



Top 100 Defense Contractors 2021 and Top 10 Future Defense Programs



Introduction

Following two years of crisis brought on by the COVID-19 pandemic, it should come as no surprise that pharmaceutical companies have entered into the top of the listing. Once those are accounted for, the top players remain pretty much the same, with Lockheed Martin maintaining its leadership as it has done for decades – amassing almost double the contract awards garnered by Boeing, which takes the second position.

The following is excerpted from the U.S. General Services Administration’s Top 100 Contractors Report – Fiscal Year 2021 and from Forecast International’s *U.S. Defense Budget Forecast* and *Defense and Aerospace Companies* services.

This list of the Top 100 U.S. Department of Defense prime contractors is ranked by total contract funds awarded. According to USAspending.gov, the DoD had defense contract award obligations of \$395.51 billion in FY21, down 8.4 percent from \$431.76 billion in FY20. The top 100 contractors accounted for \$259.7 billion (65.6 percent) of the obligated dollars, compared to \$291.5 billion (67.6 percent) in FY20.

In FY21, the DoD’s share of available funding was \$1.51 trillion, or 12.4 percent, of the FY21 U.S. federal budget. This is an increase of 18 percent compared to the DoD’s share of the U.S. federal budget for FY20 of \$1.28 trillion, or 11.2 percent.

Also included in this appendix are the top 10 contractors by branch of service and a listing of the top 10 programs for FY23-FY27.

Current and historical top 100 federal lists are irregularly published on the U.S. General Services Administration’s System for Award Management (SAM) Top 100 Contractors Report page (<https://sam.gov/reports/awards/static>)



Top 100 Defense Contractors 2021			
Rank	Prime Contractor	USD	% Total Dollars
1	LOCKHEED MARTIN CORP	40,336,310,175	10.11
2	THE BOEING CO	22,190,742,309	5.56
3	RAYTHEON TECHNOLOGIES CORP	20,595,230,252	5.16
4	GENERAL DYNAMICS CORP	17,287,598,045	4.33
5	PFIZER INC	13,318,201,850	3.34
6	NORTHROP GRUMMAN CORP	12,722,257,359	3.19
7	HUMANA INC	7,144,989,966	1.79
8	MODERNATX INC	6,911,459,855	1.73
9	L3HARRIS TECHNOLOGIES INC	6,137,239,263	1.54
10	HUNTINGTON INGALLS INDUSTRIES INC	5,997,392,071	1.50
11	REGENERON PHARMACEUTICALS INC	5,565,000,000	1.39
12	ANALYTIC SERVICES INC	4,390,564,828	1.10
13	LEIDOS HOLDINGS INC	3,770,110,929	0.94
14	BAE SYSTEMS PLC	3,765,881,303	0.94
15	CENTENE CORP	3,217,755,179	0.81
16	BECHTEL CORP	2,991,667,661	0.75
17	GENERAL ELECTRIC CO	2,982,103,685	0.75
18	MCKESSON CORP	2,969,796,176	0.74



Rank	Prime Contractor	USD	% Total Dollars
19	ATLANTIC DIVING SUPPLY INC	2,815,839,161	0.71
20	BELL BOEING JOINT PROJECT OFFICE	2,470,233,928	0.62
21	SCIENCE APPLICATIONS INT (SAIC)	2,445,495,694	0.61
22	KBR INC	2,390,789,435	0.60
23	AMENTUM SERVICES INC	2,273,701,151	0.57
24	BOOZ ALLEN HAMILTON HOLDING CORP	2,243,557,274	0.56
25	OSHKOSH CORP	2,203,382,952	0.55
26	ASTRAZENECA PLC	2,150,219,559	0.54
27	GENERAL ATOMICS	2,129,021,123	0.53
28	AMERISOURCEBERGEN CORP	2,025,789,670	0.51
29	ELI LILLY AND CO	1,913,730,000	0.48
30	ABBOTT LABORATORIES	1,773,844,422	0.44
31	FLUOR CORP	1,762,010,927	0.44
32	CACI INTERNATIONAL INC	1,513,127,717	0.38
33	JACOBS ENGINEERING GROUP INC	1,487,035,437	0.37
34	VECTRUS SYSTEMS CORP	1,420,352,760	0.36
35	ROLLS-ROYCE HOLDINGS PLC	1,264,255,926	0.32
36	SIERRA NEVADA CORP	1,223,761,515	0.31



Rank	Prime Contractor	USD	% Total Dollars
37	JOHNS HOPKINS UNIVERSITY	1,214,182,748	0.30
38	MERCK & CO INC	1,208,080,503	0.30
39	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	1,151,873,723	0.29
40	MINISTRY OF DEFENSE	1,130,173,537	0.28
41	LEONARDO SPA	1,120,397,533	0.28
42	THE AEROSPACE CORP	1,035,064,907	0.26
43	TEXTRON INC	987,797,133	0.25
44	THE BRITISH PETROLEUM CO PLC	983,217,429	0.25
45	THE MITRE CORP	968,949,315	0.24
46	PERATON SOLUTIONS INC	955,217,553	0.24
47	UNITED LAUNCH ALLIANCE LLC	948,992,110	0.24
48	BAE SYSTEMS HOLDINGS INC	938,792,802	0.24
49	L-3 COMMUNICATIONS VERTEX AEROSPACE LLC	902,712,346	0.23
50	DELL TECHNOLOGIES INC	857,839,463	0.21
51	HENSEL PHELPS CONSTRUCTION CO	854,270,021	0.21
52	FEDEX CORP	845,415,093	0.21
53	WALSH - TURNER JV II	840,130,340	0.21
54	HONEYWELL INTERNATIONAL INC	839,789,976	0.21



Rank	Prime Contractor	USD	% Total Dollars
55	M1 SUPPORT SERVICES LP	831,336,279	0.21
56	MICROSOFT CORP	778,742,065	0.20
57	THE PARSONS CORP	776,683,114	0.19
58	AECOM	772,249,917	0.19
59	EXPRESS SCRIPTS INC	742,510,336	0.19
60	CORE TECH-HDCC-KAJIMA LLC	730,391,335	0.18
61	ALION SCIENCE AND TECHNOLOGY GROUP	684,192,669	0.17
62	SPACE EXPLORATION TECHNOLOGIES CORP	638,057,441	0.16
63	SOSSEC INC	637,340,489	0.16
64	GOVERNMENT OF CANADA	629,569,140	0.16
65	GEORGIA TECH RESEARCH CORP	608,278,267	0.15
66	DELOITTE TOUCHE TOHMATSU LTD	596,767,721	0.15
67	PATRIOT TEAM	582,436,111	0.15
68	MARINETTE MARINE CORP	562,389,288	0.14
69	CARAHSOFT TECHNOLOGY CORP	559,481,139	0.14
70	CARDINAL HEALTH INC	538,488,723	0.13
71	SERCO GROUP PLC	532,980,695	0.13
72	OKINAWA IDEMITSU KK	517,531,063	0.13



Rank	Prime Contractor	USD	% Total Dollars
73	GREAT LAKES DREDGE & DOCK CORP	2,815,839,161	0.13
74	CROWLEY HOLDINGS INC	502,778,281	0.13
75	DYNCORP INTERNATIONAL LLC	497,666,588	0.12
76	ARCTIC SLOPE REGIONAL CORP	495,986,669	0.12
77	INTERNATIONAL BUSINESS MACHINES CORP	489,011,998	0.12
78	CARLYLE GROUP MANAGEMENT LLC	488,322,193	0.12
79	CUE INC	480,916,637	0.12
80	NANA REGIONAL CORP INC	474,661,735	0.12
81	TORCH TECHNOLOGIES INC	466,543,670	0.12
82	THE WHITING-TURNER CONTRACTING CO	464,483,122	0.12
83	BATTELLE MEMORIAL INSTITUTE INC	461,800,465	0.12
84	IAP WORLD SERVICES INC	456,564,208	0.11
85	JOHNS HOPKINS HEALTH SYS CORP	447,958,173	0.11
86	PORTER NOVELLI PUBLIC SERVICES INC	439,750,447	0.11
87	HIGHMARK INC	436,535,762	0.11
88	W S DARLEY & CO	428,444,020	0.11
89	THE CHARLES STARK DRAPER LABORATORY INC	428,351,850	0.11



Rank	Prime Contractor	USD	% Total Dollars
90	WORLD WIDE TECHNOLOGY HOLDING CO INC	427,755,354	0.11
91	PETROMAX REFINING CO LLC	425,035,852	0.11
92	VALIANT INTEGRATED SERVICES LLC	421,912,625	0.11
93	KPMG LLP	409,982,428	0.10
94	VIASAT INC	407,648,091	0.10
95	US FOODS INC	401,661,395	0.10
96	MANTECH INTERNATIONAL CORP	400,152,167	0.10
97	TESORO REFINING & MARKETING CO LLC	393,902,161	0.10
98	MARTIN'S POINT HEALTH CARE INC	392,296,671	0.10
99	CONSORTIUM MANAGEMENT GROUP INC	385,625,197	0.10
100	DCS CORP	379,054,881	0.09
		259,718,705,494	



Top 10 Navy Contractors

Rank	Prime Contractor	USD	% Total Dollars
1	LOCKHEED MARTIN CORP	18,027,274,722	16.17
2	GENERAL DYNAMICS CORP	11,934,452,513	10.71
3	RAYTHEON TECHNOLOGIES CORP	7,641,076,322	6.86
4	HUNTINGTON INGALLS INDUSTRIES INC	5,901,605,564	5.30
5	THE BOEING COMPANY	5,590,768,880	5.02
6	NORTHROP GRUMMAN CORP	3,685,900,682	3.31
7	BELL BOEING JOINT PROJECT OFFICE	2,182,473,435	1.96
8	BAE SYSTEMS PLC	2,029,208,532	1.82
9	BECHTEL CORP	2,000,472,774	1.79
10	GENERAL ELECTRIC CO	1,489,770,402	1.34

Top 10 Army Contractors

Rank	Prime Contractor	USD	% Total Dollars
1	PFIZER INC	13,315,561,501	11.17
2	MODERNATX INC	6,920,591,663	5.81
3	LOCKHEED MARTIN CORP	6,886,947,327	5.78
4	REGENERON PHARMACEUTICALS INC	5,565,000,000	4.67



Rank	Prime Contractor	USD	% Total Dollars
5	GENERAL DYNAMICS CORP	4,329,915,763	3.63
6	ANALYTIC SERVICES INC	3,628,746,111	3.04
7	RAYTHEON TECHNOLOGIES CORP	2,765,220,901	2.32
8	ASTRAZENECA PLC	2,150,219,059	1.80
9	OSHKOSH CORP	1,978,391,463	1.66
10	ELI LILLY AND CO	1,913,730,000	1.61

Top 10 Air Force Contractors

Rank	Prime Contractor	USD	% Total Dollars
1	THE BOEING COMPANY	12,042,595,861	14.90
2	LOCKHEED MARTIN CORP	10,870,425,778	13.45
3	RAYTHEON TECHNOLOGIES CORP	6,538,654,918	8.09
4	NORTHROP GRUMMAN CORP	5,220,655,066	6.46
5	L3HARRIS TECHNOLOGIES INC	2,964,708,623	3.67
6	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	1,142,042,077	1.41
7	MINISTRY OF DEFENSE	1,130,173,537	1.40
8	GENERAL ATOMICS	1,124,873,399	1.39
9	THE AEROSPACE CORP	1,035,064,907	1.28
10	UNITED LAUNCH ALLIANCE LLC	949,316,593	1.17



2021 Compared to 2020

The following list compares the 2021 rank of the top 15 Department of Defense contractors with their 2020 rank. The jump in Lockheed Martin's awards for the period is attributed to several large F-35 contracts during the year and one major \$15 billion contract issued in July for C-130J development, integration, retrofit, and production (FA8625-20-D-3000). Also of note is the addition of several major pharmaceutical companies to the 2021 list due their work during the COVID-19 pandemic.

Rank	Prime Contractor	USD (millions)	2020 Rank	USD (millions)
1	LOCKHEED MARTIN CORP	\$40,336	1	\$75,212
2	THE BOEING CO	\$22,191	5	\$21,373
3	RAYTHEON TECHNOLOGIES CORP	\$20,595	3	\$27,406
4	GENERAL DYNAMICS CORP	\$17,288	4	\$21,842
5	PFIZER INC	\$13,318	-	-
6	NORTHROP GRUMMAN CORP	\$12,722	6	\$12,334
7	HUMANA INC	\$7,144	9	\$6,922
8	MODERNATX INC	\$6,911	-	-
9	L3HARRIS TECHNOLOGIES INC	\$6,137	11	\$6,165
10	HUNTINGTON INGALLS INDUSTRIES INC	\$5,997	8	\$7,786
11	REGENERON PHARMACEUTICALS INC	\$5,565	-	-
12	ANALYTIC SERVICES INC	\$4,391	7	\$10,628
13	LEIDOS HOLDINGS INC	\$3,770	13	\$3,128
14	BAE SYSTEMS PLC	\$3,766	10	\$6,452
15	CENTENE CORP	\$3,218	14	\$3,109



Top 10 Defense Programs FY23-FY27

Data in the tables below is collated from Forecast International's *U.S. Defense Budget Forecast*. This streamlined database provides fast and easy access to the Pentagon's entire acquisition budget. The product features sorting and data visualization options, and presents historical and outyear funding through an online interface with downloadable Excel spreadsheets. Please note that these are approximate funding projections based on consolidated procurement and RDT&E funding line items, and may not include ancillary funding, such as spare parts.

The **Future Years Defense Program (FYDP)** represents the Pentagon's summary of forces, resources, and equipment needed over a five-year period comprising the budget request year plus an additional four years. The first table shows the top acquisition programs ranked by the total projected spending over that five-year period. These projections fluctuate as each new defense budget request is released. The FY24 request is slated to be released in February 2023. It will contain spending projections out to FY28.

Top 10 DoD Programs Ranked by Total FYDP (\$ Millions)							
Program Name	Contractor	2023	2024	2025	2026	2027	Total FYDP
F-35 JOINT STRIKE FIGHTER	Lockheed Martin	\$11,019	\$10,856	\$11,465	\$12,258	\$12,272	\$57,869
SSN-774 VIRGINIA CLASS	General Dynamics/HII	\$7,556	\$8,387	\$8,887	\$8,555	\$8,606	\$41,990
COLUMBIA CLASS SSBN	General Dynamics	\$6,194	\$6,069	\$7,414	\$8,706	\$9,119	\$37,502
LGM-30G MINUTEMAN/GBSD	Northrop Grumman	\$4,131	\$4,698	\$4,169	\$9,197	\$9,370	\$31,565
B-21 BOMBER	Northrop Grumman	\$5,040	\$5,873	\$6,137	\$6,165	\$6,285	\$29,500
DDG-51 ARLEIGH BURKE CLASS	General Dynamics/HII	\$5,765	\$4,997	\$5,141	\$5,094	\$5,242	\$26,240
FORD CLASS AIRCRAFT CARRIER	HII	\$2,703	\$1,980	\$3,111	\$3,173	\$3,899	\$14,866
BOEING KC-767/KC-46A	Boeing	\$2,882	\$3,105	\$3,000	\$3,146	\$1,640	\$13,774
UGM-133A TRIDENT II	Lockheed Martin	\$1,755	\$1,977	\$2,346	\$3,507	\$3,985	\$13,569
SBIRS HIGH/NEXT-GEN OPIR	Lockheed Martin/Northrop Grumman/L3Harris/SpaceX	\$3,943	\$3,337	\$2,669	\$1,833	\$1,675	\$13,457

Source: *U.S. Defense Budget Forecast*



The **FY23 Request Funding** projections are based on the administration's FY23 budget request. On March 28, 2022, the Biden-Harris administration submitted to Congress a proposed FY23 budget request of \$813.3 billion for national defense, \$773.0 billion of which is for the Department of Defense (DoD).

Lawmakers from multiple defense committees have already recommended boosting FY23 defense spending by tens of billions of dollars. Most recently, the Senate Appropriations Committee outlined a \$792 billion defense bill, which excludes nearly \$17 billion in military construction funded through a separate bill. The House version of the defense spending bill passed earlier in the year was in line with the president's request, meaning the differences will be sorted out in conference.

The final conference bill will impact the final FY23 spending figures. For example, the aforementioned Senate Appropriations bill would add \$11.7 billion for procurement programs and \$4.8 billion for research and development in FY23.

Top 10 DoD Programs Ranked by FY23 Request Funding (\$ Millions)							
Program Name	Contractor	2023	2024	2025	2026	2027	Total FYDP
F-35 JOINT STRIKE FIGHTER	Lockheed Martin	\$11,019	\$10,856	\$11,465	\$12,258	\$12,272	\$57,869
SSN-774 VIRGINIA CLASS	General Dynamics/HII	\$7,556	\$8,387	\$8,887	\$8,555	\$8,606	\$41,990
COLUMBIA CLASS SSBN	General Dynamics	\$6,194	\$6,069	\$7,414	\$8,706	\$9,119	\$37,502
DDG-51 ARLEIGH BURKE CLASS	General Dynamics/HII	\$5,765	\$4,997	\$5,141	\$5,094	\$5,242	\$26,240
B-21 BOMBER	Northrop Grumman	\$5,040	\$5,873	\$6,137	\$6,165	\$6,285	\$29,500
LGM-30G MINUTEMAN/GBSD	Northrop Grumman	\$4,131	\$4,698	\$4,169	\$9,197	\$9,370	\$31,565
SBIRS HIGH/NEXT-GEN OPIR	Lockheed Martin/Northrop Grumman/L3Harris/SpaceX	\$3,943	\$3,337	\$2,668	\$1,833	\$1,676	\$13,457
BOEING F-15 EAGLE	Boeing	\$3,508	\$3,067	\$390	\$485	\$392	\$7,843
BOEING KC-767/KC-46A	Boeing	\$2,882	\$3,105	\$3,000	\$3,146	\$1,640	\$13,774
FORD CLASS AIRCRAFT CARRIER	HII	\$2,703	\$1,980	\$3,111	\$3,173	\$3,899	\$14,866

Source: *U.S. Defense Budget Forecast*



Top 10 Program Briefs

Lockheed Martin F-35 Joint Strike Fighter

The F-35 Joint Strike Fighter program, now officially named Lightning II, is a U.S./U.K. effort to develop an affordable next-generation strike fighter aircraft. The Joint Strike Fighter is designed to replace the A-10, AV-8 Harrier, F-16, and F/A-18. Three versions of the JSF are planned. The conventional takeoff and landing (CTOL) variant (F-35A) will be built in the greatest quantity and is designed for the U.S. Air Force. The U.S. Navy's carrier variant (F-35C) features larger wing and control surfaces, additional wingtip ailerons, and a special structure to absorb the punishing catapult launches and arrested landings associated with aircraft carrier operations. The short takeoff and vertical landing (STOVL) version (F-35B) is equipped with a unique shaft-driven lift-fan propulsion system that enables the aircraft to take off from a very short runway or small aircraft carrier and land vertically.

Planned U.S. procurement totals for the F-35 have remained remarkably constant over the years, even as the pace of the production

ramp-up dramatically slowed. The U.S. Air Force plans to procure 1,763 F-35s over the life of the program, while the U.S. Marine Corps intends to acquire 353 F-35Bs and 67 F-35Cs and the U.S. Navy plans to purchase 273 F-35Cs. Planned F-35 acquisitions for the international program partners are as follows: the U.K., 138 F-35s; Australia, 100 F-35As; Italy, 60 F-35As and 30 F-35Bs; Canada, 88 F-35As; Norway, 52 F-35As; the Netherlands, 46 F-35As; and Denmark, 27 F-35As.

Beyond the program partners, the F-35 has six customers through the U.S. government's Foreign Military Sales (FMS) program: Belgium (34), Israel (50), Japan (42), Poland (32), Singapore (4), and South Korea (40). In addition, the F-35 has been selected by Finland (64), Germany (35), and Switzerland (36).

Through 2021, Lockheed Martin built two concept demonstrator aircraft, 14 F-35 System Development and Demonstration (SDD) aircraft, and more than 750 F-35 production aircraft. The company also built six static test aircraft.



SSN-774 Virginia Class

Formerly known as the New Attack Submarine, or New SSN, the Virginia class operates across a broad spectrum of regional and littoral missions, as well as in blue water environments. The boat's multimission capabilities are combined with sophisticated surveillance and stealth characteristics to make it suitable for a wide range of battlefield applications, as well as special warfare and surveillance. In 1998, the team of HII Newport News Shipbuilding and General Dynamics Electric Boat was awarded a contract to begin production.

In December 2019, the U.S. Navy awarded Electric Boat a contract valued at \$22.2 billion for the construction of nine Block V submarines. The contract also includes an option for production of a 10th ship, bringing the potential contract value to approximately \$24.1 billion. Construction of Block V ships is underway, with deliveries scheduled from 2025 through 2029.

All told, 21 submarines are currently in service. A total of at least 42 submarines of this class are projected.

Columbia Class SSBN

In March 2016, General Dynamics Electric Boat was named prime contractor on the 12-boat, \$100 billion Columbia class submarine program in partnership with HII's Newport

News Shipbuilding. The Columbia class, formerly known as the Ohio Replacement submarine and the SSBN(X), is the U.S. Navy's replacement for the Ohio class ballistic missile submarine. Electric Boat will perform final assembly of all the new boats, with Newport News providing key components.

In November 2020, General Dynamics Electric Boat was awarded a \$9.5 billion contract to construct and test the lead and second ships of the Columbia class, SSBN-826 Columbia and SSBN-827 Wisconsin. The contract follows a five-year, \$1.85 billion award that Electric Boat received in December 2012 to perform research and development work for the Columbia class. The first submarine is expected to enter service in 2030 or early 2031. The U.S. Navy plans to build a fleet of 12 to replace its 14 aging Ohio class SSBNs.

DDG-51 Arleigh Burke Class

The DDG-51 class ships are AEGIS guided missile destroyers designed for the escort of aircraft carrier battle groups and surface action groups in high-threat areas and during anti-air, anti-submarine, and anti-surface warfare. General Dynamics Bath Iron Works and HII Shipbuilding produce this series. A total of 70 ships of the class have been commissioned so far. Under current plans, at least 20 DDG-51 Flight III ships are proposed to be built through 2029.



Ground-Based Strategic Deterrent

The LGM-30 Minuteman has been the main land-based strategic deterrent for the U.S. since 1963 (when it was deployed in its LGM-30A and LGM-30B configurations). The Minuteman is no longer in production, but the LGM-30G Minuteman III remains in service thanks to numerous life extension programs.

The Ground-Based Strategic Deterrent (GBSD) program aims to replace the Boeing LGM-30 Minuteman III intercontinental ballistic missile around 2030. In September 2020, the U.S. Air Force selected Northrop Grumman to modernize the nation's aging ICBM system under a \$13.3 billion contract for the engineering and manufacturing development (EMD) phase of the GBSD program. Current plans call for the acquisition of more than 600 new ICBMs. However, a future arms control agreement involving the U.S., Russia, and perhaps China may affect the GBSD procurement figure.

Northrop Grumman's industry team includes Aerojet Rocketdyne, Bechtel, Clark Construction, Collins Aerospace, General Dynamics, HDT Global, Honeywell, Kratos Defense and Security Solutions, L3Harris, Lockheed Martin, and Textron Systems.

B-21 Raider

In October 2015, Northrop Grumman was selected over a Boeing/Lockheed Martin

team to develop and build the next-generation B-21 under the auspices of the Long-Range Strike Bomber (LRS-B) program. In September 2016, the U.S. Air Force named the new B-21 bomber the Raider.

The B-21 is aimed at eventually replacing the Boeing B-1 and B-52 aircraft currently in service. According to Air Force officials, the service intends to build 80 to 100 B-21s and targets the mid-2020s for the aircraft to be operational. The program could be worth more than \$80 billion if the Air Force buys all 100 aircraft. Northrop Grumman's B-21 Raider industry team includes BAE Systems, GKN Aerospace, Janicki Industries, Orbital ATK (now part of Northrop Grumman), Pratt & Whitney, Rockwell Collins, and Spirit AeroSystems. A Preliminary Design Review (PDR) was completed in 2017.

As of September 2021, the USAF reported that Northrop Grumman has five B-21s in various stages of production. The first aircraft will roll out and make its maiden flight in 2023. The B-21 is expected to enter service around 2026 or 2027.

Ford Class Aircraft Carrier (CVN-78)

The CVN-78 is a nuclear-powered aircraft carrier dubbed the USS Gerald R. Ford. In September 2008, HII Newport News Shipbuilding (then Northrop Grumman) received a \$5.1 billion, seven-year, cost-plus-



incentive-fee contract for detail design and construction of the Gerald R. Ford. Advance construction of the Gerald R. Ford began in 2005 under a separate contract valued at \$2.7 billion.

In addition to the F/A-18E/F, the new carrier class integrates newer systems like the F-35 JSF and the future MQ-25 unmanned aerial refueling drone. These three new aircraft systems will provide future joint force commanders with enhanced strategic and operational capabilities. This carrier is an all-new design – the first major change in aircraft carrier design since the Nimitz was frozen in 1966. The CVN-78 was delivered to the U.S. Navy in June 2017.

In June 2015, HII was awarded a \$3.35 billion contract for detail design and construction of the second carrier in this class, the John F. Kennedy (CVN-79). The ship's first steel was cut in December 2010. Delivery to the Navy is scheduled for 2024.

In January 2019, the Navy awarded HII a \$15.2 billion block buy contract for detail design and construction of the CVN-80 and CVN-81. Should the savings of the block buy prove out, a similar approach could be adopted for CVN-82 and CVN-83.

The per-unit cost of the Gerald R. Ford (CVN-78) class aircraft carrier is roughly \$12.8 billion in 2017 dollars. (Adjusted for inflation, it would be \$14.2 billion in 2021.)

Boeing KC-767/KC-46A Tanker

The KC-767 and KC-46A are twin-engine aerial tanker conversions of the commercial 767-200ER transport. Boeing announced its 767 tanker/transport version in 1995, primarily for a Japanese requirement. The U.S. manufacturer won the award for four aircraft in April 2003. In July 2001, the Italian Air Force bought four new-production 767 tankers in a deal worth \$618 million. In June 2015, the KC-46A lost a South Korean competition to Airbus' A330 Multirole Tanker Transport (MRTT).

In February 2011, Boeing was selected over rival Airbus parent EADS (now Airbus SE) in the long-running USAF KC-X Tanker program. Boeing's NewGen Tanker, dubbed the KC-46, will replace 179 of the service's 400-plus KC-135 tankers. The program passed its Critical Design Review (CDR) in 2013. Ultimately, the program could be worth more than \$30 billion in the coming years.

However, delays and issues with the KC-46A program have led to losses of several billion dollars for Boeing since 2016. These costs were attributed to various issues, such as certification, flight-testing, and incorporating changes into the aircraft, among others. The program continues to deal with technical deficiencies, which have slowed delivery plans. The U.S. Air Force procured 94 production aircraft through FY21 and



had taken delivery of 50 by mid-2021. The service has delayed a decision on full-rate production to mid-2024 as it waits to make sure Boeing can deliver an upgraded remote vision system and other improvements.

The USAF currently plans to open the next phase of the tanker replacement effort – formerly known as KC-Y – to competitive bidding, but service officials have recently cast some doubt on the competitive approach. Should a competition proceed, Lockheed Martin will team with Airbus to offer a new U.S.-built version of the Airbus A330 MRTT, and there is a significant chance that the USAF could select this aircraft. However, Boeing is sorting out the KC-46A's remaining technical problems and will continue to do so over the next several years. Buying the A330 MRTT will come with a new set of development risks and face headwinds in Congress. As long as Boeing continues with the improvements, the service is likely to stick to the KC-46A rather than risk working with a new design.

UGM-133A Trident II

The Trident is a strategic submarine-launched ballistic missile (SLBM). Lockheed Martin is the prime contractor on this program. Over the Trident's production life, 599 UGM-96A Trident I C-4 missiles were constructed. Approximately 367 Trident I missiles are known to be deployed on U.S. Navy ballistic missile submarines.

The U.S. approved initial low-rate production of the Trident II in April 1987, followed by serial fabrication in 1990. The U.S. Navy received 453 UGM-133A Trident II missiles and the U.K. Royal Navy, 58. Approximately 288 UGM-133B Trident IIs were acquired.

The U.S. Navy has ended “missile production” and is focusing on funding of Trident II upgrades. The first objective of this modernization program is to enable the Trident II SLBM to remain operational through 2042. Initially, the armament for the new Columbia class SSBN will be the Trident II SLBM.

SBIRS High/Next-Gen OPIR

The Space-Based Infrared System (SBIRS) is an advanced early warning missile identification satellite system that will replace Defense Support Program (DSP) satellites. Next-Generation Overhead Persistent Infrared (OPIR) is the follow-on to SBIRS High.

In order to replace its current-generation SBIRS satellites, the U.S. Air Force began investigating follow-on systems in 2014. A \$2.9 billion contract was awarded to Lockheed Martin in August 2018, and in FY20, the name Evolved SBIRS was changed to Next-Generation OPIR. Lockheed Martin is to build the GEO OPIR satellites. Northrop Grumman was awarded \$2.36 billion in May 2020 for the polar-orbiting portion of the



constellation. The planned constellation is to consist of five satellites, with three in GEO and two in polar orbits. The first GEO bird is planned to be completed in 2025, and the first polar satellite in 2027. These satellites are known as Block 0, and there is a planned Block 1; however, that will happen in the distant future, with the first satellite delivery planned for 2030.

As the current plan stands, all Block 0 satellites will be in orbit by 2029. This pushes back earlier estimates of a target date of 2025.

An aspect of Next-Gen OPIR that has recently come to light is the future acquisition of LEO satellites with OPIR payloads to augment the Next-Gen OPIR system. In September 2021, L3Harris completed its PDR of a new missile warning satellite under development for the U.S. Space Development Agency. As an aspect of the Next-Gen OPIR program, the satellites will provide the capability to detect and track ballistic and hypersonic missiles via overhead persistent infrared sensing from low-Earth orbit. In October 2020, the SDA awarded \$193 million to L3Harris and \$149 million to SpaceX to build four satellites each.

The FY23 request also includes new funding from Space Systems Command for

a constellation of medium-Earth-orbit (MEO) satellites to contribute to hypersonic missile defense.

Boeing F-15 Eagle

The F-15 is a twin-engine, single-seat, high-performance air superiority fighter and two-seat all-weather strike fighter aircraft designed for long-range air superiority and all-weather conventional and nuclear strikes. To date, over 1,770 aircraft have been delivered, including test aircraft and licensed production in Japan.

In July 2020, the U.S. Air Force awarded Boeing a nearly \$1.2 billion contract to build the first lot of eight new F-15EX fighters. The Air Force also announced the overall indefinite delivery/indefinite quantity (IDIQ) contract with a ceiling value of nearly \$23 billion for the F-15EX. Plans call for as many as 144 aircraft. The most significant difference between the F-15EX and legacy F-15s lies in the former's Open Mission Systems architecture. The OMS architecture enables the rapid insertion of the latest aircraft technologies. The F-15EX also has fly-by-wire flight controls, a new electronic warfare system, advanced cockpit systems, and the latest mission systems and software capabilities. Deliveries to the USAF began in March 2021.



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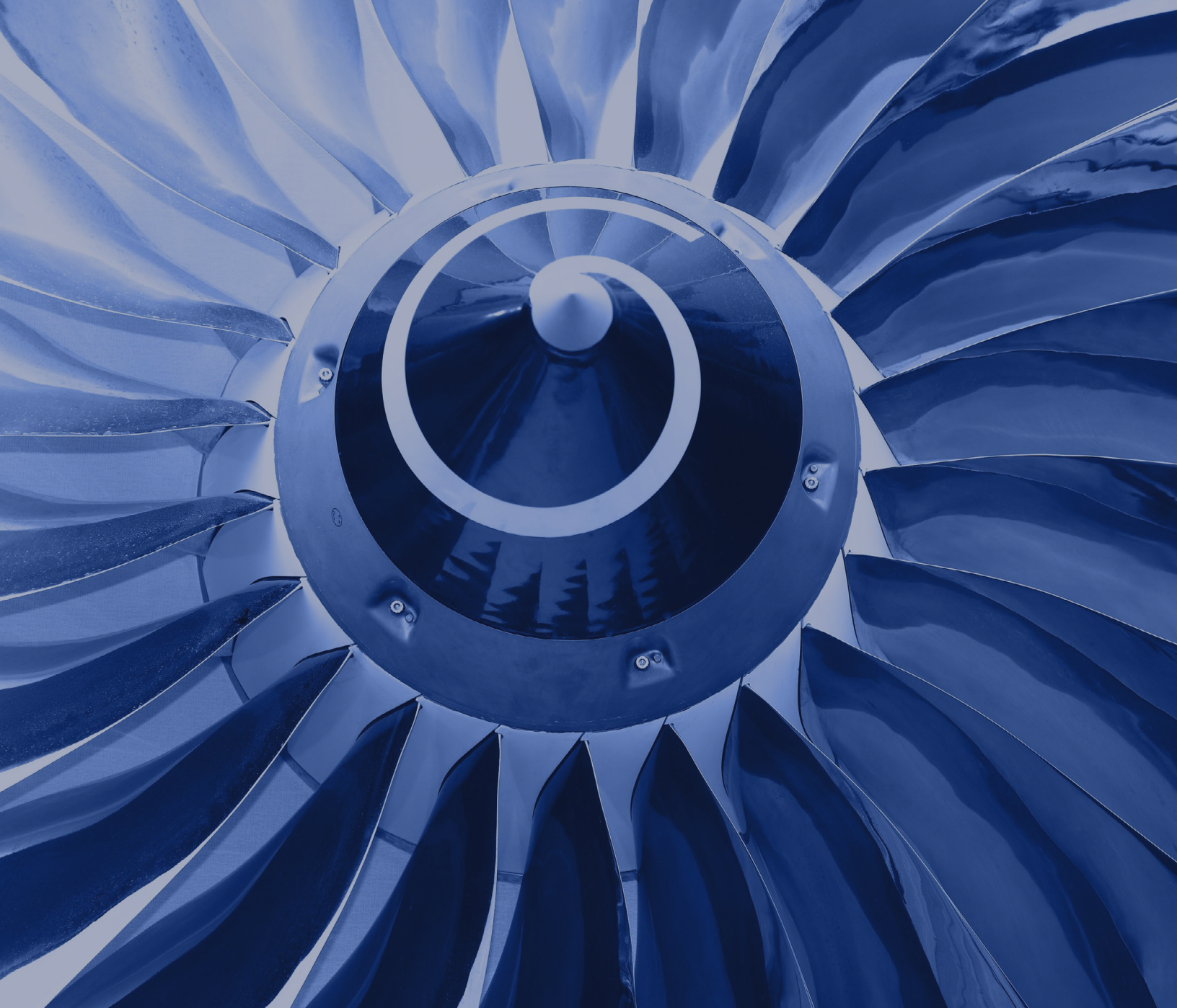
Defense & Aerospace Companies

The Volume I North America companies service, authored by [Richard J. Pettibone](#), includes coverage of over 100 key U.S. and Canadian primes and their subsidiaries. Each of the 39 reports contains data on recent programs, mergers, and joint ventures. Among the notable corporations covered are OEMs such as Boeing, Lockheed Martin, Raytheon Technologies, and General Dynamics. Also featured are Tier I and Tier II contractors such as Pratt & Whitney, Honeywell, Parker Hannifin, and Spirit AeroSystems.

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U.S. Defense Budget Forecast

Managed by [Shaun McDougall](#), the *U.S. Defense Budget Forecast* is a streamlined database providing fast and easy access to the Pentagon's entire acquisition budget. The product features new sorting and data visualization options, and presents the entire FYDP through an online interface with downloadable Excel spreadsheets. This is the go-to service for anyone familiar with the grind of wading through the massive DoD budget. This online interactive service provides real-time tracking of every program in the Pentagon's acquisition portfolio, starting with the request and moving through the six congressional authorization and appropriations markups that occur throughout the year. The service also offers easy access to the Pentagon's five-year spending plan for its Procurement (PI) and Research, Development, Test & Evaluation (RI) accounts, all the way down to the program level. We also offer quick access to consolidated and program level-justification documents, and provide custom market segment filters to facilitate your search.



For inquiries regarding this report, please contact
Ray Peterson: Ray.Peterson@forecastinternational.com

75 Glen Road, Ste. 302, Sandy Hook, CT 06482
Telephone: + 1 203.426.0800, Fax: + 1 203.426.4262
forecastinternational.com

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