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Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

Selected Acquisition Report (SAR)



Small Diameter Bomb Increment II (SDB II)

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

Small Diameter Bomb Increment II (SDB II)

DoD Component

Air Force

Responsible Office

Program Manager

Name: Tracy Woodard

Date Assigned: July 4, 2021

Address: 102 West D Ave
Eglin AFB, FL 32542

Phone: (850) 883-2881

Mission and Description

Small Diameter Bomb Increment II (SDB II), GBU-53/B, StormBreaker, is a joint interest Air Force (AF) and Navy ACAT IC program, with the AF as the lead service. SDB II provides the warfighter the capability to attack mobile targets from standoff, through adverse weather. The threshold aircraft for the AF is the F-15E and the threshold aircraft for the Navy are the F-35B and F-35C. Objective aircraft include the F-16, F/A-18E/F, F-22A, F-35A, B-1B, B-2, B-52, A-10, MQ-9, and AC-130. SDB II will be compatible with the BRU-61 (Bomb Rack Unit) miniature munitions carriage, the CNU-660/E (Container Miscellaneous Unit) carriage system, the Common Munitions Bit and Reprogramming Equipment and the Joint Mission Planning System. The SDB II program will develop and field a single-weapon AF storage container and a dual Navy weapon storage container.

Executive Summary

SDB II

Program Highlights Since Last Report

On January 13, 2022, the SDB II Program Manager informed the Milestone Decision Authority (MDA) of APB unit cost and schedule deviations. Cost breach occurred after the MDA approved an increase to the procurement quantity from 17,000 (12,000 USAF, 5,000 USN) to 26,610 (21,610 USAF, 5,000 USN) total production weapons in response to Air Force Inventory Objective (IO) increase. The resulting program cost breached the Nunn-McCurdy significant cost threshold. Additionally, SDB II breached APB thresholds for F-35B/C Initial Operational Capability (IOC) and SDB II Full Rate Production (FRP) as a direct result of F-35B/C aircraft program software development delays. Congress was notified on March 4, 2022. The MDA approved an updated APB on May 12, 2022, establishing new cost and schedule objectives for the SDB II program. SDB II F-35B/C IOC milestones are now January 2025 (objective) and January 2026 (threshold). FRP milestones are now April 2025 (objective) and April 2026 (threshold). The previously reported Nunn-McCurdy breach resulting from a Milestone Decision Authority (MDA) approved increase in procurement quantity and due to delays in F-35B/C aircraft program software development have since been resolved. The MDA approved an updated APB on May 12, 2022, establishing new cost and schedule objectives for the SDB II program. SDB II F-35B/C IOC milestones are now January 2025 (objective) and January 2026 (threshold). FRP milestones are now April 2025 (objective) and April 2026 (threshold). Air Combat Command (ACC) declared SDB II IOC on the F-15E in September 2022. 144 weapons were designated for forward deployment in November 2022.

Production

3,039 production All Up Rounds (AURs) have been delivered (2,199 USAF, 840 USN). The start of Lot 6 (1,228 (747 USAF, 461 Navy, 20 FMS)) deliveries was delayed to July 2022 due to a COVID-related supplier materiel shortage. Final Lot 6 deliveries may be delayed up to six months; however, future production deliveries will catch up to the original schedule by end of Lot 8 (1,140 AURs (976 USAF and 164 DoN)). SDB II Production was constrained to minimum sustainment in Lots 6-8 by available budget. Lot 9 contract is nearing completion of negotiations and expected to award by 2nd Quarter FY 2023.

Development

The National Security Agency (NSA) certified the TacNet 1.1 weapon data link software upgrades required to meet the NSA-directed Link-16 crypto modernization mandate. Fielded AURs will be upgraded starting 3rd Quarter FY 2023 pending successful flight testing. TacNet 1.5 weapon data link development completed Dec 2022, with production delivery on track to support mid-Lot 7 cut-in scheduled for end of 2nd Quarter FY 2024. The Program Office completed the Common Architecture for Assured Positioning Navigation and Timing (CAAP) Application-Specific Integrated Circuit (ASIC) lifetime buy in September 2022, procuring 85,140 CAAP ASICs within Office of the Secretary of Defense allotted funding. CAAP ASIC is Raytheon's key component for an M-Code compliant GPS Receiver solution to meet the FY 2011 National Defense Authorization Act Mandate for SDB II, Tactical Tomahawk Land Attack Missile (TLAM), and other Raytheon weapon systems. Progress continues toward design changes required for wide exportability to F-35 Foreign Military Sales (FMS) partners. The Program Office awarded the Tech Refresh Technology Maturation and Risk Reduction (TM/RR) contract in April 2022 to address seeker and millimeter wave obsolescence required to meet the new IO.

Test & Integration

Operational F-15E units successfully released four Guided Test Vehicles (GTV) during a Weapon Systems Evaluation Program test in November 2022. Preliminary analysis indicates successful target prosecution. SDB II completed two F/A-18E/F weapon separation tests and demonstrated Normal Attack capability against a moving target. IOC is estimated 3rd Quarter FY 2023. SDB II conducted F-35B developmental tests weapon releases and completed one operational test mission. EOC anticipated 4th Quarter FY 2023 SDB II completed flight test planning for F-35C. Testing is scheduled to begin 2nd Quarter FY 2023. EOC is on target for 4th Quarter FY 2024 and IOC is slated for 2nd Quarter FY 2025. F-35A completed 20 of 23 environment flight tests to include gun fire and load vibration testing on February 23, 2023. This variant began pit testing February 2023 and completed March 7, 2023.

History of Significant Developments Since Program Initiation	
History of Significant Developments Since Program Initiation	
Date	Significant Development Description
Sep - 2022	Air Combat Command (ACC) declared SDB II Initial Operational Capability (IOC) on F-15E on 8 Sep 2022.
May - 2022	Current APB updated to reflect new cost objectives following Significant Nunn-McCurdy caused by an increased inventory (17,000 to 26,610) objective; APB also updated to address F-35 and FRP schedule breaches.
May - 2022	Updated APB (APB Change 3) was signed by the Component Acquisition Executive (CAE)/Principal Deputy Assistant Secretary of the Air Force Acquisition, Technology & Logistics establishing a new cost and schedule baseline.
Mar - 2022	Congress notified of Significant Nunn-McCurdy breaches.
Jan - 2022	Declared a Significant Nunn-McCurdy breach for unit cost due to MDA approved IO increase. Schedule breach was a direct result of F-35B/C program software development schedule delays, impacting SDB II F-35B/C Initial Operational Capability and SDB II Full Rate Production.
Jan - 2022	Final Lot 8 quantities awarded for 976 USAF and 164 DoN weapons
Oct - 2021	Initial Lot 8 contract award; quantities constrained by available Continuing Resolution funding.
Jun - 2021	Six separations completed on the F-35 for initial F-35B Early Operational Capability (EOC) envelope.
Apr - 2021	Lot 7 exercised for 674 USAF and 226 Navy weapons.
Oct - 2020	Lot 6, the first sole-source production contract, was awarded for 747 USAF, 461 Navy, and 20 Foreign Military Sales weapons.
Sep - 2020	ACC/A5/8/9 authorized the fielding of the GBU-53/B, SDB II on the F-15E Strike Eagle.
Jan - 2020	Current APB updated to reflect new cost objectives following Significant Nunn-McCurdy
Jan - 2020	Declared F-15E Required Assets Available (RAA)
Dec - 2019	Completed all OT requirements.
Sep - 2019	Completed OT Cybersecurity Testing.
Sep - 2019	Declared a Significant Nunn-McCurdy breach for unit cost.
May - 2019	Completed OT mission scenarios.
Apr - 2019	Updated APB was signed by the Service Acquisition Executive (SAE) and changed F-15E RAA threshold/objective dates to August 2019/August 2020.
Jan - 2019	First FA-18E/F flight test.
Dec - 2018	LRIP Lot 5 option exercised for 510 USAF and 750 Navy weapons.
Nov - 2018	The first Production Reliability Incentive Demonstration flight test was completed.
Oct - 2018	Follow-on Justification and Approval (J&A) signed for Other than Full and Open Competition for production beyond Lot 5, continuing sustainment and modernization.
May - 2018	Completed Developmental Testing, including the 28-shot Government Confidence Testing.
Feb - 2018	LRIP Lot 4 option exercised for 570 USAF and 90 Navy weapons.
Sep - 2017	LRIP Lot 3 option exercised for 312 USAF weapons.
Sep - 2016	LRIP Lot 2 option exercised for 250 USAF weapons.

Date	Significant Development Description
Sep - 2015	DAE signed the MS C APB. The APB included updated F-15E Required Asset Available dates to account for previous program delays and to allow sufficient time for the remaining Developmental Testing (DT) and the upcoming Operational Testing (OT).
Jun - 2015	Defense Acquisition Executive (DAE) signed the MS C ADM authorizing entrance into Low Rate Initial Production (LRIP).
Jun - 2015	LRIP Lot 1 option exercised for the first 144 USAF weapons.
Apr - 2015	Systems Verification Review.
Jan - 2015	JROC approved use of SDB II CDD in lieu of CPD for production MS C. They also formally added the AC-130 as an objective aircraft.
Dec - 2014	Test, Analyze, and Fix (TAAF) testing complete, culminating over 18 months of testing that totaled 2,190 hours. TAAF demonstrated a reliability of 253 hours Mean Time Between Failure which surpassed the 250 hour requirement.
Nov - 2014	First Live Fire Test.
Jul - 2012	First Guided Test Vehicle (GTV)-1 flight test.
Jan - 2011	Conducted the Critical Design Review (CDR). The office of the Deputy Assistant Secretary of Defense for Systems Engineering concluded that the CDR is complete and the SDB II Program is "well situated to continue into the System Capability and Manufacturing Process Demonstration Phase."
Oct - 2010	DAE signed the Milestone (MS) B APB.
Aug - 2010	Defense Acquisition Executive (DAE) signed an Acquisition Decision Memorandum (ADM) authorizing the program to enter the Engineering and Manufacturing Development (EMD) phase and certified the program pursuant to section 2366b of Title 10, U.S. Code.
Jul - 2009	Joint Requirements Oversight Council (JROC) approved the SDB II Capability Development Document (CDD).

Schedule

SDB II

Events	Milestone Baseline Objective	Current Baseline Objective/Threshold		Current Estimate/Actual	Deviation
Milestone B Approval	Aug 2010	Aug 2010	Aug 2010	Aug 2010	
Milestone C Approval	May 2015	May 2015	May 2015	May 2015	
RAA for SDB II-Threshold Aircraft F-15E	Jan 2018	Jan 2020	Jan 2020	Jan 2020	
F-35B Initial Fielding	Jan 2022	Jan 2025	Jan 2026	Jan 2025	
F-35C Initial Fielding	Jan 2022	Jan 2025	Jan 2026	Jan 2025	
Full Rate Production	Apr 2022	Apr 2025	Apr 2026	Apr 2025	

Schedule Note

SDB II breached APB thresholds for F-35B/C IOC and SDB II FRP as a direct result of F-35B/C aircraft program software development delays. Congress was notified on March 4, 2022. The MDA approved an updated APB on May 12, 2022, establishing new schedule objectives for the SDB II program. SDB II F-35B/C IOC milestones are now January 2025 (objective) and January 2026 (threshold). FRP milestones are now April 2025 (objective) and April 2026 (threshold).

Some of the Schedule Events and Issues for this program are Controlled Unclassified Information (CUI) and have been removed per paragraph (i) of title 10 United States Code 4351 which required the SAR be submitted without any designation relation to dissemination control.

Performance

SDB II

Performance Characteristics				
Milestone Baseline	Current Baseline Objective/Threshold	Demonstrated Performance	Current Estimate/Actual	Deviation
(KPP) - Carrier Operability (Navy Unique Requirement)				
SDB II will be compatible with carrier operations without degrading other naval operations. Compatibility includes being capable of at least fifty catapult launches and forty-nine arrested landings; able to be transported, handled, stored, prepared, uploaded, and downloaded; and capable of operating in EMI, EMC, container immersion/washdown, salt fog/salt spray, explosive atmosphere, mechanical shock (i.e., near-miss, catapult launches/arrested landings, and handling shock), acoustic noise, vibration, fluid contamination, corrosive atmosphere, fungus, humidity, ice, and rain environments of aircraft carrier and replenishment ship operations.	SDB II will be compatible with carrier operations without degrading other naval operations. Compatibility includes being capable of at least fifty catapult launches and forty-nine arrested landings; able to be transported, handled, stored, prepared, uploaded, and downloaded; and capable of operating in EMI, EMC, container immersion/washdown, salt fog/salt spray, explosive atmosphere, mechanical shock (i.e., near-miss, catapult launches/arrested landings, and handling shock), acoustic noise, vibration, fluid contamination, corrosive atmosphere, fungus, humidity, ice, and rain environments of aircraft carrier and replenishment ship operations.	(T=O) SDB II will be compatible with carrier operations without degrading other naval operations. Compatibility includes being capable of at least fifty catapult launches and forty-nine arrested landings; able to be transported, handled, stored, prepared, uploaded, and downloaded; and capable of operating in EMI, EMC, container immersion/washdown, salt fog/salt spray, explosive atmosphere, mechanical shock (i.e., near-miss, catapult launches/arrested landings, and handling shock), acoustic noise, vibration, fluid contamination, corrosive atmosphere, fungus, humidity, ice, and rain environments of aircraft carrier and replenishment ship operations.	Demonstrated performance data will be displayed when SDB II completes F-35C OT, AFOTEC provides the final report and analysis is completed.	SDB II will be compatible with carrier operations without degrading other naval operations. Compatibility includes being capable of at least fifty catapult launches and forty-nine arrested landings; able to be transported, handled, stored, prepared, uploaded, downloaded; and capable of operating in EMI, EMC, container immersion/washdown, salt fog/salt spray, explosive atmosphere, mechanical shock (i.e., near-miss, catapult launches/arrested landings, and handling shock), acoustic noise, vibration, fluid contamination, corrosive atmosphere, fungus, humidity, ice, and rain environments of aircraft carrier and replenishment ship operations.

(KPP) - Materiel Availability

Once 3,000 SDB II weapons are in the inventory, the Materiel Availability for SDB II will be no less than .95.

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The Materiel Availability for SDB II will follow this graduated scale: Greater than 500 weapons in inventory - no less than .75 Greater than 1,000 weapons in inventory - no less than .80 Greater than 3,000 weapons in inventory - no less than .90.

99.6% availability with 3,039 weapons in inventory (2,199 USAF; 840 DoN)

The Materiel Availability for SDB II will follow this graduated scale: Greater than 500 weapons in inventory - no less than .75 Greater than 1,000 weapons in inventory - no less than .80 Greater than 3,000 weapons in inventory- no less than .90.

(KPP) - Net Ready

I) Support net-centric military operations: A) Mission: Positive weapon control during engagement of mobile (moving and stationary) targets enabled by digital communications as planned and/or event-driven. 1) Measure: Receipt of weapon control directives = less than or equal to 12 seconds (Link 16), Transmission of situation awareness messages = less than or equal to 30 seconds UHF. 2) Conditions: Secure and available communications (DoD Chief Information Officer net-centric attribute). B) Mission Activities: Enable target acquisition; Target tracking. 1) Measure: Link 16

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The SDB II OFP versions 07.03.07 and 07.11.04 with TacNet v1.1 partially fulfills the interoperability requirements of the Joint Staff- certified Net- Ready KPP and approved architecture viewpoints contained in the Milestone C Information Support Plan (ISP). As of November 2, 2020, Joint Interoperability Test Command (JITC) certifies SDB II OFP versions 07.03.07 and 07.11.04 with conditions as described in Table 1 of the interoperability certification document. This certification is based on performing all joint critical tasks specified in the Milestone C ISP. This certification expires upon changes that affect interoperability or no later than 4 years from the date of issuance.

Support net-centric military operations:A) Mission: Positive weapon control during engagement of mobile (moving and stationary) targets enabled by digital communications as planned and/or event-driven. 1) Measure: Receipt of weapon control directives = less than or equal to 12 seconds (Link 16); Transmission of situation awareness messages = less than or equal to 30 seconds UHF. 2) Conditions: Secure and available communications (DoD Chief Information Officer net-centric attribute).

Target location accuracy** = 60 meters TLE90 and UHF** = 100 meters TLE90. 2) Conditions: SWE and WE conditions. II) Enter and be managed in the network: A) Link 16 tactical data link network. 1) Measure: Time to fine synchronization = less than or equal to 60 seconds; Terminal performance = 99% availability; Messaging = MER of less than or equal to 1%. 2) Conditions: Operational network; Type 1 encryption; Spectrum availability. B) Line-of-sight UHF tactical data link network. 1) Measure: Time to fine synchronization = less than or equal to 60 seconds; Terminal Performance = 99% availability; Messaging = MER less than or equal to 1%. 2) Conditions: Operational network; Type 1 encryption; spectrum availability. III) Exchange Information: A) Link 16 weapon control: 1) Measure: Periodicity = less than or equal to 12 seconds; Timeliness = less than or equal to 3 seconds;

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Throughput = 53.76 kilobits per second; Size = 0.56 kilobits.

2) Conditions:

Operational network; Type I encryption; Required spectrum is available. B) UHF weapon control Joint Terminal Attack Command and Control (JTAC2):

1) Measure:

Periodicity = less than or equal to 30 seconds; Timeliness = less than or equal to 6 seconds; Throughput = 16 kilobits per second; Size = 1.12 kilobits.

2) Conditions:

Operational network; Type I encryption; Required spectrum is available. C) Link 16 precise participant location and identification TDL 1: 1) Measure:

Periodicity = less than or equal to 12 seconds; Timeliness = less than or equal to 3 seconds;

Throughput = 53.76 kilobits per second; Size = 0.315 kilobits.

2) Conditions:

Operational network; Type I encryption; Required spectrum is available.

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(KPP) - Scenario Weapon Effectiveness

Given SDB II weapon delivery from an objective platform employing self targeting or an SDB II weapon delivery from a threshold or objective aircraft with third party targeting via an objective airborne platform (Paragraph 6.2.3.1.2 of CDD for SDB II dated July 28, 2009), the SDB II weapon will achieve a minimum PSSK of (OB-1) when averaged over all the target types contained in Table 6-1 of CDD for SDB II dated July 28, 2009. The Joint JROC reviewed the CDD in lieu of the CPD on November 18, 2014; the JROC subsequently signed the memorandum on January 13, 2015.	Given SDB II weapon delivery from an objective platform employing self targeting or an SDB II weapon delivery from a threshold or objective aircraft with third party targeting via an objective airborne platform (Paragraph 6.2.3.1.2 of CDD for SDB II dated July 28, 2009), the SDB II weapon will achieve a minimum PSSK of (OB-1) when averaged over all the target types contained in Table 6-1 of CDD for SDB II dated July 28, 2009. The Joint JROC reviewed the CDD in lieu of the CPD on November 18, 2014; the JROC subsequently signed the memorandum on January 13, 2015.	Given SDB II weapon delivery from a threshold aircraft employing self targeting or a threshold aircraft delivering SDB II with third party targeting via a JTAC, the SDB II weapon will achieve a minimum PSSK of (T-1) when averaged over all the target types contained in Table 6-1 of CDD for SDB II dated July 28, 2009. The JROC reviewed the CDD in lieu of the CPD on November 18, 2014; the JROC subsequently signed the memorandum on January 13, 2015.	Given SDB II weapon delivery from a threshold aircraft employing self targeting or a threshold aircraft delivering SDB II with third party targeting via a JTAC, the SDB II weapon will achieve a minimum PSSK of (T-1) when averaged over all the target types contained in Table 6-1 of CDD for SDB II dated July 28, 2009.	Given SDB II weapon delivery from a threshold aircraft employing self targeting or a threshold aircraft delivering SDB II with third party targeting via a JTAC, the SDB II weapon will achieve a minimum PSSK of (T-1) when averaged over all the target types contained in Table 6-1 of CDD for SDB II dated July 28, 2009. The JROC reviewed the CDD in lieu of the CPD on November 18, 2014; the JROC subsequently signed the memorandum on January 13, 2015.
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(KSA) - Weapon Effectiveness

Given meeting the threshold of WE the SDB II will achieve a minimum PSSK of	Given meeting the threshold of WE the SDB II will achieve a minimum PSSK of	SDB II will achieve a minimum PSSK of (T-3) for each	DOT&E assessed SDB II OT performance has not achieved a minimum	DOT&E assessed SDB II OT performance has not achieved a
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(O-3), when averaged over various environmental/threat condition cases listed in Appendix F of CDD for SDB II dated July 28, 2009. The JROC reviewed the CDD in lieu of the CPD on November 18, 2014, the JROC subsequently signed the memorandum on January 13, 2015.

(O-3), when averaged over various environmental/threat condition cases listed in Appendix F of CDD for SDB II dated July 28, 2009. The JROC reviewed the CDD in lieu of the CPD on November 18, 2014, the JROC subsequently signed the memorandum on January 13, 2015.

target type (Table 6-1 of CDD for SDB II dated July 28, 2009) in each environmental/threat condition case listed in Appendix F of CDD for SDB II dated July 28, 2009. The JROC reviewed the CDD in lieu of the CPD on November 18, 2014, the JROC subsequently signed the memorandum on January 13, 2015.

PSSK of (T-3) for each target type (Table 6-1 of CDD for SDB II dated July 28, 2009) because the demonstrated Pe/r was significantly lower than predicted by Modeling and Simulation of each environment/threat condition case listed in Appendix F of CDD for SDB II dated July 28, 2009. The Program Office has evaluated the weapon engagement failures and is pursuing algorithm improvements to mitigate. The Program Office implemented an updated OFP (7.12.03) correcting numerous OT issues and is working on future OFP updates to correct additional deficiencies. The JROC reviewed the CDD in lieu of the CPD on November 18, 2014, the JROC subsequently signed the memorandum on January 13, 2015. SDB II has initiated software improvements that will increase Pssk by improving Target classification and tracking.

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				that will increase Pssk by improving Target classification and tracking.	
(KPP) - Weapon Loadout					
Four SDB II weapons integrated onto the BRU-61/A. Aircraft will be able to carry and employ both SDB I and II weapons loaded on separate BRU-61/As during the same mission.	Four SDB II weapons integrated onto the BRU-61/A. Aircraft will be able to carry and employ both SDB I and II weapons loaded on separate BRU-61/As during the same mission.	(T=O) Four SDB II weapons integrated onto the BRU-61/A. Aircraft will be able to carry and employ both SDB I and II weapons loaded on separate BRU-61/As during the same mission.	Performance has been demonstrated.	Four SDB II weapons integrated onto the BRU- 61/A. Aircraft will be able to carry and employ both SDB I and II weapons loaded on separate BRU -61/As during the same mission.	

Requirement Reference

Capability Development Document in lieu of Capability Production Document for Small Diameter Bomb II validated by JROC, January 13, 2015

Acquisition Budget Estimate

SDB II

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	2015	1,678.1	2,153.3	2,368.6	2,123.5	2,269.6	
Procurement	2015	2,376.8	5,636.2	6,199.8	5,152.1	7,390.6	
MILCON	2015	0					
Acq. O&M	2015	0					
Total		4,054.9	7,789.5	--	7,275.6	9,660.2	
PAUC	2015	.236	.291	.320	.272	.361	
APUC	2015	.140	.212	.233	.194	.278	

Budget Note

Changes since previous SAR: The SDB II program's May 2022 Acquisition Program Baseline (APB) now reflects an APUC of \$0.212M (BY 2015) and PAUC of \$0.291M (BY 2015), an increase over the January 2020 APB estimate of \$0.174M (BY 2015) and \$0.283M (BY 2015). The cost increase is due to an increase to the SDB II IO from 17,000 (12,000 AF and 5,000 Navy) to 26,610 (21,610 AF and 5,000 Navy). This increase drives significant additional costs required to scale and extend the platform, including extended lot integration and test activities, technology refresh, and an extended F-35 integration schedule.

Additionally, the program received requirements after Milestone C to incorporate Military-Code (M-Code) Global Positioning System (GPS), cryptographic modernization, and exportability features, all requiring hardware upgrades that increase unit cost. The APB covers the SDB II weapon system which consists of the Guided Bomb Unit (GBU)-53/B munition, mission planning and logistics system, and associated containers.

The PB 2024 Budget Estimate includes FY 2023 Omnibus Appropriations Bill Congressional marks: \$100M increase to AF Procurement, \$5M increase to AF RDT&E for Precise Navigation, and \$7.6M decrease to Navy Procurement; and has been updated to align with the FY 2024 PB. FY 2023 Inflation Indices have been incorporated to calculate updated Base Year dollars for PB 2024 Budget Estimate. APB values have not been updated. been incorporated to calculate updated Base Year dollars for PB 2024 Budget Estimate. APB values have not been updated.

Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	163	163
Procurement	26,610	26,610
O&M-Acquired	--	--

Unit Cost**SDB II**

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Category (\$M) Base Year: 2015	Current UCR Baseline	Current Estimate	% Change
Program Acquisition Unit Cost			
Cost	7,789.5	7,275.6	
Quantity	26,773	26,773	
Unit Cost	.291	.272	-6.60%
Average Procurement Unit Cost			
Cost	5,636.2	5,152.1	
Quantity	26,610	26,610	
Unit Cost	.212	.194	-8.59%
Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Category (\$M) Base Year: 2010	Original UCR Baseline	Current Estimate	% Change
Program Acquisition Unit Cost			
Cost	4,577.5	6,727.3	
Quantity	17,163	26,773	
Unit Cost	.267	.251	-5.99%
Average Procurement Unit Cost			
Cost	2,975.3	4,763.8	
Quantity	17,000	26,610	
Unit Cost	.175	.179	2.29%

The Current Estimate's base-year costs have been converted from Base Year 2015 to Base Year 2010 using the National Defense Budget Estimates for FY 2015 (Green Book).

Risks

SDB II

Risk and Sensitivity Analysis

Risk and Sensitivity Analysis
Current Procurement Cost (December - 2022)
1. The cost estimate includes risk dollars utilizing approved methods per the AF Cost Risk and Uncertainty Handbook. Risk dollars were applied across production lots at varying lower level work breakdown cost elements in accordance with the identified SDB II program schedule and technical risks. SDB II began LRIP in FY 2015.
Original Baseline Estimate (October - 2010)
1. USD AT&L directed the SDB II Program to be funded to the Joint Service Cost Position estimate. The cost risk is the difference in the cost estimates and resource requirements, which total approximately TY \$181M.
Current Baseline Estimate (May - 2022)
1. There are no risks identified with this baseline estimate.

Significant Schedule Risks

Significant Schedule Risks
Current Estimate (December - 2022)
There are no significant schedule risks with the program at this time.

Technologies and Systems Engineering

Significant Technical Risks
Current Estimate (December - 2022)
There are no significant Technical risks with the program at this time.

Low Rate Initial Production

SDB II

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	08/06/2010	06/04/2015
Approved Quantity	4,034	9,947
Reference	Milestone B ADM	Milestone C ADM
Start Year	2013	2015
End Year	2018	2022

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

The Current Total LRIP Quantity is more than 10% of the total production quantity due to a delay in the completion of Operational Test and Evaluation (OT&E) resulting from F-35B/C program schedule delays. Since the SDB II Engineering Manufacturing Development (EMD) contract award, the F-35B/C schedule has been further delayed, which required an additional increase in the LRIP quantities to 9,947. The LRIP quantity increase was approved by the Milestone C ADM and accounts for delivered quantities in Lots 1-5 and most probable quantities in Lots 6-11. These quantities were necessary to provide production-configured or representative articles for OT to establish an initial production base for the system, and to permit an orderly increase in the production rate for the system sufficient to lead to FRP.

Contracts & Efforts

Contract Data	
Contract Number	FA8672-20-C-0005
Effort Number	
Modification Number	6
Award Date	04/28/2020
Definitization Date	10/15/2020
Order Number	
CAGE Code/CAGE Legal Name	15090/Raytheon Missiles & Defense
Contract Title	Lot 6
Contract Address	Tucson, AZ
Contracting Office	FA8672
Supported Phase	Production
Contract Strategy	FAR 15 (Negotiated)
Contract Type	Fixed-Price Incentive (Firm Target)
Modification Date	June 30, 2022
Work Start Date	October 15, 2020
Technical Data Rights	
Work Completed	

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

Initial Target Price	Current Target Price	
\$273.9	\$273.9	
Initial Ceiling Price	Current Ceiling Price	
\$281.1	\$281.1	
Contractor EAC	PM EAC	
\$281.1	\$281.1	
Initial Quantity	Current Quantity	Delivered Quantity
1,228	1,228	0

Contract Notes:

SDB II Lot 6 Fixed Price Incentive Firm (FPIF) definitization modification was awarded on October 15, 2020, for 1,228 weapons, 874 single weapon containers, 237 dual weapon containers, 5 practical explosive ordinance disposal system trainers, 40 guided test vehicle underbuilds, 10 CCRT test vehicles, and 55 weapon load crew trainers/conventional munitions maintenance trainers. The contractual completion date is February 28, 2023; however, it is expected to slip four to seven months due to supplier materiel shortage with plan to catch up by Lot 8 The October 15, 2020, award was the result of a sole source acquisition as a follow-on to competition.

The Program obtained an EVMS waiver for Lot 6 and 7, from the Service Acquisition Executive (SAE) on February 24, 2020, and therefore no EVMS reporting is required by the Contractor or Subcontractor. To provide insight into cost, schedule, and performance, the Contractor will submit quarterly Contract Funds Status Reports (CFSR) and Cost and Software Data Reports (CSDR).

Contract Data	
Contract Number	FA8672-18-C-0010
Effort Number	
Modification Number	15
Award Date	02/27/2018
Definitization Date	02/27/2018
Order Number	
CAGE Code/CAGE Legal Name	15090/Raytheon Missiles & Defense
Contract Title	LRIP Lot 4
Contract Address	Tucson, AZ
Contracting Office	
Supported Phase	Production
Contract Strategy	FAR 15 (Negotiated)
Contract Type	Firm-Fixed-Price
Modification Date	November 24, 2021
Work Start Date	February 27, 2018
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TYSM)		
Initial Target Price	Current Target Price	
\$85.9	\$85.9	
Initial Ceiling Price	Current Ceiling Price	
N/A	N/A	
Contractor EAC	PM EAC	
\$85.9	\$85	
Initial Quantity	Current Quantity	Delivered Quantity
660	660	660

Contract Note:

Lot 4 purchased 660 weapons, 398 single weapon containers, 136 dual weapon containers, 20 captive test vehicles, 20 flight test vehicles and 45 weapon load crew trainers/conventional munitions maintenance trainers on February 27, 2018. As of December 2022, all assets have been delivered except for 4 test vehicles with expected delivery January 2024.

Contract Data	
Contract Number	FA8672-19-C-0010
Effort Number	
Modification Number	11
Award Date	12/18/2018
Definitization Date	12/18/2018
Order Number	
CAGE Code/CAGE Legal Name	15090/Raytheon Missiles & Defense
Contract Title	LRIP Lot 5
Contract Address	Tucson, AZ
Contracting Office	FA8672
Supported Phase	Production
Contract Strategy	FAR 15 (Negotiated)
Contract Type	Firm-Fixed-Price
Modification Date	June 30, 2022
Work Start Date	December 18, 2018
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$141.4	\$141.4	
Initial Ceiling Price	Current Ceiling Price	
N/A	N/A	
Contractor EAC	PM EAC	
\$141.4	\$141.4	
Initial Quantity	Current Quantity	Delivered Quantity
1,260	1,260	1,260

Contract Note:

Lot 5 purchased 1,260 weapons, 389 single weapon containers, 344 dual weapon containers, 20 captive test vehicles, 20 guided test vehicles and 36 weapon load crew trainers/conventional munitions maintenance trainers on December 18, 2018. As of November 2022, all assets have been delivered, excluding 20 guided test vehicles. Lot 5 final weapon deliveries have been modified to June 30, 2021 through August 31, 2023 (16 guided test vehicles) and January 31, 2024 (4 guided test vehicles). The December 18, 2018, award was the result of a sole source acquisition as a follow-on to competition. The contract was awarded via a Firm-Fixed-Price (FFP) arrangement; therefore, a number of data fields related to cost and incentive type contracts as well as EVM are not applicable, such as target price, ceiling price, contractor estimate at completion, CSSR, CPR, EV Completion, etc. The information provided in the non-applicable data fields is associated with the FFP value.

Cost and Schedule Variance reporting is not required on this FPIF contract because an Earned Value Management System (EVMS) waiver was granted by the Principal Deputy Assistant Secretary of the Air Force for Acquisition on December 19, 2017, due to utilizing a firm fixed-price incentive (fixed target) contract type, in an effort to conform to the Better Buying Power initiative.

Contract Data	
Contract Number	FA8672-21-C-0005
Effort Number	
Modification Number	4
Award Date	09/28/2021
Definitization Date	10/28/2021
Order Number	
CAGE Code/CAGE Legal Name	15090 Raytheon Compa/Raytheon Missiles & Defense
Contract Title	Lot 8
Contract Address	Tucson, AZ
Contracting Office	FA8672
Supported Phase	Production
Contract Strategy	FAR 15 (Negotiated)
Contract Type	Fixed-Price Incentive (Firm Target)
Modification Date	January 24, 2022
Work Start Date	October 28, 2021
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TYSM)		
Initial Target Price	Current Target Price	
\$92.9	\$215.7	
Initial Ceiling Price	Current Ceiling Price	
\$94.8	\$224.3	
Contractor EAC	PM EAC	
\$215.7	\$224.3	
Initial Quantity	Current Quantity	Delivered Quantity
491	1,140	0

Contract Note:

Lot 8 FPIF contract fully executed on January 24, 2022, for 1,140 weapons (976 USAF/164 USN), 976 single weapon containers, and 82 dual weapon containers. Work to be complete by January 31, 2025 (USAF), and February 28, 2025 (USN). The Program obtained an EVMS waiver from the SAE on February 24, 2020, and therefore no EVMS reporting is required by the Contractor or Subcontractor. To provide insight into cost, schedule, and performance, the Contractor will submit CFSR and CSDR.

Contract Data	
Contract Number	FA8672-21-C-0005
Effort Number	
Modification Number	2
Award Date	04/29/2021
Definitization Date	04/29/2021
Order Number	
CAGE Code/CAGE Legal Name	15090/Raytheon Missiles 7 Defense
Contract Title	Lot 7
Contract Address	Tucson, AZ
Contracting Office	FA8672
Supported Phase	Production
Contract Strategy	FAR 15 (Negotiated)
Contract Type	Fixed-Price Incentive (Firm Target)
Modification Date	October 28, 2021
Work Start Date	April 29, 2021
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TYSM)		
Initial Target Price	Current Target Price	
\$212.7	\$212.7	
Initial Ceiling Price	Current Ceiling Price	
\$221.2	\$221.7	
Contractor EAC	PM EAC	
\$212.7	\$221.7	
Initial Quantity	Current Quantity	Delivered Quantity
1,100	1,100	0

Contract Note:

Lot 7 FPIF contract award was executed April 29, 2021 for 1,100 weapons, 674 single weapon containers, and 113 dual weapon containers. The contractual completion date is February 29, 2024; however, it is expected to slip four to seven months due to Lot 6 delays. Lot 7 awarded on April 29, 2021 and resulted from a sole source acquisition as a follow-on to competition.

The Program obtained an EVMS waiver for Lot 6 and 7, from the SAE on February 24, 2020, and therefore no EVMS reporting is required by the Contractor or Subcontractor. To provide insight into cost, schedule, and performance, the Contractor will submit CFSR and CSDR.

Deliveries and Expenditures

SDB II

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	163	163	163	100.00%
Production	3,171	2,992	26,610	11.24%
Total Program Quantity Delivered	3,334	3,155	26,773	11.78%

Expended and Appropriated (TY \$M)

Years Appropriated to date: 18

Total Years Appropriated Funding (Current Baseline): 23

Percent Years Appropriated: 78.26%

Then-Year Funding Appropriated as Percentage of Total Acquisition Estimate: 37.11%

Then-Year Funding Expended as Percentage of Total Acquisition Estimate: 27.94%

Total Acquisition Cost: \$9,660.2

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The Government does not take delivery of the 163 Developmental Test (DT) Assets and these assets will not go to inventory. Total sustainment quantity (26,610) will be delivered to inventory. The difference between Procurement quantities "Planned to Date" and "Actual to Date" is due to previously reported Lot 6 delivery delays, which will catch up/get well by Lot 8.

Operating and Support Costs

SDB II

O&S Cost Breakdown:

Category (BY2015\$ Million)	SDB II (Air Force + Navy)
Unit-Level Manpower	\$49.6
Unit Operations	\$0.0
Maintenance	\$205.8
Sustaining Support	\$451.9
Continued System Improvements	\$138.8
Other	\$82.1
Total	\$928.2

Cost Estimate Source: POE dated May 12, 2022

Total Program O&S Cost Compared with Baseline					
	Current Baseline				
Base Year: 2015	Objective (BY\$M)	Threshold (BY\$M)	Current Estimate (BY\$M)	Current Estimate (TY\$M)	Deviation
Total O&S	\$1,029.3	\$1,132.2	\$928.2	\$1,794.0	

Operating and Support Costs - Disposal and Unitized Costs**SDB II****Annual Unitized O&S Cost Definition and Calculation Relative to Total O&S Cost:**

Annual O&S Cost per Unit = Total O&S Cost Air Force Annual OS Cost Per Unit: 1.302 Navy Annual OS Cost Per Unit: 3.656

Sustainment Factors	System Name: SDB II (AF and Navy)	Antecedent System Name:
Quantity to Sustain	26,610	
Unit of Measure	SDB II	
Unit Expected Service Life	20	

Base Year: 2015

Annual Unitized O&S Cost by Category Base Year \$ Unit:(\$K)	System Name: SDB II (AF and Navy)	Antecedent System Name:
Unit-Level Manpower	\$0.1	
Unit Operations	\$0.0	
Maintenance	\$1.5	
Sustaining Support	\$2.5	
Continued System Improvements	\$0.5	
Other	\$0.3	
Total O&S	\$4.9	

Disposal/Demilitarization Cost Estimate

(BY2015\$M)	System Name: SDB II (AF and Navy)	Antecedent System Name:
Total Disposal		

Cost Estimate Source - Disposal	
Type:	Program Office Estimate
Approval Authority and Date:	Acquisition Program Baseline 05/12/2022
Note:	
2022 APB Disposal Cost: No estimate.	
Disposal Cost Note:	
None	
Additional O&S Estimate Assumptions:	
None	