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Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

Selected Acquisition Report (SAR)



DDG 51 Arleigh Burke Class Guided Missile Destroyer (DDG 51)

FY 2024 President's Budget

**Defense Acquisition Visibility Environment
(DAVE)**

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Common Acronyms and Abbreviations

\$B - Billions of Dollars
\$K - Thousands of Dollars
\$M - Millions of Dollars
ACAT - Acquisition Category
Acq O&M - Acquisition-Related Operations and Maintenance
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FMS - Foreign Military Sales
FOC - Full Operational Capability
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
Inc - Increment
IOC - Initial Operational Capability
JROC - Joint Requirements Oversight Council
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
O&S - Operating and Support
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
PAUC - Program Acquisition Unit Cost
PB - President's Budget

PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
U.S. - United States
UCR - Unit Cost Reporting
USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name

DDG 51 Arleigh Burke Class Guided Missile Destroyer

DoD Component

Navy

Responsible Office

Program Manager

Name: CAPT Seth A. Miller, USN

Phone: 202-781-2177

Email: seth.a.miller20.mil@us.navy.mil

Mission and Description

The DDG 51 Arleigh Burke Class Guided Missile Destroyer (DDG 51) is a multi-mission guided missile destroyer designed to operate offensively and defensively, independently, or as units of Carrier Strike Groups, Expeditionary Strike Groups, and Surface Action Groups in multi-threat environments that include air, surface, and subsurface threats. These ships will respond to Low Intensity Conflict/Coastal and Littoral Offshore Warfare scenarios as well as open ocean conflict providing or augmenting power projection, forward presence requirements, and escort operations at sea.

The DDG 51 Class comprises four separate variants or "Flights." DDGs 51–71 represent the original design and are designated as Flight I ships, whereas DDGs 72–78 are designated as Flight II ships and included capability upgrades such as the Joint Tactical Information Distribution System (JTIDS) Command and Control Processor, Combat Direction Finding, the Tactical Information Exchange System (TADIX B), SLQ-32(V)3, and the capability to launch and control the SM-2 Block IV Extended Range Missile. Beginning with DDG 79, Flight IIA ships introduced new capabilities including Cooperative Engagement Capability (CEC) and a MK-45 Gun providing improved air and anti-missile defense and land attack. Flight III upgrades will be incorporated on DDG 125, 126, 128 and follow ships. Flight III is centered on the Air and Missile Defense Radar (AMDR) AN/SPY-6(V)1 that enables Flight III ships to simultaneously perform Anti-Air Warfare (AAW) and Ballistic Missile Defense (BMD), which satisfies the Navy's critical need for an enhanced surface combatant Integrated Air and Missile Defense (IAMD) capability.

The DDG 51 Class ships provide outstanding combat capability and survivability characteristics while considering procurement and lifetime support costs. They feature extraordinary seakeeping and low observability characteristics. The DDG 51 features the AEGIS Weapon System (AWS), which has quick reaction time, high firepower, and improved Electronic Countermeasures capability in Anti-Air Warfare (AAW). The ships' Anti-Submarine Warfare (ASW) System provides superior long range multi-target detection and engagement capability with two embarked Light Airborne MultiPurpose System MK-III helicopters (DDG 79 and follow-on ships). The Advanced Tomahawk Weapon Control System (DDGs 79-95) and the Tactical Tomahawk Weapons Control System (DDG 96 and follow-on ships) allow employment of multiple variants of Tomahawk missiles for strike warfare. The MK-45 gun weapon system provides significant capability for surface warfare, land attack, and air defense. The CEC is being installed on DDG 51 Class Ships to promote Network Centric Warfare capability. The AWS is the heart of an integrated combat system that provides area coverage and command/control focus in all dimensions of Naval Warfighting and Joint Military Operations: AAW; ASW; Anti-Surface Warfare; Command, Control, Communications, Computers & Intelligence; and Strike Warfare. DDG 113 and follow ships will provide IAMD and work with other BMD assets.

The AWS for Flight III comprises the AN/SPY-6(V)1 radar system, Command and Decision System MK 2, Weapons Control System MK 7, Missile Fire Control System MK 99, Operational Readiness and Test System MK 9, AEGIS Display System MK 2, AEGIS Computer Programs, Advanced Training Domain, and Logistic Support System.

Executive Summary

DDG 51

Program Highlights Since Last Report

The DDG 51 Program has delivered 72 ships since program inception in 1985. The program is currently in serial production with 11 ships under construction and a total of 17 under contract at two current DDG 51 class shipbuilders, Huntington Ingalls Industries - Ingalls Shipbuilding (HII Ingalls) and General Dynamics - Bath Iron Works (GD BIW), as of this report date. The program is currently executing two multi-year procurement (MYP) contracts (FY 2013 – FY 2017, FY 2018 – FY 2022) at each shipbuilder and in the process of contracting for a third set of MYP contracts for FY 2023 – FY 2027. Both GD BIW and HII Ingalls continue to deliver ships under challenging circumstances. Ingalls continues to deliver ships at pace while BIW remains challenged to deliver ships at the required rate. There is opportunity for the yards to accelerate throughput given adequate resourcing, workforce development, and profile stability. The Navy continues to work with both shipbuilders to implement capital investments, workforce proficiency, and design-for-productivity initiatives to improve cost and schedule performance. The Navy is currently procuring Flight III ships which will provide enhanced surface combatant Integrated Air Missile Defense (IAMD) capability. The Flight III upgrade consists of the integration of Aegis Weapons System Baseline 10 with the AN/SPY-6(V)1 Air and Missile Defense Radar (AMDR) along with upgrades to the electrical power and cooling systems plus additional associated changes. The first DDG 51 Flight III ship (DDG 125) will deliver in FY 2023. Initial Operational Capability (IOC) in FY 2024 will include Air and Missile Defense Commander (AMDC) capability with core Ballistic Missile Defense (BMD) capability (long-range search and track and sea based terminal). This aligns with Fleet priorities for the more capable Flight III to replace Cruisers (CG) in the AMDC role. Follow-on testing will validate the Integrated Air and Missile Defense (IAMD) capabilities. The Navy continues to manage costs associated with DDG 51 Class ships with the use of competitive contracts in lieu of sole source contracts. Other cost savings initiatives include the use of competitive Multi-Year Procurement (MYP) contracts with Economic Order Quantity savings and leveraging Government Furnished Equipment (GFE) contracts across multiple ship classes to obtain better prices across the Navy. The FY 2023 NDAA and Appropriations Act provide the Navy authority to enter into one or more MYP contracts for up to 15 ships FY 2023 – FY 2027. Use of MYP contracts will provide for continued, timely procurement of battle force surface combatants by leveraging current production lines to enable stable production of IAMD-capable surface combatants. The FY 2023 Omnibus Appropriations Act increased the DDG 51 Shipbuilding and Conversion, Navy (SCN) FY 2023 budget request by \$2,190 million for an additional FY 2023 ship and added \$380 million for Large Surface Combatant shipyard infrastructure. The bill also added \$77.3 million in FY 2023 Advance Procurement for an additional ship. The PB 2024 budget requests full funding (\$4,432.8 million) for 2 ships in FY 2024 and includes a procurement profile of two ships per year FY 2024 – FY 2028. The DDG 51 Class Program has achieved the following significant production milestones since the last report:- DDG 120 Builder's Trials Completed October 2022- DDG 120 Acceptance Trials Completed December 2022- DDG 120 Delivered January 2023- DDG 121 Final Contract Trials Completed October 2022- DDG 121 Commissioned May 2022- DDG 122 Christened June 2022- DDG 122 AEGIS Light Off Completed November 2022- DDG 123 Builder's Trials Completed July 2022- DDG 123 Acceptance Trials Completed October 2022- DDG 123 Delivered November 2022- DDG 127 Lay Keel June 2022- DDG 129 Lay Keel October 2022- DDG 133 Start of Fabrication December 2022- DDG 138 Named J WILLIAM MIDDENDORF June 2022- DDG 139 Named TELESFORO TRINIDAD May 2022 - DDG 140 Named THOMAS G KELLEY January 2023. There are no significant software-related issues with this program at this time.

History of Significant Developments Since Program Initiation

History of Significant Developments Since Program Initiation	
Date	Significant Development Description
Apr - 2022	Acquisition Strategy update reflecting FY 2023 - FY 2027 MYP signed.
Jun - 2020	FY 2020 Option Ship awarded to HII.
Dec - 2018	FY 2019 Option Ship awarded to BIW.
Sep - 2018	FY 2018 - FY 2022 MYP contracts awarded to BIW and HII.
May - 2018	First Flight III (DDG 125) started fabrication.
Feb - 2018	Acquisition Strategy update reflecting FY 2018 - FY 2022 MYP signed.

Jan - 2018	USD (AT&L) redesignated the DDG 51 Ship Acquisition Program as an ACAT IC program.
Sep - 2017	Acquisition Strategy Third Addendum for procurement of one FY 2016 Flight IIA Ship approved by USD (AT&L).
Sep - 2017	BIW awarded Flight III ECP ship for DDG 126 (FY 2017 ship) and a construction contract for the congressionally-added third FY 2016 ship, DDG 127, as a Flight IIA.
Aug - 2017	Acquisition Program Baseline update to reflect Flight III ships approved by USD (AT&L).
Jun - 2017	HII awarded Flight III Engineering Change Proposal (ECP) for DDG 125 (FY 2017 ship).
Jun - 2017	USD (AT&L) approves production of DDG 51 Flight III design and authorizes award of contracts for the first DDG 51 Flight III ships.
Feb - 2017	First restart ship at BIW, DDG 115, delivered to Navy.
Dec - 2016	First restart ship at HII, DDG 113, delivered to Navy.
Nov - 2016	DDG 51 Flight III Critical Design Review completed.
Oct - 2014	DDG 51 Flight III Capabilities Development Document validated by the JROC.
May - 2014	DDG 51 Class Acquisition Strategy Addendum for Air and Missile Defense Radar Incorporation (Flight III) approved.
Jun - 2013	FY 2013 - FY 2017 MYP contracts awarded to BIW and HII.
Jul - 2012	USD (AT&L) established as Milestone Decision Authority for DDG 51 as an ACAT ID program.
Jun - 2012	DDG 51 Program Acquisition Strategy updated to reflect FY 2013 - FY 2017 MYP approved by USD (AT&L) to include introduction of Flight III in FY 2016 and FY 2017.
Sep - 2011	DDG 51 Program Acquisition Strategy, Revision 2 with Addendum to reflect one ship in FY 2012, was approved by the Undersecretary of Defense for Acquisition, Technology and Logistics (USD (AT&L)).
Sep - 2011	FY 2011 ships awarded to BIW and HII (one each). DDG 115 is first restart ship at BIW.
Jun - 2011	First FY 2010 restart ship, DDG 113, awarded to Huntington Ingalls Industries (HII - formerly Ingalls Shipbuilding).
Jun - 2009	DDG 51 Class Acquisition Strategy, Revision 2, approved by ASN (RD&A) reflecting continuing production of the DDG 51 Program and procurement of three additional ships (one in FY 2010 and two in FY 2011).
Jan - 2009	USD (AT&L) Memorandum directed re-start of DDG 51 production through FY 2011, with an increase from 62 to 65 ships.
Aug - 2005	DDG Flight IIA ORD, Revision 1 Serial No. 336(1)-86-94, Amended by Vice Chief of Naval Operations (VCNO) ltr Ser No. N09/484.
Jul - 2005	Navy announced decision to truncate the DDG 1000 Program at three ships and to continue production of the DDG 51 Class Program based on the changed threat assessment.
Sep - 2002	FY 2002 - FY 2005 MYP contracts awarded to BIW and Ingalls Shipbuilding.
Apr - 2001	DDG 51 FY 2002 - FY 2004 MYP Acquisition Plan approved.
Mar - 1998	FY 1998 - FY 2001 Multi-Year Procurement (MYP) contracts awarded to BIW and Ingalls Shipbuilding.
Jul - 1995	USD (A&T) re-designated the DDG 51 Ship Acquisition Program as an ACAT IC program.
Jul - 1994	Flight IIA design awarded to BIW as lead yard for DDG 79.
Apr - 1994	DDG Flight IIA ORD, Revision 1, Serial No. 336(1)-86-94.
Feb - 1994	DDG 51 Class Acquisition Strategy, Revision 1, was approved by Under Secretary of Defense for Acquisition and Technology (USD (A&T)) as part of the part of the Defense Acquisition Board's (DAB) Milestone IV Program Review prior to implementing Flight IIA.
Feb - 1993	Initial Operating Capability achieved.

Jan - 1993	Continued production of the DDG 51 Class ships and AN/SPY-1D radar system through FY 1993 approved by ASN (RD&A) Program Decision Memorandum.
Oct - 1992	DDG 52 delivered to Navy.
Oct - 1992	Upgrade for Flight II was introduced into DDG 72 in FY 1992 and was awarded to BIW as the lead yard.
Jul - 1992	The Deputy Under Secretary of Defense (Acquisition) Memorandum established the DDG 51 Class Flight IIA variant as an ACAT ID program.
Apr - 1992	Continued production of the DDG 51 Class ships through FY 1992 approved by ASN (RD&A) Program Decision Memorandum.
Apr - 1991	Lead ship (DDG 51) delivered to Navy.
Jan - 1991	Continued production of the DDG 51 Class ships through FY 1991 approved by the Assistant Secretary of the Navy for Research, Development, and Acquisition (ASN (RD&A)) Program Decision Memorandum.
Aug - 1990	SECDEF Major Warship Review (MWR) decision approved procurement of four DDG 51 Class ships per year starting in FY 1991.
Aug - 1989	ALP extended for DDG 51 Class ships and systems for which funds were appropriated through FY 1990, and long lead material for FY 1991 ships and systems by ASN (S&L) Program Decision Memorandum.
Feb - 1988	DDG 51 Class APB approved.
May - 1987	Follow ship (DDG 52) awarded to Ingalls Shipbuilding, Incorporated.
Oct - 1986	Approval of Milestone IIIA and Approval for Limited Production (ALP) for FY 1987 through FY 1989 (for three FY 1987 ships, three FY 1988, three 1989, and advance procurement of long lead material for three FY 1990 ships) granted by Assistant Secretary of the Navy for Shipbuilding and Logistics (ASN (S&L)) Program Decision Memorandum.
Oct - 1986	Ships Characteristics Improvement Board (SCIB) approved the first upgrade to the DDG 51 Class ship configuration, designated Flight II, and implemented in the last ship in FY 1992.
Apr - 1985	Lead ship (DDG 51) contract awarded to Bath Iron Works Corporation (BIW).
Dec - 1984	SECDEF approved DDG 51 Acquisition Strategy for Flight I as part of the Program's Milestone II decision.
Dec - 1983	SECDEF Decision Memorandum authorized Program to proceed (Milestone II).
May - 1983	Contract Design initiated to support competitive selection of the lead shipbuilder in early FY 1985.
Dec - 1982	Preliminary Design completed.
Nov - 1982	Secretary of the Navy (SECNAV) named DDG 51 ARLEIGH BURKE.
May - 1982	DDG 51 Project Office was transferred from the Surface Ship Warfare Directorate (SEA 93X) into the AEGIS Shipbuilding Project Office as the Destroyer Division (PMS 400D).
Dec - 1981	DDGX re-designated DDG 51.
Sep - 1981	Requirement for a DSARC at Milestone I waived by the Secretary of Defense (SECDEF).
Jun - 1981	Department of the Navy Systems Acquisition Review Council (DNSARC) reviewed the DDGX Program.
Feb - 1980	Surface Combatant CEB Decision Memorandum (Milestone 0).
Feb - 1980	Surface Force Level-CNO Executive Board (CEB) promulgated.
Oct - 1979	DDGX Project Office (93X) established in Naval Sea Systems Command (NAVSEA).
May - 1978	The Chief of Naval Operations (CNO) initiated DDGX Study Group to establish the requirements for the next generation of surface combatants.

Schedule

DDG 51

Events	Milestone Baseline Objective	Current Baseline Objective/Threshold		Current Estimate/Actual	Deviation
Complete Concept Design	Dec 1980	Dec 1980	Jun 1981	Dec 1980	
DNSARC I	Jun 1981	Jun 1981	Dec 1981	Jun 1981	
Complete Preliminary Design	Mar 1983	Mar 1983	Sep 1983	Mar 1983	
DSARC II	Dec 1983	Dec 1983	Jun 1984	Dec 1983	
Complete Contract Design	Jun 1984	Jun 1984	Dec 1984	Jun 1984	
DDG 51 Contract Award	Apr 1985	Apr 1985	Oct 1985	Apr 1985	
Milestone IIIA	Oct 1986	Oct 1986	Apr 1987	Oct 1986	
DDG 52 Contract Award	May 1987	May 1987	Nov 1987	May 1987	
DDG 53 Contract Award	Sep 1987	Sep 1987	Mar 1988	Sep 1987	
Lay Keel DDG 51	Jan 1988	Dec 1988	Jun 1989	Dec 1988	
Launch DDG 51	Sep 1988	Sep 1989	Mar 1990	Sep 1989	
DDG 51 Delivery	Oct 1989	Apr 1991	Oct 1991	Apr 1991	
Launch DDG 52	Jul 1990	Mar 1991	Sep 1991	May 1991	
Organic Support Available		Jul 1991	Jan 1992	Jul 1991	
Depot Support Available		Jul 1991	Jan 1992	Jul 1991	
OPEVAL		Feb 1992	Aug 1992	Feb 1992	
DDG 52 Delivery	Sep 1991	May 1992	Nov 1992	Oct 1992	
DDG 51 IOC	Feb 1992	Feb 1993	Aug 1993	Feb 1993	
DDG 53 Delivery	Jul 1992	Feb 1993	Aug 1993	Aug 1993	
Milestone IV		Apr 1993	Oct 1993	Oct 1993	
DDG 51 Flight IIA Contract Award		Mar 1994	Sep 1994	Jul 1994	
Complete ESSM COEA		Nov 1994	May 1995	Nov 1994	
ESSM Milestone IV		Nov 1994	May 1995	Nov 1994	
SH-60B Hellfire IOC		Dec 1997	Jan 1999	Dec 1997	
DDG 51 Flight IIA Delivery		May 2000	Nov 2000	May 2000	

DDG 51 Flight IIA IOC		Oct 2001	Apr 2002	Oct 2001	
ESSM IOC		Jan 2004	Jul 2004	Feb 2004	
DDG 51 Flight III Detail Design Contract Award		Feb 2015	Feb 2015	Feb 2015	
DDG 51 Flight III Preliminary Design Review		Sep 2015	Sep 2015	Sep 2015	
DDG 51 Flight III Critical Design Review		Nov 2016	Nov 2016	Nov 2016	
DDG 51 Flight III Engineering Change Proposal Contract Award		Jun 2017	Dec 2017	Jun 2017	
DDG 51 Flight III Delivery		Apr 2023	Oct 2023	Jun 2023	
DDG 51 Flight III IOC		Feb 2024	Aug 2024	Aug 2024	

Notes

Deviation Explanation

Performance

DDG 51

Performance Characteristics					
Milestone Baseline	Current Baseline Objective/Threshold	Demonstrated Performance	Current Estimate/Actual	Deviation	
(KPP) - Annual Energy (Flight III Fuel Consumption) BBL per ship, per year					
	90,000	115,000	TBD	115,000	
(KPP) - Cooling SLA (Flight III Rtons remaining)					
	110	(T=O) 110	TBD	110	
(APA) - Cost (Flight III BY14\$B)					
	\$1.9	\$2.1	TBD	\$1.8	
(KSA) - Endurance (Flight III - Nm)					
	5,000	4,000	TBD	4,000	
(KPP) - Energy (Flight III Fuel Consumption BBL/168 hours)					
	5,500	8,500	TBD	8,500	
(APA) Armament - Helo					
	2 EMBARKED HELOS	2 EMBARKED HELOS	2 Embarked Helos	2 Embarked Helos	
(KSA) - Manpower (Flight III)					
	No greater than 297 (with accommodations for 380)	No greater than 318 (with accommodations for 359)	TBD	No greater than 318 (with accommodations for 359)	
(KPP) - Power SLA (Flight III MW remaining)					
	at least 1.435	at least 1.125	TBD	at least 1.125	
(APA) - Schedule (IOC first Flight III ship)					
	2nd Quarter FY 2024	4th Quarter FY 2024	TBD	4th Quarter FY 2024	
(KPP) - Space (Flight III - Square feet of Unassigned Arrangeable Area)					
	400	0	TBD	0	
(APA) MOBILITY: - Speed (Knots) (4)					
	30	30	30	30	
(KPP) - Sustainment (Flight III Material Availability)					
	at least 63 percent	at least 52 percent	TBD	at least 52 percent	
(KPP) - Sustainment (Flight III Operational Availability)					

	at least 87 percent	at least 72 percent	TBD	at least 72 percent	
(KSA) - Vertical Launching System (Flight III cells)					
	96	(T=O) 96	TBD	96	
(KSA) - Warfare Commander (Flight III)					
	12 watch standers (9 officer/3 enlisted), 4 consoles, 1 PC Chat, Single Office/Planning Space	2 consoles, 1 PC Chat (Dual Use Space)	TBD	2 consoles, 1 PC Chat (Dual use space)	
(KPP) - Weight SLA (Flight III Full Load Displacement in Long Tons)					
	at least 10 percent	at least 5 percent	TBD	at least 5 percent	

Requirement Reference

Validated: ORD dated April 15, 1994 and the DDG 51 Flight III CDD, October 28, 2014

Deviation Explanation

No deviations for this program/subprogram

Notes

Operational Requirements Document (ORD) dated April 15, 1994, and the DDG 51 Flight III Capability Development Document (CDD), October 28, 2014

Acronyms and Abbreviations

ASROC - Anti-Submarine Rocket

ASW - Anti-Submarine Warfare

BBL -Barrels

BY - Base Year

DF - Direction Finding

ESSM - Evolved Sea Sparrow Missile

FLT - Flight

ft - Feet

FTM - Flight Test Mission

HELO - Helicopter

MK - Mark

MR - Medium Range

NM - Nautical Miles

Rtons - Refrigeration Tons

SLA - Service Life Allowance

SM-2 - Standard Missile 2

SM-3 - Standard Missile 3

SRBOC - Super Rapid Blooming Off-Board Chaff

TEMP - Test & Evaluation Master Plan

VLA - Vertical Launching ASROC (Anti-Submarine Rocket)

VLS - Vertical Launching System

YDS -Yards

Acquisition Budget Estimate

DDG 51

Total Acquisition Cost

		Milestone APB	Current Baseline		Budget Estimate PB 2024		
Category	Base Year	Objective (BY\$M)	Objective (BY\$M)	Threshold (BY\$M)	BY\$M	TY\$M	Deviation
RDT&E	1987	953.1	3,504.1	3,854.5	4,202.1	6,602.2	Yes
Procurement	1987	15,745.3	64,949.2	71,444.1	76,350	143,230.1	Yes
MILCON	1987	25.4	37.6	41.4	37.7	44.5	
Acq. O&M	1987	0	0	0	0	0	
Total		16,723.8	68,490.9		80,589.8	149,876.8	
PAUC	1987	727.122	769.561	846.517	774.902	1,441.123	
APUC	1987	684.578	729.766	802.743	734.135	1,377.213	

Appropriation Category Deviation Explanations

RDT&E	The Procurement and RDT&E deviations are driven by the increase to the ship procurement profile from 89 to 104 (PB24) and associated capabilities upgrades for the AEGIS Weapon System. A Program Deviation Report was sent to ASN(RD&A) on September 01, 2021.
Procurement	The Procurement and RDT&E deviations are driven by the increase to the ship procurement profile from 89 to 104 (PB24) and associated capabilities upgrades for the AEGIS Weapon System. A Program Deviation Report was sent to ASN(RD&A) on September 01, 2021.

PAUC Deviation Explanation**APUC Deviation Explanation****Budget Notes**

The December 2022 SAR is aligned with the PB 2024 budget submission, which includes funding only through FY 2029.

Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	0	0
Procurement	89	104
O&M-Acquired	N/A	N/A

Quantity Notes

Unit Cost
DDG 51

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Category (\$M) Base Year:1987	Current UCR Baseline	Current Estimate	% Change

Program Acquisition Unit Cost			
Cost	68,490.9	80,589.8	
Quantity	89	104	
Unit Cost	769.561	774.902	0.69%

Average Procurement Unit Cost			
Cost	64,949.2	76,350.0	
Quantity	89	104	
Unit Cost	729.766	734.135	0.60%

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Category (\$M) Base Year:1987	Original UCR Baseline	Current Estimate	% Change

Program Acquisition Unit Cost			
Cost	16,723.8	80,589.8	
Quantity	23	104	
Unit Cost	727.122	774.902	6.57%

Average Procurement Unit Cost			
Cost	15,745.3	76,350.0	
Quantity	23	104	
Unit Cost	684.578	734.135	7.24%

Cost Growth Details			
Current Baseline PAUC Breach Explanation			

Current Baseline APUC Breach Explanation			
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Original Baseline PAUC Breach Explanation			
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Original Baseline APUC Breach Explanation			
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Impacts of Schedule Changes on Unit Cost			
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Impacts of Performance Changes on Unit Cost			
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Actions Taken or Proposed to Control Future Cost Growth			
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Risk and Sensitivity Analysis

DDG 51

Risk and Sensitivity Analysis
Current Procurement Cost(December - 2022)
Original Baseline Estimate (February - 1988) In accordance with Section 830(a)(2) of the FY 2020 National Defense Authorization Act, which requires a SAR to be submitted "in unclassified form without any designation relating to dissemination control" this SAR section has omitted information that is CUI.
Current Baseline Estimate (October - 2017) In accordance with Section 830(a)(2) of the FY 2020 National Defense Authorization Act, which requires a SAR to be submitted "in unclassified form without any designation relating to dissemination control" this SAR section has omitted information that is CUI.

Schedule Risk		
Technical Risks		
Current	December 26, 2022	In accordance with Section 830(a)(2) of the FY 2020 National Defense Authorization Act, which requires a SAR to be submitted "in unclassified form without any designation relating to dissemination control" this SAR section has omitted information that is CUI.

Low Rate Initial Production

DDG 51

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	10/30/1986	10/30/1986
Approved Quantity	9	9
Reference	Milestone IIIA Review Decision Memorandum	Milestone IIIA Review Decision Memorandum
Start Year	1985	1985
End Year	1989	1989

Rationale if quantity exceeds 10% of the total number of articles to be procured:

Notes

Contracts & Efforts

Contract Data	
Contract Number	N00024-13-C-2307/125
Effort Number	
Modification Number	
Award Date	06/03/2013
Definitization Date	06/03/2014
Order Number	
CAGE Code/CAGE Legal Name	/Huntington Ingalls Industries (HII)
Contract Title	DDG 125 Guided Missile Destroyer
Contract Address	Pascagoula, MS
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Fixed-Price Incentive (Firm Target)
Modification Date	
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY\$M)

Initial Target Price	Current Target Price	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

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Contract Notes:

DDG 125 (one of two FY 2017 ships) is part of the FY 2013 - FY 2017 Multi-Year Procurement awarded on June 3, 2013. DDG 125 is the first FLT III. In accordance with Section 830(a)(2) of the FY 2020 National Defense Authorization Act, which requires a SAR to be submitted "in unclassified form without any designation relating to dissemination control" this SAR section has omitted information that is CUI.

Factors Contributing to Cost Variance and Projected Effects on Program Costs

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

Contract Data	
Contract Number	N00024-18-C-2307/128
Effort Number	
Modification Number	
Award Date	09/27/2018
Definitization Date	09/27/2018
Order Number	
CAGE Code/CAGE Legal Name	/Huntington Ingalls Industries (HII)
Contract Title	DDG 128 Guided Missile Destroyer
Contract Address	Pascagoula, MS
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Fixed-Price Incentive (Firm Target)
Modification Date	
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TYSM)		
Initial Target Price	Current Target Price	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

Contract Notes:

DDG 128 (one of two FY 2018 ships) is part of the FY 2018 - FY 2022 Multi-Year Procurement awarded on September 27, 2018. In accordance with Section 830(a)(2) of the FY 2020 National Defense Authorization Act, which requires a SAR to be submitted "in unclassified form without any designation relating to dissemination control" this SAR section has omitted information that is CUI.

Factors Contributing to Cost Variance and Projected Effects on Program Costs

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

Contract Data	
Contract Number	N00024-18-C-2307/129
Effort Number	
Modification Number	
Award Date	09/27/2018
Definitization Date	09/27/2018
Order Number	
CAGE Code/CAGE Legal Name	/Huntington Ingalls Industries (HII)
Contract Title	DDG 129 Guided Missile Destroyer
Contract Address	Pascagoula, MS
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Fixed-Price Incentive (Firm Target)
Modification Date	
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TYSM)		
Initial Target Price	Current Target Price	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

Contract Notes:

DDG 129 (one of two FY 2018 ships) is part of the FY 2018 - FY 2022 Multi-Year Procurement awarded on September 27, 2018. In accordance with Section 830(a)(2) of the FY 2020 National Defense Authorization Act, which requires a SAR to be submitted "in unclassified form without any designation relating to dissemination control" this SAR section has omitted information that is CUI.

Factors Contributing to Cost Variance and Projected Effects on Program Costs

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

Contract Data	
Contract Number	N00024-13-C-2305/122
Effort Number	
Modification Number	
Award Date	06/03/2013
Definitization Date	06/03/2013
Order Number	
CAGE Code/CAGE Legal Name	/General Dynamics (GD), Bath Iron Works (BIW)
Contract Title	DDG 122 Guided Missile Destroyer
Contract Address	Bath, ME
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Fixed-Price Incentive (Firm Target)
Modification Date	
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TYSM)		
Initial Target Price	Current Target Price	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

Contract Notes:

DDG 122 (FY 2015 ship) is part of the FY 2013 - FY 2017 Multi-Year Procurement awarded on June 3, 2013. In accordance with Section 830(a)(2) of the FY 2020 National Defense Authorization Act, which requires a SAR to be submitted "in unclassified form without any designation relating to dissemination control" this SAR section has omitted information that is CUI.

Factors Contributing to Cost Variance and Projected Effects on Program Costs

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

Contract Data	
Contract Number	N00024-13-C-2305/124
Effort Number	
Modification Number	
Award Date	06/03/2013
Definitization Date	06/03/2013
Order Number	
CAGE Code/CAGE Legal Name	/General Dynamics (GD), Bath Iron Works (BIW)
Contract Title	DDG 124 Guided Missile Destroyer
Contract Address	Bath, ME
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Fixed-Price Incentive (Firm Target)
Modification Date	
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TYSM)		
Initial Target Price	Current Target Price	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

Contract Notes:

DDG 124 (one of three FY 2016 ships) is part of the FY 2013 - FY 2017 Multi-Year Procurement awarded on June 3, 2013. In accordance with Section 830(a)(2) of the FY 2020 National Defense Authorization Act, which requires a SAR to be submitted "in unclassified form without any designation relating to dissemination control" this SAR section has omitted information that is CUI.

Factors Contributing to Cost Variance and Projected Effects on Program Costs

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

Contract Data	
Contract Number	N00024-13-C-2305/126
Effort Number	
Modification Number	
Award Date	06/03/2013
Definitization Date	09/28/2017
Order Number	
CAGE Code/CAGE Legal Name	/General Dynamics (GD), Bath Iron Works (BIW)
Contract Title	DDG 126 Guided Missile Destroyer
Contract Address	Bath, ME
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Fixed-Price Incentive (Firm Target)
Modification Date	
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TYSM)		
Initial Target Price	Current Target Price	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

Contract Notes:

DDG 126 (one of two FY 2017 ships) is part of the FY 2013 - FY 2017 Multi-Year Procurement awarded on June 3, 2013. In accordance with Section 830(a)(2) of the FY 2020 National Defense Authorization Act, which requires a SAR to be submitted "in unclassified form without any designation relating to dissemination control" this SAR section has omitted information that is CUI.

Factors Contributing to Cost Variance and Projected Effects on Program Costs

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

Contract Data	
Contract Number	N00024-13-C-2305/127
Effort Number	
Modification Number	
Award Date	09/28/2017
Definitization Date	09/28/2017
Order Number	
CAGE Code/CAGE Legal Name	/General Dynamics (GD), Bath Iron Works (BIW)
Contract Title	DDG 127 Guided Missile Destroyer
Contract Address	Bath, ME
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Fixed-Price Incentive (Firm Target)
Modification Date	
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TYSM)		
Initial Target Price	Current Target Price	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

Contract Notes:

DDG 127 (one of three FY 2016 ships) is part of the FY 2013 - FY 2017 Multi-Year Procurement awarded on June 3, 2013. It is the final FLTIIA. In accordance with Section 830(a)(2) of the FY 2020 National Defense Authorization Act, which requires a SAR to be submitted "in unclassified form without any designation relating to dissemination control" this SAR section has omitted information that is CUI.

Factors Contributing to Cost Variance and Projected Effects on Program Costs

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

External Government Activities

Activity Title		Government Entity	Supported Phase
CAGE		Work Start Date	
City		State/Province:	
Notes			

Deliveries and Expenditures

DDG 51

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development				
Production	72	72	104	69.23%
<hr/>				
Total Program Quantity Delivered	72	72	104	69.23%
Expended and Appropriated (TY \$M)				

Years Appropriated to date: 44

Total Years Appropriated Funding (Current Baseline): 49

Percent Years Appropriated: 89.80%

Then-Year Funding Appropriated as Percentage of Total Acquisition Estimate: 79.25%

Then-Year Funding Expended as Percentage of Total Acquisition Estimate: 62.25%

Total Acquisition Cost: 149,876.76

Deliveries & Expenditures Notes:

Total Acquisition Estimate = \$149,876.8M Then-Year Funding Appropriated = \$118,770.9M Then-Year Funding Expended = \$93,298.9M (as of 13 March 2023)

Operating and Support Costs

DDG 51

O&S Cost Breakdown:

Category (BY\$ Million)	DDG-51
Unit-Level Manpower	
Unit Operations	
Maintenance	
Sustaining Support	
Continued System Improvements	
Other	.0
Total	.0

Cost Estimate Source: POE dated March 03, 2023

O&S Cost Notes:

35 year service life assumed for DDG51 Flight (Flt) I and Flt II 40 year service life assumed for DDG51 Flt IIA and Flt II DDG 51 FLT I and II have a 35 year Estimated Service Life (ESL); DDG FLT IIA and beyond have a 40 year ESL. Adjustments to individual ship ESLs will be evaluated based on combat capability and ship material condition. Estimates are based on a service life of 35 years for 21 Flight I ships, and seven Flight II ships and 40 years service life for 47 Flight IIA ships, and 29 Flight III ships.

Total Program O&S Cost Compared with Baseline					
	Current Baseline				
	Objective (BY\$M)	Threshold (BY\$M)	Current Estimate (BY\$M)	Current Estimate (TY\$M)	Deviation
Total O&S	113,493.3	124,842.6	6.5		

Note:

Please see TAB A SAR Supplement for all data relative to this SAR section.

O&S Cost Deviation Explanation

Operating and Support Costs - Disposal and Unitized Costs

DDG 51

Annual Unitized O&S Cost Definition and Calculation Relative to Total O&S Cost:

DDG 51 FLTI and FLTII have a 35 year Estimated Service Life (ESL); DDG 51 FLTIIA and beyond have a 40 year ESL. Adjustments to individual ship ESLs will be evaluated based on combat capability and ship material condition. Unit Expected Service Life and Annual Unitized O&S Cost estimates are based on a service life of 35 years for 21 FLTI ships and seven FLTII ships, and 40 year service life for 47 FLTIIA ships and 29 FLTIII ships. Weighted Average Unit Expected Service Life for DDG 51 = (35 years X (28 ships/101 ships) + (40 years X (76 ships/101 ships) = 39.8 years Weighted Average Unit Expected Service Life for CG 47 = (40 years X (11 ships/27 ships) + (35 years X (11 ships/27 ships) + (21 years X (1 ship/27 ships) + (20 years X (2 ships/27 ships) + (19 years X (1 ship/27 ships) + (18 years X (1 ship/27 ships) = 34.2 years DDG 51 Operations and Support (BY87\$M) (Ship Quantity X Avg. Annual Cost per Ship, per Year X Ship Service Life) (28 ships X \$41.296M X 35 years) + (76 ships X \$41.296M X 40 years) = \$166,009.92M The current APB Threshold (BY87\$M) for O&S is \$124,842.6M. The DDG 51 O&S breach is driven by the increase to the ship procurement profile from 89 to 104 (PB24) and associated capabilities upgrades for the AEGIS Weapon System. A Program Deviation Report was sent to ASN(RD&A) on September 01, 2021. DDG 51 Operations and Support (TY\$M) = \$470,758M (104 Ships) CG 47 Operations and Support (Ship Quantity X Avg. Annual Cost per Ship, per Year X Ship Service Life) (11 ships X \$40.021M X 40 years) + (11 ships X \$40.021M X 35 years) + (1 ship X \$40.021M X 21 years) + (2 ships X \$40.021M X 20 years) + (1 ship X \$40.021M X 19 years) + (1 ship X \$40.021M X 18 years) = \$36,939M

Sustainment Factors	System Name: DDG 51	Antecedent System Name: CG 47
Quantity to Sustain	104	27
Unit of Measure	Ship	Ship
Unit Expected Service Life	39.8	34.2

Base Year:

Annual Unitized O&S Cost by Category Base Year \$ Unit:(\$M)	System Name: DDG 51	Antecedent System Name: CG 47
Unit-Level Manpower	13.9	12.2
Unit Operations	5.8	5.6
Maintenance	7.9	9.1
Sustaining Support	1.4	1.4
Continued System Improvements	5.0	4.7
Other	7.3	6.9
Total O&S	41.3	40.0

Disposal/Demilitarization Cost Estimate

(Base Year \$Millions)	System Name: DDG 51	Antecedent System Name: CG 47
Total Disposal	288.0	

Cost Estimate Source - Disposal

Type:	Component Cost Position
Approval Authority and Date:	NAVSEA 05C 03/03/2023
Note:	
Disposal Cost Notes:	<p>- Disposal Cost is included in the Operating and Support Cost of the current APB objective and threshold for this program. The DDG 51 APB is for 89 ships while the current estimate is for 104 ships. - Methodology update based on cost factors developed in support of NAVSEA Financial Improvement and Audit Readiness (FIAR) Update of Conventional Surface Ship Environment and Disposal Liability Estimate in October 2017. - Uses Dismantling and Disposal Cost Factor per Long Ton for Large Surface Combatants and Contract Administration Cost Factor per Long Ton- Disposal Cost = Vessel Displacement (Long Tons) * (Dismantling & Disposal Cost / Long Ton + Contract Administration Cost / Long Ton)</p>
Additional O&S Estimate Assumptions:	
Sustainment Strategy:	<p>The DDG 51 sustainment strategy leverages Third Party Planning contracts, Indefinite Delivery/Indefinite Quantity (IDIQ) multi-award contracts within each ship's homeport for Chief of Naval Operations (CNO) 5 availabilities less than ten months and coast-wide Firm Fixed Price Contracts for CNO availabilities greater than ten months. The program provides Integrated Logistics Support for hull, mechanical and electrical systems and oversight and guidance to Participating Acquisition Resource Managers that develop various sustainment approaches for combat systems and Communications, Command, Control, Computers, and Intelligence.</p>
Antecedent Estimate Assumptions:	<p>The Antecedent System is the CG 47 class of ships. The CG 47 class was used since it is the only other ship class with the AEGIS Weapon System installed. The CG 47 estimates were derived using the Naval Visibility And Management of Operating and Support Costs (VAMOSOC) database. CG 47 estimates are based on 27 ships. The years of data used for the CG 47 class are FY 1984-2020.</p>