# Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-180

# DDG 51

As of December 31, 2010

Defense Acquisition Management
Information Retrieval
(DAMIR)

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## Program Information

**Designation And Nomenclature (Popular Name)**

DDG 51 Destroyer

**DoD Component**

Navy

## Responsible Office

**Responsible Office**

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**Date Assigned** August 3, 2007

## References

**SAR Baseline (Production Estimate)**

Decision Coordinating Paper #1337 Revision 1, Change 1 of August 22, 1986

**Approved APB**

Navy Acquisition Executive Approved Acquisition Program Baseline (APB) dated March 16, 2010

## Mission and Description

The DDG 51 is a multi-mission guided missile destroyer designed to operate offensively and defensively, independently, or as units of Carrier Strike Groups (CSG), Expeditionary Strike Groups (ESG), and Missile Defense 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 (LIC/CALOW) scenarios as well as open ocean conflict providing or augmenting power projection, forward presence requirements, and escort operations at sea. Flight IIA ships have introduced new capabilities, Cooperative Engagement Capability (CEC) and a MK-45 Gun capable of firing an Extended Range Guided Munition, that will provide improved air and anti-missile defense and improved land attack.

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 (ECM) 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 Multi-Purpose System (LAMPS) MK-III helicopters (Flight IIA, DDG 79 and follow-on ships). DDG 91 and follow-on ships employ the littoral variant SPY-1D(V). 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: Anti-Aircraft Warfare (AAW); Anti-Submarine Warfare (ASW); Anti-Surface Warfare (ASUW); Command, Control, Communications, Computers & Intelligence (C4I); and Strike Warfare (STW). FY 2010 and follow ships will provide Ballistic Missile Defense capability. The FY 2012 President's Budget incorporates an upgrade to Flight III beginning in FY 2016.

Structural features are an all steel hull and deckhouse with vital spaces protected and located within the hull. The ship employs a gas turbine propulsion system with Controllable Pitch Propellers similar to the CG 47 class.

The DDG 51 Destroyer is being produced to fulfill a surface combatant requirement to provide air dominance, maritime dominance and land attack capability.

## Executive Summary

The Arleigh Burke Class has delivered 60 (DDG 51-110) ships to date, including three since the last SAR: USS GRAVELY (DDG 107) and DDG 110 (WILLIAM P. LAWRENCE) , built by Northrop Grumman Shipbuilding (NGSB) in Pascagoula, MS, and USS JASON DUNHAM (DDG 109), built by GD Bath Iron Works (BIW) in Bath, ME. The remaining two ships (DDG 111/112) of the original 62 ship program are in construction at BIW. The FY 2010 DoD Appropriations and Authorizations Acts provided funding for the continuation of the program, with the first new ship (DDG 113) appropriated since FY 2005.

The Navy has instituted several initiatives to reduce cost associated with FY 2010 and follow DDG 51 Class ships. These ships will maintain a stable configuration baseline without adverse impact to mission readiness, vulnerability, survivability, or safety. The Navy has significantly increased the use of competitive contracts in lieu of sole source contracts. DDG 51 Class hulls will use refurbished assets from retiring Navy ships instead of buying new equipment. The use of contracts across multiple ship classes will be used to produce better prices for the Navy.

The Navy intends to award DDG 113 (FY 2010 authorized and appropriated) ship construction contract in the Spring of FY 2011. The DDG 114/115 ship construction contracts are planned for award in FY 2011 if the Continuing Resolution (CR) restrictions are lifted. Under the current CR only one FY 2011 ship and one shipset of Government Furnished Equipment (GFE) may be awarded as no increase in rate of production is allowed from the previous year.

The FY 2012 President's Budget (PB) submission requests $1,980.7M for one ship in FY 2012, and $100.7M Advanced Procurement for two ships in FY 2013. The FY 2012 ship will be competitively procured. In PB13 the Navy intends to request Congressional approval for an FY 2013-2017 Multi Year Procurement (MYP). An MYP will allow the program to achieve significant savings, while providing for a stable industrial base for shipbuilders in Maine and Mississippi, for the AEGIS Weapon Systems procurement in New Jersey, and for GFE vendors across the rest of the country.

The DDG 51 Class Program has achieved numerous significant production milestones since the last report:

- DDG 107 (GRAVELY) Super Trial June 21, 2010 in Pascagoula, MS.

- DDG 107 (GRAVELY) Delivered July 26, 2010 in Pascagoula, MS.

- DDG 107 (GRAVELY) Commissioned November 20, 2010 in Wilmington, NC

- DDG 109 (JASON DUNHAM) Super Trial May 17, 2010 in Bath, ME.

- DDG 109 (JASON DUNHAM) Delivered June 4, 2010 in Bath, ME.

- DDG 109 (JASON DUNHAM) Commissioned November 13, 2010 in Ft. Lauderdale, FL

- DDG 110 (WILLIAM P LAWRENCE) AEGIS Light Off February 22, 2010 in Pascagoula, MS.

- DDG 110 (WILLIAM P LAWRENCE) Delivered February 23, 2011 in Pascagoula, MS.

- DDG 111 (SPRUANCE) Launch/Float Off June 6, 2010 in Bath, ME.

- DDG 111 (SPRUANCE) AEGIS Light Off July 9, 2010 in Bath, ME.

- DDG 112 (MICHAEL MURPHY) Lay Keel June 12, 2010 in Bath, ME.

There are no significant software-related issues for this program at this time.

## Threshold Breaches

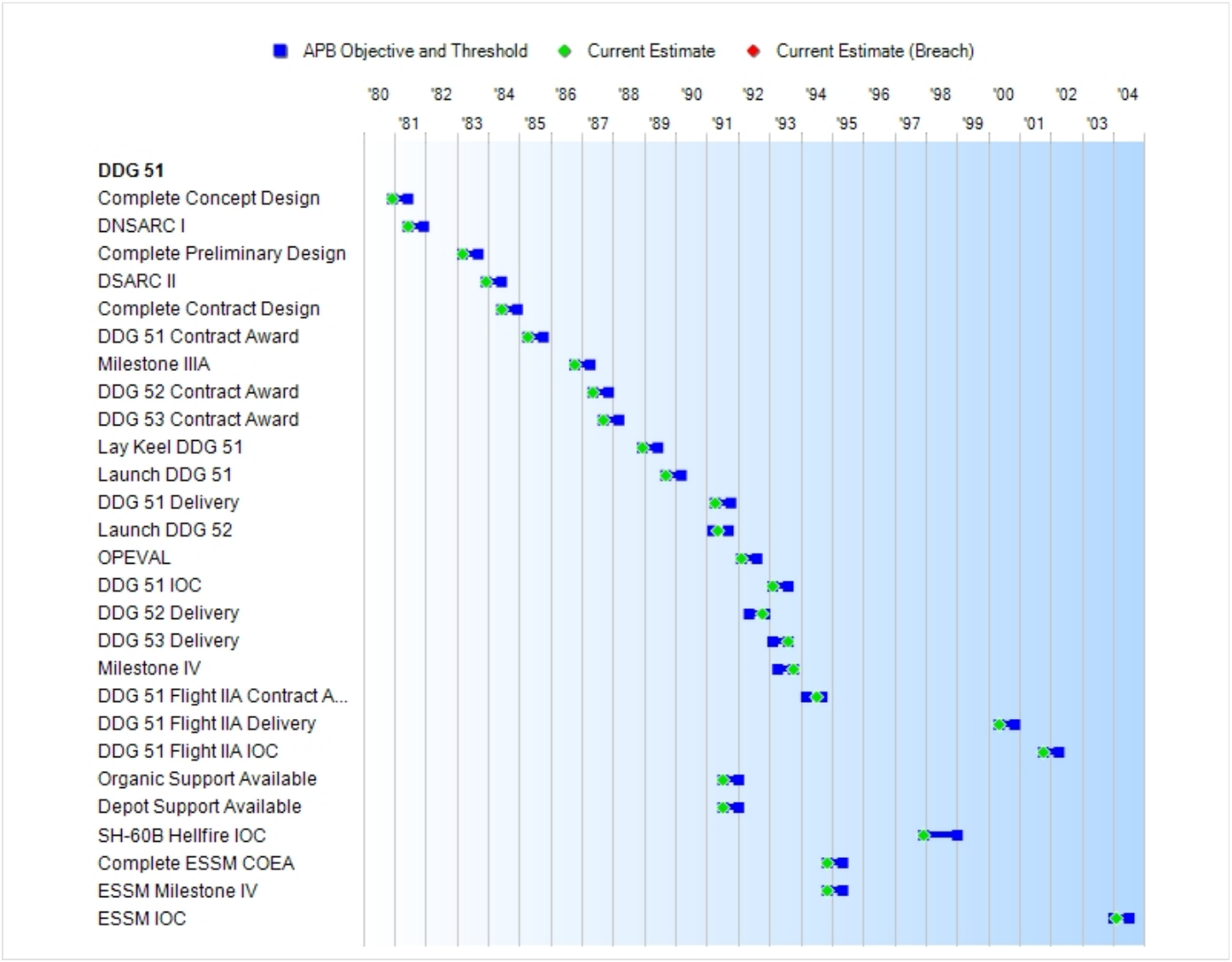
| APB Breaches | | |
|---|---|---|
| **Schedule** | | ☐ |
| **Performance** | | ☐ |
| **Cost** | RDT&E | ☑ |
| | Procurement | ☐ |
| | MILCON | ☐ |
| | Acq O&M | ☐ |
| **Unit Cost** | PAUC | ☐ |
| | APUC | ☐ |

| Nunn-McCurdy Breaches | | |
|---|---|---|
| **Current UCR Baseline** | | |
| | PAUC | None |
| | APUC | None |
| **Original UCR Baseline** | | |
| | PAUC | None |
| | APUC | None |

**Explanation of Breach**

The Research, Development, Test & Evaluation (RDT&E) breach is the result of increasing funding to develop Advanced Missile Defense Radar (AMDR) integration plans for introduction of Flight III, which will occur on the FY 2016 ship. The RDT&E costs exceed the Acquisition Program Baseline (APB) threshold established in the August, 2002 APB, and retained in the March 2010 APB update. A revised APB is in process.

## Schedule


APB Objective and Threshold
Current Estimate
Current Estimate (Breach)
'80
'81
'82
'83
'84
'85
'86
'87
'88
'89
'90
'91
'92
'93
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
DDG 51
Complete Concept Design
DNSARC I
Complete Preliminary Design
DSARC II
Complete Contract Design
DDG 51 Contract Award
Milestone IIIA
DDG 52 Contract Award
DDG 53 Contract Award
Lay Keel DDG 51
Launch DDG 51
DDG 51 Delivery
Launch DDG 52
OPEVAL
DDG 51 IOC
DDG 52 Delivery
DDG 53 Delivery
Milestone IV
DDG 51 Flight IIA Contract A...
DDG 51 Flight IIA Delivery
DDG 51 Flight IIA IOC
Organic Support Available
Depot Support Available
SH-60B Hellfire IOC
Complete ESSM COEA
ESSM Milestone IV
ESSM IOC

| Milestones | SAR Baseline Prod Est | Current APB Production Objective/Threshold | | Current Estimate |
|---|---|---|---|---|
| Complete Concept Design | N/A | DEC 1980 | JUN 1981 | DEC 1980 |
| DNSARC I | JUN 1981 | JUN 1981 | DEC 1981 | JUN 1981 |
| Complete Preliminary Design | N/A | MAR 1983 | SEP 1983 | MAR 1983 |
| DSARC II | DEC 1983 | DEC 1983 | JUN 1984 | DEC 1983 |
| Complete Contract Design | N/A | 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 | JAN 1987 | MAY 1987 | NOV 1987 | MAY 1987 |
| DDG 53 Contract Award | N/A | SEP 1987 | MAR 1988 | SEP 1987 |
| Lay Keel DDG 51 | N/A | DEC 1988 | JUN 1989 | DEC 1988 |
| Launch DDG 51 | N/A | SEP 1989 | MAR 1990 | SEP 1989 |
| DDG 51 Delivery | N/A | APR 1991 | OCT 1991 | APR 1991 |
| Launch DDG 52 | N/A | MAR 1991 | SEP 1991 | MAY 1991 |
| OPEVAL | N/A | FEB 1992 | AUG 1992 | FEB 1992 |
| DDG 51 IOC | OCT 1990 | FEB 1993 | AUG 1993 | FEB 1993 |
| DDG 52 Delivery | N/A | MAY 1992 | NOV 1992 | OCT 1992 |
| DDG 53 Delivery | N/A | FEB 1993 | AUG 1993 | AUG 1993 |
| Milestone IV | N/A | APR 1993 | OCT 1993 | OCT 1993 |
| DDG 51 Flight IIA Contract Award | N/A | MAR 1994 | SEP 1994 | JUL 1994 |
| DDG 51 Flight IIA Delivery | N/A | MAY 2000 | NOV 2000 | MAY 2000 |
| DDG 51 Flight IIA IOC | N/A | OCT 2001 | APR 2002 | OCT 2001 |
| Organic Support Available | N/A | JUL 1991 | JAN 1992 | JUL 1991 |
| Depot Support Available | N/A | JUL 1991 | JAN 1992 | JUL 1991 |
| SH-60B Hellfire IOC | N/A | DEC 1997 | JAN 1999 | DEC 1997 |
| Complete ESSM COEA | N/A | NOV 1994 | MAY 1995 | NOV 1994 |
| ESSM Milestone IV | N/A | NOV 1994 | MAY 1995 | NOV 1994 |
| ESSM IOC | N/A | JAN 2004 | JUL 2004 | FEB 2004 |

## Acronyms And Abbreviations

COEA - Cost and Operational Effectiveness Analysis
DNSARC - Department of the Navy System Acquisition Review Council
DSARC - Defense System Acquisition Review Council
ESSM - Evolved Sea Sparrow Missile
IOC - Initial Operational Capability
OPEVAL - Operational Evaluation

## Change Explanations

None

## Performance

| Characteristics | SAR Baseline Prod Est | Current APB Production Objective/Threshold | | Demonstrated Performance | Current Estimate | |
|---|---|---|---|---|---|---|
| SHIP: | | | | | | |
| Length (ft) | 466 | N/A | N/A | 471 | 471 | |
| Beam (ft) | 59 | N/A | N/A | 59 | 59 | |
| Navigational Draft (ft) | 30.6 | N/A | N/A | 31.0 | 31.0 | (Ch-1) |
| Displacement (long tons) | 8300 | N/A | N/A | 9300 | 9300 | |
| Propulsion LM (Gas Turbine) | 2500 | N/A | N/A | 2500 | 2500 | |
| Accommodations | 341 | N/A | N/A | 314 | 314 | (Ch-2) |
| MOBILITY: | | | | | | |
| Speed (knots) | 30 | 30 | 30 | 30 | 30 | |
| Armament | | | | | | |
| Anti-Submarine Warfare | | | | | | |
| ASW System | AN/SQQ-89 | N/A | N/A | AN/SQQ-89 | AN/SQQ-89 | |
| ASROC | VLA | N/A | N/A | VLA | VLA | |
| Helo | SEAHAWK; LAMPS | 2 EMBARKED HELOS | 2 EMBARKED HELOS | 2 Embarked Helos | 2 Embarked Helos | |
| Anti-Air Warfare | | | | | | |
| Launchers | MK 41 VLS | N/A | N/A | MK 41 VLS | MK 41 VLS | |
| Missiles | SM-2 MR | N/A | N/A | SM-2 MR | SM-2 MR | |
| Missile Fire Control System | 3 MK 99 | N/A | N/A | 3 MK 99 | 3 MK 99 | |
| Guns | 2 PHALANX | N/A | N/A | 2 PHALANX | 2 PHALANX/ESSM | |
| Anti-Surface/Strike Warfare | | | | | | |
| Guns | 1 5"/54 | N/A | N/A | 1 5"54 | 1 5"/54 | |
| Gunfire Control System | MK 160 | N/A | N/A | MK 160 | MK 160 | |
| Anti-Ship Cruise Missile | HARPOON | N/A | N/A | N/A | N/A | |
| Cruise Missile | TOMAHAWK | N/A | N/A | TOMAHAWK | TOMAHAWK | |
| Electronic Warfare | SLQ-32 SRBOC | N/A | N/A | SLQ-32, SRBOC, Combat DF | SLQ-32, SRBOC, Combat DF | |
| Radars | | | | | | |
| Surface | SPS-67 | N/A | N/A | SPS-67 | SPS-67 | |
| 3D | SPY-1D | N/A | N/A | SPY-1D | SPY-1D | |
| MINE WARFARE: | | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Detection Range of Moored/Floating Mine (YDS) | N/A | 1000 | 800 | 1400 | 1400 |

**Requirements Source:** Operational Requirements Document (ORD) for DDG 51 Flight IIA, dated April 15, 1994

## Acronyms And Abbreviations

ASROC - Anti-Submarine Rocket
ASW - Anti-Submarine Warfare
ft - Feet
HELO - Helicopter
MK - Mark
MR - Medium Range
SM-2 - Standard Missile 2
SRBOC - Super Rapid Blooming Off-Board Chaff
VLA - Vertical Launching ASROC (Anti-Submarine Rocket)
VLS - Vertical Launching System
YDS - Yards

## Change Explanations

(Ch-0) Demonstrated Performance and Current Estimate are for the Flight IIA configuration. Production Estimates are from the Flight II configuration. Demonstrated Performance characteristics reflect testing through the Test & Evaluation Master Plan (TEMP) 801-OT-IIIH report dated July 20, 2006.

(Ch-1) Change from 31.7 to 31.0 reflects Navigational Draft for DDG 103 and follow ships.

(Ch-2) Change from 380 to 314 Accommodations reflects the conversion of a Berthing Room to a Crew recreational room for DDG 107 and follow ships.

Classified Performance information is provided in the classified annex to this submission.

## Track To Budget

| RDT&E | | | | |
|---|---|---|---|---|
| APPN 1319 | BA 04 | PE 0603382N | (Navy) | |
| | Project K0324 | Advanced Combat Systems Technology | | |
| APPN 1319 | BA 04 | PE 0603564N | (Navy) | |
| | Project K0408 | Preliminary Design | | (Sunk) |
| | Project K0409 | Feasibility Studies | | |
| APPN 1319 | BA 05 | PE 0604303N | (Navy) | |
| | Project K1776 | AEGIS Weapon System Mods | | (Sunk) |
| APPN 1319 | BA 05 | PE 0604307N | (Navy) | |
| | Project K1447 | AEGIS Combat System Engineering | (Shared) | |

Funding for PE0603382N has been erroneously tagged in the PRCP database to PNO180. This is a non-MDAP effort. It is not included in DDG 51 budgets nor is it part of the Acquisition Baseline.

| Procurement | | | | |
|---|---|---|---|---|
| APPN 1611 | BA 02 | PE 02042222N | (Navy) | |
| | ICN 2122 | DDG 51 CLASS DESTROYERS | | |
| APPN 1611 | BA 05 | PE 02042222N | (Navy) | |
| | ICN 5110 | DDG 51 CLASS DESTROYERS Outfitting and Post Delivery | (Shared) | |

| MILCON | | | | |
|---|---|---|---|---|
| APPN 1205 | | PE 0204228N | (Navy) | |
| | Project 263 | AEGIS Computer Center Building Addition | | (Sunk) |
| APPN 1205 | | PE 0605896N | (Navy) | |

| | | |
|---|---|---|
| Project 261 | Battle Force Combatant Education Facility | (Sunk) |

## Cost and Funding

## Cost Summary

**Total Acquisition Cost and Quantity**

| Appropriation | BY1987 $M | | | BY1987 $M | TY $M | | |
|---|---|---|---|---|---|---|---|
| | SAR Baseline Prod Est | Current APB Production Objective/Threshold | | Current Estimate | SAR Baseline Prod Est | Current APB Production Objective | Current Estimate |
| RDT&E | 979.8 | 2610.5 | 3002.1 | **3031.8**[1] | 916.6 | 3196.8 | 3954.6 |
| Procurement | 15948.3 | 53910.1 | 59301.1 | 57095.5 | 19173.1 | 77103.3 | 84417.5 |
| Flyaway | 15948.3 | -- | -- | 57095.5 | 19173.1 | -- | 84417.5 |
| Recurring | 15948.3 | -- | -- | 55995.8 | 19173.1 | -- | 82917.6 |
| Non Recurring | 0.0 | -- | -- | 1099.7 | 0.0 | -- | 1499.9 |
| Support | 0.0 | -- | -- | 0.0 | 0.0 | -- | 0.0 |
| Other Support | 0.0 | -- | -- | 0.0 | 0.0 | -- | 0.0 |
| Initial Spares | 0.0 | -- | -- | 0.0 | 0.0 | -- | 0.0 |
| MILCON | 25.6 | 34.8 | 38.3 | 37.6 | 27.8 | 41.0 | 44.5 |
| Acq O&M | 0.0 | 0.0 | -- | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 16953.7 | 56555.4 | N/A | 60164.9 | 20117.5 | 80341.1 | 88416.6 |

[1] ***APB Breach***

The confidence level for the current estimate is 85%. 80% of the ships are complete and future ships are budgeted at a 50% confidence level.

| Quantity | SAR Baseline Prod Est | Current APB Production | Current Estimate |
|---|---|---|---|
| RDT&E | 0 | 0 | 0 |
| Procurement | 23 | 71 | 75 |
| Total | 23 | 71 | 75 |

## Cost and Funding

## Funding Summary

**Appropriation and Quantity Summary**
**FY2012 President's Budget / December 2010 SAR (TY$ M)**

| Appropriation | Prior | FY2011 | FY2012 | FY2013 | FY2014 | FY2015 | FY2016 | To Complete | Total |
|---|---|---|---|---|---|---|---|---|---|
| RDT&E | 3132.9 | 34.2 | 54.8 | 77.7 | 244.7 | 228.1 | 182.2 | 0.0 | 3954.6 |
| Procurement | 61658.9 | 3050.5 | 2112.5 | 3557.6 | 3191.6 | 3046.0 | 2596.9 | 5203.5 | 84417.5 |
| MILCON | 44.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 44.5 |
| Acq O&M | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| PB 2012 Total | 64836.3 | 3084.7 | 2167.3 | 3635.3 | 3436.3 | 3274.1 | 2779.1 | 5203.5 | 88416.6 |
| PB 2011 Total | 65176.2 | 3084.7 | 2237.8 | 3449.5 | 2103.5 | 3855.5 | 49.0 | 451.5 | 80407.7 |
| Delta | -339.9 | 0.0 | -70.5 | 185.8 | 1332.8 | -581.4 | 2730.1 | 4752.0 | 8008.9 |

| Quantity | Undistributed | Prior | FY2011 | FY2012 | FY2013 | FY2014 | FY2015 | FY2016 | To Complete | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Development | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Production | 0 | 63 | 2 | 1 | 2 | 2 | 2 | 1 | 2 | 75 |
| PB 2012 Total | 0 | 63 | 2 | 1 | 2 | 2 | 2 | 1 | 2 | 75 |
| PB 2011 Total | 0 | 63 | 2 | 1 | 2 | 1 | 2 | 0 | 0 | 71 |
| Delta | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 4 |

## Cost and Funding

## Annual Funding By Appropriation

**Annual Funding TY$**
**1319 | RDT&E | Research, Development, Test, and Evaluation, Navy**

| Fiscal Year | Quantity | End Item Recurring Flyaway TY $M | Non End Item Recurring Flyaway TY $M | Non Recurring Flyaway TY $M | Total Flyaway TY $M | Total Support TY $M | Total Program TY $M |
|---|---|---|---|---|---|---|---|
| 1980 | -- | -- | -- | -- | -- | -- | 10.5 |
| 1981 | -- | -- | -- | -- | -- | -- | 35.3 |
| 1982 | -- | -- | -- | -- | -- | -- | 102.0 |
| 1983 | -- | -- | -- | -- | -- | -- | 150.7 |
| 1984 | -- | -- | -- | -- | -- | -- | 121.1 |
| 1985 | -- | -- | -- | -- | -- | -- | 138.8 |
| 1986 | -- | -- | -- | -- | -- | -- | 93.5 |
| 1987 | -- | -- | -- | -- | -- | -- | 100.4 |
| 1988 | -- | -- | -- | -- | -- | -- | 93.4 |
| 1989 | -- | -- | -- | -- | -- | -- | 52.3 |
| 1990 | -- | -- | -- | -- | -- | -- | 41.2 |
| 1991 | -- | -- | -- | -- | -- | -- | 87.5 |
| 1992 | -- | -- | -- | -- | -- | -- | 87.2 |
| 1993 | -- | -- | -- | -- | -- | -- | 110.6 |
| 1994 | -- | -- | -- | -- | -- | -- | 102.7 |
| 1995 | -- | -- | -- | -- | -- | -- | 89.6 |
| 1996 | -- | -- | -- | -- | -- | -- | 87.3 |
| 1997 | -- | -- | -- | -- | -- | -- | 82.5 |
| 1998 | -- | -- | -- | -- | -- | -- | 78.3 |
| 1999 | -- | -- | -- | -- | -- | -- | 155.4 |
| 2000 | -- | -- | -- | -- | -- | -- | 232.6 |
| 2001 | -- | -- | -- | -- | -- | -- | 143.5 |
| 2002 | -- | -- | -- | -- | -- | -- | 230.7 |
| 2003 | -- | -- | -- | -- | -- | -- | 199.0 |
| 2004 | -- | -- | -- | -- | -- | -- | 135.3 |
| 2005 | -- | -- | -- | -- | -- | -- | 126.0 |
| 2006 | -- | -- | -- | -- | -- | -- | 113.4 |
| 2007 | -- | -- | -- | -- | -- | -- | 69.2 |
| 2008 | -- | -- | -- | -- | -- | -- | 37.4 |
| 2009 | -- | -- | -- | -- | -- | -- | 8.7 |
| 2010 | -- | -- | -- | -- | -- | -- | 16.8 |
| 2011 | -- | -- | -- | -- | -- | -- | 34.2 |
| 2012 | -- | -- | -- | -- | -- | -- | 54.8 |
| 2013 | -- | -- | -- | -- | -- | -- | 77.7 |
| 2014 | -- | -- | -- | -- | -- | -- | 244.7 |
| 2015 | -- | -- | -- | -- | -- | -- | 228.1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2016 | -- | -- | -- | -- | -- | -- | 182.2 |
| **Subtotal** | **--** | **--** | **--** | **--** | **--** | **--** | **3954.6** |

**Annual Funding BY$**
**1319 | RDT&E | Research, Development, Test, and Evaluation, Navy**

| Fiscal Year | Quantity | End Item Recurring Flyaway BY 1987 $M | Non End Item Recurring Flyaway BY 1987 $M | Non Recurring Flyaway BY 1987 $M | Total Flyaway BY 1987 $M | Total Support BY 1987 $M | Total Program BY 1987 $M |
|---|---|---|---|---|---|---|---|
| 1980 | -- | -- | -- | -- | -- | -- | 14.0 |
| 1981 | -- | -- | -- | -- | -- | -- | 43.1 |
| 1982 | -- | -- | -- | -- | -- | -- | 118.3 |
| 1983 | -- | -- | -- | -- | -- | -- | 167.3 |
| 1984 | -- | -- | -- | -- | -- | -- | 129.8 |
| 1985 | -- | -- | -- | -- | -- | -- | 144.2 |
| 1986 | -- | -- | -- | -- | -- | -- | 94.4 |
| 1987 | -- | -- | -- | -- | -- | -- | 98.5 |
| 1988 | -- | -- | -- | -- | -- | -- | 88.7 |
| 1989 | -- | -- | -- | -- | -- | -- | 47.6 |
| 1990 | -- | -- | -- | -- | -- | -- | 36.1 |
| 1991 | -- | -- | -- | -- | -- | -- | 73.9 |
| 1992 | -- | -- | -- | -- | -- | -- | 71.6 |
| 1993 | -- | -- | -- | -- | -- | -- | 88.7 |
| 1994 | -- | -- | -- | -- | -- | -- | 80.9 |
| 1995 | -- | -- | -- | -- | -- | -- | 69.2 |
| 1996 | -- | -- | -- | -- | -- | -- | 66.3 |
| 1997 | -- | -- | -- | -- | -- | -- | 61.9 |
| 1998 | -- | -- | -- | -- | -- | -- | 58.3 |
| 1999 | -- | -- | -- | -- | -- | -- | 114.3 |
| 2000 | -- | -- | -- | -- | -- | -- | 168.7 |
| 2001 | -- | -- | -- | -- | -- | -- | 102.7 |
| 2002 | -- | -- | -- | -- | -- | -- | 163.4 |
| 2003 | -- | -- | -- | -- | -- | -- | 138.9 |
| 2004 | -- | -- | -- | -- | -- | -- | 91.9 |
| 2005 | -- | -- | -- | -- | -- | -- | 83.4 |
| 2006 | -- | -- | -- | -- | -- | -- | 72.8 |
| 2007 | -- | -- | -- | -- | -- | -- | 43.3 |
| 2008 | -- | -- | -- | -- | -- | -- | 23.0 |
| 2009 | -- | -- | -- | -- | -- | -- | 5.3 |
| 2010 | -- | -- | -- | -- | -- | -- | 10.1 |
| 2011 | -- | -- | -- | -- | -- | -- | 20.3 |
| 2012 | -- | -- | -- | -- | -- | -- | 32.0 |
| 2013 | -- | -- | -- | -- | -- | -- | 44.6 |
| 2014 | -- | -- | -- | -- | -- | -- | 138.2 |
| 2015 | -- | -- | -- | -- | -- | -- | 126.6 |
| 2016 | -- | -- | -- | -- | -- | -- | 99.5 |
| **Subtotal** | **--** | **--** | **--** | **--** | **--** | **--** | **3031.8** |

RDT&E figures represent DDG 51 Program's portion of the shared appropriations.

**Annual Funding TY$**
**1611 | Procurement | Shipbuilding and Conversion, Navy**

| Fiscal Year | Quantity | End Item Recurring Flyaway TY $M | Non End Item Recurring Flyaway TY $M | Non Recurring Flyaway TY $M | Total Flyaway TY $M | Total Support TY $M | Total Program TY $M |
|---|---|---|---|---|---|---|---|
| 1984 | -- | 78.5 | -- | -- | 78.5 | -- | 78.5 |
| 1985 | 1 | 846.6 | -- | 299.2 | 1145.8 | -- | 1145.8 |
| 1986 | -- | 98.1 | -- | -- | 98.1 | -- | 98.1 |
| 1987 | 3 | 2326.7 | -- | 158.2 | 2484.9 | -- | 2484.9 |
| 1988 | -- | 9.6 | -- | -- | 9.6 | -- | 9.6 |
| 1989 | 4 | 2876.5 | -- | -- | 2876.5 | -- | 2876.5 |
| 1990 | 5 | 3569.5 | -- | 13.5 | 3583.0 | -- | 3583.0 |
| 1991 | 4 | 3145.3 | -- | 3.6 | 3148.9 | -- | 3148.9 |
| 1992 | 5 | 3982.0 | -- | 38.3 | 4020.3 | -- | 4020.3 |
| 1993 | 4 | 3381.4 | -- | 7.9 | 3389.3 | -- | 3389.3 |
| 1994 | 3 | 2703.5 | -- | 86.9 | 2790.4 | -- | 2790.4 |
| 1995 | 3 | 2780.1 | -- | 37.8 | 2817.9 | -- | 2817.9 |
| 1996 | 2 | 2292.4 | -- | 61.7 | 2354.1 | -- | 2354.1 |
| 1997 | 4 | 3549.9 | -- | 38.8 | 3588.7 | -- | 3588.7 |
| 1998 | 4 | 3426.1 | -- | 110.5 | 3536.6 | -- | 3536.6 |
| 1999 | 3 | 2674.5 | -- | 44.2 | 2718.7 | -- | 2718.7 |
| 2000 | 3 | 2651.1 | -- | 30.1 | 2681.2 | -- | 2681.2 |
| 2001 | 3 | 3232.2 | -- | -- | 3232.2 | -- | 3232.2 |
| 2002 | 3 | 3287.9 | -- | 14.4 | 3302.3 | -- | 3302.3 |
| 2003 | 2 | 2693.7 | -- | 63.1 | 2756.8 | -- | 2756.8 |
| 2004 | 3 | 3406.6 | -- | 4.7 | 3411.3 | -- | 3411.3 |
| 2005 | 3 | 3672.3 | -- | 8.9 | 3681.2 | -- | 3681.2 |
| 2006 | -- | 506.7 | -- | -- | 506.7 | -- | 506.7 |
| 2007 | -- | 417.2 | -- | -- | 417.2 | -- | 417.2 |
| 2008 | -- | 93.2 | -- | -- | 93.2 | -- | 93.2 |
| 2009 | -- | 323.9 | -- | -- | 323.9 | -- | 323.9 |
| 2010 | 1 | 2489.8 | -- | 121.8 | 2611.6 | -- | 2611.6 |
| 2011 | 2 | 3038.9 | -- | 11.6 | 3050.5 | -- | 3050.5 |
| 2012 | 1 | 1992.3 | -- | 120.2 | 2112.5 | -- | 2112.5 |
| 2013 | 2 | 3527.8 | -- | 29.8 | 3557.6 | -- | 3557.6 |
| 2014 | 2 | 3191.6 | -- | -- | 3191.6 | -- | 3191.6 |
| 2015 | 2 | 3046.0 | -- | -- | 3046.0 | -- | 3046.0 |
| 2016 | 1 | 2462.0 | -- | 134.9 | 2596.9 | -- | 2596.9 |
| 2017 | 2 | 4492.5 | -- | 59.8 | 4552.3 | -- | 4552.3 |
| 2018 | -- | 122.1 | -- | -- | 122.1 | -- | 122.1 |
| 2019 | -- | 129.7 | -- | -- | 129.7 | -- | 129.7 |
| 2020 | -- | 133.3 | -- | -- | 133.3 | -- | 133.3 |
| 2021 | -- | 108.4 | -- | -- | 108.4 | -- | 108.4 |
| 2022 | -- | 96.4 | -- | -- | 96.4 | -- | 96.4 |
| 2023 | -- | 61.3 | -- | -- | 61.3 | -- | 61.3 |
| **Subtotal** | **75** | **82917.6** | **--** | **1499.9** | **84417.5** | **--** | **84417.5** |

**Annual Funding BY$**
**1611 | Procurement | Shipbuilding and Conversion, Navy**

| Fiscal Year | Quantity | End Item Recurring Flyaway BY 1987 $M | Non End Item Recurring Flyaway BY 1987 $M | Non Recurring Flyaway BY 1987 $M | Total Flyaway BY 1987 $M | Total Support BY 1987 $M | Total Program BY 1987 $M |
|---|---|---|---|---|---|---|---|
| 1984 | -- | 78.5 | -- | -- | 78.5 | -- | 78.5 |
| 1985 | 1 | 829.8 | -- | 293.3 | 1123.1 | -- | 1123.1 |
| 1986 | -- | 94.0 | -- | -- | 94.0 | -- | 94.0 |
| 1987 | 3 | 2179.7 | -- | 148.2 | 2327.9 | -- | 2327.9 |
| 1988 | -- | 8.7 | -- | -- | 8.7 | -- | 8.7 |
| 1989 | 4 | 2540.5 | -- | -- | 2540.5 | -- | 2540.5 |
| 1990 | 5 | 3064.1 | -- | 11.6 | 3075.7 | -- | 3075.7 |
| 1991 | 4 | 2626.6 | -- | 3.0 | 2629.6 | -- | 2629.6 |
| 1992 | 5 | 3241.6 | -- | 31.2 | 3272.8 | -- | 3272.8 |
| 1993 | 4 | 2725.2 | -- | 6.3 | 2731.5 | -- | 2731.5 |
| 1994 | 3 | 2127.6 | -- | 68.4 | 2196.0 | -- | 2196.0 |
| 1995 | 3 | 2163.6 | -- | 29.4 | 2193.0 | -- | 2193.0 |
| 1996 | 2 | 1765.1 | -- | 47.5 | 1812.6 | -- | 1812.6 |
| 1997 | 4 | 2692.2 | -- | 29.4 | 2721.6 | -- | 2721.6 |
| 1998 | 4 | 2541.1 | -- | 82.0 | 2623.1 | -- | 2623.1 |
| 1999 | 3 | 1952.6 | -- | 32.3 | 1984.9 | -- | 1984.9 |
| 2000 | 3 | 1887.5 | -- | 21.5 | 1909.0 | -- | 1909.0 |
| 2001 | 3 | 2224.8 | -- | -- | 2224.8 | -- | 2224.8 |
| 2002 | 3 | 2250.3 | -- | 9.8 | 2260.1 | -- | 2260.1 |
| 2003 | 2 | 1742.8 | -- | 40.8 | 1783.6 | -- | 1783.6 |
| 2004 | 3 | 2126.9 | -- | 2.9 | 2129.8 | -- | 2129.8 |
| 2005 | 3 | 2197.6 | -- | 5.4 | 2203.0 | -- | 2203.0 |
| 2006 | -- | 293.3 | -- | -- | 293.3 | -- | 293.3 |
| 2007 | -- | 232.2 | -- | -- | 232.2 | -- | 232.2 |
| 2008 | -- | 50.5 | -- | -- | 50.5 | -- | 50.5 |
| 2009 | -- | 171.9 | -- | -- | 171.9 | -- | 171.9 |
| 2010 | 1 | 1299.2 | -- | 63.6 | 1362.8 | -- | 1362.8 |
| 2011 | 2 | 1561.7 | -- | 5.9 | 1567.6 | -- | 1567.6 |
| 2012 | 1 | 1007.4 | -- | 60.8 | 1068.2 | -- | 1068.2 |
| 2013 | 2 | 1754.3 | -- | 14.8 | 1769.1 | -- | 1769.1 |
| 2014 | 2 | 1560.6 | -- | -- | 1560.6 | -- | 1560.6 |
| 2015 | 2 | 1464.5 | -- | -- | 1464.5 | -- | 1464.5 |
| 2016 | 1 | 1163.9 | -- | 63.8 | 1227.7 | -- | 1227.7 |
| 2017 | 2 | 2088.4 | -- | 27.8 | 2116.2 | -- | 2116.2 |
| 2018 | -- | 55.8 | -- | -- | 55.8 | -- | 55.8 |
| 2019 | -- | 58.3 | -- | -- | 58.3 | -- | 58.3 |
| 2020 | -- | 58.9 | -- | -- | 58.9 | -- | 58.9 |
| 2021 | -- | 47.1 | -- | -- | 47.1 | -- | 47.1 |
| 2022 | -- | 41.2 | -- | -- | 41.2 | -- | 41.2 |
| 2023 | -- | 25.8 | -- | -- | 25.8 | -- | 25.8 |
| **Subtotal** | **75** | **55995.8** | **--** | **1099.7** | **57095.5** | **--** | **57095.5** |

**Cost Quantity Information**
**1611 | Procurement | Shipbuilding and Conversion, Navy**

| Fiscal Year | Quantity | End Item Recurring Flyaway (Aligned with Quantity) BY 1987 $M |
|---|---|---|
| 1984 | -- | -- |
| 1985 | 1 | 934.6 |
| 1986 | -- | -- |
| 1987 | 3 | 2343.9 |
| 1988 | -- | -- |
| 1989 | 4 | 2633.0 |
| 1990 | 5 | 3161.1 |
| 1991 | 4 | 2669.3 |
| 1992 | 5 | 3310.6 |
| 1993 | 4 | 2672.8 |
| 1994 | 3 | 2117.9 |
| 1995 | 3 | 2157.8 |
| 1996 | 2 | 1729.1 |
| 1997 | 4 | 2742.0 |
| 1998 | 4 | 2619.9 |
| 1999 | 3 | 1973.3 |
| 2000 | 3 | 1906.4 |
| 2001 | 3 | 2275.5 |
| 2002 | 3 | 2294.5 |
| 2003 | 2 | 1766.9 |
| 2004 | 3 | 2175.2 |
| 2005 | 3 | 2272.9 |
| 2006 | -- | -- |
| 2007 | -- | -- |
| 2008 | -- | -- |
| 2009 | -- | -- |
| 2010 | 1 | 1138.9 |
| 2011 | 2 | 1857.6 |
| 2012 | 1 | 995.3 |
| 2013 | 2 | 1624.8 |
| 2014 | 2 | 1647.3 |
| 2015 | 2 | 1654.1 |
| 2016 | 1 | 1179.1 |
| 2017 | 2 | 2142.0 |
| 2018 | -- | -- |
| 2019 | -- | -- |
| 2020 | -- | -- |
| 2021 | -- | -- |

| | | |
|---|---|---|
| 2022 | -- | -- |
| 2023 | -- | -- |
| **Subtotal** | **75** | **55995.8** |

**Annual Funding TY$**
**1205 | MILCON | Military Construction, Navy and Marine Corps**

| Fiscal Year | Total Program TY $M |
|---|---|
| 1986 | 4.6 |
| 1987 | -- |
| 1988 | 14.7 |
| 1989 | 8.5 |
| 1990 | -- |
| 1991 | -- |
| 1992 | -- |
| 1993 | -- |
| 1994 | -- |
| 1995 | -- |
| 1996 | -- |
| 1997 | -- |
| 1998 | 13.2 |
| 1999 | -- |
| 2000 | -- |
| 2001 | 3.5 |
| **Subtotal** | **44.5** |

**Annual Funding BY$**
**1205 | MILCON | Military Construction, Navy and Marine Corps**

| Fiscal Year | Total Program BY 1987 $M |
|---|---|
| 1986 | 4.5 |
| 1987 | -- |
| 1988 | 13.4 |
| 1989 | 7.5 |
| 1990 | -- |
| 1991 | -- |
| 1992 | -- |
| 1993 | -- |
| 1994 | -- |
| 1995 | -- |
| 1996 | -- |
| 1997 | -- |
| 1998 | 9.7 |
| 1999 | -- |
| 2000 | -- |
| 2001 | 2.5 |
| **Subtotal** | **37.6** |

## Low Rate Initial Production

| | 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 |

Limited Production was granted by the Milestone IIIA review decision memorandum of October 30, 1986, which granted production approval through FY 1989.

## Foreign Military Sales

| Country | Date of Sale | Quantity | Total Cost $M | Memo |
|---|---|---|---|---|
| Japan | 12/6/2010 | 108 | 3612.0 | Date cited is date of last case sale. |
| Norway | 9/29/2010 | 7 | 238.0 | Date cited is date of last case sale. |
| South Korea | 2/12/2009 | 4 | 1148.0 | Date cited is date of last case sale. |
| Spain | 8/11/2006 | 9 | 1285.0 | Date cited is date of last case sale. |
| Australia | 11/17/2005 | 1 | 1192.0 | |

Quantity numbers above reflect Foreign Military Sales cases, rather than ships. Cases are agreements between the United States and an eligible foreign country to provide defense articles, training, and/or services for purchase. Cases can be related to procurements (e.g., Ordalt or standard missile), training (e.g., AEGIS shipboard training or replacement crew training), and program management support (e.g., Combat System Ship Qualification Test). Case quantity numbers now reflect all cases, open and closed, resulting in an increase to the Japan cases previously reported in the SAR.

## Nuclear Cost

None.

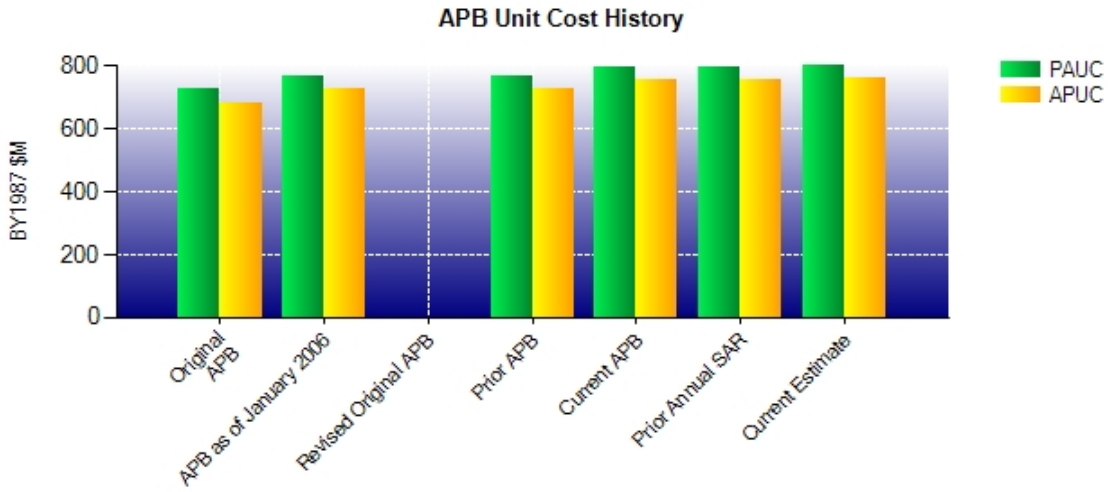
## Unit Cost

## Unit Cost Report

| Unit Cost | BY1987 $M Current UCR Baseline (MAR 2010 APB) | BY1987 $M Current Estimate (DEC 2010 SAR) | BY % Change |
|---|---|---|---|
| Program Acquisition Unit Cost (PAUC) | | | |
| Cost | 56555.4 | 60164.9 | |
| Quantity | 71 | 75 | |
| Unit Cost | 796.555 | 802.199 | +0.71 |
| Average Procurement Unit Cost (APUC) | | | |
| Cost | 53910.1 | 57095.5 | |
| Quantity | 71 | 75 | |
| Unit Cost | 759.297 | 761.273 | +0.26 |

| Unit Cost | BY1987 $M Original UCR Baseline (FEB 1988 APB) | BY1987 $M Current Estimate (DEC 2010 SAR) | BY % Change |
|---|---|---|---|
| Program Acquisition Unit Cost (PAUC) | | | |
| Cost | 16723.8 | 60164.9 | |
| Quantity | 23 | 75 | |
| Unit Cost | 727.122 | 802.199 | +10.33 |
| Average Procurement Unit Cost (APUC) | | | |
| Cost | 15745.3 | 57095.5 | |
| Quantity | 23 | 75 | |
| Unit Cost | 684.578 | 761.273 | +11.20 |

## Unit Cost History




| | | BY1987 $M | | TY $M | |
|---|---|---|---|---|---|
| | Date | PAUC | APUC | PAUC | APUC |
| **Original APB** | FEB 1988 | 727.122 | 684.578 | 883.152 | 843.209 |
| **APB as of January 2006** | AUG 2002 | 766.675 | 725.342 | 1031.612 | 981.022 |
| **Revised Original APB** | N/A | N/A | N/A | N/A | N/A |
| **Prior APB** | AUG 2002 | 766.675 | 725.342 | 1031.612 | 981.022 |
| **Current APB** | MAR 2010 | 796.555 | 759.297 | 1131.565 | 1085.962 |
| **Prior Annual SAR** | DEC 2009 | 797.066 | 759.297 | 1132.503 | 1085.962 |
| **Current Estimate** | DEC 2010 | 802.199 | 761.273 | 1178.888 | 1125.567 |

### SAR Unit Cost History

### Current SAR Baseline to Current Estimate (TY $M)

| Initial PAUC Prod Est | Changes | | | | | | | | PAUC Current Est |
|---|---|---|---|---|---|---|---|---|---|
| | Econ | Qty | Sch | Eng | Est | Oth | Spt | Total | |
| 874.674 | -66.664 | 67.101 | 20.137 | 79.749 | 203.891 | 0.000 | 0.000 | 304.214 | 1178.888 |

### Current SAR Baseline to Current Estimate (TY $M)

| Initial APUC Prod Est | Changes | | | | | | | | APUC Current Est |
|---|---|---|---|---|---|---|---|---|---|
| | Econ | Qty | Sch | Eng | Est | Oth | Spt | Total | |
| 833.613 | -65.200 | 95.570 | 18.205 | 65.467 | 177.912 | 0.000 | 0.000 | 291.954 | 1125.567 |

## SAR Baseline History

| Item/Event | SAR Planning Estimate (PE) | SAR Development Estimate (DE) | SAR Production Estimate (PdE) | Current Estimate |
|---|---|---|---|---|
| Milestone I | JUN 1981 | JUN 1981 | JUN 1981 | JUN 1981 |
| Milestone II | MAY 1983 | DEC 1983 | DEC 1983 | DEC 1983 |
| Milestone III | AUG 1986 | AUG 1986 | OCT 1986 | OCT 1986 |
| IOC | N/A | N/A | OCT 1990 | FEB 1993 |
| Total Cost (TY $M) | 10953.5 | 14910.6 | 20117.5 | 88416.6 |
| Total Quantity | 9 | 14 | 23 | 75 |
| Prog. Acq. Unit Cost (PAUC) | 1217.056 | 1065.043 | 874.674 | 1178.888 |

## Cost Variance

## Cost Variance Summary

| Summary Then Year $M | | | | |
|---|---|---|---|---|
| | RDT&E | Proc | MILCON | Total |
| SAR Baseline (Prod Est) | 916.6 | 19173.1 | 27.8 | 20117.5 |
| Previous Changes | | | | |
| Economic | -109.9 | -5253.8 | -- | -5363.7 |
| Quantity | -- | +46139.5 | -- | +46139.5 |
| Schedule | +144.9 | +1210.2 | -- | +1355.1 |
| Engineering | +357.0 | +2910.5 | +16.7 | +3284.2 |
| Estimating | +1951.3 | +12923.8 | -- | +14875.1 |
| Other | -- | -- | -- | -- |
| Support | -- | -- | -- | -- |
| Subtotal | +2343.3 | +57930.2 | +16.7 | +60290.2 |
| Current Changes | | | | |
| Economic | -- | +363.8 | +0.1 | +363.9 |
| Quantity | -- | +4376.1 | -- | +4376.1 |
| Schedule | -- | +155.2 | -- | +155.2 |
| Engineering | +697.5 | +1999.5 | -- | +2697.0 |
| Estimating | -2.8 | +419.6 | -0.1 | +416.7 |
| Other | -- | -- | -- | -- |
| Support | -- | -- | -- | -- |
| Subtotal | +694.7 | +7314.2 | -- | +8008.9 |
| Total Changes | +3038.0 | +65244.4 | +16.7 | +68299.1 |
| CE - Cost Variance | 3954.6 | 84417.5 | 44.5 | 88416.6 |
| CE - Cost & Funding | 3954.6 | 84417.5 | 44.5 | 88416.6 |

| Summary Base Year 1987 $M | | | | |
|---|---|---|---|---|
| | RDT&E | Proc | MILCON | Total |
| SAR Baseline (Prod Est) | 979.8 | 15948.3 | 25.6 | 16953.7 |
| Previous Changes | | | | |
| Economic | -- | -- | -- | -- |
| Quantity | -- | +29384.9 | -- | +29384.9 |
| Schedule | +89.1 | +188.3 | -- | +277.4 |
| Engineering | +225.8 | +1778.7 | +11.9 | +2016.4 |
| Estimating | +1349.2 | +6609.9 | +0.2 | +7959.3 |
| Other | -- | -- | -- | -- |
| Support | -- | -- | -- | -- |
| Subtotal | +1664.1 | +37961.8 | +12.1 | +39638.0 |
| Current Changes | | | | |
| Economic | -- | -- | -- | -- |
| Quantity | -- | +2060.0 | -- | +2060.0 |
| Schedule | -- | +86.4 | -- | +86.4 |
| Engineering | +389.6 | +936.9 | -- | +1326.5 |
| Estimating | -1.7 | +102.1 | -0.1 | +100.3 |
| Other | -- | -- | -- | -- |
| Support | -- | -- | -- | -- |
| Subtotal | +387.9 | +3185.4 | -0.1 | +3573.2 |
| Total Changes | +2052.0 | +41147.2 | +12.0 | +43211.2 |
| CE - Cost Variance | 3031.8 | 57095.5 | 37.6 | 60164.9 |
| CE - Cost & Funding | 3031.8 | 57095.5 | 37.6 | 60164.9 |

Previous Estimate: December 2009

| RDT&E | $M | |
|---|---|---|
| **Current Change Explanations** | **Base Year** | **Then Year** |
| Funding to develop Preliminary Analysis, Testing, and Design for introduction of DDG 51 Flight III in FY 2016. (Engineering) | +29.1 | +50.8 |
| Funding to develop Advanced Missile Defense Radar (AMDR) Integration plans for introduction in Flight III (Engineering) | +360.5 | +646.7 |
| Revised estimates to reflect efficiencies in Advanced Capability Build (ACB) 12 Integration (Estimating) | -1.7 | -2.8 |
| RDT&E Subtotal | +387.9 | +694.7 |

| Procurement | $M | |
|---|---|---|
| **Current Change Explanations** | **Base Year** | **Then Year** |
| Revised escalation indices. (Economic) | N/A | +363.8 |
| Total Quantity variance resulting from an increase of 4 ships from 71 to 75. (Subtotal) | +3277.1 | +6961.9 |
| Quantity variance resulting from an increase of 4 ships from 71 to 75. (Quantity) | (+2060.0) | (+4376.1) |
| Allocation to Schedule resulting from Quantity change. (Schedule) (QR) | (+86.4) | (+183.6) |
| Allocation to Engineering resulting from Quantity change. (Engineering) (QR) | (+207.8) | (+441.5) |
| Allocation to Estimating resulting from Quantity change. (Estimating) (QR) | (+922.9) | (+1960.7) |
| Acceleration of procurement buy profile from FY 2015 to FY 2014. (Schedule) (QR) | 0.0 | -28.4 |
| Additional funding for Flight III/AMDR requirements in FY 2016/FY 2017 (Engineering) | +729.1 | +1558.0 |
| Adjustment for current and prior escalation. (Estimating) | -72.0 | -136.6 |
| Additional estimating impact associated with increase in Program Quantity from 71 to 75 ships, including Outfitting and Post Delivery (Estimating) (QR) | +105.2 | +265.8 |
| Revised estimates for ship construction and Government Furnished Equipment associated with Multi Year Procurement (FY 2013-2017), program efficiencies and inflation impacts on future ships. (Estimating) | -854.0 | -1670.3 |
| Procurement Subtotal | +3185.4 | +7314.2 |

(QR) Quantity Related

| MILCON | $M | |
|---|---|---|
| **Current Change Explanations** | **Base Year** | **Then Year** |
| Revised escalation indices. (Economic) | N/A | +0.1 |
| Adjustment for current and prior escalation. (Estimating) | -0.1 | -0.1 |
| MILCON Subtotal | -0.1 | 0.0 |

## Contracts

| Appropriation: Procurement | |
|---|---|
| Contract Name | **102/104/106/108/109/111/** |
| Contractor | GENERAL DYNAMICS (BIW) |
| Contractor Location | BATH, ME 04530 |
| Contract Number, Type | N00024-02-C-2303, FPIF |
| Award Date | September 13, 2002 |
| Definitization Date | September 13, 2002 |

| Initial Contract Price ($M) | | | Current Contract Price ($M) | | | Estimated Price At Completion ($M) | |
|---|---|---|---|---|---|---|---|
| Target | Ceiling | Qty | Target | Ceiling | Qty | Contractor | Program Manager |
| 3599.8 | 3993.7 | 7 | 3665.3 | 4063.8 | 7 | 3656.3 | 3676.1 |

| Variance | Cost Variance | Schedule Variance |
|---|---|---|
| Cumulative Variances To Date (1/30/2011) | -39.0 | -18.2 |
| Previous Cumulative Variances | -23.3 | -41.4 |
| Net Change | -15.7 | +23.2 |

**Cost And Schedule Variance Explanations**

The net unfavorable change in cost variance is due to higher material costs (steel, copper, utilities, small tools). The net favorable change in schedule variance is due to time-phasing of material, and lean production processes to produce the ships at a lower price to government.

**Contract Comments**

This is a multi year contract to procure six ships (FY 2002-2005: DDGs 104/106/108/109 were delivered; DDG 111/112 in construction) and one additional FY 2002 ship (DDG 102-delivered) for a total of seven ships. Ships were awarded as follows: two in FY 2002, one in FY 2003, two in FY 2004 and two in FY 2005. Target Price, Ceiling Price, and Estimated Price at completion do not include performance incentive arrangements or estimated future change orders. Bath Iron Works has delivered five of the seven ships to date.

The increase from initial contract price to current contract price is due to negotiated changes to the contract.

The last two ships of this contract are in the final stages of production and will be delivered by early 2012. This contract is over 90% complete and this is the last time this contract will be reported.

**Appropriation: Procurement**

| | |
|---|---|
| Contract Name | **DDG 103/105/107/110 Cons** |
| Contractor | NORTHROP GRUMMAN (NGSS) |
| Contractor Location | PASCAGOULA, MS 39567 |
| Contract Number, Type | N00024-02-C-2304, FPIF |
| Award Date | September 13, 2002 |
| Definitization Date | September 13, 2002 |

| Initial Contract Price ($M) | | | Current Contract Price ($M) | | | Estimated Price At Completion ($M) | |
|---|---|---|---|---|---|---|---|
| Target | Ceiling | Qty | Target | Ceiling | Qty | Contractor | Program Manager |
| 1950.3 | 2146.8 | 4 | 1988.6 | 2205.6 | 4 | 2205.6 | 2205.6 |

| Variance | Cost Variance | Schedule Variance |
|---|---|---|
| Cumulative Variances To Date (1/23/2011) | -307.8 | +6.6 |
| Previous Cumulative Variances | -193.0 | -4.8 |
| Net Change | -114.8 | +11.4 |

**Cost And Schedule Variance Explanations**

The net unfavorable cost variance change is due to reduced productivity, particularly in the electrical and pipe trades,as well as commodity and material growth. The net favorable schedule variance change is due to resolution of outstanding schedule issues in order to meet final delivery milestones.

**Contract Comments**

This is a multi year contract to procure four ships (FY 2002-2005: DDG 103/105/107/110 have all been delivered). Ships were awarded one each in FY 2002/2003/2004/2005. Target Price, Ceiling Price, and Estimated Price at completion do not include performance arrangements or estimated future change orders.

The increase from initial contract price to current contract price is due to negotiated changes to the contract.

The final ship under this contract was delivered in February 2011. The contract is over 90% complete and this is the last time this contract will be reported.

## Deliveries and Expenditures

| Deliveries To Date | Plan To Date | Actual To Date | Total Quantity | Percent Delivered |
|---|---|---|---|---|
| Development | 0 | 0 | 0 | -- |
| Production | 60 | 60 | 75 | 80.00% |
| Total Program Quantities Delivered | 60 | 60 | 75 | 80.00% |

| Expenditures and Appropriations (TY $M) | | | |
|---|---|---|---|
| Total Acquisition Cost | 88416.6 | Years Appropriated | 32 |
| Expenditures To Date | 57665.7 | Percent Years Appropriated | 72.73% |
| Percent Expended | 65.22% | Appropriated to Date | 67921.0 |
| Total Funding Years | 44 | Percent Appropriated | 76.82% |

## Operating and Support Cost

**Assumptions And Ground Rules**

The Program baseline Operating & Support (O&S) estimate projects for a 75 ship buy, encompassing nine different baseline configurations and three different hull variants (Flights). Estimates are primarily derived from the Navy's Visibility And Management of Operating and Support Cost (VAMOSC) database. Estimates are based on data collected through 2010 for operational hulls DDG 51 through DDG 104, and DDG 106 for both shipyard and GFE systems. Estimates are based on a service life of 35 years.

Manpower optimization initiatives have been sought to leverage new technology and reduce costs. Reductions have been achieved across all DDG 51 Class Flights. For example, initial Flight IIA Billet Allotment (BA) was 333 officers and enlisted personnel. Policies have been implemented and new technologies deployed to reduce billets by 57 to 276, as reflected in the Ship Manpower Document (SMD), dated April 2007, for Flight IIA (DDG 91-102).

The Antecedent System shown below is the CG 47 Program. The CG 47 Class was used since it is the only other ship class with the AEGIS Weapon System installed. CG 47 estimates are based on 27 ships with a service life of 35 years.

(Cost estimate was updated February 2011).

| Costs BY1987 $M | | |
|---|---|---|
| **Cost Element** | **DDG 51 Average Annual Cost Per Ship (FY 1987$)** | **CG 47 Program Average Annual Cost Per Ship (FY 1987$)** |
| Unit-Level Manpower | 13.11 | 15.17 |
| Unit Operations | 6.25 | 6.45 |
| Maintenance | 6.09 | 10.90 |
| Sustaining Support | 0.60 | 0.75 |
| Continuing System Improvements | 0.32 | 1.88 |
| Indirect Support | 5.99 | 6.96 |
| Other | -- | -- |
| Total Unitized Cost (Base Year 1987 $) | 32.36 | 42.11 |

| Total O&S Costs $M | DDG 51 | CG 47 Program |
|---|---|---|
| Base Year | 84945.0 | 39794.0 |
| Then Year | 177651.0 | 63300.7 |