance optimization tools	n/a	n/a	n/a	n/a	n/a
Sep-21	BISTel	Manufacturer of semiconductor and flat planel display systems	n/a	n/a	n/a	n/a	n/a
Jun-21	Code Dx	Application security platform	n/a	n/a	n/a	n/a	n/a
May-21	MorethanIP	Intellectual properties for multi-gigabit high-speed telecom and datacom	n/a	n/a	n/a	n/a	n/a
Nov-20	Light Tec	Optical scattering measurements and measurement equipment	n/a	n/a	n/a	n/a	n/a
Nov-20	Moortec Semiconductor	Embedded sensor and monitoring technologies	n/a	n/a	n/a	n/a	n/a
Jun-20	Qualtera	Industrial big-data analytics platform	n/a	n/a	n/a	n/a	n/a
Feb-20	Terrain EDA	Electronic design automation technologies	n/a	n/a	n/a	n/a	n/a
Feb-20	Invecas	Certain IP assets; Logic Library, Embedded Memory, Interface and Analog IP	n/a	n/a	n/a	n/a	n/a
Jan-20	eSilicon	Embedded Memory IP And Interface IP assets	n/a	n/a	$24.0	n/a	n/a
Jan-20	Tinfoil Security	Website and application programming interface (API) security	n/a	n/a	n/a	n/a	n/a
Nov-19	The Dini Group	Digital circuit based hardware and applications	n/a	n/a	n/a	n/a	n/a
Oct-19	Qtronic	Automotive virtual prototyping solutions	n/a	n/a	n/a	n/a	n/a
Aug-18	Source III	Developer of specialist simulation and test data management tools	n/a	n/a	n/a	n/a	n/a
Mar-18	Silicon and Beyond	Developer of SerDes technology used in data-intensive applications.	n/a	n/a	n/a	n/a	n/a
Feb-18	PhoeniX Software	Provider of manufacturing automation software	n/a	n/a	n/a	n/a	n/a
Jan-18	Kilopass	SoC system developer	n/a	n/a	$49.0	n/a	n/a
Dec-17	Black Duck	Provider of open source security and license management software	$75.0	n/a	$565.1	7.53x	n/a
Oct-17	Sidense	Silicon-proven embedded non-volatile memory intellectual property (IP)	n/a	n/a	n/a	n/a	n/a
Sep-17	QuantumWise	Provider of simulation tools for materials modeling designing.	n/a	$35.0	n/a	n/a	n/a
Jan-17	Forcheck	Developer of security software	n/a	n/a	n/a	n/a	n/a
Nov-16	Cigital	Provider of software security consulting services.	n/a	n/a	n/a	n/a	n/a
Nov-16	Codiscope	Developer of complementary security tools	n/a	n/a	n/a	n/a	n/a
May-16	Gold Standard Simulations	Provider of simulation tools for design technology	n/a	n/a	n/a	n/a	n/a
May-16	Simpleware	Provider of 3D image processing software	n/a	n/a	n/a	n/a	n/a
Mar-16	WinterLogic	Provider of electronic design automation software products.	n/a	n/a	n/a	n/a	n/a
Dec-15	Red Lizard Software	Developer of source code analysis tools	n/a	n/a	n/a	n/a	n/a
Nov-15	Protecode	Provider of license management tools for managing open source software	n/a	n/a	n/a	n/a	n/a
Aug-15	Atrenta	Provider of realization services for the semiconductor and electronic systems indust	n/a	n/a	n/a	n/a	n/a
Jul-15	Seeker Security	Provider of computer security services	n/a	n/a	n/a	n/a	n/a

Source: Pitchbook, Capital IQ, corporate websites, press releases

Precedent Engineering & Design M&A Transactions
Public Companies & Leading Platforms

Altair	Gamma Technologies
Altium	Hexagon
Ansys	Jama Software
Aras	PTC
Autodesk	Revalize
Bentley	Siemens
Cadence	**Synopsys**
Dassault	**Zuken**
ESI Group	

($ in Millions)		Target Overview				Transaction Statistics		
				Estimated		Deal	Deal Value / Estimated	
Date	Target	Description	Revenue	EBITDA		Value	Revenue	EBITDA
Synopsys					**Total Disclosed M&A Deal Value: $3.9 Billion**			
Jun-15	Codenomicon	Automated tools for testing the interfaces of mission critical software	$11.1	n/a		n/a	n/a	n/a
Jun-15	Elliptic Technologies	Provider of security software and semiconductor Internet Protocol engines	n/a	n/a		n/a	n/a	n/a
Mar-14	Coverity	Provider of source code analysis tools	$70.0	n/a		$375.0	5.36x	n/a
Feb-14	Brandenburg	Developer of automotive design software	n/a	n/a		n/a	n/a	n/a
Feb-14	Target Compiler Technologies	Software tools for the design, programming, and verification of processors	n/a	n/a		n/a	n/a	n/a
Oct-12	EVE-USA	Provider of emulation platforms for SoC verification	n/a	n/a		n/a	n/a	n/a
Aug-12	Ciranova	Provider of electronic design automation software	n/a	n/a		n/a	n/a	n/a
May-12	RSoft Design Group	Developer of designing software	n/a	n/a		n/a	n/a	n/a
Feb-12	Magma Design Automation	Provider of chip-design software	$146.4	$16.3		$523.0	3.57x	n/m
Feb-12	Luminescent Technologies (Lithography	Provider of lithography enhancement services	n/a	n/a		n/a	n/a	n/a
Jan-12	ExpertIO	Provider of internet protocol verification services	n/a	n/a		n/a	n/a	n/a
Jan-12	Mojave Design	Physical verification technology for 90 and 65 nanometer designs	n/a	n/a		n/a	n/a	n/a
Oct-11	Extreme DA	Operator of an electronic design automation company	n/a	n/a		n/a	n/a	n/a
Sep-11	nSys Design Systems	Provider of business verification services	n/a	n/a		n/a	n/a	n/a
Oct-10	Optical Research Associates	Developer of software used for optical application	n/a	n/a		n/a	n/a	n/a
Jun-10	Virage Logic	Provider of semiconductor intellectual property (IP) and services	$72.0	($5.6)		$315.0	4.38x	n/m
Jun-10	Synfora	Provider of algorithmic synthesis tools	n/a	n/a		n/a	n/a	n/a
Jun-10	Nusym Technology	Provider of verification closure solutions	n/a	n/a		n/a	n/a	n/a
Mar-10	CoWare	Supplier of platform-driven electronic system-level design software	n/a	n/a		n/a	n/a	n/a
Feb-10	VaST Systems Technology	Provider of tools and models for embedded system design automation	n/a	n/a		n/a	n/a	n/a
Nov-09	Gemini Design Technology	Developer of electronic design automation (EDA) software	n/a	n/a		n/a	n/a	n/a
May-09	Chipidea Mikroelektronika	Analog and mixed-signal semiconductor circuit designs software	n/a	n/a		$22.0	n/a	n/a
May-09	MIPS Technologies (Analog Business)	Software based designing services for the semiconductor industry in USA	n/a	n/a		$22.0	n/a	n/a
Dec-08	Pro Design Electronic (CHIPit Business)	Provider of hardware verification services	n/a	n/a		n/a	n/a	n/a
Oct-07	Sandwork Design	Developer of transistor-level debugging and waveform analysis tools	n/a	n/a		$24.0	n/a	n/a
Jun-07	ArchPro Design Automation	Developer of advanced electronic design automation (EDA) products	n/a	n/a		$13.0	n/a	n/a
Jan-07	TeraRoute	Developer of routing software	n/a	n/a		n/a	n/a	n/a
Dec-05	Hpl Technologies	Developer of yield optimization software	$9.3	($27.2)		$13.0	1.39x	n/m
May-05	Nassda	Developer of full-chip circuit verification software	$45.6	($70.8)		$200.2	4.39x	n/m
Jan-05	TriCN Associates	Accounting, tax, and finance service	n/a	n/a		n/a	n/a	n/a
Nov-04	Integrated Systems Engineering	Provider of Technology CAD (TCAD) software products	n/a	n/a		$107.5	n/a	n/a
Nov-04	Leda Design	Digital library platform developer	n/a	n/a		n/a	n/a	n/a
Oct-04	Cascade IP	Provider of digital intellectual property (IP) services	n/a	n/a		n/a	n/a	n/a
Oct-04	Monterey Design Systems	Provider of SoCs software	n/a	n/a		n/a	n/a	n/a
Mar-04	IRoC (Memory BIST Division)	Electronic design automation (EDA) tool	n/a	n/a		n/a	n/a	n/a
Feb-04	Analog Design Automation	Developer of automated circuit optimization software	n/a	n/a		$13.0	n/a	n/a
Feb-04	Accelerant Networks	Manufacturer of computer transceivers	n/a	n/a		$22.5	n/a	n/a
Jan-04	Progressant Technologies	Manufacturer of negative differential resistance transistor	n/a	n/a		n/a	n/a	n/a
Jun-03	InnoLogic Systems	Equivalence checking technology for memory and custom blocks	n/a	n/a		n/a	n/a	n/a
Mar-03	Numerical Technologies	Developer and marketeer of proprietary technologies and software	n/a	n/a		$250.0	n/a	n/a
Jul-02	InSilicon	Manufacturer of communications products	n/a	n/a		$74.6	n/a	n/a
Jun-02	Avanti	Provider of engineering and environmental regulatory support services	n/a	n/a		$735.0	n/a	n/a
Mar-02	Co-Design	Developer of design language and tools	n/a	n/a		$36.0	n/a	n/a
Nov-01	C Level Design	Graphic design and web marketing service	n/a	n/a		n/a	n/a	n/a
Nov-98	Everest Design Automation	Software solutions that solves complex problems of chip assembly	n/a	n/a		n/a	n/a	n/a
Mar-97	EPIC Design	Developer of simulation and analysis tools for chip management	n/a	n/a		$427.1	n/a	n/a
May-95	Silicon Architect	Designer of Structured ASIC Methodology	n/a	n/a		n/a	n/a	n/a
Feb-94	Logic Modeling	Provider of high-level design automation software	n/a	n/a		$118.0	n/a	n/a
Zuken					**Total Disclosed M&A Deal Value: n/a**			
Jan-19	Vitech	Systems engineering solutions	n/a	n/a		n/a	n/a	n/a
Jan-18	Alphatech	CAD Provider in Japan	n/a	n/a		n/a	n/a	n/a
Dec-15	CAETEK	Schematic red liner design and implementation software	n/a	n/a		n/a	n/a	n/a
Total Average							6.10x	16.3x
Total Median							4.48x	16.8x

Source: Pitchbook, Capital IQ, corporate websites, press releases

IV.

About Us

Madison Park Group
Advisors to the Technology Economy

Growth Stage

FOCUSED ON TRANSACTIONS WITH $100-500 MILLION ENTERPRISE VALUE

200+
COMPLETED TRANSACTIONS

$30+
BILLION IN DEAL VALUE

~30%
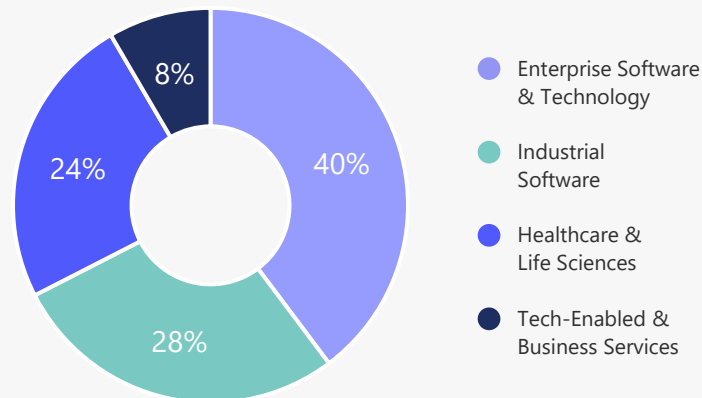CROSS-BORDER DEALS [1]

40%+
SPONSOR-BACKED CLIENTS

30%+
REPEAT CLIENTS [2]

20
DEDICATED ADVISORS

Our Deep Sector Expertise Drives Better Outcomes [1]

- Enterprise Software & Technology — 40%
- Industrial Software — 28%
- Healthcare & Life Sciences — 24%
- Tech-Enabled & Business Services — 8%

(1) Select deals completed in the last ten years
(2) Calculated as total clients divided by clients completing more than one transaction with MPG over client relationship, inclusive of investor relationships

FOCUS
We partner with global technology clients across North America and Europe

EXPERTISE
We specialize in impacting growth strategies to optimize shareholder value creation

STRATEGY
We marry thoughtful corporate strategy planning with stalwart transactional execution

RESOURCES
Domain experts with active relationships across +1,500 investors

Select Recent Transactions
Right People, Right Narrative, Right Time

Exceptional outcomes in the technology markets we focus on

Enterprise Software & Technology

Healthcare & Life Sciences

Industrial Software

Vertical Solutions

Infrastructure Solutions

Tech-Enabled & Business Services

Founding Team	*VC-Backed*	*Founding Team*	*Founding Team*	*Founding Team*
AgileAssets	nextcaller	lsi	RedSky	BLUEPRINT Research Group
Strategic Sale	Strategic Sale	Merge With	Strategic Sale	Strategic Sale
Trimble	pindrop	invenio	everbridge	TRINITY
PE-Backed	*Founding Team*	*Founding Team*	*PE-Backed*	*Founding Team*
Romax TECHNOLOGY	TECHSOFT 3D	Green Mountain Technology	Cityworks Empowering GIS	ISOMETRIX
Strategic Sale	Financial Sale	Minority Investment	Strategic Sale	Financial Sale
HEXAGON	Battery	THOMPSON STREET CAPITAL PARTNERS	Trimble	THE CARLYLE GROUP
PE-Backed	*VC-Backed*	*Founding Team*	*Founding Team*	*Founding Team*
anju LIFE SCIENCES SOFTWARE	assemble	ChemADVISOR, Inc.	CLEAREDGE 3D	Polaris
Financial Sale	Strategic Sale	Strategic Sale	Strategic Sale	Strategic Sale
ABRY PARTNERS	AUTODESK	UL	TOPCON	QuintilesIMS

Denotes $100M+ EV Transaction

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