



Engineering Software Market Update: Engineering, Design, Simulation, and PLM Software

January 2021

Engineering Software Market Update




MADISON PARK GROUP

Companies Included in MPG's Market Update

Engineering Software Practice Overview

Madison Park Group ("MPG") is a premier M&A and capital raising advisor to the industrial technology market. Within industrial technology, MPG has proven leadership in engineering software, supported by stalwart transactional success and hands-on operational experience at leading software companies. MPG's dedicated engineering software team is lead by Ralph Verrilli who was previously a Co-Founder and COO of Vistagy (composite design and manufacturing simulation software, acquired by Siemens in 2011) and is a seasoned operator, having held senior positions at Computervision, ICAD, and Siemens.

MPG's comprehensive knowledge of the market is built on consistent strategic dialogue with boards and executives at both emerging players and established incumbents, as well as regular ideation with global investors with vested interest in the market.

| Featured Companies | | | | Select Referenced Solutions |
|---|---|---|---|--------------------------------------|
|  |  |  |  | ✓ 3D computer-aided design (CAD) |
|  |  |  |  | ✓ Product lifecycle management (PLM) |
|  |  |  |  | ✓ Electronic design automation (EDA) |
|  |  |  |  | ✓ Computer-aided engineering (CAE) |
|  |  | | | ✓ Model-based systems (MBSE) |
| | | | | ✓ Generative design |
| | | | | ✓ Composites & material analysis |
| | | | | ✓ Product requirements management |
| | | | | ✓ 3D component visualization |
| | | | | ✓ Geotechnical modeling |

Note: Click on company logos to be directed to specific coverage profiles;
Click on Madison Park Group logo to be redirected back to home page

Our Dedicated Team

MADISON PARK GROUP

Trusted Advisors to Manufacturing, Engineering & IIoT Executives, Founders, and Boards

Hand-Crafted, Dedicated Advisory Team Combines Tenured Investment Bankers, Operating Executives, and Stalwart Transaction Support

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Strategic Sale

FACTON

Strategic Sale



Strategic Sale

Cityworks

Strategic Sale



Recapitalization



Debt Placement



8° EIGHT ROADS™



Founding Team



SCALE

Founding Team



Acquisition of*



Recapitalization*



Strategic Sale*



Strategic Sale*



Strategic Sale*



Strategic Sale*



Founding Team



Founding Team



Founding Team



Founding Team



Founding Team



Founding Team

Note: Vistagy's sale to Siemens was completed representative of transaction experience prior to joining MPG

* Transaction completed by Ascentage Group, an affiliate of Madison Park Group

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I. Industry Trends

Market Drivers

Facing Added Pressure From Disruptors, Incumbents Are Moving Aggressively to Secure Positions as the Leading Industry 4.0 Engineering Software Platform

Market Observations

- 1 Vendors across the engineering lifecycle are incorporating artificial intelligence capabilities into their offerings to enable predictive design, analysis and maintenance for products
- 2 Surging consumer & regulatory pressure for “electrified” machines, is driving the need for specialized software tools in non-mechanical areas, such as chemistry and battery simulation
- 3 Major vendors are securing strategic partnerships to pursue aspirations for industrial platform offerings spanning engineering, manufacturing, and services
- 4 In an effort to displace generalist tools and appeal to the specific requirements of key users, product offerings are being positioned as “role-based” solutions
- 5 The PLM market continues to consolidate with limited opportunity for pure organic growth given sizable existing installed bases, forcing vendors to explore growth avenues outside of core markets
- 6 Forced remote collaboration has accelerated adoption of publicly hosted SaaS-based products, with “heavy” on-premise tools rapidly losing favor as implementations continue to stall

Our Thesis


On one hand, the last several years of M&A and strategic alliances have consolidated several broad (yet incomplete) engineering platforms. On the other hand, venture-stage domain specific tools and products continue to proliferate. Dissecting this unique market composition leads us to believe that the concepts of digital twin and Industry 4.0 are still in their infancy.

To achieve the efficiencies promised by digital twin and Industry 4.0, functional solutions need to work seamlessly. This requires connected software tools which span the expansive lifecycle of manufactured parts and components.

To truly address the implementation of the digital twin as part of Industry 4.0, winning platforms will require solutions to address the needs of seemingly disparate workflows: product conception, simulation of “as-maintained” parts, obtaining and analyzing sensor data, part procurement, and logistics/installation management, as examples. Only with the right part, the right expertise, and at the right time, can machines be efficiently repaired and proactively maintained.

In response to the global pandemic, the world has come to appreciate the strategic impact of engineering and manufacturing technology on our global economy. Strategic acquirers with ample capital are aggressively making acquisitions to complete Industry 4.0 platforms. These companies will fill product voids in extremely focused domains, as well as make acquisitions which allow them to gain footholds outside of their traditional markets. Private equity investors are also now aggressively pursuing engineering and manufacturing technology companies they believe will be critical to the evolution of Industry 4.0.

Dedicated Engineering Software Leaders

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Notable Transaction Activity

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The Engineering Software Market Saw an Uptick In Activity with Four Deals Valued in Excess of \$100 Million⁽¹⁾

Selected High Profile M&A Transactions



Acquisition



December 2020

\$715m (14.30x Dec-20E ARR)

- Combines with the Onshape cloud-based CAD platform (acquired in Dec 2019) to enable a complete CAD / PLM SaaS offering
- Extends PTC's presence in the mid-market, where SaaS solutions are the standard for high-growth markets such as electronics, high tech, and medical device



Acquisition



February 2020

Confidential

- Adds deep domain expertise within electro-mechanical systems design & simulation to the MSC Software portfolio
- Enables Hexagon to meet rising demand for "electrification" solutions in key end markets, such as automotive, aerospace, and renewable energy



Acquisition



October 2020

\$700m (8.75x CY2021E Revenue)

- Adds expertise in "mission-driven simulation", an area of simulation beyond the traditional component or product level
- Strengthens Ansys' capabilities for large-scale space, telecommunications, national defense, and search-and-rescue initiatives



Platform Creation*



February 2020

Confidential

- Significant strategic growth investment intended to drive Tech Soft 3D's product and partner expansion into new industrial visualization component categories
- Since the investment, Tech Soft 3D has completed two acquisitions that extend the capabilities of its SDK portfolio into CAE simulation and analysis applications

Other Notable Transactions

| | |
|---|------|
| Altair acquires 4 CAE businesses <i>Advanced materials & electromagnetics simulation</i> | P.12 |
| Ansys acquires Lumerical <i>Photonic design & simulation software</i> | P.14 |
| Autodesk acquires Spacemaker <i>AI-driven building site optimization</i> | P.16 |
| Autodesk acquires Pype <i>Construction data processing</i> | P.16 |
| Cadence acquires 2 EDA businesses <i>5G RF communications simulation</i> | P.18 |
| Dassault acquires 2 data-oriented businesses <i>Cloud-native SQL management and semantic data processing</i> | P.20 |
| Hexagon AB acquires CAEf fatigue <i>Mechanical fatigue simulation</i> | P.21 |
| Siemens acquires Culgi <i>Multiscale computational chemistry simulation</i> | P.24 |
| Siemens acquires Avatar Integrated Systems <i>Place & route software for IC design</i> | P.24 |
| Siemens acquires UltraSoC Technologies <i>Instrumentation & analytics for SoC hardware</i> | P.24 |
| Synopsys acquires Qualtera <i>Semiconductor testing analysis</i> | P.25 |
| Tech Soft 3D acquires 2 CAE visualization businesses <i>SDKs for CAE data processing & visualization</i> | P.26 |

Note: Members of MPG's Industrial Technology Team acted as Exclusive Financial Advisor to Romax Technology and Tech Soft 3D*

(1) Inclusive only of transactions in which valuation was disclosed publicly

Emerging End Markets

Incumbents Are Investing In Transformational Growth Opportunities

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Electrification



- Surging demand for “electrified” mobility offerings has driven the need for design & simulation tools purpose-built for the specific complexities of this domain
- Without significant overhaul, incumbent engineering tools are falling short in migrating from an internal combustion engine automotive use-case to an electrified environment spanning electric motor, battery design, and powertrain integration
- Incumbents are exploring M&A and partnerships to add electrification expertise into their platforms



February 2020

*Electromechanical
Drivetrain Design &
Simulation Software*



Autonomous Engineering



- Autonomous vehicles are revolutionizing the future of mobility, pushing the boundaries of computer vision systems
- For autonomous vehicles to be market ready, safety & reliability must be proven in the design & prototyping stage, driving the need for tools analyzing the effectiveness of not only the specific sensors and software components involved but also the reliability of the autonomous system
- Artificial intelligence is becoming critical to effective computer vision systems as well



March 2020

*Photonic Design &
Simulation Software*



5G Communications



- The emergence of 5G connectivity is enabling a vast IIoT reality across products / devices spanning numerous end markets & use-cases
- 5G is revolutionizing the way semiconductor & electronics hardware is developed, introducing new challenges in how high-frequency RF waves interact in complex electromagnetic environments
- These new challenges are being met primarily by new domain-specific tools that have purpose-built for 5G



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*Mixed Signal
Integrated Circuit
Design Software*



Alliance Behavior

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Incumbents Continue to Leverage Strategic Partnerships to Advance Offerings Across Engineering, Manufacturing, Service Management, and Supply Chain Solutions

- Leading solution providers are turning to strategic partnerships to align their product offerings towards a broader integrated approach and to establish preliminary strategic beachheads within new growth markets
- The market standard for Industry 4.0 was set by the announcement of the PTC/Rockwell investment, forcing competitors to respond in kind to the growing market narrative for Industry 4.0 solutions
 - Need for solution approach that marry product development and engineering with ongoing maintenance and service management
 - Enables closed loop product development incorporating data from each stage of the lifecycle
- The market standard for Industry 4.0 was set by the announcement of the PTC/Rockwell investment, forcing competitors to respond in kind to the growing market narrative for Industry 4.0 solutions

Select Strategic Partnerships & Strategic Investments



€100+ Million Strategic Investment
August 2018



Strategic OEM Agreement
January 2020



Strategic OEM Agreement
July 2020



\$1 Billion Strategic Investment
June 2018 & October 2020



Asset Performance Management Leader
Extends Digital Twin Capabilities
Through Strategic Integration



Integration of Leading CAE and PLM
Platforms to Further Simulation-driven
Product Development Solutions



Integration of PLM, Supply Chain,
Service and Asset Management
Capabilities Driving End-to-End Solution



Industrial Automation and IoT Leaders
Combine Forces Around Joint Industrial
Internet of Things (IIoT) Offering

Strategic Themes

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Areas of Investment That Are Advancing the Engineering Economy



Design Process Automation

Integrating simulation deeper into the design workflow is accelerating product realization



Specialized Design

Hyper-specialized engineers rely on domain-specific tools to meet their role requirements



Multi-Discipline Design

MBSE and requirements management are critical in shortening development times



Modern Cloud Simulation

Leveraging HPC cloud computing power to deliver faster, more advanced simulations



Global Design Collaboration

PLM is finding a role as the system of record used by stakeholders across the product chain



Advanced Visualization

Visualization and graphical component technology is driving the next wave of application UX

nTopology

NEO PLM

jama software

onscale

aras

THE FOUNDRY.

PARAMATTERS
MAKING YOUR IDEAS MATTER

selerant
create. comply. connect.

No Magic

rescale

propel

TECH SOFT 3D

SCIART
RETHINKING DESIGN

SpecPage

QRA
critical thinking

SIMSCALE

upchain

unity

II. Featured Companies

Altair

Business Overview

(\$ in millions)

| | |
|------------------------------------|--|
| Headquarters: | Troy, MI |
| LinkedIn Employees (1-Yr. Growth): | 2,869 (▲5%) |
| Website: | www.altair.com |
| Ownership Status: | Public (NasdaqGS: ALTR) |
| Acquisitions Since 2010: | 26 |
| Enterprise Value (EV): | \$4,257.9 |
| LTM Revenue: | \$460.4 |
| LTM EBITDA: | \$29.1 |
| EV / LTM Revenue: | 9.25x |
| EV / LTM EBITDA: | n/m |
| Net Debt (Cash): | (\$5.4) |
| Dry Powder: | \$1,168.8 |

Description:

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

Select Engineering & Related Products:

- HyperMesh
 - Finite element pre-processor
- OptiStruct
 - Structural analysis solver
- SimLab
 - Multi-disciplinary simulation environment
- SimSolid
 - FEA meshing solution

Post-IPO M&A Continues Across Disciplines

« Continued Focus on Domain-Specific Product Expansion Through M&A

- [In October 2020](#), Altair acquired M-Base Engineering + Software GmbH, a Germany-based provider of material information systems
 - ✓ M-Base's material database offering covers the complete lifecycle of material data, from testing to CAE interfaces, with a focus on plastics
- [In July 2020](#), Altair acquired S&WISE Co, a South Korea-based provider of polyurethane foaming simulation solutions, for an undisclosed amount
 - ✓ S&WISE's technology furthers Altair's capabilities in advanced manufacturing offerings including casting, forming, mold-filling, extrusion, and additive manufacturing
- [In May 2020](#), Altair acquired WRAP Software, a Sweden-based provider of software for spectrum management and radio network planning for civil and defense organizations, for an undisclosed amount
 - ✓ The addition of WRAP Software expands Altair's capabilities in plan and managing the continuing proliferation of wireless communications across 5G and IoT-enabled devices
- [In January 2020](#), Altair acquired newFASANT, a Spain-based provider of computational and high-frequency electromagnetics simulation software, for an undisclosed amount
 - ✓ newFASANT's solutions address a wide range of electromagnetic problems in areas such as antenna design and placement, radar cross section (RCS) analysis, automotive V2V/ADAS, and infrared/thermal signatures
- Outside of the above, Altair has completed two additional acquisitions in September 2020, [Ellexus](#) and [Univa](#), which have fortified the company's high-performance computing capabilities around input/output (I/O) analysis and workload management
- Of Altair's 33 acquisitions made since the Company's founding in 1985, 20 have come in the last four years and 13 have come since the Company's November 2017 IPO



Altium

Business Overview

(\$ in millions)

| | |
|------------------------------------|--|
| Headquarters: | La Jolla, CA |
| LinkedIn Employees (1-Yr. Growth): | 782 (▲5%) |
| Website: | www.altium.com |
| Ownership Status: | Public (ASK:ALU) |
| Acquisitions Since 2010: | 12 |
| Enterprise Value (EV): | \$3,397.6 |
| LTM Revenue: | \$189.1 |
| LTM EBITDA: | \$68.2 |
| EV / LTM Revenue: | 17.97x |
| EV / LTM EBITDA: | n/m |
| Net Debt (Cash): | \$79.2 |
| Dry Powder: | \$1,115.6 |

Description:

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

Select Engineering & Related Products:

- Altium Designer
 - Complete environment for PCB schematic & layout
- Altium 365
 - Cloud-based PCB collaboration environment
- Octopart
 - Electronics parts component database

PCB Leader Focused on Organic Growth

« Partner Strategy Continues Altium's Horizontal Push Across PCB Lifecycle

- [In June 2020](#), Altium announced a partnership with IHS Markit, a leading data and information services provider
 - ✓ As part of the partnership, IHS Markit's BOM analysis capabilities, which provide current lifecycle status for over 660 million electronic components, will be integrated into Altium 365
 - This allows designers access to product data such as costing and availability
 - ✓ The Altium 365 Pro subscription plan will provide users with component management capabilities including part and supply chain intelligence powered by IHS, allowing engineers to easily find and replace components that are obsolete or facing end of life

« New Product Release Supports Broad Collaboration

- [In February 2020](#), Altium announced the release of A365 Viewer, a cloud-based application for collaboration between PCB designers, part suppliers, and manufactures
 - ✓ A365 Viewer currently supports multiple eCAD formats including Autodesk Eagle and Altium Designer, in the near future, however, other popular PCB design formats will also be included

« No Acquisitions in 2020

- Altium's last M&A activity came in March 2018 with the acquisition of Gumstix, a manufacturer of modular computer boards and components

Ansys

Business Overview

(\$ in millions)

| | |
|------------------------------------|--|
| Headquarters: | Canonsburg, PA |
| LinkedIn Employees (1-Yr. Growth): | 4,829 (▲10%) |
| Website: | www.ansys.com |
| Ownership Status: | Public (NasdaqGS: ANSS) |
| Acquisitions Since 2010: | 22 |
| Enterprise Value (EV): | \$30,424.6 |
| LTM Revenue: | \$1,543.8 |
| LTM EBITDA: | \$506.9 |
| EV / LTM Revenue: | 19.71x |
| EV / LTM EBITDA: | n/m |
| Net Debt (Cash): | \$299.3 |
| Dry Powder: | \$8,978.6 |

Description:

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

Select Engineering & Related Products:

- Ansys Discovery SpaceClaim
 - 3D Direct Modeling
- Ansys Fluent
 - Computational Fluid Dynamics
- Ansys LS-DYNA
 - Explicit Simulation
- Ansys Maxwell
 - Electromechanics Solver

Source: Pitchbook, Capital IQ, corporate websites, press releases, LinkedIn, market data as of 1/4/2021

Significant Expansion Outside of Traditional Industrial

« Ansys Continues to Pay Premiums for Assets in Highly Strategic End-Markets

- [In October 2020](#), Ansys acquired Analytical Graphics, a provider of simulation, modeling, testing, and analysis software for the aerospace, defense, and intelligence industry, for \$700.0m
 - ✓ The purchase price represents an 8.75x valuation multiple on the \$75-85m non-GAAP revenue contribution Ansys expects from AGI in CY2021
 - ✓ With the acquisition, Ansys adds expertise in “mission-driven simulation”, an area of simulation beyond the traditional component or product level and often related to high-level endeavors supporting space, telecommunications, national defense, and search-and-rescue initiatives
 - ✓ 67% of the purchase price is to be paid in cash and 33% will be paid through the issuance of Ansys common stock
- [In March 2020](#), Ansys acquired Lumerical, a provider of photonic design and simulation software, for \$107.5m
 - ✓ The purchase price represents a 9.49x valuation multiple on the annualized \$7-10m GAAP revenue contribution Ansys expects from Lumerical post-close in CY2020
 - ✓ Lumerical’s photonic simulation offerings dovetail with Ansys’ existing solutions for semiconductor and high-performance electronics engineering, extending capabilities for design within complex optical, electrical, and thermal multi-physics systems
 - ✓ The acquisition represents Ansys’ continued interest in emerging technology markets relating to 5G, IIoT, and autonomous vehicles

« Partner Strategy Remains Focused on Next Generation Mobility

- [In June 2020](#), Ansys announced a partnership with Electro Magnetic Applications (EMA) to deliver an enhanced design-to-validation workflow for certifying cable harness models in aircrafts and automobiles
- [In April 2020](#), Ansys announced a partnership with Software Motor Company to accelerate the development of ultra-efficient switched reluctance motors (SRMs) that solve critical noise vibration and harshness (NVH) issues
- [In January 2020](#), Ansys announced a partnership with BlackBerry to support BlackBerry QNX’s real-time operating system (RTOS) for connected and autonomous vehicles

Aras

Business Overview

(\$ in millions)

| | |
|------------------------------------|--|
| Headquarters: | Andover, MA |
| LinkedIn Employees (1-Yr. Growth): | 380 (▲14%) |
| Website: | www.aras.com |
| Ownership Status: | PE-backed (Goldman) |
| Acquisitions Since 2010: | 3 |
| Enterprise Value (EV): | n/a |
| LTM Revenue: | n/a |
| LTM EBITDA: | n/a |
| EV / LTM Revenue: | n/a |
| EV / LTM EBITDA: | n/a |
| Net Debt (Cash): | n/a |
| Dry Powder: | n/a |

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 Engineering & Related Products:

- Aras Innovator
 - Product lifecycle management platform
- Aras Digital Twin Core
 - Low-code digital twin configuration platform

PLM Leader Gains New Market Access through Partnership

« New OEM Agreements Expanding Go-to-Market Reach

- [In January 2020](#), Aras announced a strategic OEM partnership with Ansys that includes the licensing of the Aras platform technology
 - ✓ Ansys plans to leverage the underlying Aras platform technologies such as configuration management, PDM/PLM interoperability, API integration and add simulation specific capabilities to deliver highly scalable and configurable products that connect simulation and optimization to the business of engineering
 - ✓ The partnership, which combines Ansys' portfolio of engineering simulation solutions with Aras' product data management platform, aligns with the strategic direction Aras has undertaken through recent investments into simulation data management capabilities
- [In January 2020](#), Aras announced a partnership with Minerva Group, a VAR / SI in the PLM space, in order to launch Minerva PLM, powered by Aras
 - ✓ A PLM software technology based on the Aras Innovator platform, this product is targeted towards small to medium sized manufacturers dealing with an increasingly complex ways of maintaining efficiency and profitably while allowing the flexibility to grow within their respective markets

« No Acquisitions in 2020

- Aras' last M&A activity came in September 2018 with the acquisition of Comet Solutions, a provider of simulation process management software

Autodesk

Business Overview

(\$ in millions)

| | |
|------------------------------------|--|
| Headquarters: | San Rafael, CA |
| LinkedIn Employees (1-Yr. Growth): | 12,737(▲7%) |
| Website: | www.autodesk.com |
| Ownership Status: | Public (NasdaqGS: ADSK) |
| Acquisitions Since 2010: | 65 |
| Enterprise Value (EV): | \$65,758.5 |
| LTM Revenue: | \$3,650.5 |
| LTM EBITDA: | \$691.0 |
| EV / LTM Revenue: | 18.01x |
| EV / LTM EBITDA: | n/m |
| Net Debt (Cash): | (\$483.4) |
| Dry Powder: | \$16,076.1 |

Description:

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

Select Engineering & Related Products:

- AutoCAD
 - 2D/3D CAD
- Fusion 360
 - Cloud-based 3D CAD/CAM/CAE
- Revit
 - Building Information Modeling
- Maya
 - 3D Animation & Rendering

Autodesk Continues to Double Down in Construction Market

« New Acquisition Ties Together Recently Added Construction Assets

- [In November 2020](#), Autodesk acquired Spacemaker, a Norway-based developer of AI-based building site optimization software, for \$240 million
 - ✓ Spacemaker's software allows architects and urban designers to quickly generate, optimize, and iterate on design options for building sites, taking into account design criteria and data like terrain, maps, wind, lighting, traffic, zoning, etc.
 - ✓ Spacemaker marks the fifth construction-based acquisition, joining Pype (Jul 2020), Assemble (Jul 2018), PlanGrid (Dec 2018), and BuildingConnected (Jan 2019), and thirteenth overall investment in the last three years
- [In July 2020](#), Autodesk acquired Pype, an AI-powered construction data processing platform, for an undisclosed amount
 - ✓ Autodesk intends to integrate Pype's data ingestion capabilities across the Autodesk Construction Cloud portfolio, enabling general contractors, subcontractors, and owners to automate workflows such as submittals and project closeouts

« Strategic Investments Setting Stage for Further Construction M&A Aspirations

- [In July 2020](#), Autodesk participated in a \$7.0m investment round for Bridgit, a provider of construction workforce planning software
 - ✓ With the investment, Bridgit plans to integrate workflows between Bridgit Bench and Autodesk Construction Cloud, providing a critical link between preconstruction resource planning and site execution project management
- [In July 2020](#), Autodesk completed a follow-on investment in Factory_OS, a specialty modular construction services provider
 - ✓ The investment extends the last several years of collaborative efforts between Autodesk and Factory_OS in providing efficiently designed & manufactured affordable housing solutions
- [In April 2020](#), Autodesk completed an \$8.0m investment in Aurigo Software, a provider of capital project planning and maintenance software
 - ✓ With the investment, Aurigo plans to integrate its Aurigo Masterworks product with Autodesk Construction Cloud with the aim of providing owners a single end-to-end technology platform for design, planning, construction, and operations of infrastructure and private assets

Bentley Systems

Business Overview

(\$ in millions)

| | |
|------------------------------------|--|
| Headquarters: | Exton, PA |
| LinkedIn Employees (1-Yr. Growth): | 4,188 (▲4%) |
| Website: | www.bentley.com |
| Ownership Status: | Public (NasdaqGS: BSY) |
| Acquisitions Since 2010: | 32 |
| Enterprise Value (EV): | \$11,548.9 |
| LTM Revenue: | \$784.9 |
| LTM EBITDA: | \$216.5 |
| EV / LTM Revenue: | 14.71x |
| EV / LTM EBITDA: | n/m |
| Net Debt (Cash): | (\$500.2) |
| Dry Powder: | \$2,792.0 |

Description:

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

Select Engineering & Related Products:

- MicroStation
 - AEC Modeling
- ProjectWise
 - Infrastructure Project Delivery
- AssetWise
 - Asset Performance Management

AEC Leader Enters the Public Market But Maintains Tight Control

« Bentley Files for IPO after 36 Years of Closely-Held Family Ownership

- [In September 2020](#), Bentley announced the launch of an initial public offering (IPO) on the NASDAQ stock exchange
 - ✓ As part of the IPO, existing stockholders of Bentley sold 10,750,000 shares of Class B common stock, equivalent to roughly 4% of the company's total shares
 - ✓ Though the price of the IPO shares was initially guided to be \$17-\$19, the shares opened at \$22 on the offering date and rose to \$33.49 within the first day of trading, valuing the total company at ~\$8.7 billion
- Bentley's [S-1 IPO Prospectus](#) unveiled several strategic details about the company:
 - ✓ An "average historical annual revenue growth from acquisitions over the last six years [of] approximately 1.1%" indicates Bentley's acquisitions have been more oriented around adding product / technology capabilities than scale
 - ✓ Siemens' series of strategic investments in the company over the last several years amount to 34,764,592 shares or approximately 14% of the total Class B common stock shares
 - ✓ Pursuant to these investments, Siemens held a right of first refusal on "certain deemed liquidation events, offers, sales, or certain issuances", however this terminated with the IPO

« Product-oriented M&A Strategy Continues

- [In June 2020](#), Bentley acquired NoteVault, a San Diego-based provider of voice-based field automation for construction management, for an undisclosed amount
 - ✓ The acquisition expands upon Bentley's SYNCHRO digital construction environment with mobile field applications to track and manage labor, materials and equipment
- [In March 2020](#), Bentley acquired GroupBC, a UK-based provider of cloud services for construction information management, for an undisclosed amount
 - ✓ The acquisition bolsters Bentley's international presence and advances the company's capabilities in information management for infrastructure digital twins

Cadence Design

Business Overview

(\$ in millions)

| | |
|------------------------------------|--|
| Headquarters: | San Jose, CA |
| LinkedIn Employees (1-Yr. Growth): | 7,335 (▲3%) |
| Website: | www.cadence.com |
| Ownership Status: | Public (NasdaqGS: CDNS) |
| Acquisitions Since 2010: | 17 |
| Enterprise Value (EV): | \$37,253.5 |
| LTM Revenue: | \$2,522.5 |
| LTM EBITDA: | \$718.7 |
| EV / LTM Revenue: | 14.77x |
| EV / LTM EBITDA: | n/m |
| Net Debt (Cash): | \$610.0 |
| Dry Powder: | \$11,776.2 |

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 system design

Select Engineering & Related Products:

- Allegro
 - PCB Design
- Conformal
 - Equivalence Checker
- JasperGold
 - Formal Verification
- Sigrity
 - Signal & Power Integrity Analysis

EDA Leader Investing in 5G Communications Capabilities

« Product Tuck-ins Shore Up High-Frequency RF EDA Capabilities to Support 5G Readiness

- [In February 2020](#), Cadence acquired Integrand Software, a provider of electronic design software for high frequency, RF, and mixed-signal integrated circuits (ICs), for an undisclosed amount
 - ✓ With capabilities that round out Cadence's portfolio of offerings for electromagnetic sign-off, the acquisition directly addresses the unique complexities of electronics design for the growing market demand in the 5G RF communications space
- [In January 2020](#), Cadence acquired AWR Corp, a wholly owned subsidiary of National Instruments providing high-frequency RF EDA software technology, for an undisclosed amount
 - ✓ Dr. Anirudh Devgan, President of Cadence, commented: *"Companies designing communication and radar chips, modules and systems face increasing time-to-market pressure in high-growth 5G/wireless applications. Creating differentiated products while reducing cycle time requires a seamless design, simulation, and analysis environment. The addition of AWR's talent and technologies will enable us to prove more integrated and optimized RF design solutions, thereby further accelerating system innovation as we execute our Intelligent Systems Design strategy."*

« Collaboration Efforts to Advance System-on-Chip Design

- [In March 2020](#), Cadence announced a partnership with STMicroelectronics to successfully tape out a 56G very short-reach (VSR) SerDes in 7nm for a system on chip targeted at the networking, cloud, and data center markets
 - ✓ As part of the partnership, Cadence provided the critical IP architecture, certain IP sub-blocks and relevant design support, while ST developed the complete SerDes core

COMSOL

Business Overview

(\$ in millions)

| | |
|------------------------------------|--|
| Headquarters: | Burlington, MA |
| LinkedIn Employees (1-Yr. Growth): | 445 (▼1%) |
| Website: | www.comsol.com |
| Ownership Status: | Independent |
| Acquisitions Since 2010: | - |
| Enterprise Value (EV): | n/a |
| LTM Revenue: | n/a |
| LTM EBITDA: | n/a |
| EV / LTM Revenue: | n/a |
| EV / LTM EBITDA: | n/a |
| Net Debt (Cash): | n/a |
| Dry Powder: | n/a |

Description:

Software solutions for multi-physics modeling and simulation for R&D

Select Engineering & Related Products:

- COMSOL Multiphysics
 - Numerical simulation for physics-based processes

Multi-physics CAE Leader Continues on Product Roadmap

« Organic Product Development Remains Core to Growth Strategy

- [In November 2020](#), COMSOL released version 5.6 of its flagship COMSOL Multiphysics platform featuring the following key enhancements:
 - ✓ Faster and more memory-lean solvers for multicore and cluster computations, offering up to 30% performance improvements across for both CPU time and memory requirements
 - ✓ More efficient CAD assembly handling and enhanced visualization for simulation results
 - ✓ Four new product modules for modeling fuel cells and electrolyzers, polymer flow, control systems, and high-accuracy fluid models

« No Acquisitions in 2020

- COMSOL has not completed an acquisition in the company's history

Dassault Systèmes

Business Overview

(\$ in millions)

| | |
|------------------------------------|--|
| Headquarters: | Vélizy-Villacoublay, France |
| LinkedIn Employees (1-Yr. Growth): | 16,827 (▲4%) |
| Website: | www.3ds.com |
| Ownership Status: | Public (PAR: DSY) |
| Acquisitions Since 2010: | 39 |
| Enterprise Value (EV): | \$56,613.3 |
| LTM Revenue: | \$5,378.3 |
| LTM EBITDA: | \$1,217.6 |
| EV / LTM Revenue: | 10.53x |
| EV / LTM EBITDA: | n/m |
| Net Debt (Cash): | (\$2,542.5) |
| Dry Powder: | \$14,359.7 |

Description:

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

Select Engineering & Related Products:

- CATIA & SOLIDWORKS
 - 3D computer-aided design
- ENOVIA
 - Product lifecycle management
- SIMULIA
 - Simulation / computer-aided engineering
- Centric PLM
 - Product lifecycle management for fashion / apparel

Dassault Formalizes New Strategy Following Medidata Acquisition

« Dassault Unveils Strategic Direction for the Coming Years

- [In February 2020](#), CEO Bernard Charles announced Dassault's strategic plan for the next decade centered around a vision of "Things to Life"
 - ✓ Dassault's strategy centers around the vision of "Things to Life", the idea that Dassault can expand the Digital Twin concept from its current place in traditional engineered / manufactured products or "things" towards the Human experience
 - ✓ To achieve this strategy, Dassault will focus on developing its leadership in Life Sciences & Healthcare, recently fortified through the 2019 acquisition of clinical trials software leader Medidata Solutions, as well as Manufacturing Industries and Infrastructure & Cities

« 2020 Acquisitions Aimed at Strengthening Underlying Data Management & Analytics

- [In November 2020](#), Dassault acquired NuoDB, a provider of cloud-native distributed SQL database technology, for an undisclosed amount
 - ✓ The acquisition advances Dassault's 3DEXPERIENCE platform cloud and data science strategy, offering enterprise clients the ability to serve large SaaS deployments in a rapidly developing distributed SQL market
 - ✓ Dassault had held a 16% ownership interest in the company since 2013
 - ✓ NuoDB had revenues of about \$6 million in 2019
- [In July 2020](#), Dassault acquired Proxem, a provider of AI-powered semantic processing software and services, for an undisclosed amount
 - ✓ Dassault intends to leverage Proxem's data science capabilities within the modelling and simulation applications in the 3DEXPERIENCE platform
 - ✓ Proxem's main software, Proxem Studio, will be integrated into the 3DEXPERIENCE platform to complement NETVIBES EXALEAD information intelligence applications



ESI Group

Business Overview

(\$ in millions)

| | |
|------------------------------------|--|
| Headquarters: | Paris, France |
| LinkedIn Employees (1-Yr. Growth): | 1,730 (▲10%) |
| Website: | www.esi-group.com |
| Ownership Status: | Public (PAR: ESI) |
| Acquisitions Since 2010: | 14 |
| Enterprise Value (EV): | \$386.4 |
| LTM Revenue: | \$135.8 |
| LTM EBITDA: | (\$17.7) |
| EV / LTM Revenue: | 2.85x |
| EV / LTM EBITDA: | n/m |
| Net Debt (Cash): | (\$60.9) |
| Dry Powder: | \$102.2 |

Description:

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

Select Engineering & Related Products:

- ACE+Suite
 - Advanced CFD and Multi-Physics Simulation
- SimulationX
 - Multi-Physics Modelling
- VA ONE
 - Vibro-acoustics Simulation
- PAM-STAMP
 - Sheet Metal Formation Simulation

European CAE Leader Re-Aligns Growth Path

« FY19 Investor Meeting Unveils Strategic Product Orientation

- [In March 2020](#), on the heels of announcing both topline revenue growth and expanded profitability, ESI announced the re-organization of its product group around the following value propositions:
 - ✓ Pre-Certification: predictive modeling for certification requirements and validation needs
 - ✓ Smart Manufacturing: manufacturing process discovery around key performance parameters
 - ✓ Human Centric: operator-centric approach to ensuring efficiency and safety of operations
 - ✓ Pre-Experience: predictive product / asset outcomes and service requirements

« No Acquisitions in 2020

- ESI's last M&A activity came in February 2017 with the acquisition of Scilab Enterprises, a provider of open source analytical computation software

Gamma Technologies

Business Overview

(\$ in millions)

| | |
|------------------------------------|--|
| Headquarters: | Westmont, IL |
| LinkedIn Employees (1-Yr. Growth): | 150 (▲13%) |
| Website: | www.gtisoft.com |
| Ownership Status: | PE-backed (TA, Cove Hill) |
| Acquisitions Since 2010: | 1 |
| Enterprise Value (EV): | n/a |
| LTM Revenue: | n/a |
| LTM EBITDA: | n/a |
| EV / LTM Revenue: | n/a |
| EV / LTM EBITDA: | n/a |
| Net Debt (Cash): | n/a |
| Dry Powder: | 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 Engineering & Related Products:

- GT-SUITE
 - 0D/1D/3D Multi-Physics CAE system simulation

CAE Leader Undergoes Management Change

« New Leadership in Place

- In November 2020, Gamma announced that [Dimple Shah](#) would be replacing [Dr. Thomas Morel](#) as CEO of the Company
 - ✓ Shah joins Gamma from an extensive career in CAE, having held roles at HKS, Abaqus, and most recently VP Worldwide Sales for Dassault SIMULA
 - ✓ Dr. Morel, who had served as CEO since co-founding the Company in 1994, will assume the role of Chairman and Technology Adviser

« No Acquisitions in 2020

- Gamma's last M&A activity came in February 2018 with the acquisition of AutoLion, a provider of lithium-ion battery simulation software

Hexagon

Business Overview

(\$ in millions)

| | |
|------------------------------------|--|
| Headquarters: | Stockholm, Sweden |
| LinkedIn Employees (1-Yr. Growth): | 20,624 (▲2%) |
| Website: | www.hexagon.com |
| Ownership Status: | Public (STO: HEXA-B) |
| Acquisitions Since 2010: | 64 |
| Enterprise Value (EV): | \$36,222.0 |
| LTM Revenue: | \$4,610.0 |
| LTM EBITDA: | \$1,262.8 |
| EV / LTM Revenue: | 7.86x |
| EV / LTM EBITDA: | 28.7x |
| Net Debt (Cash): | (\$2,200.6) |
| Dry Powder: | \$10,917.7 |

Description:

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

Select Engineering & Related Products:

- MSC Adams
 - Multibody Dynamics Simulation
- MSC Patran
 - Finite Element Analysis
- MSC Nastran
 - Multidisciplinary Structural Analysis

Hexagon's Manufacturing Intelligence Group Stays Active

« Hexagon Manufacturing Intelligence Group Maintaining Active Cadence of Acquisitions

- [In October 2020](#), Hexagon Manufacturing Intelligence acquired D.P. Technology, a provider of computer-aided manufacturing (CAM) software, for an undisclosed amount
 - ✓ D.P.'s flagship ESPRIT CAM System product provides high-performance CNC machine programming, optimization, and simulation for a broad range for a broad range of precision manufacturing applications
- [In March 2020](#), Hexagon Manufacturing acquired CAEf fatigue, a provider of mechanical fatigue simulation software, for an undisclosed amount
 - ✓ CAEf fatigue's flagship Vibration product leverages frequency-domain response to enable more accurate and intuitive analysis of the qualitative behavior of systems than the time-based alternative
- [In February 2020](#), Hexagon Manufacturing Intelligence acquired Romax Technology, a provider of multi-physics CAE software for electromechanical drivetrain design and simulation, for an undisclosed amount
 - ✓ Romax's Nexus platform, a cloud-enabled model-based systems engineering (MBSE) platform, provides a complete workflow for designing, simulating, and delivering the next generation of energy-efficient drive and power generation systems
 - ✓ With unique capabilities purpose-built for electromechanical systems, the acquisition of Romax expands Hexagon's footprint in key end markets undergoing the transformation to electrification, such as automotive, aerospace, wind power, marine, and rail
 - ✓ Romax generated ~€27m in total revenue in 2019

« M&A Leader Takes Over Manufacturing Intelligence Group

- [In February 2020](#), Hexagon Manufacturing Intelligence announced that [Paolo Guglielmini](#) will succeed [Norbert Hanke](#) as the President of the Manufacturing Intelligence division
 - ✓ Guglielmini had prior been overseeing Hexagon's Smart Factory design & engineering portfolio as the business development leader, including leading the 2017 acquisition of MSC Software

Jama Software

Business Overview

(\$ in millions)

| | |
|------------------------------------|--|
| Headquarters: | Portland, OR |
| LinkedIn Employees (1-Yr. Growth): | 195 (▲1%) |
| Website: | www.jamasoftware.com |
| Ownership Status: | PE-backed (Insight) |
| Acquisitions Since 2010: | 1 |
| Enterprise Value (EV): | n/a |
| LTM Revenue: | n/a |
| LTM EBITDA: | n/a |
| EV / LTM Revenue: | n/a |
| EV / LTM EBITDA: | n/a |
| Net Debt (Cash): | n/a |
| Dry Powder: | n/a |

Description:

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

Select Engineering & Related Products:

- Jama Connect
 - Product Requirements, Risk, and Test Management

Pure-play Requirements Management Leader Enters New Chapter

« Enhancements to Core Product

- In 2020, Jama announced two new product offerings configured for specific end-market needs:
 - ✓ [In September 2020](#), Jama announced Jama Connect™ for Automotive, a new solution designed to accelerate product development for automotive engineering teams in the autonomous, electric, and traditional vehicle space
 - ✓ [In May 2020](#), Jama announced Jama Connect™ for Medical Device Development, a new solution designed to help engineering teams better manage device requirements, risk and design control
- [In February 2020](#), Jama announced the integration of Jama Connect™ with Vector's product testing platforms CANoe and vTESTstudio
 - ✓ This partnership will enable network designers and engineers within the automotive industry, as well as other high-liability industries requiring electronic component testing, to simplify the product development process and facilitate moving towards regulatory compliance

« New Leadership in Place

- [In January 2020](#), Jama replaced CEO Scott Roth with [Marc Osofsky](#), who previously held roles as CEO of Aberdeen and COO for Lionbridge Technologies
 - ✓ Osofsky began his career at McKinsey, and he earned his MBA at MIT Sloan and undergraduate degree at Brown University

« No Acquisitions in 2020

- Jama's last M&A activity came in January 2018 with the acquisition of Notion Data, a provider of data visualization software

PTC

Business Overview

(\$ in millions)

| | |
|------------------------------------|--|
| Headquarters: | Boston, MA |
| LinkedIn Employees (1-Yr. Growth): | 7,105 (▲2%) |
| Website: | www.ptc.com |
| Ownership Status: | Public (NasdaqGS: PTC) |
| Acquisitions Since 2010: | 20 |
| Enterprise Value (EV): | \$14,708.3 |
| LTM Revenue: | \$1,458.4 |
| LTM EBITDA: | \$305.1 |
| EV / LTM Revenue: | 10.09x |
| EV / LTM EBITDA: | n/m |
| Net Debt (Cash): | (\$916.7) |
| Dry Powder: | \$3,367.1 |

Description:

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

Select Engineering & Related Products:

- Creo
 - 3D CAD/CAM/CAE
- Onshape
 - SaaS-based Product Development
- Windchill
 - PLM
- Vuforia
 - Augmented Reality

PTC Continues to Pursue Cloud First Mover Advantage

« Acquisition of Arena Solutions Rounds Out SaaS Platform

- [In December 2020](#), PTC acquired Arena Solutions, a provider of cloud-based PLM software for the high tech / electronics market, for \$715m
 - ✓ The purchase price represents an 14.30x valuation multiple on the \$50m annualized recurring revenue Arena expects to finish with in CY2020
 - ✓ The acquisition of Arena complements PTC's 2019 acquisition of Onshape, combining cloud-based 3D and cloud-based PLM for a comprehensive SaaS offering
 - ✓ Additionally, the acquisition extends PTC's presence in the mid-market, where SaaS solutions have become the standard for high-growth manufacturing markets such as electronics, high tech, and medical device
- In September 2020, PTC acquired ioxp, a spin-off of the German Research Center for Artificial Intelligence (DFKI) focused on video-based augmented reality, for an undisclosed amount
 - ✓ PTC intends to integrate ioxp's technology into its Vuforia suite, leveraging ioxp's cognitive AR and AI solutions for knowledge transfer, training, and quality assurance to validate and verify process instructions delivered through AR

« Expansion of 2018 Partnership with Rockwell

- [In October 2020](#), PTC and Rockwell announced an extension of their strategic alliance
 - ✓ The extension expands the agreement the company's combined sales and product development efforts to include PTC's PLM and SaaS products
 - ✓ PTC will also offer Rockwell Automation's virtual machinery simulation and testing software to its own customer and partner network
 - ✓ Under the agreement, both organizations will continue to leverage each other's resources, technologies, industry expertise, and market presence to serve customers through 2023

Siemens

Business Overview

(\$ in millions)

| | |
|------------------------------------|--|
| Headquarters: | Nuremberg, Germany |
| LinkedIn Employees (1-Yr. Growth): | 241,144 (▲5%) |
| Website: | www.siemens.com |
| Ownership Status: | Public (DB: SIE) |
| Acquisitions Since 2010: | 43 |
| Enterprise Value (EV): | \$149,349.5 |
| LTM Revenue: | \$69,588.4 |
| LTM EBITDA: | \$8,530.0 |
| EV / LTM Revenue: | 2.15x |
| EV / LTM EBITDA: | 17.5x |
| Net Debt (Cash): | (\$33,913.1) |
| Dry Powder: | \$31,824.2 |

Description:

Software solutions for engineering, manufacturing, and electronics design

Select Engineering & Related Products:

- NX
 - Product Design
- Solid Edge
 - Mechanical and Electrical Design
- Teamcenter
 - PLM
- Simcenter
 - CAE
- Polarion
 - Requirements Management

Broad Facing Strategy Across Both M&A and Partner Activity

« Continued Strategic Interest in Electronics & Advanced Materials Driving M&A Activity

- [In November 2020](#), Siemens acquired Culgi, a provider of computational chemistry software for multiscale simulations in the process industries, for an undisclosed amount
 - ✓ The acquisition dovetails with 2019's acquisition of MultiMechanics in bolstering Simcenter's advanced materials modeling capabilities
- [In July 2020](#), Siemens acquired Avatar Integrated Systems, a provider of place and route software for integrated circuit (IC) design, for an undisclosed amount
 - ✓ Adding Avatar's capabilities in routing directly relates addresses the added complexity in routing for integrated circuits that continue to shrink in size
- [In June 2020](#), Siemens acquired UltraSoC Technologies, a provider of instrumentation and analytics solutions for system-on-chip (SoC) hardware, for an undisclosed amount
 - ✓ The addition of UltraSoC to Mentor's Tessent software product suite enables semiconductor industry customers to overcome key pain points including manufacturing defects, software and hardware bugs, device early-failure and wear-out, functional safety, and malicious attacks
- [In June 2020](#), Siemens acquired Vizendo, a provider of virtual operator training for the automotive industry, for an undisclosed amount
 - ✓ This acquisition expands Siemens presence within the virtual training space, enabling industrial companies to reduce training times and launch new products faster at higher quality

« Industrial Software Titans Combine Offerings

- [In July 2020](#), Siemens announced a partnership with SAP to accelerate industrial transformation through a combined end-to-end offering spanning product lifecycle, supply chain, and asset management
 - ✓ The partnership spans both R&D, with several teams working through integrations and other joint R&D efforts particularly around configuration management and BOM lifecycle management, and go-to-market, with each vendor selling the others' core products
 - ✓ Initially, SAP will offer Siemens' Teamcenter software as the core foundation for product lifecycle collaboration and data management, and Siemens will offer SAP Intelligent Asset Management and SAP Portfolio and Project Management

Synopsys

Business Overview

(\$ in millions)

| | |
|------------------------------------|--|
| Headquarters: | Mountain View, CA |
| LinkedIn Employees (1-Yr. Growth): | 14,195 (▲3%) |
| Website: | www.synopsys.com |
| Ownership Status: | Public (NasdaqGM: SNPS) |
| Acquisitions Since 2010: | 44 |
| Enterprise Value (EV): | \$38,295.0 |
| LTM Revenue: | \$3,685.3 |
| LTM EBITDA: | \$866.2 |
| EV / LTM Revenue: | 10.39x |
| EV / LTM EBITDA: | n/m |
| Net Debt (Cash): | \$572.2 |
| Dry Powder: | \$12,676.6 |

Description:

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

Select Engineering & Related Products:

- Fusion Design Platform
 - Cloud-based electronic design automation (EDA)
- DesignWare IP
 - Portfolio of logic libraries and IP solutions for SoCs

EDA Leader Continues to Invest in Software Integrity Group

« M&A Activity Oriented Around Specific Product Capabilities

- [In June 2020](#), Synopsys acquired Qualtera, a provider of big data analytics for semiconductor testing and manufacturing, for an undisclosed amount
 - ✓ The acquisition builds on Synopsys' Yield Explorer design centric management solution and TestMAX test automation solution, using silicon measurement capabilities to improve device development and manufacturing
- [In February 2020](#), Synopsys acquired certain IP assets from INVECAS for an undisclosed amount
 - ✓ The acquisition broadens Synopsys' DesignWare Logic Library, Embedded Memory, General Purpose I/O, Analog, and Interface IP portfolio
- [In January 2020](#), Synopsys acquired certain IP assets from eSilicon for an undisclosed amount
 - ✓ The acquisition expands Synopsys' DesignWare Embedded Memory IP portfolio with TCAMs and multi-port memory compilers, as well as its Interface IP portfolio with High-Bandwidth Interface (HBI) IP
- [In January 2020](#), Synopsys acquired Tinfoil Security, a provider of dynamic application security testing (DAST) and API security testing solutions, for an undisclosed amount
 - ✓ The acquisition expands Synopsys Software Integrity Group's DevOps capabilities into the security testing segment

Tech Soft 3D

Business Overview

(\$ in millions)

| | |
|------------------------------------|--|
| Headquarters: | Bend, OR |
| LinkedIn Employees (1-Yr. Growth): | 135 (▲11%) |
| Website: | www.techsoft3d.com |
| Ownership Status: | PE-backed (Battery) |
| Acquisitions Since 2010: | 4 |
| Enterprise Value (EV): | n/a |
| LTM Revenue: | n/a |
| LTM EBITDA: | n/a |
| EV / LTM Revenue: | n/a |
| EV / LTM EBITDA: | n/a |
| Net Debt (Cash): | n/a |
| Dry Powder: | n/a |

Description:

Software development toolkits (SDKs) for advanced 3D visualization in manufacturing and AEC applications

Select Engineering & Related Products:

- HOOPS Visualize
 - 3D Rendering Engine
- HOOPS Communicator
 - 3D Web Visualization
- HOOPS Exchange
 - CAD Data Translation
- HOOPS Publish
 - 3D Data Publishing

Component Supplier Leader Ramps Growth Under New Owner

« Post-Investment M&A Establishes Tech Soft 3D as Leading CAE Component Supplier

- Since Battery's investment in February 2020 (see below), Tech Soft 3D has completed two acquisitions that extend the capabilities of its SDK portfolio deeper into CAE simulation and analysis applications:
 - ✓ [In November 2020](#), Tech Soft 3D acquired Visual Kinematics Inc. (VKI), a provider of software development toolkits (SDKs) for computer aided engineering (CAE) applications, for an undisclosed amount
 - ✓ [In October 2020](#), Tech Soft 3D acquired Ceetron AS, a provider 3D visualization technology for computer aided engineering (CAE) applications, for an undisclosed amount
 - ✓ Together, these acquisitions position Tech Soft 3D as the leading supplier of CAE component technology

« Tech Soft 3D Takes First External Capital in 24 Years of Company's History

- [In February 2020](#), Tech Soft 3D announced a significant investment from Battery Ventures
 - ✓ The investment marks the company's first external capital raised in their 24 year history
 - ✓ The company intends to use the additional capital to fuel growth by investing in product development, scaling the company's global reach and portfolio of partners, and increasing its product offerings through acquisition
 - ✓ [Morad Elhafed, General Partner at Battery Ventures](#), commented: *"Every day, millions of engineers use software powered by Tech Soft 3D component technology. The company's reach is extremely impressive, and its products are fueling innovation at large and small companies undergoing digital transformation. We are excited to partner with Tech Soft 3D to help the company grow."*

Zuken

Business Overview

(\$ in millions)

| | |
|------------------------------------|--|
| Headquarters: | Yokohama, Japan |
| LinkedIn Employees (1-Yr. Growth): | 1,407 (▲6%) |
| Website: | www.zuken.com |
| Ownership Status: | Public (TKS: 6497) |
| Acquisitions Since 2010: | 3 |
| Enterprise Value (EV): | \$367.6 |
| LTM Revenue: | \$276.7 |
| LTM EBITDA: | \$35.2 |
| EV / LTM Revenue: | 1.33x |
| EV / LTM EBITDA: | 10.4x |
| Net Debt (Cash): | \$275.7 |
| Dry Powder: | \$580.4 |

Description:

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

Select Engineering & Related Products:

- E3.series
 - Electrical and Fluid Design
- eCADSTAR
 - 3D Rendering Engine
- GENESYS
 - Model-based Systems Engineering

Continued Focus on Organic Product Strategy

« New Capabilities Added Across Product Portfolio

- In July 2020, Zuken announced new 2020 releases of two of its core product offerings:
 - ✓ [eCADSTAR 2020.0](#) includes new modules for signal integrity, power integrity, and IBIS-AMI simulation
 - ✓ [E3.series 2020](#) includes collaboration enhancements to tabular editing, document embedding, and 3D PDF support capabilities

« No Acquisitions in 2020

- Zuken's last M&A activity came in August 2019 with the acquisition of Vitech, a provider of model-based systems engineering software

III. Comparable Transactions

Precedent M&A Transactions

MADISON PARK GROUP

| | |
|-----------|--------------|
| Altair | Gamma |
| Altium | Hexagon |
| Ansys | Jama |
| Aras | PTC |
| Autodesk | Siemens |
| Bentley | Synopsys |
| Cadence | Tech Soft 3D |
| Dassault | Zuken |
| ESI Group | |

| (\$ in Millions) | | Target Overview | | | Transaction Statistics | | |
|------------------|---------------------------|--|-------------------|---------|------------------------|----------------------|------------------|
| Announced | Target | Description | Estimated Revenue | EBITDA | Deal Value | Deal Value / Revenue | Estimated EBITDA |
| Altair | | Total Disclosed M&A Deal Value: \$250.7 Million | | | | | |
| 10/08/2020 | M-Base | Material information systems | n/a | n/a | n/a | n/a | n/a |
| 09/16/2020 | Ellexus | Input/output (I/O) analysis | n/a | n/a | n/a | n/a | n/a |
| 09/14/2020 | Univa | Enterprise-grade workload management | n/a | n/a | n/a | n/a | n/a |
| 07/27/2020 | S&WISE | Polyurethane foaming simulation software | n/a | n/a | n/a | n/a | n/a |
| 05/07/2020 | WRAP | Spectrum management and radio network planning | n/a | n/a | n/a | n/a | n/a |
| 01/06/2020 | newFASANT | Electromagnetic simulation software | n/a | n/a | n/a | n/a | n/a |
| 10/10/2019 | Polliwog Co. | EDA verification and evaluation | n/a | n/a | n/a | n/a | n/a |
| 04/01/2019 | Cambridge Collaborative | High-frequency noise and vibration simulation | n/a | n/a | n/a | n/a | n/a |
| 11/05/2018 | Datawatch | Enterprise data preparation & visualization | \$41.7 | (\$9.3) | \$183.4 | 4.40x | n/m |
| 10/17/2018 | SIMSOLID | Structural analysis simulation software | n/a | n/a | \$22.1 | n/a | n/a |
| 05/10/2018 | FluidDyna GmbH | Fluid dynamics simulation software | n/a | n/a | \$2.7 | n/a | n/a |
| 03/29/2018 | CANDI Controls | Real-time device control and data management | n/a | n/a | \$2.4 | n/a | n/a |
| 09/28/2017 | Runtime | EDA software optimizing application computing | n/a | n/a | \$25.5 | n/a | n/a |
| 09/14/2017 | Componeering | Composites analysis and design software | n/a | n/a | n/a | n/a | n/a |
| 06/20/2017 | Carriots | IoT device enablement platform | n/a | n/a | \$6.7 | n/a | n/a |
| 05/24/2017 | MODELiis | EDA for circuit modelling & systems design | n/a | n/a | \$2.0 | n/a | n/a |
| 09/14/2016 | Solid Iris Technologies | Rendering software for architecture applications | n/a | n/a | n/a | n/a | n/a |
| 05/10/2016 | CEDRAT | Simulation software for mechatronic systems | n/a | n/a | \$5.1 | n/a | n/a |
| 03/23/2016 | Awe Communications | Product design software for cellular devices | n/a | n/a | n/a | n/a | n/a |
| 09/30/2015 | Click2Cast | Casting process simulation software | n/a | n/a | \$0.7 | n/a | n/a |
| 04/07/2015 | Multiscale Design Systems | Modeling, simulation, and testing software | n/a | n/a | n/a | n/a | n/a |
| 07/17/2014 | Visual Solutions | Commercial simulation software | n/a | n/a | n/a | n/a | n/a |
| 12/10/2013 | EM Software & Systems | Consulting services for electromagnetic analysis | n/a | n/a | n/a | n/a | n/a |
| 11/08/2012 | Synopsis Consulting | Business consulting services for product dev. | n/a | n/a | n/a | n/a | n/a |
| 01/11/2011 | ACUSIM Software | Computation fluid dynamics software | n/a | n/a | n/a | n/a | n/a |
| 10/28/2010 | SimLab Corporation | Auto industry modeling and simulation software | n/a | n/a | n/a | n/a | n/a |
| 01/07/2007 | solidThinking | Integrated rendering engine design software | n/a | n/a | n/a | n/a | n/a |
| 01/01/2007 | Hiqube | Simulation-driven business analytics suite | n/a | n/a | n/a | n/a | n/a |
| 03/10/2003 | 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 | | | | | |
| 04/30/2019 | Gumstix | Hardware development and manufacturing | \$2.3 | n/a | \$4.9 | 2.13x | n/a |
| 07/31/2018 | PCB:NG | PCB manufacturing | n/a | n/a | \$4.8 | n/a | n/a |
| 05/10/2018 | FluidDyna | Predictive aerodynamic simulation tools | n/a | n/a | n/a | n/a | n/a |
| 05/03/2018 | CANDI Controls | Data protocol management for edge devices | n/a | n/a | n/a | n/a | n/a |
| 02/21/2018 | TES International | Thermal solutions for complex flow mapping | n/a | n/a | n/a | n/a | n/a |
| 08/28/2017 | Upverter | Online circuit design platform | n/a | n/a | \$5.6 | n/a | n/a |
| 01/17/2017 | Premier EDA Solutions | Electronic design automation | n/a | n/a | \$4.0 | n/a | n/a |
| 09/15/2016 | Transfer | Electronics design software | n/a | n/a | \$1.8 | n/a | n/a |
| 08/23/2016 | Perception Software | Engineering productivity application | n/a | n/a | \$7.9 | n/a | n/a |
| 08/14/2015 | Octopart | Electronics parts search | n/a | n/a | \$18.0 | n/a | n/a |
| 08/14/2015 | Ciiva | Electronic component management | n/a | n/a | \$4.0 | n/a | n/a |
| 09/16/2010 | Morfik Technology | Cloud application development | n/a | n/a | \$3.1 | n/a | n/a |

Precedent M&A Transactions

MADISON PARK GROUP

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|-----------|--------------|
| Altair | Gamma |
| Altium | Hexagon |
| Ansys | Jama |
| Aras | PTC |
| Autodesk | Siemens |
| Bentley | Synopsys |
| Cadence | Tech Soft 3D |
| Dassault | Zuken |
| ESI Group | |

| (\$ in Millions) | | Target Overview | | | Transaction Statistics | | |
|-------------------------|----------------------------|--|-------------------|--------|------------------------|----------------------|------------------|
| Announced | Target | Description | Estimated Revenue | EBITDA | Deal Value | Deal Value / Revenue | Estimated EBITDA |
| ANSYS | | Total Disclosed M&A Deal Value: \$4.1 Billion | | | | | |
| 10/26/2020 | Analytical Graphics Inc. | Mission-driven simulation, testing, and analysis | \$80.0 | n/a | \$700.0 | 8.75x | n/a |
| 03/05/2020 | Lumerical | Photonic simulation software | \$11.3 | n/a | \$107.5 | 9.49x | n/a |
| 10/24/2019 | Dynardo | Process integration and design tools | n/a | n/a | n/a | n/a | n/a |
| 09/11/2019 | Livermore Software | Multi physics simulation software | \$62.5 | n/a | \$777.8 | 12.44x | n/a |
| 05/02/2019 | DFR Solutions | EDA design reliability analysis software | n/a | n/a | n/a | n/a | n/a |
| 02/01/2019 | Granta Design | Engineering materials information management | \$20.0 | \$2.0 | \$208.7 | 10.44x | n/m |
| 01/21/2019 | Helic | Electro-magnetic cross-talk analysis software | n/a | n/a | n/a | n/a | n/a |
| 03/22/2018 | Optis World | Optics engineering & simulation software | \$24.7 | n/a | \$291.0 | 11.78x | n/a |
| 11/15/2017 | 3DSIM | Additive manufacturing process software | n/a | n/a | n/a | n/a | n/a |
| 07/11/2017 | Computational Engineering | Scientific data visualization software | n/a | n/a | \$6.0 | n/a | n/a |
| 03/17/2017 | CLK Design Automation | Static timing and power analysis software | n/a | n/a | n/a | n/a | n/a |
| 11/03/2016 | KPIT | Automotive engineering software | n/a | n/a | n/a | n/a | n/a |
| 09/01/2015 | Delcross | CEM & RF analysis software | n/a | n/a | n/a | n/a | n/a |
| 07/01/2015 | Gear Design | Semiconductor & electric design solutions | n/a | n/a | \$30.0 | n/a | n/a |
| 02/05/2015 | Newmerical | In-flight icing simulation software | n/a | n/a | \$10.9 | n/a | n/a |
| 11/03/2014 | Parsec Holdings | Technology-driven engineering services | n/a | n/a | \$8.4 | n/a | n/a |
| 05/01/2014 | SpaceClaim | 3D direct modeling software | \$18.0 | n/a | \$85.0 | 4.72x | n/a |
| 01/03/2014 | Reaction Design | Chemical modeling & simulation software | n/a | n/a | \$19.1 | n/a | n/a |
| 05/22/2013 | Tedaka Technologies | Telecom transmission & networking | n/a | n/a | \$2.8 | n/a | n/a |
| 04/03/2013 | Evolutionary Engineering | Aerospace and mechanical engineering | n/a | n/a | \$8.1 | n/a | n/a |
| 07/01/2012 | Esterel Technologies | Embedded software design | \$21.0 | n/a | \$58.2 | 2.77x | n/a |
| 06/30/2011 | Apache Design | Semiconductor design and verification | \$44.0 | n/a | \$314.0 | 7.13x | n/a |
| 08/01/2008 | Ansoft | Electronic design automation software | \$103.4 | \$41.7 | \$823.8 | 7.97x | 19.7x |
| 11/27/2007 | Emerging Signals | Railway signaling services | n/a | n/a | \$2.2 | n/a | n/a |
| 05/01/2006 | Fluent | Computational fluid dynamics | n/a | n/a | n/a | n/a | n/a |
| 02/16/2006 | Aavid Thermal Technologies | Thermal management software solutions | n/a | n/a | \$565.0 | n/a | n/a |
| 12/01/2005 | Harvard Thermal | Thermal management software solutions | n/a | n/a | n/a | n/a | n/a |
| 01/05/2005 | Century Dynamics | Hydro-dynamics simulation | n/a | n/a | \$10.0 | n/a | n/a |
| 02/04/2003 | CFX Group | Computational fluid dynamics software | \$19.0 | n/a | \$21.7 | 1.14x | n/a |
| 03/20/2002 | IceBreaker | Online informational management software | n/a | n/a | n/a | n/a | n/a |
| 11/14/2001 | Cadoc | CAD & acoustic testing | n/a | n/a | \$3.9 | n/a | n/a |
| 08/31/2000 | 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 | | | | | |
| 09/25/2018 | Comet Solutions | Process automation for CAE / simulation | n/a | n/a | n/a | n/a | n/a |
| 08/02/2018 | SoftTech (Italy) | Public administration information systems | n/a | n/a | n/a | n/a | n/a |
| 01/24/2018 | Info Spectrum (Impressa) | MRO management suite | n/a | n/a | n/a | n/a | n/a |
| Autodesk | | Total Disclosed M&A Deal Value: \$3.3 Billion | | | | | |
| 11/17/2020 | Spacemaker | Generative design for real estate project sites | n/a | n/a | \$240.0 | n/a | n/a |
| 08/17/2020 | Pyype | Construction data ingestion | n/a | n/a | n/a | n/a | n/a |
| 01/23/2019 | BuildingConnected | Preconstruction planning solutions | n/a | n/a | \$253.2 | n/a | n/a |
| 11/20/2018 | PlanGrid | Digital blueprint solutions | \$100.0 | n/a | \$777.6 | 7.78x | n/a |
| 07/19/2018 | Assemble Systems | BIM solutions for construction management | n/a | n/a | \$93.6 | n/a | n/a |
| 11/13/2017 | BioLite | Carbon credit license permits | n/a | n/a | n/a | n/a | n/a |
| 11/15/2016 | Seebo | IoT development modules | n/a | n/a | n/a | n/a | n/a |

Source: Pitchbook, CapIQ, corporate websites, press releases

Precedent M&A Transactions

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| (\$ in Millions) | | Target Overview | | | Transaction Statistics | | |
|------------------|----------------------------|---|-------------------|--------|------------------------|----------------------|------------------|
| Announced | Target | Description | Estimated Revenue | EBITDA | Deal Value | Deal Value / Revenue | Estimated EBITDA |
| Autodesk | | Total Disclosed M&A Deal Value: \$3.3 Billion | | | | | |
| 11/13/2017 | BioLite | Carbon credit license permits | n/a | n/a | n/a | n/a | n/a |
| 11/15/2016 | Seebo | IoT development modules | n/a | n/a | n/a | n/a | n/a |
| 06/01/2016 | CadSoft | PCB Design | n/a | n/a | n/a | n/a | n/a |
| 04/18/2016 | Solid Angle | Animation & visual effects rendering | n/a | n/a | n/a | n/a | n/a |
| 02/25/2016 | Monolith | Voxel modeling | n/a | n/a | n/a | n/a | n/a |
| 01/01/2016 | Autodesk Substation Design | AutoCAD software developer | n/a | n/a | n/a | n/a | n/a |
| 01/01/2016 | SDS | AutoCAD software systems | n/a | n/a | n/a | n/a | n/a |
| 10/29/2015 | Configure One | CPQ software | n/a | n/a | n/a | n/a | n/a |
| 10/15/2015 | Indeeo | Apple graphic design applications | n/a | n/a | n/a | n/a | n/a |
| 09/24/2015 | NetFabb | 3D printing software and services | \$18.6 | n/a | \$44.5 | 2.39x | n/a |
| 08/27/2015 | SeeControl | IoT business applications platform | n/a | n/a | n/a | n/a | n/a |
| 02/09/2015 | Tweak Software | PLM software hosting | n/a | n/a | n/a | n/a | n/a |
| 01/08/2015 | Syntheticity | Urban planning data processing | n/a | n/a | n/a | n/a | n/a |
| 12/10/2014 | Magestic Systems | 3D nesting of composites | \$3.0 | n/a | \$10.0 | 3.33x | n/a |
| 11/21/2014 | Terrible Labs | Mobile and web application development | n/a | n/a | n/a | n/a | n/a |
| 11/20/2014 | TeamUp Technologies | Three dimensional cloud platform | n/a | n/a | \$60.0 | n/a | n/a |
| 11/20/2014 | Lagoa | 3D rendering platform | n/a | n/a | \$60.0 | n/a | n/a |
| 10/14/2014 | Modio | Character animation software | n/a | n/a | n/a | n/a | n/a |
| 10/02/2014 | Robobat Polska | Structural engineering software | n/a | n/a | n/a | n/a | n/a |
| 06/27/2014 | Shotgun Software | Animation & creative software | n/a | n/a | \$54.5 | n/a | n/a |
| 06/27/2014 | The Living | Building design studio | n/a | n/a | n/a | n/a | n/a |
| 06/09/2014 | Bitsquid | Mobile game engine | n/a | n/a | n/a | n/a | n/a |
| 05/29/2014 | Within Technologies | Engineering design optimization | n/a | n/a | \$88.8 | n/a | n/a |
| 05/14/2014 | NEi Nastran Solver | Engineering analysis and simulation | n/a | n/a | n/a | n/a | n/a |
| 04/29/2014 | Ilesfay Technology | PLM data replication | n/a | n/a | n/a | n/a | n/a |
| 03/19/2014 | Creative Market Labs | Digital content design marketplace | n/a | n/a | n/a | n/a | n/a |
| 02/06/2014 | Delcam | Automated multi-vertical CAD/CAM | \$75.6 | n/a | \$285.4 | 3.78x | n/a |
| 01/06/2014 | Schrauwen Bruneel | Electronic circuits design software | n/a | n/a | n/a | n/a | n/a |
| 01/06/2014 | Circuits.io | Application for designing electronic circuits | n/a | n/a | n/a | n/a | n/a |
| 01/01/2014 | Majestic Systems | Industrial manufacturing software | n/a | n/a | n/a | n/a | n/a |
| 12/04/2013 | Azaliient | Traffic simulation modeling | n/a | n/a | n/a | n/a | n/a |
| 12/04/2013 | Graitec Innovation | Structural building construction CAD | n/a | n/a | \$88.1 | n/a | n/a |
| 11/04/2013 | Virtual Shape | Automotive modeling & design | n/a | n/a | n/a | n/a | n/a |
| 10/14/2013 | for-each | Software focused on mobile development | n/a | n/a | n/a | n/a | n/a |
| 08/19/2013 | Bestech Systems | Bridge span analysis | n/a | n/a | n/a | n/a | n/a |
| 08/19/2013 | Savoy Computing | Transportation path analysis | n/a | n/a | n/a | n/a | n/a |
| 05/19/2013 | Tinkercad | Cloud-based 3D design tools | n/a | n/a | n/a | n/a | n/a |
| 03/19/2013 | Firehole Technologies | Composite materials design | n/a | n/a | \$10.0 | n/a | n/a |
| 01/31/2013 | Allpoint | 3D data processing | n/a | n/a | n/a | n/a | n/a |
| 01/08/2013 | PI-VR | Automotive visualization | n/a | n/a | \$49.3 | n/a | n/a |
| 10/04/2012 | Qontext | Enterprise social collaboration | n/a | n/a | \$26.0 | n/a | n/a |
| 10/01/2012 | HSMWorks | Computer aided manufacturing | n/a | n/a | n/a | n/a | n/a |
| 08/28/2012 | Inforbix | Product data searching | n/a | n/a | n/a | n/a | n/a |
| 08/13/2012 | Exotic Matter | 3D fluid solver and dynamics framework | n/a | n/a | n/a | n/a | n/a |
| 07/20/2012 | Socialcam | Video data capture | n/a | n/a | \$60.0 | n/a | n/a |
| 06/08/2012 | Vela Systems | Construction field software | n/a | n/a | \$76.0 | n/a | n/a |

Source: Pitchbook, CapIQ, corporate websites, press releases

Precedent M&A Transactions

MADISON PARK GROUP

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|-----------|--------------|
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| (\$ in Millions) | | Target Overview | | | Transaction Statistics | | |
|------------------|------------------------|---|---------|--------|------------------------|----------------------|------------------|
| Announced | Target | Description | Revenue | EBITDA | Deal Value | Deal Value / Revenue | Estimated EBITDA |
| Autodesk | | Total Disclosed M&A Deal Value: \$3.3 Billion | | | | | |
| 12/22/2011 | T-Splines | Surface modeling software | n/a | n/a | n/a | n/a | n/a |
| 12/16/2011 | Horizontal Systems | BIM platform | n/a | n/a | n/a | n/a | n/a |
| 11/06/2011 | GRIP Entertainment | Artificial intelligence games | n/a | n/a | n/a | n/a | n/a |
| 10/21/2011 | Micro Application | CAD/CAM for fabrication & construction | n/a | n/a | \$23.0 | n/a | n/a |
| 08/25/2011 | Numenus | High-end visualization | n/a | n/a | n/a | n/a | n/a |
| 08/22/2011 | Darwin Dimensions | 3D character modeling | n/a | n/a | n/a | n/a | n/a |
| 08/01/2011 | Instructables | User-generated DIY content | n/a | n/a | \$30.2 | n/a | n/a |
| 07/19/2011 | Code Mine | Cloud-based image tools and utilities | n/a | n/a | n/a | n/a | n/a |
| 05/25/2011 | Datastay | PLM software | n/a | n/a | n/a | n/a | n/a |
| 03/11/2011 | Blue Ridge Numerics | Fluid dynamics and simulation | n/a | n/a | \$39.0 | n/a | n/a |
| 03/01/2011 | Scaleform | UI software for consumer electronics | n/a | n/a | \$36.0 | n/a | n/a |
| 12/20/2010 | Sim Ops | 3D gaming technology | n/a | n/a | n/a | n/a | n/a |
| 07/21/2010 | Illuminate Labs | Game lighting technology | n/a | n/a | n/a | n/a | n/a |
| 05/01/2010 | 3am Solutions (Assets) | Project visualization | n/a | n/a | n/a | n/a | n/a |
| 12/17/2009 | PlanPlatform | 2D & 3D engineering software | n/a | n/a | \$25.0 | n/a | n/a |
| 08/26/2009 | Boss International | Water analysis & engineering | n/a | n/a | n/a | n/a | n/a |
| 01/20/2009 | ALGOR | Mechanical/civil engineering software | n/a | n/a | \$30.4 | n/a | n/a |
| 12/22/2008 | BIMWorld | BIM solutions | n/a | n/a | n/a | n/a | n/a |
| 12/22/2008 | Logimetrix | Design/engineering automation | n/a | n/a | n/a | n/a | n/a |
| 11/18/2008 | SoftImage | 3D animation | n/a | n/a | \$36.0 | n/a | n/a |
| 09/11/2008 | Bigvan | Develops Computer Aided Design software | n/a | n/a | n/a | n/a | n/a |
| 09/08/2008 | 3D Geo | 3D urban modeling software | n/a | n/a | n/a | n/a | n/a |
| 08/20/2008 | ECS | Digital schematic prototyping | n/a | n/a | n/a | n/a | n/a |
| 07/25/2008 | Moldflow | Design-to-manufacture automation | \$61.3 | \$10.3 | \$267.3 | 4.36x | n/m |
| 06/26/2008 | Square One Research | Architectural software | n/a | n/a | n/a | n/a | n/a |
| 05/07/2008 | Kynogon | Interactive application intelligence | n/a | n/a | n/a | n/a | n/a |
| 05/07/2008 | Realviz | Digital content creation | n/a | n/a | n/a | n/a | n/a |
| 01/11/2008 | Carmel Software | HVAC mechanical engineering software | n/a | n/a | n/a | n/a | n/a |
| 01/07/2008 | Hanna Strategies | AutoCAD and AutoDesk software | n/a | n/a | \$13.5 | n/a | n/a |
| 10/16/2007 | Skymatter | Mudbox 3D modelling software | n/a | n/a | \$19.0 | n/a | n/a |
| 10/10/2007 | Intelisolve | Hydrology and hydraulic analysis software | n/a | n/a | n/a | n/a | n/a |
| 08/27/2007 | Plassoft | 3D simulation application software | n/a | n/a | n/a | n/a | n/a |
| 08/20/2007 | Opticore | Graphics communication software | \$12.9 | \$7.3 | n/a | n/a | n/a |
| 08/09/2007 | NavisWorks | Computer-aided design software | \$3.9 | \$2.0 | \$26.2 | 6.76x | 13.3x |
| 08/01/2007 | Cumulate Labs | CAD diagramming software | n/a | n/a | n/a | n/a | n/a |
| 10/01/2006 | ImpactXoft | Product development software | n/a | n/a | n/a | n/a | n/a |
| 03/31/2006 | Constructware | Construction collaboration | n/a | n/a | \$45.7 | n/a | n/a |
| 01/10/2006 | Alias Systems | Digital content creation | n/a | n/a | \$197.0 | n/a | n/a |
| 10/19/2005 | Engineering Intent | Enterprise engineering automation services | n/a | n/a | n/a | n/a | n/a |
| 08/22/2005 | Solid Dynamics | Kinematics and dynamics technology | \$1.3 | \$0.0 | n/a | n/a | n/a |
| 07/06/2005 | c-plan | Geographic information systems | n/a | n/a | n/a | n/a | n/a |
| 03/01/2005 | Compass Systems | Data management services | n/a | n/a | \$17.2 | n/a | n/a |
| 03/04/2004 | VIA Development | Engineering automation software | n/a | n/a | n/a | n/a | n/a |
| 02/24/2004 | Mechsoft | Automated component creation software | n/a | n/a | n/a | n/a | n/a |
| 03/04/2003 | Linius Technologies | CAD connectivity | n/a | n/a | n/a | n/a | n/a |
| 12/18/2002 | TruInnovations | File and data management software | n/a | n/a | n/a | n/a | n/a |

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| Autodesk | | Total Disclosed M&A Deal Value: \$3.3 Billion | | | | | |
| 08/06/2002 | CAiCE Software | Surveying and engineering applications | n/a | n/a | \$10.0 | n/a | n/a |
| 02/21/2002 | Revit Technology | AEC parametric building modeler | n/a | n/a | \$133.0 | n/a | n/a |
| 08/28/2001 | Buzzsaw | Construction data management | n/a | n/a | \$15.0 | n/a | n/a |
| 03/31/1997 | Softdesk | Integrated AEC software | \$34.5 | n/a | \$90.6 | 2.63x | n/a |
| 03/27/1987 | Cadetron | Solids modeling | n/a | n/a | \$6.0 | n/a | n/a |
| Bentley | | Total Disclosed M&A Deal Value: n/a | | | | | |
| 07/13/2020 | Cohesive Solutions | IBM Maximo reseller | n/a | n/a | n/a | n/a | n/a |
| 06/03/2020 | Notevault | Voice-based field automation application | n/a | n/a | n/a | n/a | n/a |
| 03/10/2020 | GroupBC | Document and information management tools | n/a | n/a | n/a | n/a | n/a |
| 10/21/2019 | Citilabs | Mobile analytics platform | n/a | n/a | n/a | n/a | n/a |
| 10/21/2019 | Orbit GeoSpatial Technologies | Geospatial 3D mapping software | n/a | n/a | n/a | n/a | n/a |
| 05/13/2019 | Keynetix | Geotechnical data management software | n/a | n/a | n/a | n/a | n/a |
| 02/11/2019 | SignCAD Systems | Traffic sign design software | n/a | n/a | n/a | n/a | n/a |
| 11/12/2018 | Alworx | Machine learning & IoT technologies | n/a | n/a | n/a | n/a | n/a |
| 10/15/2018 | Agency9 | Advanced digital twin modelling | n/a | n/a | n/a | n/a | n/a |
| 10/15/2018 | Legion | Pedestrian simulation software | n/a | n/a | n/a | n/a | n/a |
| 06/20/2018 | Synchro Software | 4D building information modelling | n/a | n/a | n/a | n/a | n/a |
| 04/26/2018 | Plaxis | Geotechnical software tools | n/a | n/a | n/a | n/a | n/a |
| 04/26/2018 | SoilVision Systems | Software database for geotechnical engineers | n/a | n/a | n/a | n/a | n/a |
| 01/22/2018 | S-Cube Futuretech | Structural engineering management tools | n/a | n/a | n/a | n/a | n/a |
| 10/09/2017 | ACTION Modulers | Water Modeling Software Business | n/a | n/a | n/a | n/a | n/a |
| 11/01/2016 | Comply Serve | Infrastructure compliance management | n/a | n/a | n/a | n/a | n/a |
| 09/14/2015 | E-On Software | 3D system simulation | n/a | n/a | n/a | n/a | n/a |
| 03/09/2015 | EADOC | Construction project management software | n/a | n/a | n/a | n/a | n/a |
| 02/10/2015 | Acute3D | High-resolution 3D modelling | n/a | n/a | n/a | n/a | n/a |
| 01/13/2015 | C3 Global | Asset performance improvement applications | n/a | n/a | n/a | n/a | n/a |
| 09/25/2014 | BLUERIDGE Analytics | 3D civil / site design software | n/a | n/a | n/a | n/a | n/a |
| 11/05/2013 | Engineering Systems | Structural analysis & design software | n/a | n/a | n/a | n/a | n/a |
| 11/12/2012 | EuResearch | Software for pressure vessels & exchangers | n/a | n/a | n/a | n/a | n/a |
| 09/18/2012 | IVARA Corporation | Asset performance management software | n/a | n/a | n/a | n/a | n/a |
| 05/15/2012 | InspectTech Systems | Mobile inspection & asset management solutions | n/a | n/a | n/a | n/a | n/a |
| 03/07/2012 | Hannappel Software | CAD software for electrical installations | n/a | n/a | n/a | n/a | n/a |
| 11/08/2011 | Pointools | Point cloud conversion applications and plug-ins | n/a | n/a | n/a | n/a | n/a |
| 11/08/2011 | Formation Design Systems | 3D modelling & analysis software | n/a | n/a | n/a | n/a | n/a |
| 03/02/2011 | Engineering Dynamics | Offshore simulation software | n/a | n/a | n/a | n/a | n/a |
| 07/07/2010 | BLUERIDGE Analytics | 3D civil / site design software | n/a | n/a | n/a | n/a | n/a |
| 02/09/2010 | Enterprise Informatics | Document and records management software | n/a | n/a | n/a | n/a | n/a |
| 02/08/2010 | Exor Corporation | Infrastructure asset management software | n/a | n/a | n/a | n/a | n/a |
| 10/14/2009 | gINT Software | Environmental and geotechnical software | n/a | n/a | n/a | n/a | n/a |
| Cadence Design | | Total Disclosed M&A Deal Value: \$3.4 Billion | | | | | |
| 08/12/2020 | InspectAR | Augmented reality platform for circuit board mfgs. | n/a | n/a | n/a | n/a | n/a |
| 02/06/2020 | Integrand Software | RF solution for analysis and abstraction based | n/a | n/a | n/a | n/a | n/a |
| 01/20/2020 | AWR Corp | Electronic design automation software | n/a | n/a | n/a | n/a | n/a |
| 11/01/2017 | nusemi | Communications IP Developer | n/a | n/a | n/a | n/a | n/a |

Source: Pitchbook, CapIQ, corporate websites, press releases

Precedent M&A Transactions

MADISON PARK GROUP

| | |
|-----------|--------------|
| Altair | Gamma |
| Altium | Hexagon |
| Ansys | Jama |
| Aras | PTC |
| Autodesk | Siemens |
| Bentley | Synopsys |
| Cadence | Tech Soft 3D |
| Dassault | Zuken |
| ESI Group | |

| (\$ in Millions) | | Target Overview | | | Transaction Statistics | | |
|-----------------------|---------------------------|---|-------------------|---------|------------------------|----------------------|------------------|
| Announced | Target | Description | Estimated Revenue | EBITDA | Deal Value | Deal Value / Revenue | Estimated EBITDA |
| Cadence Design | | Total Disclosed M&A Deal Value: \$3.4 Billion | | | | | |
| 07/05/2016 | Rocketick | Chip verification software | n/a | n/a | \$38.0 | n/a | n/a |
| 01/22/2016 | Sibridge Technologies | Media software designer | n/a | n/a | n/a | n/a | n/a |
| 06/16/2014 | Jasper Design Automation | Electronic design automation technology | n/a | n/a | \$139.4 | n/a | n/a |
| 02/19/2014 | Forte Design Systems | Semiconductor design software | n/a | n/a | n/a | n/a | n/a |
| 02/12/2014 | TranSwitch | Intellectual Property Service | n/a | n/a | n/a | n/a | n/a |
| 06/13/2013 | Evatronix | Mixed signal intellectual property developer | n/a | n/a | n/a | n/a | n/a |
| 05/23/2013 | Cosmic Circuits | Silicon based IP cores manufacturer | n/a | n/a | \$48.0 | n/a | n/a |
| 04/22/2013 | Tensilica | Provider of controllers, CPU, multimedia, and specialty | n/a | n/a | \$326.0 | n/a | n/a |
| 07/02/2012 | Sigrity | Signal and power integration technology provider | n/a | n/a | \$78.5 | n/a | n/a |
| 07/11/2011 | Azuro | Electronic design automation software | n/a | n/a | n/a | n/a | n/a |
| 05/10/2011 | Altos Design Automation | Electronic data automation service | n/a | n/a | n/a | n/a | n/a |
| 06/17/2010 | Denali Software | Electronic design automation software | \$41.9 | n/a | \$309.4 | 7.39x | n/a |
| 03/22/2010 | Taray | Computer system designer | n/a | n/a | n/a | n/a | n/a |
| 03/07/2008 | Chip Estimate | Integrated circuit prediction technology | n/a | n/a | n/a | n/a | n/a |
| 08/15/2007 | Clear Shape Technologies | DFM software | n/a | n/a | \$41.3 | n/a | n/a |
| 07/12/2007 | Invarium | Advanced layout print service | n/a | n/a | n/a | n/a | n/a |
| 01/01/2006 | CommandCAD | Integrated circuits layout optimization | n/a | n/a | \$25.8 | n/a | n/a |
| 04/07/2005 | Verisity | Verification process automation | \$58.0 | (\$5.6) | \$325.4 | 5.61x | n/m |
| 04/08/2004 | Neolinear | Analog silicon design software | n/a | n/a | \$78.1 | n/a | n/a |
| 01/04/2004 | Q Design Atuomation | Integrated circuit layout provider | n/a | n/a | n/a | n/a | n/a |
| 08/26/2003 | Verplex Systems | Functional verification software | n/a | n/a | \$85.1 | n/a | n/a |
| 05/07/2003 | K2 Technologies | Semiconductor design software | n/a | n/a | n/a | n/a | n/a |
| 04/10/2003 | Get2Chip | Architctural platform for chip manufactures and IP | n/a | n/a | n/a | n/a | n/a |
| 03/06/2003 | SpinCircuit | B2B e-commerce portal operator | n/a | n/a | n/a | n/a | n/a |
| 01/15/2003 | Celestry | Physical design software | n/a | n/a | \$64.4 | n/a | n/a |
| 11/22/2002 | Antrim Design Systems | Analog design software | n/a | n/a | n/a | n/a | n/a |
| 06/27/2002 | Simplex Solutions | Electronic chip design and verification software | n/a | n/a | \$329.7 | n/a | n/a |
| 04/24/2002 | Plato Design Systems | Routing and physical design optimization solution | n/a | n/a | \$75.0 | n/a | n/a |
| 12/20/2001 | Silicon Perspective | Electronic design automation software | n/a | n/a | n/a | n/a | n/a |
| 02/28/2001 | CadMos Design Technology | Noise analysis products | n/a | n/a | \$105.3 | n/a | n/a |
| 03/22/2000 | Westport Technology | IP Development Services | n/a | n/a | \$3.5 | n/a | n/a |
| 12/01/1999 | Diablo Research Company | High tech product development services | n/a | n/a | \$80.8 | n/a | n/a |
| 07/16/1999 | OrCAD | Electronic design software | \$11.6 | \$17.2 | \$122.2 | 10.55x | 7.1x |
| 05/25/1999 | Quickturn Design Systems | Level verification solutions | n/a | n/a | \$253.0 | n/a | n/a |
| 09/30/1998 | Ambit Design Systems | EDA software for electronic design | n/a | n/a | \$255.0 | n/a | n/a |
| 05/07/1997 | Cooper & Chyan Technology | Semiconductor designer | n/a | n/a | \$422.0 | n/a | n/a |
| 12/05/1991 | Valid Logic | CAD Equipment Manufacturer | n/a | n/a | \$200.0 | n/a | n/a |
| 10/09/1989 | Gateway Design Automation | CAE Software | n/a | n/a | n/a | n/a | n/a |
| Dassault | | Total Disclosed M&A Deal Value: \$11.0 Billion | | | | | |
| 11/25/2020 | NuoDB | Cloud-based SQL database platform | \$6.0 | n/a | n/a | n/a | n/a |
| 07/23/2020 | Proxem | Big data semantic analysis | n/a | n/a | n/a | n/a | n/a |
| 06/12/2019 | Medidata Solutions | Cloud-based solutions for clinical development | \$661.0 | \$85.4 | \$5,763.8 | 8.72x | n/m |
| 03/05/2019 | Argosim | System requirements validation software | n/a | n/a | n/a | n/a | n/a |
| 02/11/2019 | Trace Software (Assets) | Electrical design and automation software | n/a | n/a | n/a | n/a | n/a |
| 12/11/2018 | IQMS | Mid-market manufacturing ERP / MES | \$56.0 | n/a | \$425.0 | 7.59x | n/a |

Source: Pitchbook, CapIQ, corporate websites, press releases

Precedent M&A Transactions

MADISON PARK GROUP

| | |
|-----------|--------------|
| Altair | Gamma |
| Altium | Hexagon |
| Ansys | Jama |
| Aras | PTC |
| Autodesk | Siemens |
| Bentley | Synopsys |
| Cadence | Tech Soft 3D |
| Dassault | Zuken |
| ESI Group | |

| (\$ in Millions) | | Target Overview | | | Transaction Statistics | | |
|------------------|---------------------------|---|-------------------|----------|------------------------|----------------------|------------------|
| Announced | Target | Description | Estimated Revenue | EBITDA | Deal Value | Deal Value / Revenue | Estimated EBITDA |
| Dassault | | Total Disclosed M&A Deal Value: \$11.0 Billion | | | | | |
| 06/14/2018 | Centric Software | Lifecycle management software | \$61.0 | n/a | n/a | n/a | n/a |
| 10/25/2017 | No Magic | Model-based systems for engineering design | n/a | n/a | n/a | n/a | n/a |
| 09/28/2017 | Exa Corporation | Simulation software for vehicle manufacturers | \$72.7 | \$1.5 | \$400.3 | 5.51x | n/m |
| 06/20/2017 | Outscale | Cloud security and operations management | n/a | n/a | n/a | n/a | n/a |
| 06/01/2017 | AITAC | Marine and offshore engineering software | n/a | n/a | n/a | n/a | n/a |
| 12/09/2016 | Xflow CFD | Dynamic fluid flow simulation | n/a | n/a | n/a | n/a | n/a |
| 07/21/2016 | Computer Simulation | Multiphysics simulation | \$51.2 | n/a | \$247.3 | 4.83x | n/a |
| 06/02/2016 | Ortems | Production scheduling and dispatching | \$5.4 | n/a | n/a | n/a | n/a |
| 04/01/2016 | 3DPLM Software | Product development and QA | n/a | n/a | n/a | n/a | n/a |
| 04/23/2015 | Modelon | Transportation & mobility modeling | n/a | n/a | n/a | n/a | n/a |
| 09/09/2014 | Quintiq | Production, logistics, and workforce | \$97.6 | n/a | \$322.7 | 3.31x | n/a |
| 07/10/2014 | Simpack | Multi-body industrial simulation | n/a | n/a | n/a | n/a | n/a |
| 01/01/2014 | Accelrys | Process discovery & simulation | \$168.5 | (\$2.2) | \$750.0 | 4.45x | n/m |
| 12/05/2013 | RTT | 3D visualization technology | \$111.1 | \$9.0 | \$274.1 | 2.47x | n/m |
| 09/04/2013 | Safety Technology | Product durability simulation | n/a | n/a | \$1.0 | n/a | n/a |
| 07/25/2013 | SFE | Transportation & mobility modeling | n/a | n/a | n/a | n/a | n/a |
| 07/02/2013 | Apriso | Manufacturing operations execution | n/a | n/a | \$205.0 | n/a | n/a |
| 04/25/2013 | Archivideo | 3D images & maps | n/a | n/a | n/a | n/a | n/a |
| 04/25/2013 | Fe-Design | Non-parametric optimization | n/a | n/a | n/a | n/a | n/a |
| 04/18/2013 | Simpoe | Plastic injection-molding simulation | n/a | n/a | n/a | n/a | n/a |
| 01/07/2013 | SquareClock | 3D space planning | n/a | n/a | n/a | n/a | n/a |
| 12/21/2012 | Tuscany Design Automation | Visualization services for circuit design | n/a | n/a | n/a | n/a | n/a |
| 12/21/2012 | Pinpoint | Semiconductor design collaboration | n/a | n/a | n/a | n/a | n/a |
| 07/11/2012 | Gemcom | Supply chain planning and optimization | \$80.4 | n/a | \$354.9 | 4.41x | n/a |
| 02/09/2012 | Netvibes | Personalized dashboard publishing | n/a | n/a | n/a | n/a | n/a |
| 10/27/2011 | Elsys | Electrical engineering schematics | n/a | n/a | n/a | n/a | n/a |
| 10/04/2011 | Simulayt | Draping simulation technology | n/a | n/a | n/a | n/a | n/a |
| 04/27/2011 | Enginuity PLM | Chemical product development | n/a | n/a | n/a | n/a | n/a |
| 03/17/2011 | Intercim | Supply chain operations management | n/a | n/a | \$36.5 | n/a | n/a |
| 10/01/2010 | Inceptra LLC | Product lifecycle management solutions | n/a | n/a | n/a | n/a | n/a |
| 06/22/2010 | Geensoft | Embedded systems development | n/a | n/a | \$6.7 | n/a | n/a |
| 06/08/2010 | Exalead | Unified search platform | n/a | n/a | \$164.9 | n/a | n/a |
| 04/01/2010 | IBM (PLM) | PLM sales & support operations | n/a | n/a | \$600.0 | n/a | n/a |
| 07/21/2008 | Engineous | Process integration & design software | n/a | n/a | \$40.0 | n/a | n/a |
| 01/07/2008 | Deneb Robotics | Multi-computer manufacturing CAD | n/a | n/a | \$105.0 | n/a | n/a |
| 09/24/2007 | Seemage | Automotive & aerospace ALM | n/a | n/a | n/a | n/a | n/a |
| 06/12/2007 | ICEM | Automotive & industrial visualization | n/a | n/a | \$108.2 | n/a | n/a |
| 05/11/2006 | MatrixOne | Collaborative PLM | \$135.5 | (\$18.2) | \$410.0 | 3.03x | n/m |
| 10/04/2005 | Abaqus | Advanced finite element analysis | \$100.0 | n/a | \$413.0 | 4.13x | n/a |
| 07/25/2005 | Virtools | 3D application development | \$3.1 | n/a | \$14.5 | 4.63x | n/a |
| 11/01/2000 | Spatial | Data translation and visualization technology | n/a | n/a | n/a | n/a | n/a |
| 01/01/2000 | SRAC | CAD analysis programs | n/a | n/a | \$22.0 | n/a | n/a |
| 07/29/1997 | 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 | | | | | |
| 02/27/2017 | Scilab Enterprises | Numerical computation platform | n/a | n/a | n/a | n/a | n/a |

Source: Pitchbook, CapIQ, corporate websites, press releases

Precedent M&A Transactions

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|-----------|--------------|
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| (\$ in Millions) | | Target Overview | | | Transaction Statistics | | |
|--------------------|-------------------------------|--|-------------------|--------|------------------------|----------------------|------------------|
| Announced | Target | Description | Estimated Revenue | EBITDA | Deal Value | Deal Value / Revenue | Estimated EBITDA |
| ESI Group | | Total Disclosed M&A Deal Value: \$35.7 Million | | | | | |
| 09/12/2016 | Correct Checks | Background screening services | n/a | n/a | n/a | n/a | n/a |
| 02/08/2016 | Mineset | Technological data management | n/a | n/a | \$4.7 | n/a | n/a |
| 01/06/2016 | ITI | Simulation tools & software | n/a | n/a | \$19.3 | n/a | n/a |
| 05/13/2015 | Amoeba Technologies | Cooling simulation & design optimization | n/a | n/a | n/a | n/a | n/a |
| 04/15/2015 | Ciespace | Web-based CAE modeling solutions | n/a | n/a | n/a | n/a | n/a |
| 04/01/2015 | Picviz Labs | Data mining & cybersecurity services | n/a | n/a | n/a | n/a | n/a |
| 03/27/2015 | Civitec | Embedded perception system design | n/a | n/a | n/a | n/a | n/a |
| 02/12/2014 | Cam Mechanical Solutions | Technical assistance services | n/a | n/a | n/a | n/a | n/a |
| 10/24/2013 | CyDesign Labs | Modelling systems for engineers | n/a | n/a | n/a | n/a | n/a |
| 09/24/2012 | OpenCFD | Open source CFD software package | n/a | n/a | \$3.1 | n/a | n/a |
| 12/13/2011 | Efield | Integrated modelling & simulation environments | \$0.5 | n/a | n/a | n/a | n/a |
| 08/16/2011 | ICIDO | Virtual reality engineering solutions | n/a | n/a | n/a | n/a | n/a |
| 04/26/2011 | Comet Technology | Vibro-acoustic simulation software | n/a | n/a | n/a | n/a | n/a |
| 12/01/2008 | Mindware Engineering | Engineering & customized software services | \$5.6 | n/a | \$5.6 | 1.00x | n/a |
| 12/01/2008 | Vdot | Project management & execution platform | n/a | n/a | n/a | n/a | n/a |
| 08/01/2006 | ATE Technology International | Contract for difference (CFD) product distributor | n/a | n/a | n/a | n/a | n/a |
| 09/18/2002 | Vibro-Acoustic Sciences | Digital high-frequency noise simulation software | n/a | n/a | \$3.0 | n/a | n/a |
| 08/17/2001 | 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 | | | | | |
| 02/28/2018 | AutoLion | Lithium-ion battery simulation software | n/a | n/a | n/a | n/a | n/a |
| Hexagon | | Total Disclosed M&A Deal Value: \$4.7 Billion | | | | | |
| 11/04/2020 | PAS Global | Process safety & cybersecurity | \$39.8 | n/a | n/a | n/a | n/a |
| 10/29/2020 | DP Technology | CAM software for CNC machine tools | \$39.2 | n/a | n/a | n/a | n/a |
| 07/01/2020 | Tacticaware | LIDAR-based 3D surveillance software | n/a | n/a | n/a | n/a | n/a |
| 03/17/2020 | CAEfatigue | Mechanical fatigue simulation solutions | n/a | n/a | n/a | n/a | n/a |
| 02/28/2020 | Romax Technology | Electromechanical drivetrain design and simulation | \$30.4 | n/a | n/a | n/a | n/a |
| 01/29/2020 | COWI | Mapping and geospatial data services | \$15.8 | n/a | n/a | n/a | n/a |
| 01/08/2020 | Blast Movement | Blast movement monitoring technology | \$21.4 | n/a | n/a | n/a | n/a |
| 01/08/2020 | Geopraevent | Sensors and measuring technologies for navigating | n/a | n/a | n/a | n/a | n/a |
| 01/08/2020 | Volume Graphics | Software for testing industrial computed tomograph | \$29.3 | n/a | n/a | n/a | n/a |
| 06/24/2019 | AMendate | Generative design for additive manufacturing | n/a | n/a | n/a | n/a | n/a |
| 02/25/2019 | Thermopylae | Govt. & defense geospatial applications | \$48.0 | n/a | n/a | n/a | n/a |
| 01/17/2019 | j5 International | Operational risk management software | n/a | n/a | n/a | n/a | n/a |
| 01/01/2019 | Etalon | Machine / equipment calibration solutions | n/a | n/a | n/a | n/a | n/a |
| 10/23/2018 | Bricsys | CAD software for AEC market | \$14.7 | \$1.5 | n/a | n/a | n/a |
| 09/14/2018 | External-Array Software | Metrology software for CMM manufacturers | n/a | n/a | n/a | n/a | n/a |
| 06/21/2018 | Geocloud (Assets) | Ski slope infrastructure measurement | n/a | n/a | n/a | n/a | n/a |
| 06/19/2018 | SPRING Technologies | Machine tool simulation & verification software | \$9.5 | \$0.4 | n/a | n/a | n/a |
| 06/02/2018 | AutonomouStuff | Integrated autonomous vehicle solutions | \$45.0 | n/a | n/a | n/a | n/a |
| 05/15/2018 | Nextsense | Non-contact profile measurement & inspection | \$13.5 | n/a | n/a | n/a | n/a |
| 04/23/2018 | Licom Systems | German distributor of Alphacam CAM software | n/a | n/a | n/a | n/a | n/a |
| 04/05/2018 | ProCAM Group | Italian distributor of Vero Software | n/a | n/a | n/a | n/a | n/a |
| 03/15/2018 | AGTEK | Construction project modeling software | n/a | n/a | n/a | n/a | n/a |
| 01/22/2018 | Plant Design Solutions | Distributor of CADWorx & Analysis software | n/a | n/a | n/a | n/a | n/a |
| 01/12/2018 | Industrial Business Solutions | Digital project completion & commissioning | n/a | n/a | n/a | n/a | n/a |

Source: Pitchbook, CapIQ, corporate websites, press releases

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|-----------|--------------|
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| (\$ in Millions) | | Target Overview | | | Transaction Statistics | | |
|------------------|---------------------------------|--|---|------------------|------------------------|---------------------------------------|-----|
| Announced | Target | Description | Revenue | Estimated EBITDA | Deal Value | Deal Value / Estimated Revenue EBITDA | |
| Hexagon | | | Total Disclosed M&A Deal Value: \$4.7 Billion | | | | |
| 10/04/2017 | Luciad | Real-time geospatial information visualization | \$21.7 | n/a | n/a | n/a | n/a |
| 06/28/2017 | InfraMeasure | Laser-based rail measurement system | n/a | n/a | n/a | n/a | n/a |
| 06/13/2017 | DST Computer Services | Pipe stress analysis software | n/a | n/a | n/a | n/a | n/a |
| 06/05/2017 | FASys Industrie | System integration specialist for production tasks | n/a | n/a | n/a | n/a | n/a |
| 05/15/2017 | VIRES | Driver-assisted & autonomous simulation | n/a | n/a | n/a | n/a | n/a |
| 05/05/2017 | Catavolt | Mobile app development & edge computing | n/a | n/a | n/a | n/a | n/a |
| 04/26/2017 | MSC Software | Computer aided engineering software | \$230.0 | n/a | \$834.0 | 3.63x | n/a |
| 01/18/2017 | MiPlan Consulting | Mobile mine production management software | n/a | n/a | n/a | n/a | n/a |
| 09/26/2016 | GISquadrat | Location-based geospatial software | n/a | n/a | n/a | n/a | n/a |
| 08/31/2016 | Apodius | Composite component measurement solutions | n/a | n/a | n/a | n/a | n/a |
| 08/15/2016 | Multivista | Construction visual documentation services | n/a | n/a | n/a | n/a | n/a |
| 08/01/2016 | p3d systems | Laser scanning system & 3D modeling software | n/a | n/a | n/a | n/a | n/a |
| 06/15/2016 | Ingegneria dei Sistemi (Assets) | Radar solutions for structural health monitoring | \$20.0 | n/a | n/a | n/a | n/a |
| 06/13/2016 | Nestix | Prefabrication and production control software | n/a | n/a | n/a | n/a | n/a |
| 03/31/2016 | AICON 3D Systems | Industrial 3D optical measuring systems | \$21.1 | \$1.8 | n/a | n/a | n/a |
| 03/23/2016 | Forming Technologies (FTI) | Manufacturing software for sheet metal forming | n/a | n/a | n/a | n/a | n/a |
| 03/02/2016 | M&P Survey Equipment | Surveying equipment & construction lasers | n/a | n/a | n/a | n/a | n/a |
| 02/16/2016 | Sigma Space | Optoelectronic aerospace instrumentation | \$25.0 | n/a | n/a | n/a | n/a |
| 01/13/2016 | SCCS | Provider of survey equipment for Leica | \$15.0 | \$7.8 | n/a | n/a | n/a |
| 04/07/2015 | Q-Das | Statistical process control (SPC) services | n/a | n/a | n/a | n/a | n/a |
| 07/21/2014 | Vero Software | CAD/CAM software | \$106.2 | n/a | n/a | n/a | n/a |
| 07/16/2014 | Geodata Diffusion | Real time kinematic correction services | \$4.0 | \$1.8 | n/a | n/a | n/a |
| 06/11/2014 | North West Geomatics | Digital remote sensing/aerial photography | \$13.5 | n/a | n/a | n/a | n/a |
| 06/02/2014 | iLab Sistemas | Planning/optimization for agro-businesses | n/a | n/a | n/a | n/a | n/a |
| 06/01/2014 | Mintec | Software services for mining industry | n/a | n/a | n/a | n/a | n/a |
| 04/30/2014 | Arvus Tecnologia | Software services for agro businesses | n/a | n/a | n/a | n/a | n/a |
| 03/14/2014 | Veripos | Satellite position software/hardware/services | \$44.0 | \$15.8 | n/a | n/a | n/a |
| 03/13/2014 | SAFEmine | Traffic safety products and services | \$17.2 | n/a | n/a | n/a | n/a |
| 02/18/2014 | Aibotix | Manufacturer of flying robots | n/a | n/a | n/a | n/a | n/a |
| 12/03/2013 | Pixis | Provider of digital engineering services | n/a | n/a | n/a | n/a | n/a |
| 10/07/2013 | Devex Tecnologia e Sistemas | Mine-management software services | n/a | n/a | n/a | n/a | n/a |
| 06/05/2013 | Geosoft | Software for cartography/photogrammetry | n/a | n/a | n/a | n/a | n/a |
| 05/13/2013 | Navgeokom | Surveying and mapping products | n/a | n/a | n/a | n/a | n/a |
| 04/15/2013 | Manfra & Companhia | Topography software systems | \$9.2 | n/a | n/a | n/a | n/a |
| 01/28/2013 | LISTECH | Developer of construction software | n/a | n/a | n/a | n/a | n/a |
| 01/08/2013 | New River Kinematics | 3D analysis software for metrology application | \$13.3 | n/a | n/a | n/a | n/a |
| 12/03/2012 | GTA Geoinformatik | Provider of 3D city mapping technologies | n/a | n/a | n/a | n/a | n/a |
| 01/19/2012 | Microsurvey Software | Developer of surveying and mapping software | \$2.6 | n/a | n/a | n/a | n/a |
| 08/19/2011 | Sisgraph | Supplier of engineering and geospatial software | \$14.3 | n/a | n/a | n/a | n/a |
| 07/01/2010 | Intergraph | Engineering and geospatial software | n/a | n/a | \$2,130.0 | n/a | n/a |
| 12/10/2009 | MYCRONA | Manufacturer of multi-sensor machines | n/a | n/a | n/a | n/a | n/a |
| 10/05/2009 | Mahr Multisensor | Industrial measuring instruments | n/a | n/a | n/a | n/a | n/a |
| 10/14/2008 | Rinex Technology | Yield mapping tools for agro businesses | \$4.5 | n/a | n/a | n/a | n/a |
| 07/24/2008 | Serein Metrology | Manufacturer of precision measuring equipment | \$4.0 | n/a | n/a | n/a | n/a |
| 06/27/2008 | m&h Group | Manufacturer of machine tool probes | \$13.3 | n/a | n/a | n/a | n/a |

Source: Pitchbook, CapIQ, corporate websites, press releases

Precedent M&A Transactions

MADISON PARK GROUP

| | |
|-----------|--------------|
| Altair | Gamma |
| Altium | Hexagon |
| Ansys | Jama |
| Aras | PTC |
| Autodesk | Siemens |
| Bentley | Synopsys |
| Cadence | Tech Soft 3D |
| Dassault | Zuken |
| ESI Group | |

| (\$ in Millions) | | Target Overview | | | Transaction Statistics | | |
|----------------------|---------------------------------|--|-------------------|--------|------------------------|----------------------|------------------|
| Announced | Target | Description | Estimated Revenue | EBITDA | Deal Value | Deal Value / Revenue | Estimated EBITDA |
| Hexagon | | Total Disclosed M&A Deal Value: \$4.7 Billion | | | | | |
| 06/24/2008 | Messtechnik Wetzlar | Software for quality control of mechanical parts | \$3.3 | n/a | n/a | n/a | n/a |
| 06/23/2008 | Viewserve | Web based fleet management system | \$1.1 | n/a | n/a | n/a | n/a |
| 06/09/2008 | Advanced Metrology Solutions | Distributor of precision metrology products | \$4.5 | n/a | n/a | n/a | n/a |
| 02/26/2008 | Santiago & Cintra | Positioning applications for construction/agro | \$20.7 | n/a | n/a | n/a | n/a |
| 02/07/2008 | Haselbach Surveying Instruments | Distributor and seller of surveying equipment | \$750.0 | n/a | n/a | n/a | n/a |
| 02/07/2008 | Surveyors Service Company | Distributor of surveying equipment | n/a | n/a | n/a | n/a | n/a |
| 12/01/2007 | Leica Geosystems Hungary | Surveying and construction equipment | n/a | n/a | n/a | n/a | n/a |
| 11/28/2007 | NovAtel | Satellite system components | \$76.0 | \$17.8 | \$438.9 | 5.78x | 24.6x |
| 11/21/2007 | Junglas | Construction and machine control equipment | n/a | n/a | n/a | n/a | n/a |
| 11/21/2007 | Rudolf & August Rost Vertriebs | Surveying and construction equipment | n/a | n/a | n/a | n/a | n/a |
| 11/19/2007 | Elcome Technologies | GPS and navigation surveying services | \$14.8 | n/a | n/a | n/a | n/a |
| 09/04/2007 | CogniTens | 3D non-contact measurement systems | \$8.0 | n/a | \$20.0 | 2.50x | n/a |
| 07/24/2007 | Jingjiang Measuring Tools | Manufacturer of linear measuring tools | \$10.9 | n/a | n/a | n/a | n/a |
| 06/19/2007 | IONIC Software | Software for geospatial information systems | \$12.6 | n/a | n/a | n/a | n/a |
| 05/22/2007 | Transmetal | Distributor of metrology products | \$5.4 | n/a | n/a | n/a | n/a |
| 05/18/2007 | Jigsaw Technologies | GPS-based machine automation software | \$9.0 | n/a | n/a | n/a | n/a |
| 05/16/2007 | GAMFI International | Construction laser tools and instruments | \$1.5 | n/a | n/a | n/a | n/a |
| 05/09/2007 | D&P Systems | Developer of multidimensional systems | n/a | n/a | n/a | n/a | n/a |
| 05/01/2007 | Allen Precision Equipment | Surveying and construction products | \$24.0 | n/a | n/a | n/a | n/a |
| 04/13/2007 | Topolaser System | Distributor of survey equipment | n/a | n/a | n/a | n/a | n/a |
| 04/01/2007 | Acquis | Data editing and management software | \$3.0 | n/a | n/a | n/a | n/a |
| 01/15/2007 | Svensk ByggnadsGeodesi | Software systems for measuring and planning | \$6.8 | \$0.8 | n/a | n/a | n/a |
| 01/01/2007 | Willi Gebwein | Manufacturer of surveying instruments | \$1.3 | n/a | n/a | n/a | n/a |
| 10/01/2005 | Leica Geosystems | Surveying and mapping equipment | n/a | n/a | \$1,140.0 | n/a | n/a |
| 05/01/2002 | Newport | Metrological tools and technology | n/a | n/a | n/a | n/a | n/a |
| 05/03/2001 | 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 | | | | | |
| 01/16/2018 | 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 | | | | | |
| 12/14/2020 | Arena Solutions | Cloud-based PLM platform | \$50.0 | n/a | \$715.0 | 14.30x | n/a |
| 09/22/2020 | ioxp | Augmented reality content creation software | n/a | n/a | n/a | n/a | n/a |
| 11/01/2019 | Onshape | Cloud-based 3D CAD platform | n/a | n/a | \$470.0 | n/a | n/a |
| 06/11/2019 | TWNKLS | Augmented reality solutions & services | n/a | n/a | n/a | n/a | n/a |
| 04/26/2019 | Factoria Solutions | Manufacturing execution & operations mgmt. | n/a | n/a | n/a | n/a | n/a |
| 11/19/2018 | Frustum | Topology optimization & generative design | n/a | n/a | \$69.6 | n/a | n/a |
| 02/16/2018 | Waypoint Labs | Augmented reality for frontline workers | \$20.0 | n/a | n/a | n/a | n/a |
| 01/12/2016 | Kepware | Manufacturing device connectivity | \$20.0 | n/a | \$118.0 | 5.90x | n/a |
| 11/03/2015 | Vuforia | Vision-based AR platform | n/a | n/a | \$64.8 | n/a | n/a |
| 05/05/2015 | ColdLight Solutions | Machine learning predictive analytics | \$7.1 | n/a | \$103.8 | 14.56x | n/a |
| 01/01/2015 | Caugmate | Augmented reality technologies services | n/a | n/a | n/a | n/a | n/a |
| 07/23/2014 | ITA Holdings | Sensor connectivity | n/a | n/a | \$170.0 | n/a | n/a |
| 07/01/2014 | Atego | Model-based systems applications | \$20.0 | n/a | \$49.3 | 2.47x | n/a |
| 12/30/2013 | ThingWorx | IoT platform for machines | \$6.0 | n/a | \$130.0 | 21.67x | n/a |
| 09/10/2013 | NetIDEAS | Product development and PLM | \$1.0 | n/a | \$20.0 | 20.00x | n/a |
| 07/16/2013 | Enigma | Manufacturing content management | n/a | n/a | \$10.0 | n/a | n/a |

Source: Pitchbook, CapIQ, corporate websites, press releases

Precedent M&A Transactions

MADISON PARK GROUP

| | |
|----------|--------------|
| Altair | ESI Group |
| Altium | Gamma |
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| Dassault | |

| (\$ in Millions) | | Target Overview | | | Transaction Statistics | | |
|------------------|----------------------------|---|-------------------|--------|------------------------|----------------------|------------------|
| Announced | Target | Description | Estimated Revenue | EBITDA | Deal Value | Deal Value / Revenue | Estimated EBITDA |
| PTC | | Total Disclosed M&A Deal Value: \$3.3 Billion | | | | | |
| 10/02/2012 | Servigistics | Strategic service management | \$80.0 | n/a | \$220.0 | 2.75x | n/a |
| 09/06/2011 | 4CS | Warranty lifecycle management | n/a | n/a | \$14.9 | n/a | n/a |
| 01/01/2011 | Mortice Kern Systems | Configuration management software | \$67.9 | \$10.1 | \$304.0 | 4.48x | n/m |
| 02/08/2010 | Planet Metrics | Carbon information management | n/a | n/a | n/a | n/a | n/a |
| 06/08/2009 | Relex | Reliability analysis software | n/a | n/a | \$24.3 | n/a | n/a |
| 02/12/2009 | Synapsis | Manufacturing supply chain optimization | n/a | n/a | \$7.5 | n/a | n/a |
| 12/10/2008 | Synopsis Technology | Software applications and consulting services | n/a | n/a | \$7.5 | n/a | n/a |
| 02/07/2008 | Digital Human | Human simulation model | n/a | n/a | \$1.1 | n/a | n/a |
| 12/03/2007 | CoCreate Software | Flexible CAD & PLM for electronics | \$78.0 | n/a | \$247.5 | 3.17x | n/a |
| 11/07/2007 | LBS | Integrated logistics support software | n/a | n/a | n/a | n/a | n/a |
| 09/24/2007 | NetRegulus | Enterprise regulatory management | n/a | n/a | \$2.3 | n/a | n/a |
| 05/16/2007 | NC Graphics | High-speed machining and engineering tools | n/a | n/a | n/a | n/a | n/a |
| 04/26/2006 | Mathsoft | Calculation management | \$24.0 | \$0.9 | \$63.0 | 2.62x | n/m |
| 11/28/2005 | Cadtrain | E-learning courses for engineers | n/a | n/a | n/a | n/a | n/a |
| 07/19/2005 | Arbortext | Code authoring & publishing | \$40.0 | n/a | \$190.0 | 4.75x | n/a |
| 06/06/2005 | Aptavis Technologies | Life cycle management software | n/a | n/a | n/a | n/a | n/a |
| 04/08/2004 | OHIO Design Automation | Electronics design collaboration software | n/a | n/a | \$12.0 | n/a | n/a |
| 03/09/1999 | Auxilium | Manufacturing collaboration | n/a | n/a | \$79.0 | n/a | n/a |
| 10/06/1998 | InPart | Industrial 3D CAD | n/a | n/a | \$26.4 | n/a | n/a |
| 08/02/1995 | Rasna | Design optimization & simulation | \$22.7 | n/a | \$163.4 | 7.19x | n/a |
| Siemens | | Total Disclosed M&A Deal Value: \$14.0 Billion | | | | | |
| 11/02/2020 | Culgi | Computational chemistry software for material simulation | n/a | n/a | n/a | n/a | n/a |
| 07/15/2020 | Avatar Integrated Systems | IC place and route software | n/a | n/a | n/a | n/a | n/a |
| 06/23/2020 | UltraSoC Technologies | System-on-chip analytics software | n/a | n/a | n/a | n/a | n/a |
| 06/01/2020 | Vizendo | Virtual operator training for CAD & PLM systems | n/a | n/a | n/a | n/a | n/a |
| 01/24/2020 | C&S Electric | Manufacturer of low voltage products | n/a | n/a | n/a | n/a | n/a |
| 01/08/2020 | AIT Goehner | IT consultancy and development service | n/a | n/a | n/a | n/a | n/a |
| 11/25/2019 | MultiMechanics | Materials modeling and simulation software | n/a | n/a | n/a | n/a | n/a |
| 11/12/2019 | Atlas 3D | 3D printing parts design software | n/a | n/a | n/a | n/a | n/a |
| 07/05/2019 | Process Systems Enterprise | Advanced modeling software | n/a | n/a | n/a | n/a | n/a |
| 07/05/2019 | Innovation Systems (IST) | Industrial transport planning software | n/a | n/a | n/a | n/a | n/a |
| 06/11/2019 | ESTEQ (South Africa) | Developer and distributor of PLM and MOM | n/a | n/a | n/a | n/a | n/a |
| 06/07/2019 | Saab Medav (Assets) | NVH testing products and services | n/a | n/a | n/a | n/a | n/a |
| 12/03/2018 | Comsa | Wire-harness engineering software | n/a | n/a | n/a | n/a | n/a |
| 10/01/2018 | Mendix | Low code application development platform | n/a | n/a | \$579.7 | n/a | n/a |
| 09/19/2018 | Lightwork Design | 3D rendering designs and visualization systems | n/a | n/a | n/a | n/a | n/a |
| 07/27/2018 | Omativ | Factory optimization system | n/a | n/a | n/a | n/a | n/a |
| 06/26/2018 | Comfy | Smart building management software | n/a | n/a | n/a | n/a | n/a |
| 06/22/2018 | Austemper Design | Electronic design tools for circuit components | n/a | n/a | n/a | n/a | n/a |
| 03/29/2018 | Agilion | Real-time location systems (RTLS) | n/a | n/a | n/a | n/a | n/a |
| 02/07/2018 | Sarokal Test Systems | Testing equipment platform for ASIC & FPGA | n/a | n/a | n/a | n/a | n/a |
| 01/31/2018 | Milanovic Engineering | Engineering and manufacturing services | n/a | n/a | n/a | n/a | n/a |
| 12/01/2017 | Solido Design Automation | Variation-aware design and characterization | n/a | n/a | n/a | n/a | n/a |
| 10/16/2017 | Mentor Infolytica | Electromagnetic and thermal analysis | n/a | n/a | n/a | n/a | n/a |
| 10/09/2017 | Wi-Tronix | Predictive maintenance for rail services | n/a | n/a | n/a | n/a | n/a |

Precedent M&A Transactions

MADISON PARK GROUP

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| (\$ in Millions) | | Target Overview | | | Transaction Statistics | | |
|------------------|--------------------|---|-------------------|---------|------------------------|----------------------|------------------|
| Announced | Target | Description | Estimated Revenue | EBITDA | Deal Value | Deal Value / Revenue | Estimated EBITDA |
| Siemens | | Total Disclosed M&A Deal Value: \$14.0 Billion | | | | | |
| 08/30/2017 | Tass International | Design and testing software for automotive | n/a | n/a | n/a | n/a | n/a |
| 03/31/2017 | Mentor Graphics | Electronic design automation | \$1,282.5 | \$267.2 | \$4,500.0 | 3.51x | 16.8x |
| 11/07/2016 | Conworx Technology | Lab device interfaces | n/a | n/a | n/a | n/a | n/a |
| 03/01/2016 | CD-adapco | Specialized simulation based on CFD | \$190.0 | n/a | \$970.0 | 5.11x | n/a |
| 03/01/2016 | Neo New Oncology | Medical diagnostic technology | n/a | n/a | n/a | n/a | n/a |
| 11/25/2015 | Polarion Software | Application lifecycle management | n/a | n/a | n/a | n/a | n/a |
| 07/02/2015 | Zenco Systems | Traffic enforcement technology | n/a | n/a | n/a | n/a | n/a |
| 03/03/2015 | AxiIT | Order management & logistics | n/a | n/a | n/a | n/a | n/a |
| 10/15/2014 | Camstar | Manufacturing execution systems | n/a | n/a | \$160.0 | n/a | n/a |
| 01/22/2014 | IBS | Industrial productivity software | n/a | n/a | n/a | n/a | n/a |
| 12/19/2013 | TESIS PLMware | Product lifecycle management | n/a | n/a | n/a | n/a | n/a |
| 06/25/2013 | Sky Eye | Transport fleet management | n/a | n/a | n/a | n/a | n/a |
| 06/03/2013 | Preactor | Manufacturing planning & scheduling | n/a | n/a | n/a | n/a | n/a |
| 05/02/2013 | Invensys Rail | Railway design & system automation | \$1,179.5 | n/a | \$2,660.0 | 2.26x | n/a |
| 11/15/2012 | LMS | PLM simulation & testing | \$241.7 | n/a | \$870.0 | 3.60x | n/a |
| 09/28/2012 | VRcontext | Visualization technology | n/a | n/a | n/a | n/a | n/a |
| 01/06/2012 | eMeter | Energy information management | n/a | n/a | n/a | n/a | n/a |
| 12/01/2011 | Vistagy | Specialized engineering environments | \$18.0 | n/a | n/a | n/a | n/a |
| 08/16/2011 | Advanced Telemetry | Energy management | n/a | n/a | n/a | n/a | n/a |
| 10/01/2009 | Energy4u | Energy IT services | n/a | n/a | n/a | n/a | n/a |
| 09/30/2009 | YSNC | Machine engineering | n/a | n/a | n/a | n/a | n/a |
| 04/01/2009 | Elan Software | Process control software | n/a | n/a | n/a | n/a | n/a |
| 11/17/2008 | Syncos | Digital manufacturing engineering | n/a | n/a | n/a | n/a | n/a |
| 05/07/2007 | UGS | 2D & 3D PLM and industry automation | \$1,150.0 | n/a | \$3,500.0 | 3.04x | n/a |
| 02/02/2007 | ETM | Supervisory & data acquisition systems | n/a | n/a | n/a | n/a | n/a |
| 10/31/2006 | VistaScape | Surveillance video analysis | n/a | n/a | n/a | n/a | n/a |
| 09/28/2005 | Garderos | Local area network management | n/a | n/a | n/a | n/a | n/a |
| 08/14/2005 | Transmitton | Railway infrastructure management | n/a | n/a | n/a | n/a | n/a |
| 04/08/2005 | Myrio | IP video networking | n/a | n/a | \$50.0 | n/a | n/a |
| 12/06/2004 | Chantry Networks | Mobility-enabled wireless networking | n/a | n/a | \$85.0 | n/a | n/a |
| 04/01/2003 | Cycos | Unified messaging systems | n/a | n/a | \$45.6 | n/a | n/a |
| 04/23/2002 | Symbian | Mobile operating system | n/a | n/a | \$309.0 | n/a | n/a |
| Synopsys | | Total Disclosed M&A Deal Value: \$3.9 Billion | | | | | |
| 6/10/2020 | Qualtera | Industrial big-data analytics platform | n/a | n/a | n/a | n/a | n/a |
| 2/27/2020 | Terrain EDA | Electronic design automation technologies | n/a | n/a | n/a | n/a | n/a |
| 2/13/2020 | Invecas | Certain IP assets; Logic Library, Embedded Memory, | n/a | n/a | n/a | n/a | n/a |
| 1/13/2020 | eSilicon | Embedded Memory IP And Interface IP assets | n/a | n/a | \$24.0 | n/a | n/a |
| 1/9/2020 | Tinfoil Security | Website and application programming interface (API) sec | n/a | n/a | n/a | n/a | n/a |
| 11/15/2019 | The Dini Group | Digital circuit based hardware and applications | n/a | n/a | n/a | n/a | n/a |
| 10/02/2019 | Qtronic | Automotive virtual prototyping solutions | n/a | n/a | n/a | n/a | n/a |
| 08/13/2018 | Source III | Developer of specialist simulation and test data managem | n/a | n/a | n/a | n/a | n/a |
| 03/21/2018 | Silicon and Beyond | Developer of SerDes technology used in data-intensive ap | n/a | n/a | n/a | n/a | n/a |
| 02/08/2018 | Phoenix Software | Provider of manufacturing automation software | n/a | n/a | n/a | n/a | n/a |
| 01/10/2018 | Kilopass | SoC system developer | n/a | n/a | \$49.0 | n/a | n/a |
| 12/11/2017 | Black Duck | Provider of open source security and license managemen | \$75.0 | n/a | \$565.1 | 7.53x | n/a |

Source: Pitchbook, CapIQ, corporate websites, press releases

Precedent M&A Transactions

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|----------|--------------|
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| Dassault | |

| (\$ in Millions) | | Target Overview | | Transaction Statistics | | |
|------------------|------------------------------------|---|-------------------|------------------------|------------|---|
| Announced | Target | Description | Estimated Revenue | EBITDA | Deal Value | Deal Value / Estimated Revenue / EBITDA |
| Synopsis | | Total Disclosed M&A Deal Value: \$3.9 Billion | | | | |
| 10/11/2017 | Sidense | Developer of silicon-proven embedded non-volatile mem | n/a | n/a | n/a | n/a |
| 09/18/2017 | QuantumWise | Provider of simulation tools for materials modeling design | n/a | \$35.0 | n/a | n/a |
| 01/10/2017 | Forcheck | Developer of security software. | n/a | n/a | n/a | n/a |
| 11/30/2016 | Cigital | Provider of software security consulting services. | n/a | n/a | n/a | n/a |
| 11/30/2016 | Codiscope | Developer of complementary security tools. | n/a | n/a | n/a | n/a |
| 05/23/2016 | Gold Standard Simulations | Provider of simulation tools for design technology | n/a | n/a | n/a | n/a |
| 05/17/2016 | Simpleware | Provider of 3D image processing software | n/a | n/a | n/a | n/a |
| 03/02/2016 | WinterLogic | Provider of electronic design automation software product | n/a | n/a | n/a | n/a |
| 12/18/2015 | Red Lizard Software | Developer of source code analysis tools. | n/a | n/a | n/a | n/a |
| 11/06/2015 | Protecode | Provider of license management tools for managing oper | n/a | n/a | n/a | n/a |
| 08/03/2015 | Atrenta | Provider of realization services for the semiconductor and | n/a | n/a | n/a | n/a |
| 07/20/2015 | Seeker Security | Provider of computer security services. | n/a | n/a | n/a | n/a |
| 06/29/2015 | Codenomicon | Provider of automated tools for testing the interfaces of r | \$11.1 | n/a | n/a | n/a |
| 06/29/2015 | Elliptic Technologies | Provider of security software and semiconductor Internet | n/a | n/a | n/a | n/a |
| 03/25/2014 | Coverity | Provider of source code analysis tools | \$70.0 | n/a | \$375.0 | 5.36x |
| 02/28/2014 | Brandenburg | Developer of automotive design software. | n/a | n/a | n/a | n/a |
| 02/07/2014 | Target Compiler Technologies | Provider of software tools for the design, programming a | n/a | n/a | n/a | n/a |
| 10/04/2012 | EVE-USA | Provider of emulation platforms for SoC verification. | n/a | n/a | n/a | n/a |
| 08/01/2012 | Ciranova | Provider of electronic design automation software. | n/a | n/a | n/a | n/a |
| 05/08/2012 | RSoft Design Group | Developer of designing software. | n/a | n/a | n/a | n/a |
| 02/22/2012 | Magma Design Automation | Provider of chip-design software. | \$146.4 | \$16.3 | \$523.0 | 3.57x |
| 02/15/2012 | Luminescent Technologies (Lithog | Provider of lithography enhancement services. | n/a | n/a | n/a | n/a |
| 01/23/2012 | ExpertIO | Provider of internet protocol verification services. | n/a | n/a | n/a | n/a |
| 01/01/2012 | Mojave Design | Developer of physical verification technology for 90 and 6 | n/a | n/a | n/a | n/a |
| 10/07/2011 | Extreme DA | Operator of an electronic design automation company. | n/a | n/a | n/a | n/a |
| 09/02/2011 | nSys Design Systems | Provider of business verification services. | n/a | n/a | n/a | n/a |
| 10/07/2010 | Optical Research Associates | Developer of software used for optical application. | n/a | n/a | n/a | n/a |
| 06/10/2010 | Virage Logic | Provider of semiconductor intellectual property (IP) and s | \$72.0 | (\$5.6) | \$315.0 | 4.38x |
| 06/10/2010 | Synfora | Provider of algorithmic synthesis tools. | n/a | n/a | n/a | n/a |
| 06/01/2010 | Nusym Technology | Provider of verification closure solutions. | n/a | n/a | n/a | n/a |
| 03/23/2010 | CoWare | Supplier of platform-driven electronic system-level design | n/a | n/a | n/a | n/a |
| 02/02/2010 | VaST Systems Technology | Provider of tools and models for embedded system design | n/a | n/a | n/a | n/a |
| 11/03/2009 | Gemini Design Technology | Developer of electronic design automation (EDA) software | n/a | n/a | n/a | n/a |
| 05/08/2009 | Chipidea Mikroelektronika | Analog and mixed-signal semiconductor circuit designs s | n/a | n/a | \$22.0 | n/a |
| 05/08/2009 | MIPS Technologies (Analog Busin | Software based designing services for the semiconductor | n/a | n/a | \$22.0 | n/a |
| 12/18/2008 | Pro Design Electronic (CHIPit Busi | Provider of hardware verification services. | n/a | n/a | n/a | n/a |
| 10/02/2007 | Sandwork Design | Developer of transistor-level debugging and waveform ar | n/a | n/a | \$24.0 | n/a |
| 06/18/2007 | ArchPro Design Automation | Developer of advanced electronic design automation (ED | n/a | n/a | \$13.0 | n/a |
| 01/01/2007 | TeraRoute | Developer of routing software. | n/a | n/a | n/a | n/a |
| 12/07/2005 | Hpl Technologies | Developer of yield optimization software | \$9.3 | (\$27.2) | \$13.0 | 1.39x |
| 05/11/2005 | Nassda | Developer of full-chip circuit verification software. | \$45.6 | (\$70.8) | \$200.2 | 4.39x |
| 01/01/2005 | TriCN Associates | Accounting, tax, and finance service | n/a | n/a | n/a | n/a |
| 11/02/2004 | Integrated Systems Engineering | Provider of Technology CAD (TCAD) software products. | n/a | n/a | \$107.5 | n/a |
| 11/02/2004 | Leda Design | Digital library platform developer | n/a | n/a | n/a | n/a |
| 10/19/2004 | Cascade IP | Provider of digital intellectual property (IP) services. | n/a | n/a | n/a | n/a |
| 10/13/2004 | Monterey Design Systems | Provider of SoCs software. | n/a | n/a | n/a | n/a |

Source: Pitchbook, CapIQ, corporate websites, press releases

Precedent M&A Transactions

MADISON PARK GROUP

| | |
|----------|--------------|
| Altair | ESI Group |
| Altium | Gamma |
| Ansys | Hexagon |
| Aras | PTC |
| Arena | Siemens |
| Autodesk | Synopsys |
| Bentley | Tech Soft 3D |
| Cadence | Zuken |
| Dassault | |

| (\$ in Millions) | | Target Overview | | | Transaction Statistics | | |
|----------------------|------------------------------|--|-------------------|--------|------------------------|----------------------|------------------|
| Announced | Target | Description | Estimated Revenue | EBITDA | Deal Value | Deal Value / Revenue | Estimated EBITDA |
| Synopsys | | Total Disclosed M&A Deal Value: \$3.9 Billion | | | | | |
| 03/15/2004 | IRoC (Memory BIST Division) | Electronic design automation (EDA) tool. | n/a | n/a | n/a | n/a | n/a |
| 02/26/2004 | Analog Design Automation | Developer of automated circuit optimization software. | n/a | n/a | \$13.0 | n/a | n/a |
| 02/23/2004 | Accelerant Networks | Manufacturer of computer transceivers. | n/a | n/a | \$22.5 | n/a | n/a |
| 01/01/2004 | Progressant Technologies | Manufacturer of negative differential resistance transistor. | n/a | n/a | n/a | n/a | n/a |
| 06/25/2003 | InnoLogic Systems | Developer of equivalence checking technology for memo | n/a | n/a | n/a | n/a | n/a |
| 03/03/2003 | Numerical Technologies | Developer and marketer of proprietary technologies anc | n/a | n/a | \$250.0 | n/a | n/a |
| 07/23/2002 | InSilicon | Manufacturer of communications products. | n/a | n/a | \$74.6 | n/a | n/a |
| 06/06/2002 | Avanti | Provider of engineering and environmental regulatory sup | n/a | n/a | \$735.0 | n/a | n/a |
| 03/04/2002 | Co-Design | Developer of design language and tools. | n/a | n/a | \$36.0 | n/a | n/a |
| 11/13/2001 | C Level Design | Graphic design and web marketing service | n/a | n/a | n/a | n/a | n/a |
| 11/01/1998 | Everest Design Automation | Developer of software solutions that solves complex prob | n/a | n/a | n/a | n/a | n/a |
| 03/03/1997 | EPIC Design | Developer of simulation and analysis tools for chip manag | n/a | n/a | \$427.1 | n/a | n/a |
| 05/10/1995 | Silicon Architect | Designer of Structured ASIC Methodology | n/a | n/a | n/a | n/a | n/a |
| 02/18/1994 | Logic Modeling | Provider of high-level design automation software | n/a | n/a | \$118.0 | n/a | n/a |
| Tech Soft 3D | | Total Disclosed M&A Deal Value: n/a | | | | | |
| 11/11/2020 | Visual Kinematics Inc. (VKI) | CAE application software development kits (SDKs) | n/a | n/a | n/a | n/a | n/a |
| 10/15/2020 | Ceetron | 3D CAE visualization technology | n/a | n/a | n/a | n/a | n/a |
| 12/16/2013 | tetra4D | End user 3D CAD-to-PDF conversion technology | n/a | n/a | n/a | n/a | n/a |
| 01/01/2010 | Adobe (TTF Assets) | 3D PDF origination technology | n/a | n/a | n/a | n/a | n/a |
| Zuken | | Total Disclosed M&A Deal Value: n/a | | | | | |
| 01/29/2019 | Vitech | Systems engineering solutions | n/a | n/a | n/a | n/a | n/a |
| 01/11/2018 | Alphatech | CAD Provider in Japan | n/a | n/a | n/a | n/a | n/a |
| 12/10/2015 | CAETEK | Schematic red liner design and implementation software | n/a | n/a | n/a | n/a | n/a |
| Total High | | | | | | 21.67x | 24.6x |
| Total Low | | | | | | 1.00x | 7.1x |
| Total Average | | | | | | 5.80x | 16.3x |
| Total Median | | | | | | 4.45x | 16.8x |

Precedent Fundraise Transactions

MADISON PARK GROUP

| (\$ in Millions) | | | | | | | | | |
|----------------------|----------------|--|----------------------------|-------------------|---------------|---------------------|-------------------|----------------------|----------------|
| Company Overview | | | | Fundraise Summary | | | | | |
| Company | Employee Count | Description | Lead Investor | Last Fundraise | Amount Raised | Pre-Money Valuation | Implied Ownership | Step-up Over Last Rd | Raised To-Date |
| Early Stage | | | | | | | | | |
| Vention | 106 | Machine design & production automation platform | Georgian Partners | Jun-20 | \$27.2 | n/a | n/a | n/a | \$42.6 |
| SimScale | 114 | SaaS-based FEA / CFD simulation platform | Insight Partners | Mar-20 | \$29.7 | n/a | n/a | n/a | \$29.7 |
| Enscape | 69 | 3D architectural rendering | LEA Partners | Feb-20 | n/a | n/a | n/a | n/a | n/a |
| Backbone | 32 | Consumer goods PLM & manufacturing management | Foundry Group | Aug-19 | \$17.9 | n/a | n/a | n/a | \$23.0 |
| Suuchi | 61 | Fashion PLM & supply chain managment | Edison Partners | Apr-19 | \$8.0 | \$32.0 | 20.0% | n/a | \$8.0 |
| Monolith | 27 | Predictive product development software | Pentech Ventures | Apr-19 | \$2.5 | n/a | n/a | n/a | n/a |
| Dyndrite | 28 | Geometry kernel for additive manufacturing | Gradient Ventures | Apr-19 | \$10.0 | \$30.0 | 25.0% | 1.60x | \$13.0 |
| OnScale | 54 | HPC-based CAE platform | Intel Capital | Apr-19 | \$10.0 | n/a | n/a | n/a | \$29.6 |
| Propel | 160 | Force.com-built PLM/QMS | Norwest Venture Partners | Nov-18 | \$18.0 | \$42.0 | 30.0% | 2.08x | \$28.2 |
| Cognata | 38 | Autonomous vehicle simulation platform | Scale Venture Partners | Oct-18 | \$18.5 | \$17.2 | 51.8% | n/a | \$18.5 |
| Voltaiq | 23 | Battery design and analysis software | Anzu Partners | May-18 | \$6.6 | \$18.0 | 26.8% | 1.86x | \$10.0 |
| Upchain | 86 | Cloud PLM solution | OTeAF | Jan-18 | \$7.4 | n/a | n/a | n/a | \$7.4 |
| Median | 58 | | | | \$10.0 | \$30.0 | 26.8% | 1.86x | \$20.8 |
| Late Stage | | | | | | | | | |
| Applied Intuition | 9 | Advanced simulation infrastructure for autonomous vehicles | Andreessen Horowitz | Oct-20 | \$125.0 | \$1,130.0 | 10.0% | n/a | \$176.5 |
| nTopology | 91 | Topology optimization software | Insight Partners | Sep-20 | \$42.5 | n/a | n/a | n/a | \$70.9 |
| Hawk Ridge Systems | 247 | Design, manufacturing, and 3D printer software VAR | Main Street Capital | Sep-20 | n/a | n/a | n/a | n/a | n/a |
| Tech Soft 3D | 136 | 3D visualization technology | Battery Ventures | Feb-20 | n/a | n/a | n/a | n/a | n/a |
| Rescale | 166 | CAE cloud infrastructure | ITOCHU Technology Ventures | Jan-20 | \$29.3 | \$350.0 | 7.7% | 1.92x | \$81.7 |
| Graitec | 201 | CAD for structural building construction | Apax Partners | Dec-19 | n/a | \$261.3 | n/a | n/a | n/a |
| Geomedia | 80 | Geomatics and urban planning software | Keensight Capital | Sep-19 | n/a | \$93.7 | n/a | n/a | n/a |
| ComplianceQuest | 102 | Force.com-built enterprise QMS | Insight Partners | Sep-19 | \$36.0 | n/a | n/a | n/a | \$36.0 |
| CATI | 271 | Product development software VAR | CIVC Partners | Apr-19 | n/a | n/a | n/a | n/a | n/a |
| Aras | 392 | Open PLM platform | Goldman Sachs | Nov-18 | \$70.0 | \$350.0 | 16.7% | 1.46x | \$135.3 |
| Ikon Science | 160 | Geological data management | Great Hill Partners | Oct-18 | n/a | n/a | n/a | n/a | n/a |
| Power Line Systems | n/a | Power transmission design and simulation | TA Associates | Jul-18 | n/a | n/a | n/a | n/a | n/a |
| Compusoft | 190 | Kitchen & bathroom design CAD | TA Associates | Jul-18 | n/a | n/a | n/a | n/a | n/a |
| Jama Software | 195 | Product requirements management platform | Insight Partners | Jun-18 | \$200.0 | n/a | n/a | n/a | \$243.4 |
| Zemax | 99 | Optical & illumination design | EQT Partners | Jun-18 | n/a | n/a | n/a | n/a | n/a |
| Gamma Technologies | 153 | Multi-physics system simulation | Cove Hill Partners | May-18 | n/a | n/a | n/a | n/a | n/a |
| Seequent | 394 | Geoscience analysis, modelling, and collaboration | Accel-KKR | Apr-18 | n/a | n/a | n/a | n/a | n/a |
| Arena Solutions | 189 | Electronics-focused PLM / QMS | JMI Equity | Aug-17 | n/a | n/a | n/a | n/a | \$55.2 |
| 20-20 Technologies | 866 | Interior design & furniture CAD | Golden Gate Capital | May-17 | n/a | \$280.0 | n/a | 3.68x | \$81.0 |
| Innovyze | 197 | Water infrastructure modelling & simulation | EQT Partners | May-17 | n/a | \$270.0 | n/a | n/a | n/a |
| Bamboo Rose | 184 | Retail PLM & supply chain managment | Bamboo Rose | Jul-16 | n/a | n/a | n/a | n/a | n/a |
| Autoform Engineering | 231 | Sheet metal forming simulation | Astorg Partners | Jun-16 | n/a | \$721.0 | n/a | n/a | n/a |
| Median | 189 | | | | \$56.3 | \$315.0 | 10.0% | 1.92x | \$81.4 |

Source: Pitchbook, CapIQ, corporate websites, press releases

| Sources & Notes | | |
|--|---|--|
| Data Sources | Journals & Other Media | Notes |
| <ul style="list-style-type: none">1. Pitchbook2. CapitalIQ3. LinkedIn4. Public company filings & earnings transcripts5. Press releases | <ul style="list-style-type: none">1. The Wall Street Journal2. Schnigter Corporation3. CIMdata4. Engineering.com | <ul style="list-style-type: none">* Transaction completed by Ascentage Group, an affiliate of Madison Park Group |
| Disclosures | | |

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