Department of Defense
Fiscal Year (FY) 2023 Budget Estimates

April 2022

Office of the Secretary Of Defense

Defense-Wide Justification Book Volume 1 of 2

Defense Production Act Purchases

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Table of Volumes

Volume 1 Table of Contents

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Defense-Wide
FY 2023 President's Budget
Exhibit P-1 FY 2023 President's Budget
Total Obligational Authority
(Dollars in Thousands)

13 Apr 2022

Appropriation	FY 2021 (Base + OCO)	FY 2022 Less Supplementals Enactment	FY 2022 Division B Division C P.L.117-43 Enactment*	FY 2022 Division B P.L.117-70 Enactment**
Defense Production Act Purchases	174,639	388,327		
Total Defense-Wide	174,639	388,327		

P-123PBP: FY 2023 President's Budget (Total Base Published Version), as of April 13, 2022 at 09:21:46
*Includes enacted funding pursuant to the Extending Government Funding and Delivering Emergency Assistance Act (Public Law 117-43).
**Includes enacted funding pursuant to the Further Extending Government Funding Act (Public Law 117-70).

Defense-Wide
FY 2023 President's Budget
Exhibit P-1 FY 2023 President's Budget
Total Obligational Authority
(Dollars in Thousands)

13 Apr 2022

Appropriation	FY 2022 Division A P.L. 117-86 Enactment***	FY 2022 Division N P.L. 117-103 Enactment****	FY 2022 Total Supplemental Enactment	FY 2022 Total Enactment
Defense Production Act Purchases				388,327
Total Defense-Wide				388,327

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Defense-Wide
FY 2023 President's Budget
Exhibit P-1 FY 2023 President's Budget
Total Obligational Authority
(Dollars in Thousands)

13 Apr 2022

Appropriation	FY 2023 Request
Defense Production Act Purchases	659,906
Total Defense-Wide	659,906

Defense-Wide
FY 2023 President's Budget
Exhibit P-1 FY 2023 President's Budget
Total Obligational Authority
(Dollars in Thousands)

13 Apr 2022

Appropriation: Defense Production Act Purchases

Budget Activity	FY 2021 (Base + OCO)	FY 2022 Less Supplementals Enactment	FY 2022 Division B Division C P.L.117-43 Enactment*	FY 2022 Division B P.L.117-70 Enactment**
01. Defense Production Act Purchases	174,639	388,327		
Total Defense Production Act Purchases	174,639	388,327		

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Budget Activity	FY 2022 Division A P.L. 117-86 Enactment***	FY 2022 Division N P.L. 117-103 Enactment****	FY 2022 Total Supplemental Enactment	FY 2022 Total Enactment
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Total Defense Production Act Purchases				388,327

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13 Apr 2022

Appropriation: Defense Production Act Purchases

Budget Activity	FY 2023 Request
01. Defense Production Act Purchases	659,906
Total Defense Production Act Purchases	659,906

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Defense-Wide
FY 2023 President's Budget
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Total Obligational Authority
(Dollars in Thousands)

13 Apr 2022

Appropriation: 0360D Defense Production Act Purchases

Line No	Item Nomenclature	Ident Code	FY 2021 (Base + OCO) Quantity	FY 2021 (Base + OCO) Cost	FY 2022 Less Supplementals Enactment Quantity	FY 2022 Less Supplementals Enactment Cost	FY 2022 Division B Division C P.L.117-43 Enactment* Quantity	FY 2022 Division B Division C P.L.117-43 Enactment* Cost	FY 2022 Division B P.L.117-70 Enactment** Quantity	FY 2022 Division B P.L.117-70 Enactment** Cost	Sec
Budget Activity 01: Defense Production Act Purchases											
Defense Production Act Purchases											
1	Defense Production Act Purchases	A		174,639		388,327					U
Total Defense Production Act Purchases				174,639		388,327					
Total Defense Production Act Purchases				174,639		388,327					

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Defense-Wide
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Exhibit P-1 FY 2023 President's Budget
Total Obligational Authority
(Dollars in Thousands)

13 Apr 2022

Appropriation: 0360D Defense Production Act Purchases

Line No	Item Nomenclature	Ident Code	FY 2022 Division A P.L. 117-86 Enactment*** Quantity	FY 2022 Division A P.L. 117-86 Enactment*** Cost	FY 2022 Division N P.L. 117-103 Enactment**** Quantity	FY 2022 Division N P.L. 117-103 Enactment**** Cost	FY 2022 Total Supplemental Enactment Quantity	FY 2022 Total Supplemental Enactment Cost	FY 2022 Total Enactment Quantity	FY 2022 Total Enactment Cost	Sec
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Defense Production Act Purchases											
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Line Item Table of Contents (by Appropriation then Line Number)

Appropriation 0360D: Defense Production Act Purchases

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Line Item Table of Contents (Alphabetically by Line Item Title)

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Exhibit P-40, Budget Line Item Justification: PB 2023 Office of the Secretary Of Defense	Date: April 2022
Appropriation / Budget Activity / Budget Sub Activity: 0360D: Defense Production Act Purchases / BA 01: Defense Production Act Purchases / BSA 10: Defense Production Act Purchases	**P-1 Line Item Number / Title:** TITLE3 / Defense Production Act Purchases
ID Code (A=Service Ready, B=Not Service Ready):	**Program Elements for Code B Items:** 0902199D8Z — **Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A	

Resource Summary	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	218.051	174.639	388.327	659.906	-	659.906	562.049	437.414	261.762	266.717	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	218.051	174.639	388.327	659.906	-	659.906	562.049	437.414	261.762	266.717	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**218.051**	**174.639**	**388.327**	**659.906**	**-**	**659.906**	**562.049**	**437.414**	**261.762**	**266.717**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

New Start (Y/N): No

Title III of the Defense Production Act (DPA) provides the President of the United States broad authorities to ensure the timely availability of domestic industrial base capabilities essential for the national defense. DPA Title III is an important DoD program with the authority to utilize economic incentives to create, maintain, protect, expand, or restore domestic sources for critical components, critical technology items, and industrial resources. The DPA is authorized by 50 U.S.C. Sections 4501-4568.

This budget includes a project portfolio that will appropriately utilize DPA Title III authorities to strengthen domestic industrial base capabilities essential to national defense. The multi-year projects in this budget will incentivize domestic sources to establish, strengthen, and expand domestic industrial base capabilities in key areas such as strategic radiation-hardened microelectronics and the rare earths supply chain.

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Line Item MDAP/MAIS Code: N/A		

Exhibits Schedule					Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	1 / Defense Production Act Purchases				- / 218.051	- / 174.639	- / 388.327	- / 659.906	- / -	- / 659.906
P-40	**Total Gross/Weapon System Cost**				**- / 218.051**	**- / 174.639**	**- / 388.327**	**- / 659.906**	**- / -**	**- / 659.906**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:
This program supports the Department's initiatives to Build Sustainable and Long-Term Advantage, Protect and Sustain the Industrial Base, and Take Care of People.

Strategic overview:

DPA Title III investments are driven by strategy starting with the National Security Strategy and National Defense Strategy. DPA Title III investments are also supporting Department of Defense modernization priorities and recommendations from interagency reports in response to Executive Order 14017 (E.O. 14017), including prior assessments as directed by this executive order. Examples of this would be investments in Critical Chemicals and the Hypersonics industrial base to support the Departments' kinetic capabilities; investments in the rare earth supply chain to support the supply of critical materials, and investments in Radiation hardened electronics, advanced packaging and other electronics areas to support of the Departments Microelectronics requirements.

Program Summary:

The FY 2023 budget reflects the Department resourcing the DPA Fund so the DPA Title III Program can address critical shortfalls in the domestic industrial base in areas such as, rare earths, critical chemicals, small unmanned aerial systems, hypersonic applications, electronics, and space. Specified numbers for each initiative are estimates that are subject to change based on ongoing market research and the acquisition process. The total budget also supports execution and administration costs. FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding.

FY 2023: $659.906 million
- Critical Chemicals Supply Chain ($216.631 million)
- Hypersonics Industrial Base ($154.039 million)
- Strategic Radiation Hardened Microelectronics ($67.452 million)
- Biomanufacturing ($60.0 million)
- Rare Earth Supply Chain ($50.952 million)
- Critical Electronics Capabilities ($43.019 million)
- Space Industrial Base ($36.681 million)
- Small Unmanned Aerial Systems ($13.0 million)

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Line Item MDAP/MAIS Code: N/A		

FY 2022: $388.327 million
- Strategic Radiation Hardened Microelectronics ($145.0 million)
- Hypersonics Industrial base ($38.5 million)
- Critical Chemicals Supply Chain ($37.4 million)
- Space Industrial Base ($34.085 million)
- Rare Earth Supply Chain ($74.0 million)
- Critical Electronics Capabilities ($22.342 million)
- Small Unmanned Aerial Systems ($15.0 million)
- Manufacturing of Shipbuilding Components ($5.0 million)

FY 2021: $174.639 million
- Strategic Radiation Hardened Microelectronics ($41.4 million)
- Hypersonics Industrial base ($24.968 million)
- Space Industrial Base ($20.293 million)
- Critical Chemicals Supply Chain ($19.0 million)
- Rare Earth Supply Chain ($16.2 million)
- Next Generation Soldier Protection ($14.7 million)
- Small Unmanned Aerial Systems ($13.846 million)
- Sonobuoys Production Capacity ($6.340 million)

Descriptions are provided below for the essential, transformational initiatives using the authorities established in Title III of the Defense Production Act. The single or multi-year cost phasing of each of the initiative is addressed in the P5 exhibit. As DPA Title III funds are non-expiring, if a line of effort existed in the prior year's President's Budget, the reported prior year funds column indicates the cumulative prior year funds associated with that line of effort, which may or may not have already been obligated to contract. If a line of effort was not in the prior year's President's Budget, the amount specified in the prior year funds indicates only the new funds planned toward that line of effort. The prior year funds listed for "Program Administrative and Management Support" report all prior year funds utilized to support those efforts in FY 2022.

Project Descriptions:

National Security Space Industrial and Supply Base (NSS ISB) Risk Mitigation Program:

This line of effort was developed to formulate a systematic process to identify, fund, and mitigate shortfalls in the space industrial and supply base. The objective is to ensure access to critical technologies and capabilities in the quality, quantity, and timeframes required to support U.S. Government space programs. Projects in this program are addressing cross-platform, multi-agency/Service requirements. Projects are developed in response to risk mitigation determinations and prioritized critical requirements of stakeholders in DoD and other agencies, as represented through the Department's Space Industrial Base Working Group.

- NSS ISB – Space Qualified Solar Cell Supply Chain: The purpose of these projects is to ensure a domestic capability to supply this critical power supply component for national security space assets. Projects involve ensuring a viable domestic source for space qualified germanium substrates and high-performance photovoltaic cells, panels, and systems. Current projects are helping domestic photovoltaic manufacturing and integration companies maintain their performance lead over foreign competitors by expanding production of AIAA S-111 space-qualified photovoltaic solar cells with improved cost and performance efficiencies. Performance improvements include characterizing high-efficiency inverted metamorphic (IMM) solar cells grown on Gallium Arsenide substrates as a drop-in replacement for ZTJ triple-junction solar cells, and completing the qualification of the IMM solar cells to the AIAA S-111A standard. Other improvements on high-efficiency XTJ Prime triple-junction solar cells grown on Germanium

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Line Item MDAP/MAIS Code: N/A		

substrates include increasing the cell Beginning-of-Life efficiency and reducing End-of-Life cost per watt. Multiple awards were made in FY 2019 through FY 2021 and all of the reported funds have been obligated to contracts. Compared to PB 2022, the total for these efforts was reduced by $2.0 million after contract negotiation.

- NSS ISB - Next Generation Reaction Wheel Assemblies (RWA): This project addresses a need for a multiple-phase Next-Generation scalable Reaction Wheel (NGRW) to provide a systematic comprehensive, low cost/risk investment affording potential for high return on investment. The goal is to generate or revive a domestic competitor, or to expand the existing vendor's product line, with a focus on smaller wheels using advanced technologies. In addition, the effort will explore encouraging a business partnership to maintain a second source in the U.S. Also, the project will investigate using another product controlled by a U.S. company. A study phase was completed in prior years, and the execution phase was awarded in FY 2020. Additional FY 2021 funds were also applied toward these efforts.

- NSS ISB - Radiation-Hardened Digital/Analog Production & Qualification: This project funds work at the 45nm and 14nm nodes. It is imperative that government organizations responsible for national security, e.g., intelligence acquisition, missile early warning, missile defense, and other space requirements maintain a strong industrial base to supply technology necessary to design, develop, and fabricate secure, radiation hardened, high reliability, and DoD space qualified Application Specific Integrated Circuits (ASIC), Application Specific Standard Products (ASSP), such as very high speed data switches, and Multi-Core General Purpose Processors (MCGPP) at the 45nm technology node or smaller to support onboard processing and other critical applications. The objective of this project is to enhance the Radiation Hardened By Design flow, optimize selected circuit designs to reduce power and increase performance, and complete the design, fabrication, testing, and qualification of certain critical devices to include the MC-GPP. In addition to achieving an estimated improvement in performance of > 25% for power and performance for some specific designs, the proposed effort will support life-time acquisition buys of these critical circuits for some identified systems with attendant reductions in system technical, cost, and schedule risks. Awards were made toward this effort in FY 2019, FY 2020, and FY 2021. Additional funding is anticipated to be applied to this effort in FY 2022.

- NSS ISB – Access to Field Programmable Gate Arrays (FPGA) for Space Applications: The DoD and Intelligence Community have identified FPGAs as a critical enabling technology across a wide variety of present and future systems. Advanced, commercially available FPGAs are manufactured off-shore and are considered vulnerable to tampering and insertion of malicious software and/or hardware. This program seeks to improve the security posture and reduce the risk associated with FPGA technology by addressing security concerns in the design, development, fabrication, and supply lifecycle of FPGA devices. The objective of this program is to develop and demonstrate an approach to gain access to advanced, assured, and space qualified reprogrammable FPGA technology to support DoD/IC applications including satellite and strategic missile systems. Concerning this effort "assured" is defined as assurance of the integrity and availability, of a product wherein that product will reliably operate as intentionally designed and not contain any malicious hardware and/or software that will compromise the intended application; e.g., exfiltration of sensitive data, etc. A study phase was completed, and the execution phase was awarded in FY 2021. Additional funding is anticipated to be applied to this effort.

- NSS ISB – Fibers and Composites: These projects are intended to ensure the domestic industrial base can provide key qualified fibers and composites that are critical to NSS, such as rocket nozzle throats, light weight structures, and light-weight, resilient shielding and interconnects. Current items of interest include fibers, fabrics, and components made out of rayon, polyacrylonitrile (PAN), and carbon nanotubes. These efforts mitigate key risks factors such as reliance on foreign sources and very limited or no domestic suppliers. In FY 2021, $2.8 million was applied to this effort.

- NSS ISB - Infrared Sensor Substrates (Cadmium Zinc Telluride / Mercury Cadmium Telluride): The purpose of this effort is to establish and maintain a high quality production capability for Mercury Cadmium Telluride (MCT) epitaxy grown on Cadmium Zinc Telluride (CZT) substrates via molecular beam epitaxy (MBE) at key US-owned and operated foundries in order to assure the necessary supply of infrared focal plane arrays (IRFPAs) to National Security Space (NSS) agencies when needed. The primary goal is ensure domestic availability of these detectors, and demonstrate on-shore MCT detectors are equivalent in performance to IRFPAs utilizing off-shore substrates. Additional awards were made toward this effort in prior years and have been funded utilizing prior year funds, and FY 2021 funds. All funding has been obligated with $2 million originally planned for FY 2022 accelerated into FY 2021.

- NSS ISB – ROIC Foundry Improvement and Sustainment: This project is a follow-on to a prior read-out integrated circuit (ROIC) project that focused on maintaining minimal, yet adequate, production capabilities at domestic foundries to ensure a necessary supply of strategic ROICs for Government space programs while simultaneously improving product design and processes. The prior year funds have been obligated and the FY 2021 funds are anticipated to be obligated in FY 2022.

- NSS ISB - Next-Generation Star Trackers System: This project is for a Next Generation Star Tracker System (NGSTS that uses advanced domestically-produced Complementary Metal Oxide Semiconductor (CMOS) detectors with a capability that meets the specifications of the DPA Title III Advanced CMOS Capability Project. This involves adherence to the Staring Technology for Enhanced Linear Line-of-site

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Line Item MDAP/MAIS Code: N/A		

Angular Recognition (STELLAR) specification. A NGSTS with CMOS technology is needed to meet military and civil US Government (including National Security Space) and commercial market demands for the foreseeable future and will reassert the viability and competitiveness of the domestic industrial base. Additional funding was added to the project in FY 2021.

Industrial Base Risk Mitigation Projects (non-NSS ISB):

- Critical Chemicals for DoD Missiles and Munitions: Multiple efforts are being scoped to address critical shortfalls in the domestic industrial capability to produce materials for DoD missiles and munitions. In January 2019, the President signed four Presidential Determinations addressing vulnerabilities in the supply chain for critical chemicals for DoD munitions, including: precursor materials, inert materials, energetic materials, and advanced manufacturing techniques for producing the materials. Relying on foreign sources, especially China, for these critical chemicals poses a risk to the Department's readiness to deter and defeat adversaries. Multiple efforts have been executed to date, including second source qualification for ammonium perchlorate, and Extended Range Munition Capabilities utilizing FY 2021 and prior year funds. Multiple projects are anticipated to be awarded in FY 2022 and beyond. The current priority for the DPA Title III program is to onshore the top ten mission critical chemicals currently produced overseas as well as modernize the Defense Industrial Base for chemicals from the WWII era manufacturing to a more flexible, more versatile industrial base that can pivot quickly to meet new demands. The Program is also seeking to invest $2.4 million in inspection and process control technology for microfluid devices that aid in advanced manufacturing of critical chemicals for DoD and commercial applications.

- Hypersonics Industrial Base: The DPA Title III program is actively working with stakeholders to identify gaps in the industrial capability to produce components for hypersonic systems and scale production from prototype levels to the required capacity. In FY 2020, the President authorized the use of the DPA Title III authorities to execute industrial base projects that support high/ultra-high temperature composites for hypersonic, strategic missile and launch systems. Projects are anticipated to be executed in FY 2022. Additional projects are anticipated to be executed in FY 2023 to expand required industrial capabilities needed to build hypersonic weapons in areas such as high temperature composites, advanced propulsion systems, and navigation and guidance components.

- Strategic Radiation Hardened Trusted Microelectronics: The purpose of this effort is to provide assured capabilities to produce or acquire strategic radiation hardened (SRH) trusted microelectronics in compliance with Department of Defense instruction 5200.44 to supply critical microelectronic components for necessary radiation environments involved with the acquisition of delivery systems for nuclear weapons. The first set of projects provide production, engineering, and sustainment services in support of SRH microelectronics fabrication via a Defense Microelectronics Activity (DMEA)-accredited Trusted Supplier using a Trusted flow. Multiple contracts have been awarded toward this effort in FY 2019 through FY 2021. Further efforts are being developed to execute in FY 2022 and FY 2023 to ensure the sustainment and advancement of this critical industrial capability. Another effort will fund the production and modernization of high voltage, analog, SRH qualified electronics. Additionally, partially depleted silicon-on-insulator (PDSOI) semiconductors (SCs) are the only option for use in nuclear modernization systems (GBSD, LRSO, etc.), which require radiation hardened microelectronics (nuclear modernization is DoD's #1 priority); PDSOI is also the most advanced space qualified Complementary Metal-Oxide Semiconductor (CMOS) technology to date. The planned DPA investments over the next 2-3 years is to expand/qualify a new source for use in space and non-nuclear systems.

- Assured Electronics Supply: The challenges facing the electronics industrial base are wide-reaching and significant. Commercial industry has trended toward yearly product refreshes and updating technology nodes frequently, leaving legacy DoD systems that must be maintained for decades with severe obsolescence issues. On the opposite end of the spectrum, new systems that desire to integrate the newest technologies face challenges obtaining assured and/or trusted supply as much of the electronics manufacturing supply chain has gone overseas. In addition, domestic suppliers that exist are reluctant to work with unique DoD requirements as it would negatively affect their commercial runs and overall business viability. The DPA Title III Program, in concert with its stakeholders, is working to identify and vet efforts to serve DoD's need for electronic materials, digital/analog/mixed signal integrated circuits, discrete components, displays, power electronic components, electro-optical/IR components, radio frequency components, advanced packaging, and other cross-cutting technologies. Should the President authorize the use of DPA Title III authorities, projects are anticipated to use FY 2022 and FY 2023 funds.

- Space Industrial Base: The DPA Title III program is actively working with stakeholders to identify gaps in the National Security Space industrial supply base. Projects are anticipated to be executed in FY 2022 and FY 2023 utilizing current year funds.

- Small Unmanned Aerial Systems (sUAS): In June 2019, the President issued a Presidential Determination authorizing the use DPA Title III to strengthen the domestic industrial base for sUAS. The sUAS domestic industrial base has struggled to compete commercially in the midst of dominant foreign competition and DPA Title III is currently assessing where investments would best remedy the domestic industrial base shortfall and result in an economically viable domestic supplier. The DPA Title III program is working with stakeholders across USG to determine an appropriate investment strategy to enable the domestic industrial base to meet requirements. Projects are anticipated to be awarded in FY 2022, with additional funding and projects to continue into FY 2023.

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Line Item MDAP/MAIS Code: N/A		

- Biomanufacturing: The Program will utilize FY 2023 funds to support domestic, modular bio-manufacturing of multiple materials critical to the Department.

- AN-SSQ Series Sonobuoys Production Capability: The purpose of this effort is to ensure the availability of qualified AN/SSQ-101B sonobuoys. The domestic industrial base for AN/SSQ series sonobuoys was deemed at risk of not being able to produce the needed classes and quantities of sonobuoys and would require assistance to establish the required production lines. This project was awarded in FY 2021.

- Rare Earth Supply Chain: In July 2019, the President signed 5 Presidential Determinations addressing the rare earth elements supply chain, including: Light Rare Earth Separation and Processing, Heavy Rare Earth Separation and Processing, Production of Rare Earth Metals and Alloys, Production of Neodymium Iron Boron Rare Earth Permanent Magnets, and Production of Samarium Cobalt Rare Earth Permanent Magnets. This line of effort will establish a domestic industrial capability to support key aspects of the rare earth supply chain. China dominates the Rare Earth Elements (REE) market on a global scale in both mining and processing of RE raw materials and has the ability to manipulate global markets. Relying on foreign sources for these critical materials poses a risk to the DoD's readiness to deter and defeat adversaries. Important defense applications for the end product of this supply chain, REE permanent magnets, include jet fighter engines, missile guidance systems, antimissile defense, space-based satellites, and communication systems. Efforts are currently being developed to bolster the domestic industrial base to support the separation and processing of rare earth elements and domestic production capability for Neodymium Iron Boron (NdFeB) rare earth permanent magnets. Multiple projects have awarded in FY 2020 and FY 2021. Additional efforts are anticipated in FY 2023.

- Next Generation Soldier Protection: The purpose of this project is to create a manufacturing capacity to produce lightweight, high-strength, inherently fire-resistant co-polymer aramid fibers to provide lightweight force protection for Soldiers and air, ground, and naval platforms and bases. Examples include lighter and stronger body armor, helmets, pelvic protection, enhanced combat vehicle survivability, enhanced aviation platform survivability, and integrated base protection. A next generation of co-polymer aramid fibers would provide a step-change increase in tenacity over existing fibers, a key attribute for enabling lighter-weight ballistic protection. This project was awarded in FY 2019 and additional funding was obligated to this contract in FY 2020 and FY 2021.

- Activated Carbon Capacity Expansion: The objective this project is to expand domestic production capacity of activated carbon, which is used by the DoD to protect against many Chemical, Biological, Radiological, and Nuclear (CBRN) agents that could be used during acts of war or terrorism. Copper-silver-zinc-molybdenum-trietheylenediamine (ASZM-TEDA) impregnated activated carbon is the only grade of carbon deemed acceptable by the DoD for collective and personal CBRN protection systems and devices.

- Manufacturing of Shipbuilding Components: The Program plans to investment in the shipbuilding industrial base to support casting and forging requirements.

- Modernization Production of the Adenovirus Vaccine (MPAV): Funds used to cover costs related to a prior year project close-out. A total of $0.444 million was obligated in FY 2018, with the balance of $0.20 million obligated in FY 2021 to close out the project.

The following projects that were reported in the FY 2022 President's Budget Request are no longer reported here because they were fully obligated at the end of FY 2021 and only utilized prior year funds.

- Three-Dimensional (3D) Microelectronics for Information Protection: The purpose of this effort is to establish a domestic, merchant supplier manufacturing capability to provide two- and three-dimensional high density packaging technology, which accepts a wide range of custom and commercial-off-the-shelf components that can drastically increase the security of DoD platforms. This DPA Title III effort is working to create a low rate initial production capability of the packaging technology to enable the early DoD adopters to reliably procure products and achieve cost savings for their programs. The contract for this project was awarded in March 2018, and a second phase of this effort was awarded in FY.

- COVID-19 Response: Early in the COVID-19 pandemic, DPA Title III aligned and executed $40.3 million of FY 2020 and prior year funds to respond to the pandemic. Efforts included supporting critical aircraft engine ($25 million), soldier body armor ($15 million), and ventilator ($0.3 million) production capabilities.

Exhibit P-5, Cost Analysis: PB 2023 Office of the Secretary Of Defense		Date: April 2022
Appropriation / Budget Activity / Budget Sub Activity: 0360D / 01 / 10	**P-1 Line Item Number / Title:** TITLE3 / Defense Production Act Purchases	**Item Number / Title [DODIC]:** 1 / Defense Production Act Purchases
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	218.051	174.639	388.327	659.906	-	659.906
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	218.051	174.639	388.327	659.906	-	659.906
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**218.051**	**174.639**	**388.327**	**659.906**	**-**	**659.906**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2021			FY 2022			FY 2023 Base			FY 2023 OCO			FY 2023 Total		
	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Hardware - National Security Space (NSS) Industrial & Supply Base (ISB) Risk Mitigation Program Cost																		
Non Recurring Cost																		
NSS ISB: Space Qualified Solar Cell Supply Chain	-	-	26.840	-	-	0.000	-	-	0.000	-	-	0.000	-	-	-	-	-	0.000
NSS ISB: Next Generation Reaction Wheels Assembly	-	-	4.044	-	-	1.667	-	-	0.000	-	-	0.000	-	-	-	-	-	0.000
NSS ISB: Radiation-Hardened Digital/ Analog Production & Qualification	-	-	14.950	-	-	7.500	-	-	11.635	-	-	0.000	-	-	-	-	-	0.000
NSS ISB: Field-Programmable Gate Arrays (FPGA) for Space Applications	-	-	5.389	-	-	0.000	-	-	0.000	-	-	0.000	-	-	-	-	-	0.000
NSS ISB: Fibers and Composites	-	-	0.000	-	-	2.800	-	-	0.000	-	-	0.000	-	-	-	-	-	0.000
NSS ISB: Infrared Sensor Substrates (Cadmium Zinc Telluride / Mercury Cadmium Telluride)	-	-	27.779	-	-	4.000	-	-	0.000	-	-	0.000	-	-	-	-	-	0.000
NSS ISB: ROIC Foundry Improvement and Sustainment	-	-	0.975	-	-	0.826	-	-	0.000	-	-	0.000	-	-	-	-	-	0.000

Exhibit P-5, Cost Analysis: PB 2023 Office of the Secretary Of Defense		Date: April 2022
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ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2021			FY 2022			FY 2023 Base			FY 2023 OCO			FY 2023 Total		
	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
NSS ISB: Next Generation Star Trackers	-	-	0.000	-	-	3.500	-	-	0.000	-	-	0.000	-	-	-	-	-	0.000
Subtotal: Non Recurring Cost	-	-	*79.977*	-	-	*20.293*	-	-	*11.635*	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - National Security Space (NSS) Industrial & Supply Base (ISB) Risk Mitigation Program Cost	**-**	**-**	***79.977***	**-**	**-**	***20.293***	**-**	**-**	***11.635***	**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***0.000***
Hardware - Industrial Base Risk Mitigation Cost																		
Recurring Cost																		
Program Management and Administrative Support	-	-	1.354	-	-	17.890	-	-	17.000	-	-	17.642	-	-	-	-	-	17.642
Subtotal: Recurring Cost	-	-	*1.354*	-	-	*17.890*	-	-	*17.000*	-	-	*17.642*	-	-	-	-	-	*17.642*
Non Recurring Cost																		
Strategic Radiation Hardened Trusted Microelectronics Foundry	-	-	50.418	-	-	41.400	-	-	145.000	-	-	67.452	-	-	-	-	-	67.452
Critical Chemical for DoD Munitions	-	-	0.468	-	-	19.000	-	-	37.400	-	-	216.631	-	-	-	-	-	216.631
Rare Earth Supply Chain	-	-	43.400	-	-	16.202	-	-	74.000	-	-	50.952	-	-	-	-	-	50.952
Hypersonics Industrial Base	-	-	0.000	-	-	24.968	-	-	38.500	-	-	154.039	-	-	-	-	-	154.039
Space Industrial Base	-	-	0.000	-	-	0.000	-	-	22.450	-	-	36.681	-	-	-	-	-	36.681
Assured Electronics Supply	-	-	0.000	-	-	0.000	-	-	22.342	-	-	43.019	-	-	-	-	-	43.019
Small Unmanned Aerial Systems	-	-	0.000	-	-	13.846	-	-	15.000	-	-	13.490	-	-	-	-	-	13.490
Biomanufacturing	-	-	0.000	-	-	0.000	-	-	0.000	-	-	60.000	-	-	0.000	-	-	60.000
Next Generation Soldier Protection	-	-	35.300	-	-	14.700	-	-	0.000	-	-	0.000	-	-	-	-	-	0.000
AN-SSQ Series Sonobuoys Production Capability	-	-	4.000	-	-	3.966	-	-	0.000	-	-	0.000	-	-	-	-	-	0.000
Activated Carbon Capacity Expansion	-	-	3.134	-	-	2.166	-	-	0.000	-	-	0.000	-	-	-	-	-	0.000
Modernization Production of the	-	-	0.000	-	-	0.208	-	-	0.000	-	-	0.000	-	-	-	-	-	0.000

Exhibit P-5, Cost Analysis: PB 2023 Office of the Secretary Of Defense		Date: April 2022
Appropriation / Budget Activity / Budget Sub Activity: 0360D / 01 / 10	P-1 Line Item Number / Title: TITLE3 / Defense Production Act Purchases	Item Number / Title [DODIC]: 1 / Defense Production Act Purchases
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2021			FY 2022			FY 2023 Base			FY 2023 OCO			FY 2023 Total		
	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ M)	Qty (Each)	Total Cost ($ M)
Adenovirus Vaccine (MPAV)																		
Manufacturing of Shipbuilding Components	-	-	0.000	-	-	0.000	-	-	5.000	-	-	0.000	-	-	-	-	-	0.000
Subtotal: Non Recurring Cost	-	-	*136.720*	-	-	*136.456*	-	-	*359.692*	-	-	*642.264*	-	-	-	-	-	*642.264*
Subtotal: Hardware - Industrial Base Risk Mitigation Cost	**-**	**-**	***138.074***	**-**	**-**	***154.346***	**-**	**-**	***376.692***	**-**	**-**	***659.906***	**-**	**-**	**-**	**-**	**-**	***659.906***
Gross/Weapon System Cost	**-**	**-**	**218.051**	**-**	**-**	**174.639**	**-**	**-**	**388.327**	**-**	**-**	**659.906**	**-**	**-**	**-**	**-**	**-**	**659.906**

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