



JANES CAPITAL PARTNERS

Aerospace and Defense Investment Banking



AEROSPACE & DEFENSE

Quarterly Report



Q2 2020

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Quarterly Update Q2 2020

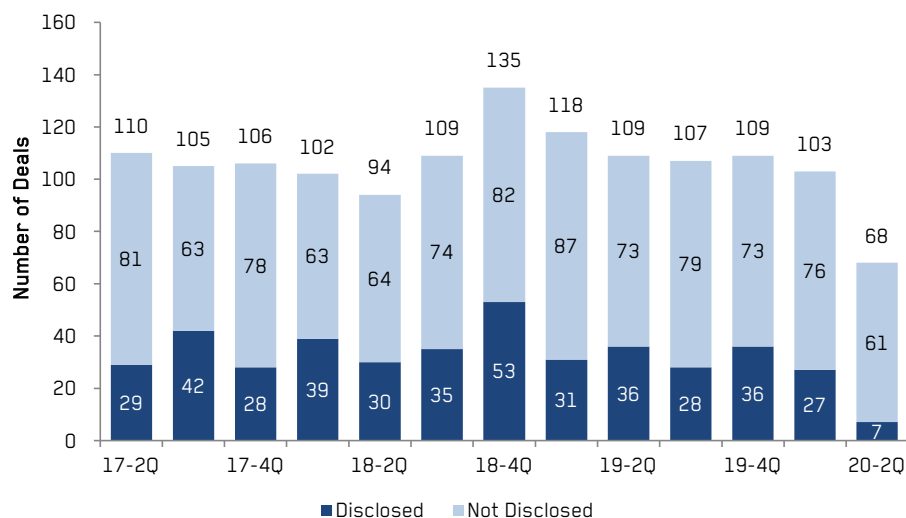
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EXECUTIVE SUMMARY

- ❖ There were 68 A&D deals announced in Q2 2020, which was a 34% decrease from the number of deals announced during Q1 2020.
- ❖ Year-over-year quarterly transaction volume decreased by 37.6% compared to the 109 deals announced during Q2 2019.
- ❖ Average disclosed deal size during the quarter decreased to \$111 million compared to \$384 million during Q1 2020.
- ❖ The most active segments in terms of number of M&A deals were:
 - Government Services, IT Services and Software (22 deals)
 - Satellite, Satellite Services & Space Systems (9 deals)
 - Defense Electronics (7 deals)
 - Cybersecurity, Intelligence Services and Homeland Defense (6 deals)
 - MRO & Logistics (5 deals)
- ❖ The top 3 segments in terms of disclosed transaction values were:
 - Government Services, IT Services and Software (\$487 million)
 - Satellite, Satellite Services & Space Systems (\$256 million)
 - Defense Electronics (\$35 million)

Number of Deals by Quarter



Note: Disclosed deals shown include transactions that disclose price, multiple or both

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ABOUT JANES CAPITAL PARTNERS


Janes Capital Partners specializes in Mergers & Acquisitions (M&A) for middle market Aerospace & Defense companies. Our clients are Aerospace & Defense companies with enterprise values between \$25 million and \$500 million. The team at Janes Capital Partners has completed over 75 transactions within the Aerospace & Defense industry. Through this M&A experience, we provide our clients with unparalleled access to potential acquirers in the aerospace and defense industry along with in-depth knowledge of the industry and its dynamics. Our clients receive high touch service from accomplished professionals with extensive A&D transaction and industry experience.

Janes Capital Partners is a member of Oaklins, the world's most experienced mid-market M&A advisor, with 850 professionals globally and dedicated industry teams in 45 countries worldwide.

Oaklins is the world's most experienced mid-market M&A advisor, with over 850 professionals globally and dedicated industry teams in more than 45 countries. We have closed 1,700 transactions in the past five years.


Recent Transactions

Acted as Financial Advisor to




High Reliability in Demanding Environments

on its sale to




Acted as Financial Advisor to




CREATING COATINGS

on its sale to




Acted as Financial Advisor to



Composites, Inc.

on its sale to



Acted as Financial Advisor to




UMBRA GROUP

on its acquisition of




Acted as Financial Advisor to




LIGHTNING DIVERSION SYSTEMS

on its sale to




Acted as Financial Advisor to



CROSS DOMAIN SOLUTIONS

on its sale to



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TOP 5 M&A DEALS THIS QUARTER

Target	Target Description	Acquiror	Announced Date	Valuation Metrics			Deal Type(s)	
				Implied TEV (\$M)	TEV/Revenue	TEV/EBITDA		
 <p>Space-based precision optics business</p>	<p>The Danbury, Conn.-based space-based precision optics business, part of Collins Aerospace, a Raytheon Technologies business unit consisting of about 500 employees. The optics business designs and manufactures optics for reconnaissance satellites for the U.S. Department of Defense (DoD) as well as international customers.</p>		04/20/20	na	na	na	<div style="display: flex; gap: 5px;"> <div style="background-color: #4CAF50; color: white; padding: 2px 5px;">PU</div> <div style="background-color: #9E9E9E; color: white; padding: 2px 5px;">PB</div> </div>	
	<p>Collaborative Solutions is a global finance and HR transformation consultancy specializing in workday enterprise cloud applications for finance and human resources. The Company provides strategic consulting services, program management, technology integration, and operational support services and is the longest-tenured Workday Services Partner and customer. Clients include Fortune 500 companies, medium-sized businesses and government institutions.</p>		05/05/20	\$385.0	na	na	<div style="display: flex; gap: 5px;"> <div style="background-color: #009688; color: white; padding: 2px 5px;">PR</div> </div>	
	<p>Vricon is a provider of satellite-derived 3D data and analytics for defense and intelligence markets, with software and products that enhance 3D mapping, Earth intelligence data, military simulation and training and precision-guided munitions. The company was formed as a joint venture between Maxar and Saab in 2015 to combine patented Saab IP with Maxar commercial satellite imagery to build highly accurate, immersive 3D products at scale.</p>		06/25/20	\$255.0	4.7x	7.5x	<div style="display: flex; gap: 5px;"> <div style="background-color: #4CAF50; color: white; padding: 2px 5px;">PU</div> <div style="background-color: #C0392B; color: white; padding: 2px 5px;">I</div> </div>	
 <p>A Joint Venture of</p> 	<p>Exostar provides a cloud platform for securing enterprise, supply chain collaboration and identity and access management solutions. It offers Partner Information Manager (PIM), a strategic tool for OEMs to manage and secure partner and supplier network as well as Certification Assistant, manages risk and streamline the DoD certification process along with many other solutions. The company serves aerospace and defense, life sciences, healthcare, CMMC and compliance industries.</p>		06/02/20	\$100.0	na	na	<div style="display: flex; gap: 5px;"> <div style="background-color: #009688; color: white; padding: 2px 5px;">PR</div> <div style="background-color: #9E9E9E; color: white; padding: 2px 5px;">PB</div> </div>	
 <p>A Division of</p> 	<p>ASC Signal Corporation designs, develops, manufactures, and deploys satellite communication, high frequency antenna, radar antenna, and other products for broadcast, government, military and enterprise satellite communication applications. The company offers satellite communications products, high frequency antennas, radar antennas and weather radar antennas. It also provides integrated services, such as antenna installation, systems integration, system testing, in-orbit testing, critical and other customized services for various communications products.</p>		06/16/20	\$35.0	na	na	<div style="display: flex; gap: 5px;"> <div style="background-color: #4B0082; color: white; padding: 2px 5px;">PS</div> </div>	

PU Public Seller
 PR Private Seller
 PS Private Equity Seller
 PB Private Equity Buyer
 I International Deal

Source(s): CapIQ, Dacis, company reports, press releases

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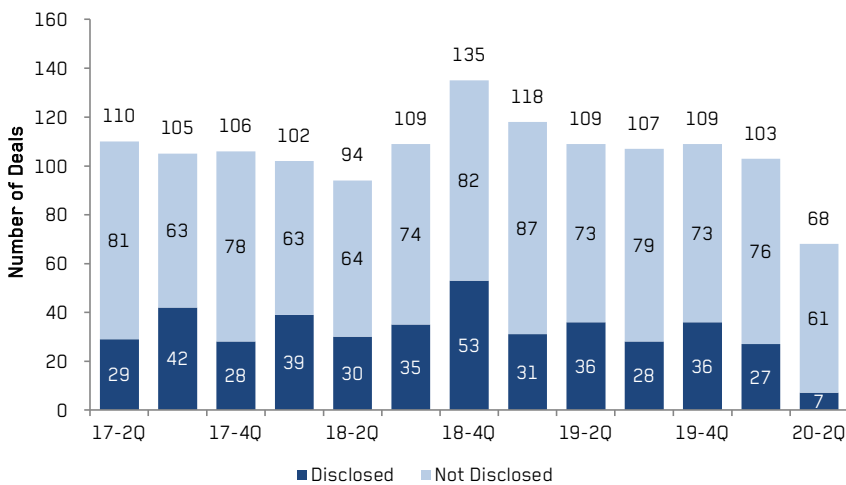
M&A DEAL VOLUME

- Average deal size decreased over last quarter from \$384M to \$111M
 - Total disclosed deal volume totaled \$800M, a decrease of more than \$9.6B from Q1 2020
- There were 68 A&D deals announced in Q2 2020, which was a decrease from the 103 deals announced during Q1 2020 and a year-over-year decrease of 37.6% from Q2 2019

- The most active segments ranked by total number of deals were:
 - Government Services, IT Services and Software
 - Satellite, Satellite Services & Space Systems
 - Defense Electronics
 - Cybersecurity, Intelligence Services and Homeland Defense

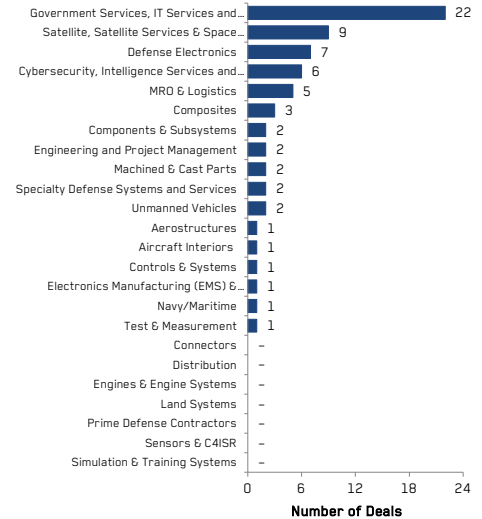
Number of Deals by Quarter

(last 13 quarters)



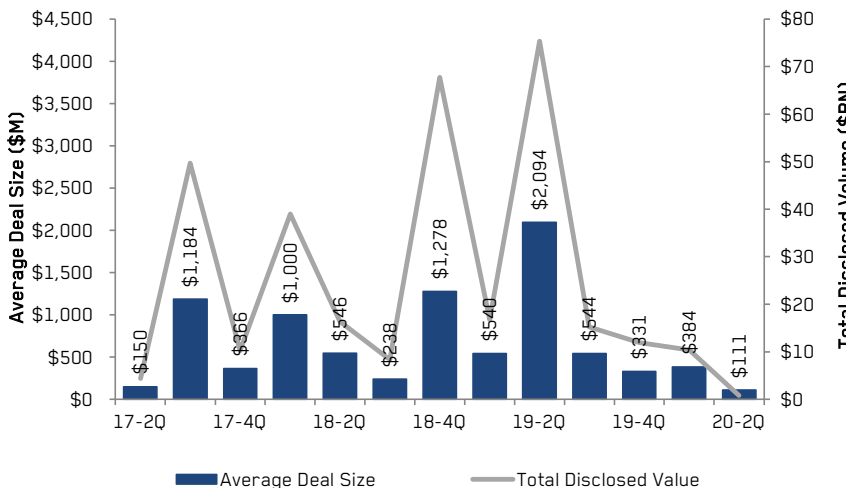
Number of Deals by Segment

(Q2 2020)



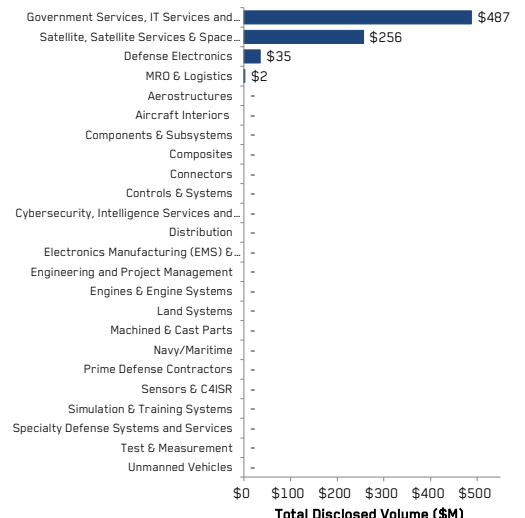
Average Size of Disclosed Deals and Total Disclosed Volume

(last 13 quarters)



Volume of Deals by Segment

(Q2 2020)



Source(s): CapIQ, Dacis, company reports, press releases

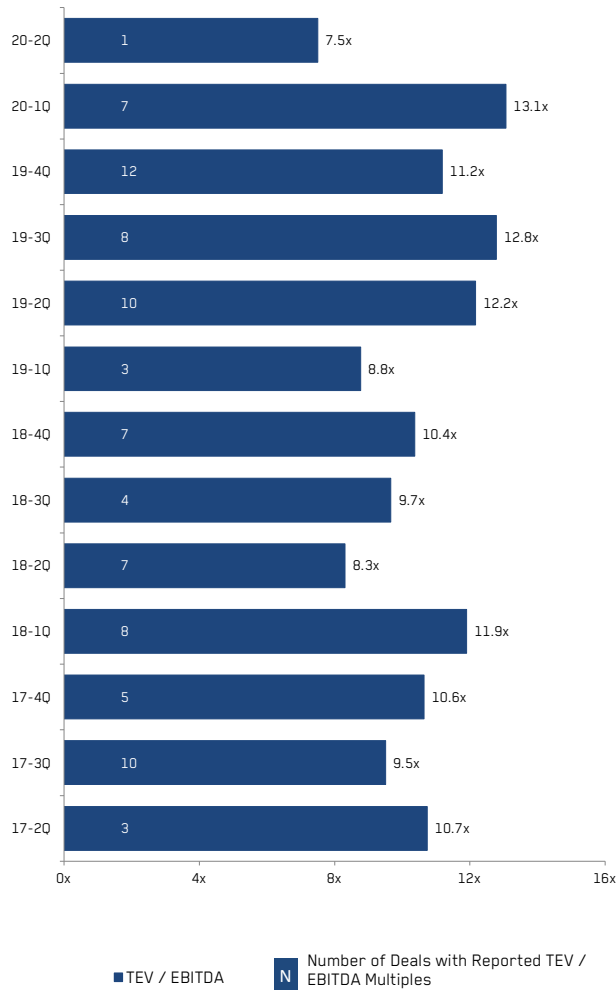
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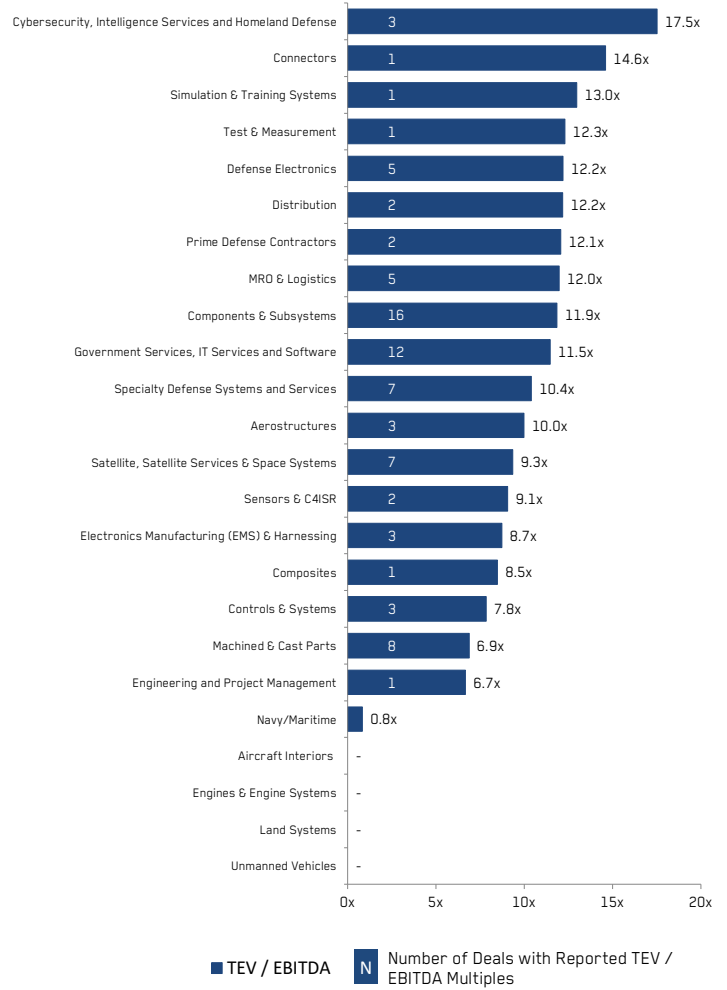
QUARTERLY TEV / EBITDA TRANSACTION MULTIPLES

- The average TEV / EBITDA transaction multiple over the last 13 quarters across all A&D transactions was 10.9x
- Of the over 1,300 deals tracked by Janes Capital Partners over this period, only 84 reported TEV / EBITDA multiples
- As expected, multiples vary widely by segment with Cybersecurity, Intelligence Services and Homeland Defense (17.5x), Government Services, IT Services and Software (11.5x) and Machined & Cast Parts (6.9x) comprising the highest, median and lowest segments

TEV / EBITDA A&D Transaction Multiples by Quarter (last 13 quarters)



TEV / EBITDA Transaction Multiples by Segment (last 13 quarters)



Note: Excludes TEV / EBITDA transaction multiples over 30.0x
Source(s): CapIQ, Dacis, company reports, press releases

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AEROSPACE & DEFENSE PUBLIC VALUATIONS

Public Valuations by A&D Segment

(\$ in millions)	LTM Revenue	LTM EBITDA Margin	Market Cap	% of 52-Wk Hi	TEV	TEV / LTM EBITDA	(\$ in millions)	LTM Revenue	LTM EBITDA Margin	Market Cap	% of 52-Wk Hi	TEV	TEV / LTM EBITDA
Aerostructures							Machined and Cast Parts						
CPI Aerostructures	\$101	12.7%	\$39	38.5%	\$75	5.9x	Howmet Aerospace	\$13,860	16.6%	\$6,912	46.3%	\$11,767	5.1x
Ducommun	722	12.8%	406	60.3%	712	7.7x	ATI	4,073	10.8%	1,290	39.8%	2,461	5.6x
FACC	864	10.9%	332	49.9%	577	6.1x	Barnes Group	1,445	23.4%	1,996	57.7%	2,699	8.0x
Hexcel	2,287	23.8%	3,775	52.0%	4,836	8.9x	Lisi	1,941	16.0%	1,108	54.7%	1,493	4.8x
Kaman	802	14.6%	1,150	61.0%	1,278	10.9x	Senior	1,471	11.5%	358	30.9%	662	3.9x
Latécoère	800	4.6%	225	54.1%	384	10.4x	SIFCO	113	2.0%	24	71.2%	65	NM
Magellan	695	13.8%	309	42.2%	372	3.9x	Median	13.7%				5.1x	
Spirit AeroSystems	6,973	10.8%	2,527	25.8%	3,772	5.0x	MRQ						
Triumph	2,900	11.0%	468	30.7%	1,857	5.8x	AAR	\$2,072	5.5%	\$715	39.2%	\$981	8.6x
Median	12.7%					6.1x	Signature Aviation	2,261	22.1%	2,380	56.8%	4,592	9.2x
Commercial Airframes							HEICO	2,048	27.8%	11,945	67.4%	12,627	22.2x
Airbus	\$75,341	5.6%	\$55,983	45.6%	\$62,555	14.9x	MTU Aero Engines	5,242	18.1%	9,169	53.3%	9,191	9.7x
Boeing	70,550	NM	103,441	46.9%	127,146	NM	ST Engineering	5,850	13.3%	7,383	74.7%	8,985	11.5x
Bombardier	15,932	3.6%	794	17.9%	11,143	19.2x	Median	18.1%				9.7x	
Embraer	2,057	3.8%	1,087	28.6%	942	12.0x	Defense Electronics, Sensors & C4ISR						
Textron	13,235	11.4%	7,486	60.7%	10,531	7.0x	AeroVironment	\$367	15.4%	\$1,900	98.6%	\$1,608	NM
Median	4.7%					13.5x	Cubic	1,504	9.6%	1,503	63.9%	2,394	16.6x
Components & Subsystems							Elbit	4,558	12.4%	6,057	80.8%	7,144	12.7x
Ametek	\$5,073	28.3%	\$20,504	87.4%	\$22,678	15.8x	FLIR	1,893	21.5%	5,308	68.3%	5,876	14.4x
CIRCOR	918	12.8%	509	53.3%	936	8.0x	Kongsberg Gruppen	2,824	10.2%	2,498	77.3%	2,204	7.6x
Crane	3,249	18.3%	3,447	65.2%	4,392	7.4x	Kratos	726	10.0%	1,915	62.3%	2,150	NM
Meggitt	3,015	22.5%	2,845	41.9%	4,049	6.0x	KVH Industries	158	NM	161	76.7%	126	NM
RBC Bearings	727	27.0%	3,318	72.4%	3,267	16.6x	L3Harris Technologies	21,424	18.8%	36,627	73.5%	44,014	11.0x
Teledyne	3,203	20.3%	11,401	77.9%	12,157	18.7x	Mercury Systems	756	19.9%	4,373	81.7%	4,240	NM
Timken	3,734	19.3%	3,415	77.4%	5,168	7.2x	OSI Systems	1,197	14.4%	1,344	63.7%	1,631	9.5x
TransDigm	5,970	44.4%	23,903	65.6%	40,275	15.2x	QinetiQ	1,336	16.5%	2,069	75.4%	1,975	9.0x
Woodward	2,929	17.6%	4,831	60.1%	5,822	11.3x	Smiths	3,423	19.7%	6,926	79.4%	8,655	12.8x
Median	20.3%					11.3x	Thales	20,650	14.0%	17,210	64.1%	21,238	7.4x
Controls & Systems							Ultra	1,093	16.9%	1,753	85.2%	1,958	10.6x
Astronics	\$722	10.3%	\$322	25.1%	\$496	6.7x	Median	15.4%				10.8x	
Curtiss-Wright	2,511	22.7%	3,719	59.6%	4,608	8.1x	Prime Defense Contractors						
Eaton	20,874	17.9%	34,992	82.7%	43,567	11.7x	BAE	\$24,243	12.9%	\$19,247	71.8%	\$22,327	7.1x
Heroux-Devtek	432	15.1%	272	47.0%	446	6.8x	General Dynamics	38,838	15.1%	42,776	77.1%	56,858	9.7x
Honeywell	36,288	24.8%	101,480	78.6%	109,773	12.2x	Huntington Ingalls	9,082	12.8%	7,062	62.4%	8,976	7.7x
ISSC	19	10.9%	85	70.4%	62	NM	Leonardo	15,000	12.5%	3,818	49.6%	8,865	4.7x
Moog	3,026	13.4%	1,745	54.9%	2,798	6.9x	Lockheed Martin	62,920	14.3%	102,336	82.5%	112,190	12.5x
Parker-Hannifin	14,216	19.1%	23,498	84.9%	31,991	11.8x	Northrop Grumman	34,272	13.1%	51,251	79.9%	66,086	14.7x
Median	16.5%					8.1x	Raytheon Technologies	76,891	19.1%	92,946	38.9%	136,009	9.3x
Engines & Engine Systems							Median	13.1%				9.3x	
General Electric	\$86,044	14.5%	\$59,743	51.5%	\$118,534	9.5x	Engines & Engine Systems						
Rolls Royce	21,968	1.8%	6,780	31.7%	8,418	NM	General Electric	\$86,044	14.5%	\$59,743	51.5%	\$118,534	9.5x
Safran	28,165	21.2%	42,640	58.6%	48,124	8.1x	Rolls Royce	21,968	1.8%	6,780	31.7%	8,418	NM
Median	14.5%					8.8x	Safran	28,165	21.2%	42,640	58.6%	48,124	8.1x

Note: Trading metrics as of 6.30.20. Valuation multiples based on LTM financial data converted at the historical exchange rate as of each fiscal period end date, and excludes multiples above 25.0x and under 0.0x. Source(s): CapIQ

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AEROSPACE & DEFENSE PUBLIC VALUATIONS (CONTINUED)

Public Valuations by A&D Segment (continued)

(\$ in millions)	LTM Revenue	LTM EBITDA Margin	Market Cap	% of 52-Wk Hi	TEV	TEV / LTM EBITDA
Satellites, Satellite Services and Space Systems						
Aerojet Rocketdyne	\$1,966	14.9%	\$3,119	69.2%	\$2,894	9.9x
Ball Corporation	11,474	17.0%	22,654	83.9%	30,174	15.5x
Comtech	643	12.9%	418	44.4%	561	6.7x
Gilat Satellite	249	10.5%	353	59.2%	297	11.3x
Maxar Technologies	1,616	23.9%	1,090	83.7%	4,310	11.2x
ViaSat	2,309	17.6%	2,385	45.3%	4,283	10.5x
Median		15.9%				10.9x

(\$ in millions)	LTM Revenue	LTM EBITDA Margin	Market Cap	% of 52-Wk Hi	TEV	TEV / LTM EBITDA
Specialty Systems and Services						
Axon Enterprise	562	1.4%	6,228	93.5%	5,887	NM
CAE	2,556	21.5%	4,300	52.4%	6,031	11.0x
Chemring	487	19.0%	845	84.0%	921	9.9x
MSA Safety	1,417	22.3%	4,446	80.4%	4,675	14.8x
SAAB	3,521	11.4%	3,326	67.4%	3,849	9.6x
Median		19.0%				10.5x

(\$ in millions)	LTM Revenue	LTM EBITDA Margin	Market Cap	% of 52-Wk Hi	TEV	TEV / LTM EBITDA
Engineering and Construction						
AECOM	\$19,886	6.4%	\$6,016	71.7%	\$8,053	6.3x
Babcock	5,540	11.4%	1,941	47.0%	4,177	6.6x
Fluor	18,520	0.5%	1,693	35.9%	1,926	21.4x
Jacobs Engineering	13,350	8.7%	11,033	81.5%	13,295	11.4x
Median		7.6%				9.0x

(\$ in millions)	LTM Revenue	LTM EBITDA Margin	Market Cap	% of 52-Wk Hi	TEV	TEV / LTM EBITDA
Government, IT Services & Software						
Booz Allen	\$7,464	11.2%	\$10,748	94.6%	\$12,568	15.0x
CACI	5,598	11.2%	5,441	75.2%	7,301	11.6x
CGI Group	8,653	18.8%	16,220	74.7%	18,939	11.6x
ICF	1,496	11.0%	1,221	68.1%	1,853	11.3x
KBR	5,836	9.6%	3,209	70.6%	3,981	7.1x
Leidos	11,406	11.0%	13,305	74.4%	17,722	14.1x
ManTech	2,332	10.9%	2,757	72.9%	2,911	11.5x
MAXIMUS	3,122	15.6%	4,319	85.9%	4,541	9.3x
SAIC	6,521	9.9%	4,515	80.2%	7,547	11.7x
Serco Group	4,302	7.2%	2,320	90.2%	3,097	10.0x
Vectrus	1,408	8.8%	569	82.9%	622	5.0x
VSE	760	12.7%	347	76.3%	647	6.7x
Median		11.0%				11.4x

Market Performance Summary

Performance Dashboard

(by TEV / EBITDA Valuation)

Top 10

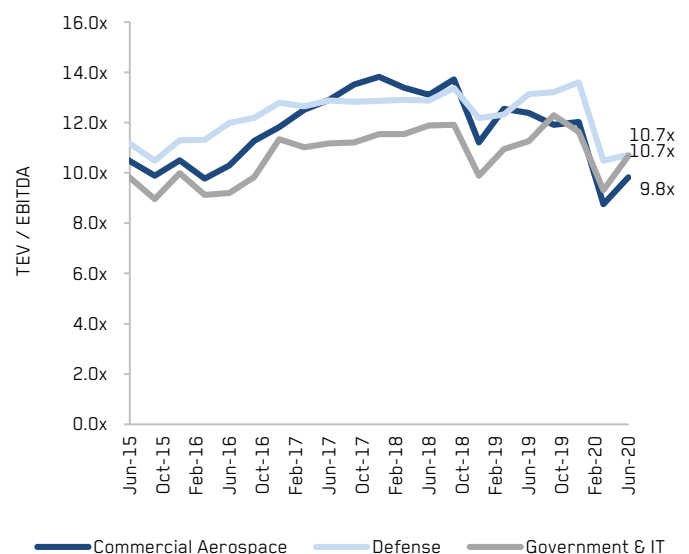
HEICO	NYSE:HEI	22.2x
FLIR	NYSE:FLR	21.4x
BOMBARDIER	TSX:BBD.B	19.2x
TELEDYNE TECHNOLOGIES INCORPORATED	NYSE:TDY	18.7x
RBC BEARINGS	NasdaqGS:RLL	16.6x
CUBIC	NYSE:CUB	16.6x
AMETEK	NYSE:AME	15.8x
Ball	NYSE:BLL	15.5x
TRANSDIGM GROUP INC.	NYSE:TIG	15.2x
Booz Allen Hamilton	NYSE:BAH	15.0x

Bottom 10

MAGELLAN AEROSPACE	TSX:MAL	3.9x
senior	LSE:SNR	3.9x
LEONARDO	BIT:LDO	4.7x
lisi	ENXTPA:FII	4.8x
SPIRIT AEROSYSTEMS	NYSE:SPR	5.0x
VECTRUS TRUE TO YOUR MISSION	NYSE:VEC	5.0x
HOWMET AEROSPACE	NYSE:HWM	5.1x
ATI	NYSE:ATI	5.6x
AAR	NYSE:AIR	5.6x
Triumph Group	NYSE:TGI	5.8x

TEV / EBITDA Valuation Trend by Sector

(last 5 years)



Note: Trading metrics as of 6.30.20. Valuation multiples based on LTM financial data converted at the historical exchange rate as of each fiscal period end date, and excludes multiples above 25.0x and under 0.0x. Source(s): CapIQ

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Buyer Spotlight



Parsons Highlights (\$M)

Headquarters	Centreville, VA
Founded	1944
Employees	16,000
Acquisitions since 2010	6
Market Cap	\$3,648
Total Debt	\$570
Revenue	\$4,021
Adj. EBITDA	\$312
TEV / Revenue	1.0x
TEV / EBITDA	13.2x

⁽¹⁾ Market data as of 6.30.20; LTM financial data as of 3.31.2020

Key Management

Chuck Harrington	Chairman & CEO
George Ball	CFO
Carey Smith	President & COO

M&A Strategy

Over the past 10 years, Parsons has spent approximately \$1.6 billion on acquisitions, following a disciplined M&A plan focused on the cyber, AI, machine learning, IOT and smart cities sectors. In addition, Parsons focuses on high growth and profitable targets. Cultural fit is also an important criteria as Parsons looks to integrate its targets post-acquisition. Within its capital allocation framework, Parson continues to search for selective high-growth, technology-focused acquisitions to help transform its business and drive accretive returns for its shareholders.

Notable A&D Acquisitions

Date	Target	TEV	Description
Jul '19	QRC	\$214M	Security software and hardware for the Special Operations and Intelligence community.
Jan '19	OGSystems	\$292M	Geospatial and security solutions for the DoD and Intelligence community.
May '18	Polaris Alpha	\$489M	AI/ML, cyber, cloud and space technology solutions for the U.S. Army and Intelligence community.
Apr '14	Secure Mission Solutions	\$127M	Cyber, physical security and information assurance with a 98% cleared workforce.

Sources: CapIQ, Dacis, company presentations and website

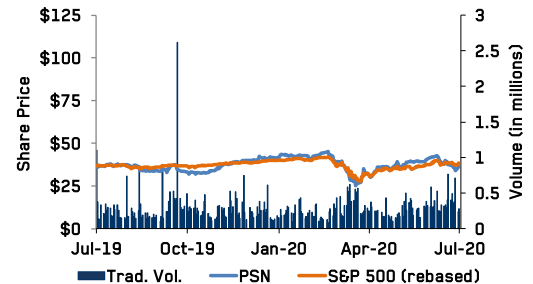


PARSONS CORPORATION (NYSE:PSN)

Description

Headquartered in Centreville, VA and founded in 1944, Parsons provides technology solutions to the defense, intelligence and critical infrastructure markets worldwide. It offers software and hardware products, technical services and integrated solutions, often used in mission-critical applications in the areas of cybersecurity, intelligence, missile defense, C5ISR, space, geospatial and connected communities. It operates through two reporting segments: Federal Solutions (U.S. government) and Critical Infrastructure (local governments and large companies). Parsons typically is awarded multi-year contracts and has a backlog of \$7.8 billion as of 3/31/20. Currently, its solutions are focused across several areas of high-growth technology markets, including Artificial Intelligence / Machine Learnings, Autonomous Systems, Cloud Computing and Internet of Things (IoT). Parsons has a demonstrated track record in M&A and continues to pursue selective acquisition opportunities in its growth areas.

Share Price Performance

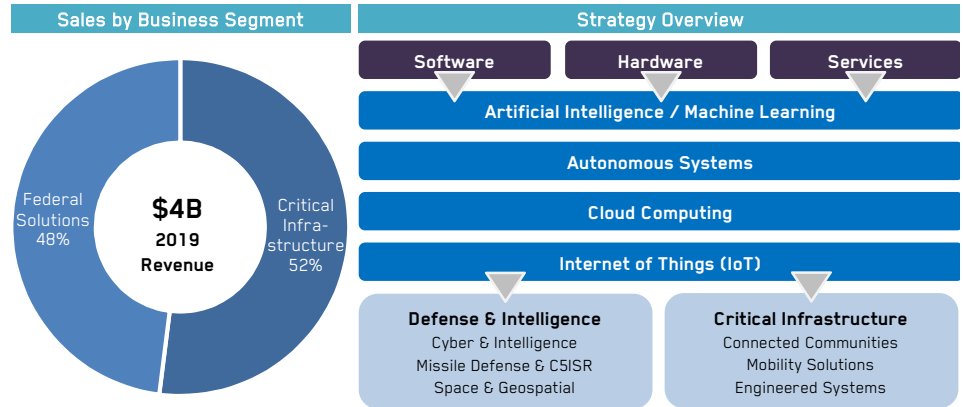


Parsons Financial History

(\$ in Millions)	FY 2017	FY 2018	FY 2019	LTM 3/31/20
Revenue	\$3,017	\$3,561	\$3,955	\$4,021
Adj. EBITDA	\$208	\$246	\$324	\$312
Adj. EBITDA Margin	6.9%	6.9%	8.2%	7.8%
TEV / LTM Revenue	N/A	N/A	1.1x	1.0x
TEV / LTM EBITDA	N/A	N/A	13.8x	13.2x
Cash & ST Investments	\$445	\$280	\$183	\$119

Note: Fiscal year ends December 31st. Parsons became publicly traded in 2019.

Parsons Business Overview



Transaction Highlight

Parsons acquires QRC

In July 2019, Parsons acquired QRC Technologies for \$214 million. QRC specializes in software and hardware solutions in the areas of radio frequency spectrum survey, record and playback; signals intelligence; and electronic warfare missions. It has particularly strong relationships with U.S. Special Operations and Intelligence community (IC) customers, as well as with the Navy and Marine Corps. The acquisition provides an opportunity for Parsons to cross sell with its broader existing portfolio of DOD and IC customer base. In addition, Parsons is able to integrate its artificial intelligence and machine learning capabilities into QRC's offerings. QRC has roughly 30% EBITDA margins and mid-20% revenue growth.

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Platform Overview



Overview

Type	Reusable spacecraft
Maiden Launch	May 30 th 2020
Dry mass	9,525 kg (20,999 lb)
Crew capacity	7
Total Built	4 (1 test article)
Launched	2 (+1 suborbital)
Payload Capacity	6,000 kg (13,000 lb) to orbit 3,000 kg (6,600 lb) return cargo 800 kg (1,800 lb) disposed cargo

Crew Dragon Partnerships



On 16 September 2014, NASA announced that SpaceX and Boeing had been selected to provide crew transportation to the ISS. SpaceX will receive US\$2.6 billion under the contract

List of Vehicles

Serial	Notes
C299	Prototype used for hover tests at the McGregor Test Facility and a pad abort test at Cape Canaveral.
C201	First vehicle to fly in space. Only flight was Crew Demo-1; destroyed during testing.
C202	Pressure vessel used for structural testing, status unknown.
C203	Purpose and status unknown.
C204	Purpose and status unknown.
C205	First flown during the Crew Dragon In-Flight Abort Test, future use to be determined.
C206	First vehicle to carry crew; named after Space Shuttle Endeavour. First flown during Crew Demo-2.
C207	First full-production Crew Dragon; planned first flight is SpaceX Crew-1.

Sources: SpaceX, NASA, SpaceNews

SpaceX Crew Dragon

Description

The SpaceX Crew Dragon is part of a two variant class of reusable spacecraft developed and manufactured by American aerospace manufacturer SpaceX as the successor to the Dragon cargo spacecraft. Crew Dragon launches atop a Falcon 9 Block 5 rocket and returns to Earth via an ocean splashdown. Unlike its predecessor, this spacecraft can now dock itself at the International Space Station instead of being berthed. The spacecraft is equipped with an integrated launch escape system (LES) capable of accelerating the vehicle away from the rocket in an emergency. This maneuverability is accomplished by using a set of four side-mounted thruster pods with two SuperDraco engines each to provide the vehicle with much more flexibility than its predecessor. The updated platform features redesigned solar arrays and a modified outer mold line compared to the original Dragon along with new flight computers and updated avionics systems. The program was developed as one of two spacecraft that is expected to transport crews to and from the International Space Station under NASA's Commercial Crew Program, the other being the Boeing CST-100 Starliner. Additionally, the spacecraft is expected to provide flights for American space tourism company Space Adventures and to shuttle tourists to and from Axiom Space's planned space station. Crew Dragon's first crewed flight recently occurred in May 2020, with astronauts Robert Behnken and Douglas Hurley, marking the first time a private company launched a crewed orbital spacecraft.

Dragon Overview

Capsule



The Dragon capsule, also known as the pressurized section, allows for the transport of people as well as environmentally sensitive cargo. Dragon is equipped with Draco thrusters that allow Dragon to maneuver while on orbit, and 8 SuperDracos coupled together as a Launch Escape System.

Trunk



Dragon's trunk not only carries unpressurized cargo but also supports the spacecraft during ascent. One half of the trunk is covered in solar panels which provide power to Dragon during flight, and while on station. The trunk remains attached to Dragon until shortly before reentry into Earth's atmosphere.



History and Development

The two variants, Crew Dragon (originally called DragonRider) and Cargo Dragon were originally designed to support both unmanned and a crew of seven manned missions capable of performing fully autonomous rendezvous and docking with manual override using the NASA Docking System (NDS). SpaceX's design was unveiled on May 29th, 2014, during a press event at SpaceX headquarters in Hawthorne, California. In October 2014, NASA selected the Dragon spacecraft as one of the candidates to fly American astronauts to the International Space Station, under the Commercial Crew Program. Throughout development several changes were made to the program. SpaceX originally intended to land Crew Dragon on land using the LES engines, with parachutes and an ocean splashdown available in the case of an aborted launch. As development continued teams canceled the propulsive landing, leaving splash down under parachutes the only option. Further changes were made to the space suits; however, SpaceX was able to beat the competition to launch, marking the first time a private company launched a crewed orbital spacecraft.

Taking Humans to Space

When SpaceX was first presented to become a reliable service for ISS cargo resupply missions it was looked at as an opportunity of a lifetime however the story for private human spaceflight is looked at as much different. Many experts believe the strategy is this is more of a field of dreams approach starting with first building the capabilities of Crew Dragon through the NASA missions and then hope the market develops beyond NASA. With current technology Human spaceflight is still very expensive, no matter how much of your architecture is reusable. Some critics at this time believe the most feasible approach is focused only on suborbital flights that last a few minutes and are much cheaper which is shown in the strategies of Blue Origin and Virgin Galactic. Until proven, there are still questions whether SpaceX or any other provider offer orbital flight for humans at a profit. The vehicles are built, but the market is still developing.

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ALL TRANSACTIONS – VALUE DISCLOSED

Announced Date	Target	Acquiror	Valuation Metrics			Segment	Deal Type(s)	
			Implied TEV (\$M)	TEV/Revenue	TEV/EBITDA			
04/22/20	Information Strategies, Inc.	Sylogist Ltd.	\$2.5	0.6x	na	Government Services, IT Services and Software	PR	I
05/05/20	Collaborative Solutions, LLC	Cognizant Technology Solutions Corporation	\$385.0	na	na	Government Services, IT Services and Software	PR	
05/12/20	Satmission AB	Advanced Stabilized Technologies Group AB (publ)	\$1.0	na	na	Satellite, Satellite Services & Space Systems	PU	I
06/02/20	Exostar LLC	Thoma Bravo, LLC	\$100.0	na	na	Government Services, IT Services and Software	PR	PB
06/16/20	ASC Signal Corporation	Kratos Defense & Security Solutions, Inc.	\$35.0	na	na	Defense Electronics	PS	
06/25/20	Vricon, Inc.	Maxar Technologies Inc.	\$255.0	4.7x	7.5x	Satellite, Satellite Services & Space Systems	PU	I
06/30/20	TeamGlobal, Inc.	Management	\$2.0	na	na	MRO & Logistics	PR	

PU Public Seller
 PR Private Seller
 PS Private Equity Seller
 PB Private Equity Buyer
 I International Deal

Source(s): CapIQ, Dacis, company reports, press releases

Note: Deals shown only include transactions with disclosed multiples

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ALL TRANSACTIONS – VALUE NOT DISCLOSED

Announced Date	Target	Acquiror	Segment	Deal Type(s)
04/01/20	ALA Germany GmbH	ALA-Advanced Logistics For Aerospace	Components & Subsystems	PR I
04/01/20	Precinmac Precision Machining	Pine Island Capital Partners	Machined & Cast Parts	PS PB
04/02/20	AeroVista Innovations, LLC	DroneUp LLC	Unmanned Vehicles	PR
04/06/20	Birdi Ltd.	HW Holdco, LLC	Satellite, Satellite Services & Space Systems	PR PB I
04/06/20	Excivity, Inc.	The AEGIS Technologies Group, Inc.	Government Services, IT Services and Software	PR PB
04/15/20	Barquin and Associates, Inc.	Waterleaf International LLC	Government Services, IT Services and Software	PR PB
04/15/20	EMRC Heli	The AEGIS Technologies Group, Inc.	Unmanned Vehicles	PR PB
04/20/20	Raytheon Technologies Corp.'s Space-Based Precision Optics Business	AMERGINT Technologies, Inc.	Satellite, Satellite Services & Space Systems	PU PB
04/24/20	Spookfish Limited	Aerometrex Limited	Satellite, Satellite Services & Space Systems	PS I
04/27/20	Princeton Technology Corp.	Intervala, LLC	Electronics Manufacturing (EMS) & Harnessing	PR
04/27/20	McMurdo, Inc.	Techno-Sciences, Inc.	Satellite, Satellite Services & Space Systems	PS PB I
04/28/20	Atmos Sistemas Ltda. (nka:Saab Sensores e Servicos do Brasil)	Saab AB (publ)	Defense Electronics	PR I
04/30/20	InCadence Strategic Solutions Corporation	Xator Corporation	Cybersecurity, Intelligence Services and Homeland Defense	PR PB
05/04/20	FlightWire Technology, Inc.	New Wave Design and Verification, LLC	Defense Electronics	PR
05/05/20	IMPAQ, LLC	American Institutes For Research	Government Services, IT Services and Software	PR
05/05/20	NCC, Inc. New Century US	Dexis Consulting Group	Government Services, IT Services and Software	PR
05/06/20	Tethers Unlimited, Inc.	AMERGINT Technologies, Inc.	Satellite, Satellite Services & Space Systems	PR PB
05/06/20	Assets of TTF Aerospace, Inc.	Commercial Aircraft Interiors, LLC	Aircraft Interiors	PR

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Source(s): CapIQ, Dacis, company reports, press releases

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ALL TRANSACTIONS – VALUE NOT DISCLOSED (CONTINUED)

Announced Date	Target	Acquiror	Segment	Deal Type(s)
05/06/20	DELTA Solutions & Strategies, LLC DELTA	Intrepid Solutions and Services, LLC	Government Services, IT Services and Software	PR PB
05/07/20	WRAP International AB	Altair Engineering Inc.	Government Services, IT Services and Software	PR I
05/11/20	Davis Tool, Inc.	Cline Tool and Service Company, Inc.	Machined & Cast Parts	PR
05/12/20	Signature Management Group Inc	Applied Research Associates, Inc.	Government Services, IT Services and Software	PR
05/12/20	PulseR, LLC	The Jordan Company, L.P.	Defense Electronics	PS PB
05/12/20	Equipaer Industria Aeronautica Eireli	Mac Jee Indústria de Defesa Ltda.	Specialty Defense Systems and Services	PR I
05/18/20	Enterprise Information Services, Inc.	Cognosante, LLC	Cybersecurity, Intelligence Services and Homeland Defense	PR
05/19/20	PLM Systems S.r.l.	Accenture plc	Engineering and Project Management	PR I
05/21/20	Cyber Fusion Services LLC	Exelegant	Cybersecurity, Intelligence Services and Homeland Defense	PR
05/28/20	DESCHAMPS, SAS	Guy Jeannin	MRO & Logistics	PR I
05/29/20	Cropmead facility of Tods Aerospace	Cobham Mission Systems Davenport AAR Inc.	Composites	PR I
06/01/20	Deep Space Systems Inc.	Adcole Maryland Aerospace, LLC (nka:RedWire, LLC)	Satellite, Satellite Services & Space Systems	PR PB
06/01/20	Cobham RAD Inc.	Radiation Test Solutions, Inc.	Test & Measurement	PJ I
06/02/20	Advanced Graphite Materials LLC	AMSTED Industries Incorporated	Composites	PR
06/03/20	Baltic Ground Services PI Sp Z O O	Undisclosed Buyer	MRO & Logistics	PR I
06/03/20	Five Talent Software, Inc.	Effectual Inc.	Government Services, IT Services and Software	PR PB
06/04/20	Lastline, Inc.	VMware, Inc.	Cybersecurity, Intelligence Services and Homeland Defense	PR
06/04/20	Assets of IJK Controls LLC	General Atomics Aeronautical Systems, Inc.	Defense Electronics	PR

PJ Public Seller
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Source(s): CapIQ, Dacis, company reports, press releases

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ALL TRANSACTIONS – VALUE NOT DISCLOSED (CONTINUED)

Announced Date	Target	Acquiror	Segment	Deal Type(s)
06/08/20	All Assets and Business of Phasor Solutions Ltd.	Hanwha Systems Co., Ltd.	Components & Subsystems	PR I
06/08/20	Lucid Perspectives LLC	E3 Federal Solutions, LLC	Cybersecurity, Intelligence Services and Homeland Defense	PR PB
06/08/20	Skyline Ultd, Inc.	Central Research Inc. (CRI)	Government Services, IT Services and Software	PR
06/08/20	Career Technologies USA	Lockwood Industries, LLC	Engineering and Project Management	PR PB
06/10/20	Holdfast Training Services Ltd.	InfraRed Capital Partners	Government Services, IT Services and Software	PU PB I
06/10/20	Interpreting Technology	Cyemptive Technologies, Inc.	Government Services, IT Services and Software	PR
06/11/20	AERO Vodochody AEROSPACE a.s.	OMNIPOL a. s.	Aerostructures	PS I
06/11/20	J&J Maintenance, Inc.	Arlington Capital Partners LP	MRO & Logistics	PR PB
06/11/20	Rocky Mountain Hydrostatics, Inc.	HEICO Corporation	Navy/Maritime	PR
06/15/20	WaveStrike, LLC	Novetta Solutions, LLC	Government Services, IT Services and Software	PR PB
06/18/20	Flightdocs, Inc.	Aircraft Technical Publishers, Inc.	Government Services, IT Services and Software	PS PB
06/19/20	Anistar Technologies, Inc.	NSC Technologies, Inc.	Government Services, IT Services and Software	PR PB
06/22/20	CRS Jet Spares, Inc.	Management and Private Investors	MRO & Logistics	PR
06/22/20	NuWave Solutions, LLC	AE Industrial Partners, LP	Government Services, IT Services and Software	PR PB
06/23/20	Made In Space, Inc.	Redwire, LLC	Satellite, Satellite Services & Space Systems	PR PB
06/23/20	Shadin L.P.	Gardner Standard LLC	Controls & Systems	PR PB
06/23/20	Corbett Technology Solutions, Inc.	Wind Point Advisors, LLC	Government Services, IT Services and Software	PR PB
06/25/20	Titus International Inc.	HelpSystems, LLC	Government Services, IT Services and Software	PR I

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ALL TRANSACTIONS – VALUE NOT DISCLOSED (CONTINUED)

Announced Date	Target	Acquiror	Segment	Deal Type(s)
06/26/20	Rivet Logic Corporation	VariQ Corp.	Government Services, IT Services and Software	PR
06/26/20	Quark Security, Inc.	Sealing Technologies, Inc.	Cybersecurity, Intelligence Services and Homeland Defense	PR
06/26/20	Manufacturing and Design Services Unit of Spartan Corporation	OEP Capital Advisors, L.P.	Defense Electronics	PS PB
06/29/20	Aerospace Composite Manufacturing Business of AAR Manufacturing, Inc.	Architect Equity LLC	Composites	PU PB
06/29/20	Unison Software, Inc.	The Carlyle Group L.P.	Government Services, IT Services and Software	PS PB
06/30/20	Air Traffic Management and Defence & Security business units of Tellumat Proprietary Limited	Hensoldt South Africa	Defense Electronics	PR PB I
06/30/20	PathSensors, Inc.	Smiths Detection Inc.	Specialty Defense Systems and Services	PR I

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