

Commentary

Before offering our quarterly commentary, we wanted to make you aware of some research materials, that if you're reading this newsletter, should be of interest.

First: SPADE Indexes recently published a 56-page guide to investing in the defense sector. It is designed to give investors a better understanding of the sector, what drives it, and unique attributes that can impact the stock of a public company operating in the sector. It can be downloaded at no cost and with no registration. Feel free to share with colleagues, friends, investment groups, and anyone you think would benefit from expanding their knowledge in this area.

https://spadeindex.com/Files/Investing_Defense_Sector_Guide.pdf

Second: ETFs and funds are required to produce a quarterly fact sheet that summarizes the performance and investment

A complete archive of *The SPADE Investor* including our commentaries and industry data can be found at—

[www.spadeindex.com / defense](http://www.spadeindex.com/defense)

metrics of the fund. SPADE Indexes has created something similar for our Defense Index. We include a competitive comparison of the ETF products that compete in this space. If you are interested in getting a copy, please send an email to info@spadeindex.com with your contact information and let us know if you are an individual or institutional investor, advisor, analyst, etc.

Waking a Sleeping Bear

Over the past two years, the attention of investors has been focused primarily on economic issues and the pandemic. As the stock market as a whole has soared—reaching historic high levels based on the performance (and its concentration) of a few large, well-known stocks—aerospace and defense securities as a whole have been relatively quiet with many investors choosing to book profits from recent years, turning their attention to other opportunities.

That might soon change. New management at the White House and the pull out of troops from Afghanistan and Iraq after 20 years had little impact as the SPADE Defense Index eked out modest 5.3% gains over the past two years, preserving capital for investors. However, this

Continued on page 2

**SPADE Defense Index
30 September 2021 Rebalance**

Keysight Tech. (NYSE: KEYS) was added to the index during the September 2021 rebalance. The firm is involved in secure communications, radar, and electromagnetic spectrum operations

Did you know? The SPADE Defense Index is the only index that incorporates the True Cap methodology to more accurately reflect the weighting of firms with revenues outside the defense sector. It is modified capitalization weighted to ensure no company (or companies) dominate the index. One reason why it can be used to benchmark the sector.

SPADE Defense Index Statistics

9/30/21 Close 8413.82
12/31/20 Close 7932.14

All-time Intraday High:
8 June 2021 9064.68

All-time Closing High:
8 June 2021 9050.45

	SPADE Defense	S&P500
3Q21	[4.29%]	0.23%
2Q21	3.46%	8.17%
1Q21	7.12%	5.77%
2021 YTD	6.07%	14.68%
2020	[0.73%]	16.26%
2019	38.49%	28.88%

Corporate Actions Affecting the Index During the Quarter

- Lockheed Martin's acquisition of Aerojet Rocketdyne is pending.
- FireEye plans to split into two firms, with the defense/intel part renaming to Mandiant.

Dividend

Invesco's Aerospace & Defense ETF issued a dividend of \$0.0888 on September 20.

**Licensed Products
Exchange Traded Fund (ETF)**

The SPADE Defense Index has been licensed to Invesco and serves as the underlying index for the Invesco Aerospace & Defense ETF (NYSE Arca: PPA).

Options Trading

Options on the Invesco Aerospace and Defense ETF (ticker: PPA) began trading on November 2019.

Commentary (continued from page 1)

meant that the sector underperformed the S&P 500 by more than 20%...something that has happened only once since 1997. And while past performance is not indicative of the future, investors would be wise to monitor historical trends in order to identify opportunities that might be presenting.

In 1998 and 1999, the SPADE Defense Index underperformed the US market by 23.41% (by 4.22% and 20.04%, respectively, yet generated positive returns of 6.63% and 15.31%). What followed was a five-year run that saw the Index outperform the market by double digits in each, rising more than 70% in value over the next five years. The Index then continued its run of outperformance for a total of nine consecutive years.

	Alpha vs SP500	Alpha vs SP500
Year 1	1998: [2004 bps]	2020: [1699 bps]
Year 2	1999: [422 bps]	YTD: [861 bps]
Year 3	2000: +1512 bps	2022: TBD
Year 4	2001 +1488 bps	2023: TBD
Year 5	2002: +2050 bps	2024: TBD
Year 6	2003: +1089 bps	2025: TBD
Year 7	2004: +1148 bps	2026: TBD

So What Will Awaken This Sleeping Bear?

- A flare up between China and Taiwan? China and the US?
- Russia annexing a former Soviet Bloc nation?
- A coordinated terrorist attack that once again spreads fear and concern?

Each of these would be expected to have investors flood into the sector but there are a number of scenarios that could lead to increased attention by investors. Recent lone wolf attacks by religious extremists that attacked and killed a British politician, or who killed several people in Norway in a bow and arrow attack generate headlines but are unlikely to spark continued attention. As commented in a prior newsletter, defense and security has been quiet. As we approach Halloween, how many horror movies have used the line, "its a bit too quiet." History has shown that when it comes to defense and national security something will happen at some point. Unfortunately, it always does. Ultimately, two facts are/will drive continued stability in the sector and an eventual return to becoming a favored sector by investors.

1. International Sales. Aerospace and defense firms have

made major strides into opening up their global business. The Department of Defense and recent White House administrations and Congresses have all given their blessing to deals that expand the presence of US military (defensive as well as offensive) hardware, software, and services around the globe. This had led to tens of billions in sales, an amount that has been growing annually. Combined with a post-pandemic return to air travel, commercial aircraft deliveries, and air cargo supply chain expansions, and the next several years are forecasted to be strong ones for the sector in terms of both sales growth and positive earnings. This despite whatever ultimately happens in the near term to the defense budget in the United States.

2. Politics. There is talk on Capitol Hill about a future 10% reduction in the budget for the Department of Defense... even while additional funds are being negotiated and appropriated by Congress. But what does a 10% decline in the budget really mean? In the world of government, a decline in projected growth is billed as a cut, event when actual dollars increase. Equally important, where it will come from is an unknown. A planned reduction in military personnel can likely account for a large portion. Returning troops home from overseas activity in places like Afghanistan and Iraq also saves billions in logistics costs.

Procurement and R&D and spending on technology and upgrades to future military capability might not be impacted all that greatly. Considering that procurement by DoD is less than 15% of its total budget and that the top five prime contractors account for less than 1/3 of contracted dollars (41% of which goes towards services, 51% goods, and 8% R&D...as reported by DoD within the last five years) and the impact on publicly traded defense firms might not be significant.

With the 2022 Congressional election looming on the horizon, and with it control of the House and Senate, it is unlikely that the Democratic-controlled House would risk providing the Republican party ammunition (pardon the pun) to be used against them. As mentioned many times before, as long as a threat is out there (China, Russia, terrorism, etc.) defense and security ultimately receive support from both parties.

A Key to the SPADE Defense Index (NYSE: DXS)

A critical difference between DXS, used by the Invesco Defense ETF (NYSE: PPA), and its competitors is the

inclusion of non-manufacturing activities (think software, IT, digital services, big data, etc.) that are systematically important to the national security of the United States and critical to the Department of Defense. The increased attention to digital and data security is firmly represented in the SPADE Defense Index benchmark. Companies classified as technology represent 12% of the index vs. <1% for its competitor, the iShares Defense Index (ITA); and provide an important distinction and between the products.

	Invesco	iShares	State Street
ETF Ticker	PPA	ITA	XAR
Methodology	Modified Market Cap / True Cap	Market Cap	Equal Weight
Holdings	53	33	32
Top 5 Holdings	31%	55%	23%
Top 10 Holdings	54%	75%	44%
Technology Weight	12.08%	0.67%	3.88%

Passive Indexes Are Not All Created Equal

It is important to understand what is “under the hood.”

At its most basic, a passive index represents a basket of stocks. However, the value of the basket and how it changes over time is dependent on the methodology used to calculate the index price (and for investors in an ETF that tracks an index, the weighting of each security.) That is not to say, one methodology is definitely always better than another, just that different methodologies can lead to wildly different results even when holding identical companies.

Here are the most common methodologies along with some positives and negatives:

1. Equal Weight (ex: XAR): Each security in the basket is given the same weight at the time the basket is rebalanced (reset). This means that all firms in the basket have the same impact on performance regardless of size or activity. When a large company or companies lag in performance and mid- and small-cap firms outperform, the strategy does well. Equal weight also makes sense in a sector where there is a high risk of success or failure, like biotech. For a stable sector like aerospace and defense, business risks are different. An equal weighting also means a firm manufacturing seats or lights used on an aircraft would have the same weight (impact) as Boeing or Lockheed Martin (the manufacturers of the plane). From a benchmark perspective, equal weighting would not accurately reflect how this particular industry operates.

2. Market Cap (ex: ITA): The weight of each security in the basket is proportional to the value assigned by the market to the firm. This means that the more a firm is worth, the greater the impact it has on the performance of the index. This enables a small group of companies to reflect how the economy is performing for the broader universe of

firms. The negative is that it is possible for certain firms to have an outsized impact on an index. In the case of the defense sector, Boeing and Raytheon represent more than 40% of the underlying index used by ITA and the 10 largest defense companies by market cap total more than 75% of that index, making it highly concentrated in a small number of positions.

3. Modified Market Cap (ex: PPA): This methodology is designed to ensure that a more diversified portfolio is maintained. Typically, the weight of the largest firms is capped at a certain level at the time of rebalancing (and proportionally redistributed to smaller firms. This way, the largest firms still contribute a greater-than-average impact on the index that their size warrants, but smaller firms are not lost. In the A&D sector, the large prime contractors are the best known firms, but the supplier base plays a very important role, hence the need for a modification. Ignoring their impact doesn’t reflect how the industry actually operates.

True Cap: A new variation was introduced by the SPADE Indexes in 2021 in order to solve a problem associated when using market cap (or modified) related methodologies in a sector of thematic environment. Namely, how do you handle firms with diversified revenues? Not all companies are pure plays that generate 100% of their revenues in a specific business activity but still play an important role in the sector. Historically, an index either ignored a major player because they were diversified or count the firm as a whole including their unrelated business activities. In addition to employing a market cap modification, True Cap includes a factor to reflect the relevant business. Doing so allows an Index to incorporate *all firms that are systematically important.*

3Q21 Leaders

1	Elbit Systems	11.63%
2	Ball Corp	11.05%
3	Viasat Inc.	10.49%
4	Keysight Tech.	6.40%
5	Curtiss Wright	6.25%
6	Comtech	6.00%
7	Vetrus	5.65%
8	General Dynamics	4.79%
9	KBR	3.28%
10	CACI Intl	2.74%

3Q21 Laggards

1	PAE Systems	[32.81%]
2	Kaman	[29.23%]
3	Maxar Tech.	[29.06%]
4	Mercury Computer	[28.46%]
5	Kratos Defense	[21.69%]
6	Alleghany Tech.	[20.24%]
7	Oshkosh Corp	[17.87%]
8	Telos Corp	[16.44%]
9	AAR Corp	[16.31%]
10	Parsons	[14.23%]

Morningstar Says:

PPA is a Four-Star Fund ****
Avg Risk in the Industrials Category,
With 5-Year Avg Return

2021 YTD Results

1	Viasat	68.67%
2	Triumph Group	48.33%
3	Textron	44.44%
4	AXON International	42.84%
5	General Dynamics	31.72%
6	KBR	27.36%
7	Keysight Tech.	24.38%
8	Comtech	23.78%
9	Hexcel	22.48%
10	Jacobs Engineering	21.63%
11	Raytheon Tech.	20.21%
12	Oshkosh Corp.	18.94%
13	Northrop Grumman	18.19%
14	L3 Harris	16.52%
15	Huntington Ingalls	13.24%
16	Spirit Aerosystems	13.05%
17	Elbit Systems	10.73%
18	Teledyne Tech.	9.59%
19	Howmet	9.32%
20	RADA Electronics	9.13%
21	Curtiss Wright	8.45%
22	CAE	7.68%
23	CACI Int'l	5.12%
24	Boeing	2.75%
25	Palantir	2.08%
26	OSI Systems	1.69%
27	Iridium	1.32%

28	Vectrus	1.13%
29	Transdigm	0.92%
30	Honeywell	[0.20%]
31	Heico	[0.40%]
32	AeroVironment	[0.67%]
33	Alleghany Tech	[0.83%]
34	Lockheed Martin	[2.78%]
35	Ball Corp	[3.44%]
36	Moog	[3.87%]
37	Ducommun	[6.24%]
38	Woodward	[6.85%]
39	Parsons	[7.28%]
40	Leidos	[8.55%]
41	Booz Allen	[8.98%]
42	SAIC	[9.59%]
43	AAR Corp.	[10.46%]
44	BWX Technologies	[10.65%]
45	Telos Corp	[13.83%]
46	Mantech Int'l	[14.64%]
47	Aerojet Rocketdyne	[17.60%]
48	Kratos Defense	[18.67%]
49	FireEye	[22.81%]
50	Maxar Technologies	[26.61%]
51	PAE Systems	[34.86%]
52	Kaman	[37.56%]
53	Mercury Computer	[46.15%]

**ETF Statistics (NYSE Arca: PPA)
Invesco Aerospace & Defense**

Exchange / Ticker Symbol:	NYSE / PPA
Assets (9/30/21)	\$680 M
Closing Price (9/30/21)	\$71.90
Dividend Yield*	1.16%
3Q21 Volume**	1,069,900
Turnover*	22%
Morningstar Rating	**** (4 Star)

source: * Morningstar & ** Yahoo Finance 9/30/21

Capture Ratio*	3-Yr	5-Yr	10-Yr
Upside	92	109	112
Downside	117	110	98

Portfolio Price / Earnings*	20.11
Portfolio Price / Book*	3.04
Portfolio Price / Sales*	1.76
Portfolio Price / Cash Flow*	15.14
Beta (3-year) *	1.20
Alpha (3-years)*	[6.69]
R-squared (3 years)*	76.15
Sharpe Ratio*	0.33
Long-Term Earnings*	13.02%
Historical Earnings*	3.86%
Sales Growth*	0.29%
Cash Flow Growth*	9.41%
Book Value Growth*	7.49%
Historical Sustainability Score (% Rank)	82

source: * Morningstar 9/30/21

By the Numbers

\$73B – Estimated Earth Observation market by 2020 per NSR research.

\$46B – US Air Force forecasted this amount for its digital design and engineering initiative that allows them to test weapons systems virtually through 2032. 55 companies including **Booz Allen, Kratos, Lockheed Martin, Raytheon, General Dynamics, L3 Harris, Northrop Grumman, Parsons, KBR, Aerojet Rocketdyne, Ball,** and **Textron** are approved to compete. Just \$55K was obligated this year as the program begins.

\$41B – US Air Force Foreign Military Sales awaiting signatures from buyers. On pace to surpass 2020s \$24.8B.

\$28B – Missile Defense Agency to **Parsons** (multiple awards)

\$12B – Amount DoD plans to spend next year to acquire 85 F-35 aircraft.

\$4B – Amount to NASA for “repair, recapitalization, and modernization of facilities” under the proposed \$3.5T infrastructure bill in Congress.

\$3.5B – US Air Force to **Boeing**. Base value for sustainment support for C17 Globemaster III fleet. A potential of \$23.76B over the next 10 year.

\$2B – US Air Force to **Raytheon** for the Long Range Stand Off weapon.

\$1.62B – USAF Nuclear Weapons Center to **Boeing** to service and maintain Minuteman III ICBM guidance system.

\$1.1B – US Army to **Boeing** for seekers for PAC-3 missiles. This is a contract extension following \$974M in 2020.

\$960M – US Nuclear Weapons Center to **Raytheon**, a 10-year contract to support the AEHF communications network.

\$953M – US Air Force to **Parsons** for base security in the European Union and Africa

\$823M – US Army Program Manager for Intelligence Systems to **Palantir**.

\$781M – US Navy to **Raytheon** for AN/SPY-6(V) air and missile defense radar systems.

\$674M – Department of Defense to **Booz Allen** to manage its comptroller’s data analytics platform.

\$673.8M – USAF to **Collins Aerospace (RTX)** for support and maintenance of U-2 aircraft.

\$487M – US Army to **Boeing** for the Apache AH-64 engineering and support.

\$482M – US Navy to **General Dynamics Electric Boat** to support Virginia-class submarines.

\$475.5M – **Mantech** defended its decade-long incumbency on a military space launch engineering and integration contract.

\$475M – US Navy to **General Dynamics Electric Boat** to for lead yards support for Columbia-class ballistic missile subs through 2028.

\$445.5M – US Navy to **Lockheed Martin Space Systems** for Trident II D5 missile support

\$421.6M – Missile Defense Agency to **Northrop Grumman**. A 10-yr contract for missile boost vehicles and spare parts for the US Ground Based Midcourse Defense System.

\$328.2M – US Air Force to **Raytheon** for 565 AIM-9X precision short-range IR guided air-to-air missiles

\$299.4M – US Army to **Oshkosh, General Dynamics,** and others for designs to replace the Bradley Fighting Vehicle.

\$270M – NASA to **Leidos** to support Ames’ biosciences flight projects.

\$258M – State Department OK’d the sale of 3953 JDAM guidance kits to South Korea by **Boeing**.

\$200M – **Ball & Booz Allen** from the US Air Force Research Lab for cybersecurity technology to protect avionics.

\$129M – Navy to **Lockheed Martin** for 3, MH-60R anti-sub helicopters.

7100 – **Boeing** demand prediction for European low-cost carriers for single aisle planes over next 20 years [a \$639B potential market].

PPA Dividend History

3Q YTD	\$0.338	2013	\$0.383
2020	\$0.598	2012	\$0.444
2019	\$0.651	2011	\$0.199
2018	\$0.444	2010	\$0.155
2017	\$0.363	2009	\$0.202
2016	\$0.708	2008	\$0.145
2015	\$0.501	2007	\$0.055
2014	\$0.215	2006	\$0.051
		2005	\$0.022

Total Price Return
(Annual %)

	SPADE Defense Index
1-Yr	31.57%
3-Yr	6.90%
5-Yr	14.63%
10-Yr	17.53%
15-Yr	11.34%
Inception	11.70%

Through 9/30/21
(Morningstar)

Index Performance (ex div)

	SPADE Defense Index	S&P500	Alpha (bps)
YTD	6.07%	14.68%	[861]
2020	[0.73%]	16.26%	[1699]
2019	38.49%	28.88%	961
2018	[8.15%]	[6.24%]	191
2017	28.92%	19.43%	949
2016	17.95%	9.53%	842
2015	3.23%	[0.73%]	396
2014	11.77%	11.39%	38
2013	48.27%	29.60%	1867
2012	16.30%	13.41%	289
2011	[2.75%]	[0.00%]	[275]
2010	9.62%	12.78%	[316]

	SPADE Defense Index	S&P500	Alpha (bps)
2009	21.71%	23.45%	[174]
2008	[38.03%]	[38.49%]	46
2007	22.17%	3.53%	1864
2006	19.33%	13.62%	571
2005	5.30%	3.00%	230
2004	20.47%	8.99%	1148
2003	37.27%	26.38%	1089
2002	[2.87%]	[23.37%]	2050
2001	0.94%	[13.04%]	1488
2000	4.98%	[10.14%]	1512
1999	15.31%	19.53%	[422]
1998	6.63%	26.67%	[2004]

Price Return by Decade (ex div)

	SPADE Defense	S&P500	Alpha (bps)
2010-2019	310.26%	189.73%	12,053 (120.53%)
2000-2009	97.07%	-24.11%	12,118 (121.18%)

About the SPADE Defense Index

The SPADE Defense Index (NYSE: DXS) provides an investment benchmark for the value that the market ascribes to companies involved with defense and its homeland security, and space components.

The Index is designed to reflect the broad diversity of activities that is representative of companies involved with the sector – including industrial firms that manufacture aircraft, tanks, ships, and missiles; and those involved with current and next generation systems related to network centric warfare and information technology; intelligence, surveillance, and reconnaissance; satellites; border security; and defense systems that protect the lives of our servicemen and servicewomen.

SPADE Indexes specializes in designing and managing equity benchmarks for ETF and other products.

Rules

The Index was designed to be RIC (registered investment company) compliant for the purpose of enabling financial products. Companies are required to meet a variety of eligibility criteria including market valuation, liquidity, and listing on a major U.S. exchange. Each firm is considered to be systematically important to the defense of the United States and defense is systematically important to the business, revenues, and health of the firm.

Full details are available on our website.

- * Market Cap: Minimum \$250M
- * Share Price: Minimum \$5.00
- * Sufficient Liquidity

Legal & Disclaimers

© 2021 SPADE Indexes LLC—SPADE, the SPADE icon, and “The SPADE Investor” newsletter are registered trademarks. SPADE Indexes LLC is the owner of the trademark, service marks, and copyrights related to its indices. This newsletter does not constitute an offer of an investment product. SPADE Indexes LLC makes no representation regarding the advisability of investing in vehicles based on the SPADE Defense Index. All information is provided ‘as is’ for informational purposes only and is not intended for trading purposes or advice. Neither SPADE Indexes LLC nor any related party is liable for any informational error, incompleteness or for any actions taken based on information contained herein.

Contact Information

SPADE Indexes LLC
 PO Box 5752
 Bethesda, MD 20824-5752
 Tel: (202) 596-1812
 info@spadeindex.com
<http://www.spadeindex.com/defense>

End of 3Q21		98%					Market		Forward		Price/		PEG	
		Percent		30-Jun-21	30-Sep-21	YTD	QTD	Cap	P/E	Sales	Price/	Book	5 yr	Div Yld
								intraday	(ttm)	ttm	mrq	expected	forward %	
Company	Ticker	30-Jun-21	Price	Price	% Ch	% Ch								
AAR Corp	AIR	0.45%	38.75	32.43	-10.46%	-16.31%		1.15	10.88	0.67	1.15	4.40		
Aeroflex Rocketdyne	AJRD	1.23%	48.29	43.55	-9.82%	-9.82%		3.50	21.67	1.64	10.25	1.83		
ATI	ATI	0.40%	20.85	16.63	-20.24%	-20.24%		2.12	22.17	0.82	4.47	22.26		
AeroVironment	AVAV	0.68%	100.15	86.32	-13.61%	-13.81%		2.14	27.94	5.24	3.55	2.17		
AXON International Inc.	AXON	3.79%	176.8	175.02	-1.01%	-1.01%		11.50	94.61	14.25	10.47	7.10		
Boeing Co	BA	7.09%	239.56	219.94	-8.62%	-8.19%		128.92	37.15	2.09	7.72	11.94		
Booz Allen	BAH	2.84%	85.18	79.35	-6.79%	-6.84%		10.73	17.14	1.36	10.50	2.26	1.86%	
Ball Corp	BLL	1.33%	81.02	89.97	11.05%	11.05%		29.39	21.52	2.30	8.08	1.83	0.89%	
BWX Technologies	BWXT	1.44%	58.12	53.86	-7.33%	-7.33%		5.13	15.98	2.43	7.23	2.94	1.54%	
CACI Intl	CACI	1.38%	255.12	262.1	2.74%	2.74%		6.18	13.83	1.02	2.32	2.91		
CAE	CAE	2.69%	30.8	29.87	-3.18%	-3.02%		9.53	26.2	2.99	2.77	6.35		
Comtech	CMTL	0.21%	24.16	25.61	6.41%	6.00%		0.67	29.44	1.14	1.36	0.51	1.58%	
Curtiss Wright	CW	1.03%	118.76	126.18	6.45%	6.25%		5.16	15.64	2.10	2.72	0.12	0.56%	
Ducommun	DCO	0.20%	54.56	50.35	-7.72%	-7.72%		0.60	14.39	0.96	1.73	1.16		
Elbit Systems	ESLT	1.85%	129.75	144.84	11.63%	11.63%		6.47	16.65	1.31	2.68	1.75	1.27%	
FireEye	FEYE	0.37%	20.22	17.8	-11.87%	-11.97%		4.26	197.78	4.35	6.55	0.74		
General Dynamics	GD	4.88%	187.07	196.03	4.76%	4.79%		54.80	15.73	1.42	3.57	2.11	2.40%	
Heico	HEI	2.17%	139.42	131.87	-5.42%	-5.42%		16.93	49.76	9.50	8.16	6.01	0.13%	
Huntington Ingalls	HII	2.60%	210.75	193.06	-8.39%	-8.39%		7.75	13.05	0.81	3.75	21.66	2.31%	
Honeywell Intl	HON	4.94%	219.35	212.28	-3.24%	-3.22%		146.56	23.07	4.32	8.17	2.24	1.73%	
Howmet	HWM	3.42%	34.47	31.2	-9.48%	-9.49%		13.38	21.52	2.80	3.78	1.04	0.06%	
Hexcel	HXL	1.47%	62.4	59.39	-4.81%	-4.82%		4.98	47.13	4.10	3.32	3.69		
Iridium	IRDM	0.39%	39.99	39.85	-0.35%	-0.35%		5.26	398.5	8.84	4.00	65.83		
Jacobs Engineering	J	1.99%	133.42	132.53	-0.67%	-0.67%		17.27	18.69	1.23	2.81	1.51	0.62%	
Kaman	KAMN	0.39%	50.4	35.67	-29.56%	-29.23%		0.99	16.99	1.32	1.27	2.03	2.26%	
KBR	KBR	0.85%	38.15	39.4	3.28%	3.28%		5.45	15.92	0.96	3.31	0.93	1.15%	
Keysight Tech.	KEYS		154.41	164.29	6.44%	6.40%		30.26	24.74	6.22	8.07	2.13		
Kratos Defense & Security	KTOS	1.17%	28.49	22.31	-21.69%	-21.69%		2.77	41.31	3.42	2.95	36.86		
Leidos	LDOS	2.83%	101.1	96.13	-4.93%	-4.92%		13.61	13.48	1.03	3.33	1.58	1.47%	
L3 Harris	LHX	4.42%	216.15	220.24	1.89%	1.89%		44.26	15.35	2.41	2.24		1.83%	
Lockheed Martin	LMT	7.14%	378.35	345.1	-8.79%	-8.79%		95.56	12.36	1.43	14.60	3.72	3.20%	
Mantech International'a'	MANT	0.77%	86.54	75.92	-12.82%	-12.27%		3.09	20.14	1.21	1.90	4.04	1.96%	
Maxar Technologies	MAXR	0.95%	39.92	28.32	-29.06%	-29.06%		2.05	26.97	1.16	1.58	52.56	0.14%	
Moog Inc.	MOGA	0.56%	84.06	76.23	-9.31%	-9.31%		2.45	13.66	0.86	1.79	2.19	1.30%	
Mercury Computer Sys	MRCY	1.20%	66.28	47.42	-28.60%	-28.46%		2.70	16.94	2.92	1.76	2.34		
Northrop Grumman	NOC	4.78%	363.43	360.15	-0.90%	-0.90%		57.66	13.86	1.53	5.17	2.20	1.73%	
OSI Systems	OSIS	0.39%	101.64	94.8	-6.73%	-6.73%		1.70	15.02	1.48	2.65	2.14		
Oshkosh Truck	OSK	1.41%	124.64	102.37	-17.87%	-17.87%		7.03	112.20	0.94	2.18	0.82	1.26%	
PAE Systems	PAE	0.25%	8.9	5.98	-33.47%	-32.81%		0.56	9.49	0.19	6.72	0.13		
Palantir	PLTR	0.25%	26.36	24.04	-8.80%	-8.80%		46.95	114.48	35.35	22.51	3.35		
Parsons	PSN	0.65%	39.36	33.76	-14.23%	-14.23%		3.46	16.80	0.93	1.91			
RADA Electronics	RADA	0.20%	12.18	10.64	-12.64%	-12.64%		0.52	18.67	5.40	3.65			
Raytheon Technologies	RTX	7.04%	85.31	85.96	0.76%	0.76%		129.62	16.99	2.08	1.82	0.85	2.35%	
SAIC	SAIC	0.79%	87.73	85.56	-2.47%	-2.47%		4.93	12.05	0.68	3.07	2.38	1.71%	
Spirit Aerosystems	SPR	1.65%	47.19	44.19	-6.36%	-6.36%		4.66	736.50	1.30	8.32	0.26	0.09%	
Transdigm	TDG	4.33%	647.29	624.57	-3.51%	-3.51%		34.42	36.42	7.34	10.96	4.07		
Teledyne Technologies	TDY	1.41%	418.83	429.58	2.57%	2.57%		20.02	24.96	5.74	2.74	1.61		
Triumph Group	TGI	0.44%	20.75	18.63	-10.22%	-10.22%		1.20	15.92	0.68	1.45	1.88		
Telos Corp.	TLS	0.72%	34.01	28.42	-16.44%	-16.44%		1.90	40.6	9.46	11.52		0.11%	
Textron	TXT	4.23%	68.77	69.81	1.45%	1.51%		15.65	20.90	1.25	2.57	1.08	0.11%	
Vectrus	VEC	0.18%	47.59	50.28	5.65%	5.65%		0.59	10.18	0.37	1.77			
Viasat Inc	VSAT	0.56%	49.84	55.07	10.49%	10.49%		4.04	196.68	1.69	1.54	5.89		
Woodward	WWD	1.63%	122.88	113.2	-7.82%	-7.88%		7.20	27.95	3.26	3.26	4.60	0.57%	
								1039.63						

Data Provided by Morningstar, Yahoo Finance/Thomson Reuters (PEG), Morningstar (div)