Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	7.000	67.252	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
837: *Trusted Mask Trust Approach*	0.000	2.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
838: *V&V Capabilities and Standards for Trust*	3.000	18.327	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
839: *New Trust Approach*	4.000	46.925	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

Beginning in FY 2018, funds from this Program Element (PE) will be transferred to PEs in BA 4, 0604294D8Z and BA 5, 0605294D8Z to allow more efficient execution of developmental and prototyping activities within the body of work..

A. Mission Description and Budget Item Justification

This Program Element (PE) supports activities to ensure critical and sensitive integrated circuits are available to meet the DoD's needs. It refines strategies and management planning activities that will: (1) provide support to acquisition programs to address trusted and assured microelectronics supply needs; (2) improve capability to evaluate and validate assurance of microelectronic parts and advance standards to incentivize the commercial marketplace to recognize hardware assurance as a competitive design standard; and (3) develop and demonstrate alternative approaches to the DoD Trusted Foundry program to assure the microelectronics supply chain in order to enable broader DoD access to commercial state-of-the-art (SOTA) microelectronics technology.

This activity will be coordinated by the Office of the Under Secretary of Defense for Research and Engineering, and will include performers from the DoD Components, the Defense Microelectronics Activity (DMEA), the Joint Federated Assurance Center (JFAC), the Defense Advanced Research Programs Agency (DARPA), other DoD and Intelligence Community science and technology (S&T) organizations and laboratories, the defense industry, and the broader commercial industrial base. It will integrate the functions of the DoD Trusted Foundry Program, the Trusted Supplier accreditation program, JFAC, and related S&T activities.

This activity implements, maintains, and updates the DoD's long-term microelectronics strategy. Additionally this activity places emphasis on incentivizing and proving new microelectronics technology solutions. Recognizing that a trusted and assured supply of microelectronics is a U.S. Government (USG)-wide concern, this activity will interface with interagency partners to take into account interagency requirements, opportunities for collaboration, and strategic decisions that can be made to limit the overall cost of these requirements to the USG.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	69.000	0.000	0.000	-	0.000
Current President's Budget	67.252	0.000	0.000	-	0.000
Total Adjustments	-1.748	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.662	-			
• FFRDC Transfer	-0.076	-	-	-	-
• Other Adjustments	-0.010	-	-	-	-

Change Summary Explanation

FY 2018 funds transferred to PE 0604294D8Z in BA 4 for development and prototyping activities and PE 0605294D8Z in BA 5 for demonstration activities.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605140D8Z / *Trusted Foundry*	Project (Number/Name) 837 / *Trusted Mask Trust Approach*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
837: *Trusted Mask Trust Approach*	0.000	2.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project staffs and supports operation of a new secure (SECRET-level) photomask manufacturing capability at an existing SOTA commercial photomask manufacturing supplier to secure the masks and design IP of acquisition programs when using commercial microelectronic fabrication facilities other than the Trusted Foundry. This capability can be used in conjunction with one or more leading-edge commercial foundries. This capability will address trusted masks at technology node sizes less than 130 nanometers (nm) down to 14nm.

Beginning in FY 2018, funding for this project has been transferred to BA 5 PE 0605294D8Z, P812, to continue execution of funds in support of the mission.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Trusted Mask Trust Approach	2.000	-	-
Description: DMEA will provide management and technical support, as required, to procure secure mask data parsing services for the Department, as well as other Federal entities, by upgrading an existing SOTA commercial photomask manufacturing supplier with a Trusted photomask capability to ensure the integrity of the tape-in/mask release, mask manufacturing, and authentication process for photomasks. Starting in FY 2018, a SOTA commercial photomask manufacturing supplier will be equipped with a new secure (SECRET-level) photomask manufacturing capability (note: DMEA is still awaiting receipt of $7.200 million planned for this effort as part of a FY 2017 Defense Production Act (DPA) Title III project) and staffed to provide the required critical Trusted photomask capabilities.			
Accomplishments/Planned Programs Subtotals	2.000	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance for this project is monitored in the following ways:

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 837 / *Trusted Mask Trust Approach*

- Number of photomasks created using the secure photomask manufacturing capability.
- Number of acquisition programs using the secure photomask manufacturing capability.
- Number of technology node sizes supported by the secure photomask manufacturing capability.
- Number of foundries supported by the secure photomask manufacturing capability.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605140D8Z / *Trusted Foundry*	Project (Number/Name) 837 / *Trusted Mask Trust Approach*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Trusted Mask Trust Approach	MIPR	Defense Microelectronics Activity (DMEA) : California	-	2.000	Mar 2017	-		-		-		-	Continuing	Continuing	-
		Subtotal	-	2.000		-		-		-		-	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	2.000		0.000		-		-		-	Continuing	Continuing	N/A

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 837 / *Trusted Mask Trust Approach*

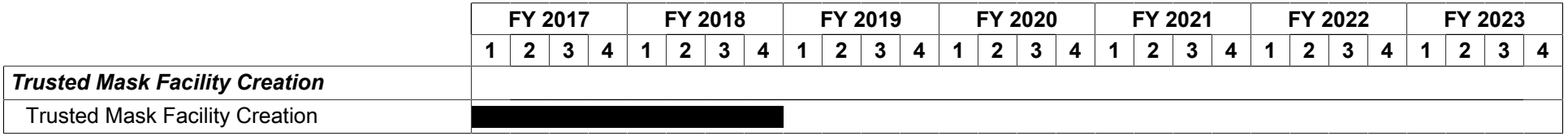

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 837 / *Trusted Mask Trust Approach*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Trusted Mask Facility Creation				
Trusted Mask Facility Creation	1	2017	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605140D8Z / *Trusted Foundry*	Project (Number/Name) 838 / *V&V Capabilities and Standards for Trust*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
838: *V&V Capabilities and Standards for Trust*	3.000	18.327	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project improves microelectronics test and verification methodologies in support of verifying trust of untrusted parts and develops standards/practices to foster commercial development of secure and trusted parts. Verification and test technologies are required to provide direct program support for microelectronics trust verification when DoD Trusted Foundry Program options are not available. Core technical laboratories have recently been chartered as a Joint Federated Assurance Center (JFAC) to provide this support. Out-year demands will require an increase in capacity, which will take the form of additional personnel and/or equipment to permit scaling of assessment capabilities. Challenges have been identified, to include the ability to analyze leading-edge technologies, throughput/time required for analysis, ability to analyze third-party IP contained in microelectronic components, and analysis of non-application-specific integrated circuit (ASIC) components that are increasingly being used for agility, e.g., Field-Programmable Gate Arrays (FPGAs). This project addresses these gaps in current technical capabilities in a collaborative nature amongst the core technical laboratories, driven by projected and realized out-year demand. Three capability areas core to microelectronics analysis and verification will be improved:

- Physical verification, i.e., destructive analysis of integrated circuits and printed circuit boards
- Functional analysis, i.e., non-destructive screening/verification of select, critical parts
- Design verification, i.e., verification/assurance of designs, IP, netlists, bitstreams, firmware, etc.

These improvements will address two primary attributes: (1) technical capability including laboratory equipment, analysis tools, such as imaging software, and highly skilled tradecraft, and (2) the capacity to perform assessments.

This project also develops standards and practices in support of assured designs and supply chains and formal relationships with industry to foster commercial development of secure, trusted, and assured parts and for acquisition of government access to proprietary designs, software, development, and quality assurance processes and test procedures to develop practices that minimize security flaws in designs and facilitate verification. Two capability areas that are core to improved commercial designs will be improved, i.e., assured designs and supply chains.

Beginning in FY 2018, funding for this project has been transferred to BA 4 PE 0604294D8Z, P645, to accurately reflect execution of funds in support of the mission.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Verification and Validation (V&V) Capabilities and Standards for Trust	18.327	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 838 / *V&V Capabilities and Standards for Trust*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Description: Starting in FY 2017, this program funded a dedicated technical government subject matter expert (SME) at several JFAC laboratories and provided support for identified JFAC acquisition program pilots and non-program-related assessments, e.g., suspicious parts acquired by law enforcement or that failed in the field. In addition, utilizing the 2015 JFAC hardware assurance capability survey, developed a plan of action based on incremental technical improvement and capacity across participating JFAC laboratories in the following areas: • Equipment re-capitalization and new equipment • Data and imaging processing • Enhanced automation • Technology and IP licensing • Training and SME development • Maintenance support • Feasibility studies • Reimbursable (test fixtures, boards, parts, and supplies) • Direct program support in related areas beyond the acquisition programs' technical capability or capacity to address. The JFAC will: (1) improve its microelectronics test and verification methodologies in support of verifying trust and assurance of parts and (2) develop standards/practices to foster commercial development of secure, trusted and assured parts. Cost sharing of direct program support prioritized for FY 2017 focused on addressing technical gaps and assurance-related findings. This project also supported the following efforts that continue in FY 2018 under BA 4 PE 0604294D8Z, P645: • Improvements to the core JFAC's (1) technical capability, i.e., laboratory equipment, IP, analysis tools, such as imaging software (SW), and highly skilled tradecraft, and (2) the capacity to perform assessments. Out-year demands will continue to require an increase in capacity, which will take the form of additional personnel and/or equipment to permit scaling of assessment capabilities. • Enhancement of automation needed to increase the throughput of information produced by individual JFAC laboratory tools as well as to facilitate information sharing across the families of tools used for analysis and testing. • Development of common SME training and protocols based on the existing tool base, to include both commercial and government-developed tools. • Funding of an additional SME per core laboratory in support of the microelectronics trust verification and other JFAC-related work.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 838 / *V&V Capabilities and Standards for Trust*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• Investment in the above technical areas based on priority and monitor and report increased technical capability from the baseline 2016 level. Standards and Practices. Initiate the: • Development of standards and best practices, and relationships with industry, to foster commercial development of secure and trusted parts. • Establishment of formal relationships with FPGA vendors and other key commercial suppliers to improve device and IP security. • Acquisition of government access to proprietary designs, software, development, and quality assurance processes and test procedures to develop design practices that minimize security flaws and facilitate verification. • Establishment of government and industry working groups to develop test procedures to validate the trust of designs. • Documentation and promulgation of security-enhancing design practices across government, industry, and academia. • Development of industry-wide standards and practices to establish a common understanding of what constitutes verified and trusted hardware/software/firmware at both the component and systems level. • Development of a common lexicon for secure hardware/software/firmware in collaboration with the Committee for National Security Systems, National Institute of Standards and Technology, and the broader United States Government, industry, and academia. • Definition of supply chain controls for assured chain of custody for critical and other microelectronics devices and IP. • Development of security training and educate government and industry system security engineers and material managers on supply chain and life-cycle management best practices using agreed-upon language, standards, and practices. • Alignment of DoD Instruction 5200.44 (Protection of Mission Critical Functions to Achieve Trusted Systems and Networks (TSN)), related policies, and NIST 800-161 (Supply Chain Risk Management Practices for Federal Information Systems and Organizations) with industry standards identifying and addressing gaps in definition and criteria and establishing accepted levels of supplier and part trustworthiness.			
Accomplishments/Planned Programs Subtotals	18.327	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance for this project is monitored in the following ways:

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 838 / *V&V Capabilities and Standards for Trust*

• Increases in throughput in current JFAC laboratories, and stands-up of additional capability/capacity as required, so that at least two laboratories will have capability in physical verification, functional analysis, and design verification to increase the DoD's overall microelectronics trust verification and test capacity for analysis of state-of the practice parts.
• Increased Probability of Detection of malicious insertion and/or counterfeit parts.
• Cost to evaluate components.
• Time to evaluate components.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 838 / *V&V Capabilities and Standards for Trust*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
V&V Capabilities and Standards for Trust	MIPR	Various (DARPA, Air Force, Army, Navy, NSA) : Various	3.000	18.327	Mar 2017	-		-		-		-	Continuing	Continuing	-
		Subtotal	3.000	18.327		-		-		-		-	Continuing	Continuing	N/A

	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.000	18.327		0.000		-		-		-	Continuing	Continuing	N/A

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 838 / *V&V Capabilities and Standards for Trust*

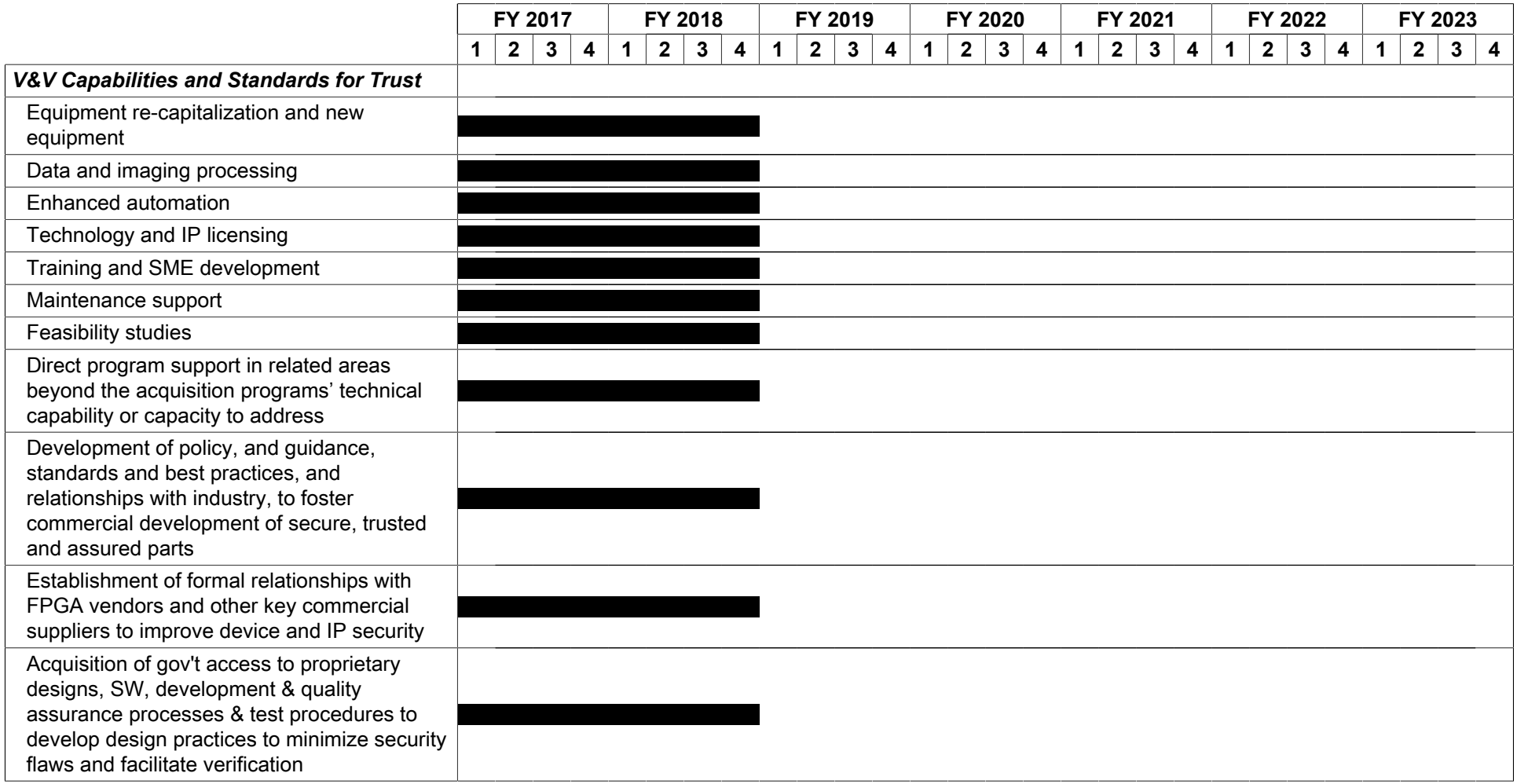

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 838 / *V&V Capabilities and Standards for Trust*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
V&V Capabilities and Standards for Trust				
Equipment re-capitalization and new equipment	1	2017	4	2018
Data and imaging processing	1	2017	4	2018
Enhanced automation	1	2017	4	2018
Technology and IP licensing	1	2017	4	2018
Training and SME development	1	2017	4	2018
Maintenance support	1	2017	4	2018
Feasibility studies	1	2017	4	2018
Direct program support in related areas beyond the acquisition programs' technical capability or capacity to address	1	2017	4	2018
Development of policy, and guidance, standards and best practices, and relationships with industry, to foster commercial development of secure, trusted and assured parts	1	2017	4	2018
Establishment of formal relationships with FPGA vendors and other key commercial suppliers to improve device and IP security	1	2017	4	2018
Acquisition of gov't access to proprietary designs, SW, development & quality assurance processes & test procedures to develop design practices to minimize security flaws and facilitate verification	1	2017	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605140D8Z / *Trusted Foundry*	Project (Number/Name) 839 / *New Trust Approach*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
839: *New Trust Approach*	4.000	46.925	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project funds a program of research to develop and demonstrate the next generation, technology-driven approach to microelectronics trust and assurance, to include SOTA microelectronics, to ensure continued access to SOTA microelectronic technologies, while maintaining the required level of assurance in all environments. DoD's ability to access commercial technology for its custom secure, trusted and assured needs is diminishing as SOTA suppliers become fewer and more focused on serving the global commercial market. DoD's technology needs are broad, and relying on a single source supplier is not feasible. Alternative, advanced manufacturing methods, technologies, and design tools are needed to produce secure, trusted and assured SOTA parts from commercial sources and to preserve access to these advanced nodes while protecting DoD and Defense Industrial Base (DIB) IP from exploitation. It is also intended to dramatically improve the capabilities of the JFAC with regard to verification and validation in support of microelectronics assurance.

This program of research will demonstrate innovative design, manufacturing, imaging, tagging, and control and assessment approaches for protecting DoD's microelectronics supply chain and IP, including alternatives for trusted, strategic radiation-hardened electronics in advanced technology nodes for next-generation strategic systems, obfuscation and disaggregation technologies, and other assurance mitigations. It will demonstrate advanced imaging technologies and forensics, Design for Assurance techniques, active hardware assurance controls, electronic component markers, and a data and analysis capability to enable auditing and independent verification and validation of commercial designs. It also demonstrates and implements concepts for the cost-effective production of custom microelectronics in low volumes and protection of sensitive IP from exploitation.

Assurance technologies that can be applied in a broad range of trusted and commercial environments can mitigate the risks associated with sole-source suppliers, and increase the USG's ability to leverage commercial capabilities. The suite of demonstrated technologies, e.g., alternative manufacturing methods and design tools, will enable DoD to obfuscate the purpose of sensitive devices, verify their origin and function, and protect sensitive IP from exploitation even while using the global supply chain for most hardware. In cases where the risk involved precludes that level of commercial collaboration, low-volume manufacturing technologies demonstrated under this project would permit DoD to more cheaply produce low volumes of sensitive microelectronics in trusted environments. The project will also support demonstration of a repository of third-party IP and EDA tools to expedite circuit design and transition promising technologies to use.

Beginning in FY 2018, funding for this project has been transferred to BA 4 PE 0604294D8Z, P646, and BA 5 PE 0605294D8Z, P809.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: New Trust Approach	46.925	-	-
Description: This project started in FY 2017 with efforts that include demonstration of acquisition program pilots and technology demonstrations, and these efforts will continue under BA 4 PE 0604294D8Z, P646, and BA 5 PE 0605294D8Z, P809. These activities will mature and evaluate trust technologies and techniques through efforts that may include the conduct of studies, Broad			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 839 / *New Trust Approach*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Agency Announcements (BAAs) and other efforts to coordinate research programs across USG research and development (R&D) organizations, academia and industry. This project will engage early on with potential stakeholders to identify potential transition issues and aid in transition through joint collaboration between research teams and stakeholders with a focus on evaluations of prototypes, test articles and beta versions of tools, IP, techniques, methods, etc. and their use in operationally-realistic scenarios.			
Accomplishments/Planned Programs Subtotals	46.925	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance for this project is monitored in the following ways:

• Effectiveness of developed technologies, as measured by:

- The speed and reliability of new validation and verification techniques in identifying known microelectronics issues (e.g. tampering) in laboratory and non-laboratory situations;
- Successful testing of advanced, alternative manufacturing techniques such as disaggregated manufacturing; and
- Resilience of microelectronics protected by new trust approach technologies in red teaming exercises.

• Adoption of next-generation trust technologies, as measured by:

- The number of DoD and other Government programs employing these trust technologies, design approaches, or best practices, possibly as facilitated by the provision of use models;
- The volume and criticality of components employing these technologies, design approaches, or best practices; and
- Promulgation in DoD guidance and program protection plans.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605140D8Z / *Trusted Foundry*	Project (Number/Name) 839 / *New Trust Approach*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
New Trust Approach	MIPR	Various (DARPA, Air Force, Army, Navy, NSA) : Various	4.000	46.925	Mar 2017	-		-		-		-	Continuing	Continuing	-
		Subtotal	4.000	46.925		-		-		-		-	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4.000	46.925		0.000		-		-		-	Continuing	Continuing	N/A

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 839 / *New Trust Approach*

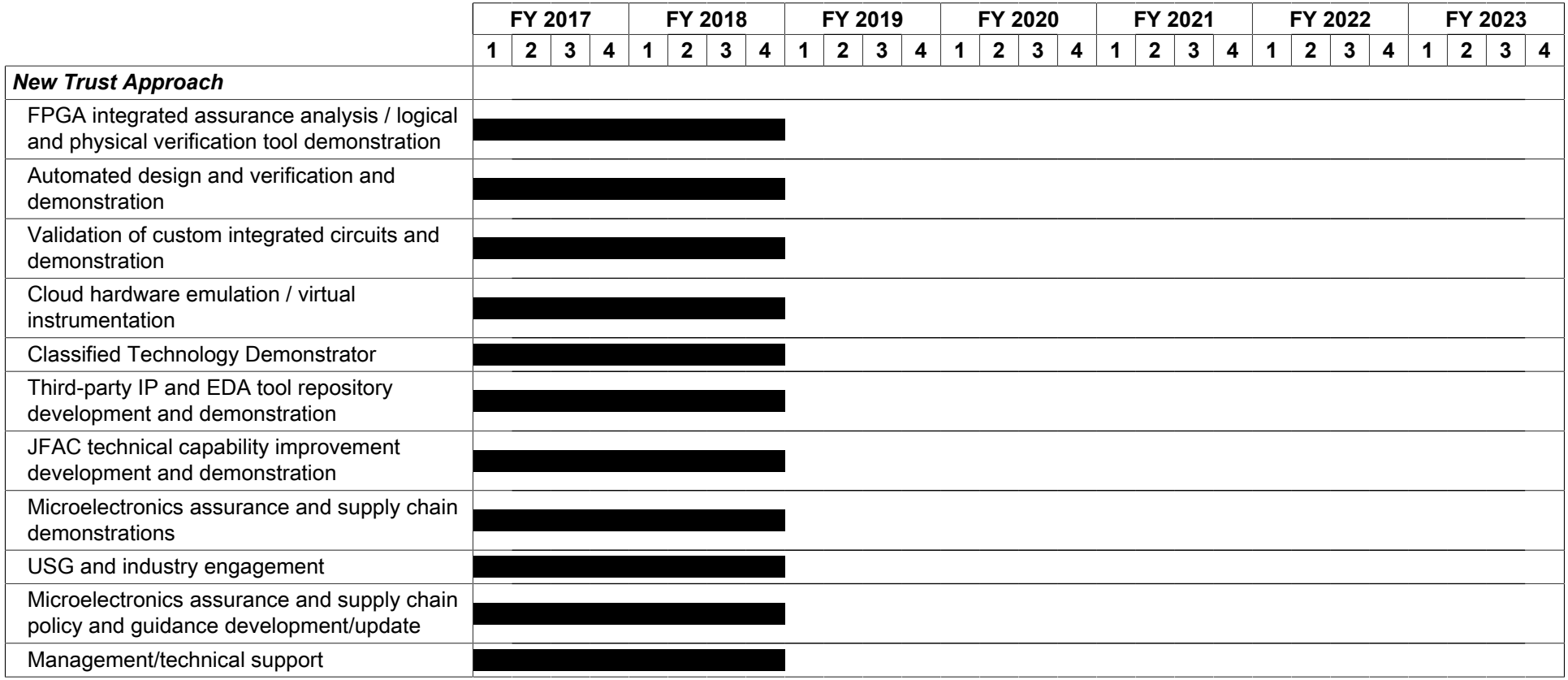

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 839 / *New Trust Approach*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
New Trust Approach				
FPGA integrated assurance analysis / logical and physical verification tool demonstration	1	2017	4	2018
Automated design and verification and demonstration	1	2017	4	2018
Validation of custom integrated circuits and demonstration	1	2017	4	2018
Cloud hardware emulation / virtual instrumentation	1	2017	4	2018
Classified Technology Demonstrator	1	2017	4	2018
Third-party IP and EDA tool repository development and demonstration	1	2017	4	2018
JFAC technical capability improvement development and demonstration	1	2017	4	2018
Microelectronics assurance and supply chain demonstrations	1	2017	4	2018
USG and industry engagement	1	2017	4	2018
Microelectronics assurance and supply chain policy and guidance development/update	1	2017	4	2018
Management/technical support	1	2017	4	2018