Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Office of Secretary Of Defense										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0605140D8Z: *Trusted Foundry*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	39.464	50.808	35.512	0.000	35.512	35.539	35.819	36.325	36.753	Continuing	Continuing
Trusted Foundry: *P014*	39.464	50.808	35.512	0.000	35.512	35.539	35.819	36.325	36.753	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Department of Defense (DoD) and National Security Agency (NSA) require uninterruptible access to state-of-the-art design and manufacturing processes to produce custom integrated circuits designed specifically for military purposes. Under DODI 5200.39, integrated circuits in critical/essential systems need to be procured from trusted sources in order to avoid counterfeit, tampered, or sabotaged parts. Worldwide competition from foreign state-subsidized manufacturing facilities (foundries) is making fabless semiconductor companies the norm in the U.S. Sophisticated off-shore design and manufacturing facilities with engineering labor rates vastly less than engineering rates in the U.S. have resulted in outsourcing of electronics components and integrated circuits. These trends threaten the integrity and worldwide leadership of the U.S. semiconductor industry by eliminating many domestic on-shore suppliers and reducing access to trusted fabrication sources for advanced technology. These trends are of acute concern to the defense and intelligence community. Secure communications and cryptographic applications depend heavily upon high performance semiconductors where a generation of improvement can translate into a significant force multiplier and capability advantage. Important defense technology investments and demonstrations carry size, weight, power, and performance goals that can only be met through the use of the most sophisticated semiconductors.

The Trusted Foundry program provides DoD and NSA with trusted state-of-the-art microelectronics design and manufacturing capabilities necessary to meet the performance and delivery needs of their customers. The program will also provide the Services with a competitive cadre of trusted suppliers that will meet the needs of their mission critical/essential systems for trusted integrated circuit components. NSA, in their role as the Trusted Access Program Office, has successfully looked to commercial sources to satisfy their requirements. Access to trusted suppliers is imperative to ongoing and future DoD/NSA systems, and most centrally, Trusted Foundry access is absolutely necessary to meet secure communication and cryptographic needs for state-of-the-art semiconductor technologies.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Office of Secretary Of Defense	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605140D8Z: *Trusted Foundry*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	42.360	41.223	0.000	0.000	0.000
Current President's Budget	39.464	50.808	35.512	0.000	35.512
Total Adjustments	-2.896	9.585	35.512	0.000	35.512
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		10.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-0.263	0.000			
• SBIR/STTR Transfer	-1.179	0.000			
• Other Program Adjustments	-1.454	-0.415	35.512	0.000	35.512

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: Trusted Foundry: *P014*		
Congressional Add: *Congressional add to the Trusted Foundry Program of $10M*	0.000	10.000
Congressional Add Subtotals for Project: Trusted Foundry	0.000	10.000
Congressional Add Totals for all Projects	0.000	10.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Office of Secretary Of Defense			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605140D8Z: *Trusted Foundry*	PROJECT Trusted Foundry: *P014*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Trusted Foundry: *P014*	39.464	50.808	35.512	0.000	35.512	35.539	35.819	36.325	36.753	Continuing	Continuing
Quantity of RDT&E Articles											

A. Mission Description and Budget Item Justification

The Department of Defense (DoD) and National Security Agency (NSA) require uninterruptible access to state-of-the-art design and manufacturing processes to produce custom integrated circuits designed specifically for military purposes. Under DODI 5200.39, integrated circuits in critical/essential systems need to be procured from trusted sources in order to avoid counterfeit, tampered, or sabotaged parts. Worldwide competition from foreign state-subsidized manufacturing facilities (foundries) is making fabless semiconductor companies the norm in the U.S. Sophisticated off-shore design and manufacturing facilities with engineering labor rates vastly less than engineering rates in the U.S. have resulted in outsourcing of electronics components and integrated circuits. These trends threaten the integrity and worldwide leadership of the U.S. semiconductor industry by eliminating many domestic on-shore suppliers and reducing access to trusted fabrication sources for advanced technology. These trends are of acute concern to the defense and intelligence community. Secure communications and cryptographic applications depend heavily upon high performance semiconductors where a generation of improvement can translate into a significant force multiplier and capability advantage. Important defense technology investments and demonstrations carry size, weight, power, and performance goals that can only be met through the use of the most sophisticated semiconductors.

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Trusted Foundry	39.464	40.808	35.512	0.000	35.512

Exhibit R-2A, RDT&E Project Justification: PB 2011 Office of Secretary Of Defense		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Additional integrated circuits were provided to the U.S. Army, U.S. Navy, U.S. Air Force, and the Defense Advanced Research Projects Agency (DARPA) to satisfy new and on-going program requirements. Additional effort was taken to further increase the number of trusted suppliers available to defense programs and to continue the acquisition of trusted process Intellectual Property (IP) and device codes to assure the long term availability of trusted parts. Application Specific Integrated Circuit (ASIC) design support software, hardware and IP was obtained to support up to eight ASIC designs at the leading-edge and for critical designs that require the accumulated knowledge of the IBM design team to implement in the most efficient manner for defense programs. New product developments occurred, as well as production parts for some of the prototype developments sponsored under the previous year(s). Special processing equipment for low volume manufacture was developed. Maintenance support for the facility infrastructure equipment to ascertain trust levels was performed. Facility and process modifications necessary to clear the 300mm IBM fabrication facility in East Fishkill, New York and the advanced packaging facility in Bromont was completed. Program focused on 65/45nm technology generation, integration of specialized process technologies for military users and the complete supply chain for implementation in a trusted environment, including design, manufacturing, integration and test, and packaging. *FY 2010 Plans:* Additional integrated circuits will be provided to the U.S. Army, U.S. Navy, U.S. Air Force, and DARPA to satisfy new and on-going program requirements. ASIC design efforts will be initiated to encompass leading-edge designs in state-of-the-art process technologies for military applications and the trusted design flow will be enhanced for defense designers. New circuit cores will be converted to trusted format and made available to the customers (programs, contractors, etc.) that use the Trusted Foundry. New equipment paradigms will be furthered for low volume but leading-edge processes. New process paradigms at 32/22nm for trusted fabrication technologies will be evaluated for implementation. New commercial and non commercial sources and methodologies for trusted					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Office of Secretary Of Defense		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
components and services within the complete supply chain will be developed and made available to the defense community. *FY 2011 Base Plans:* Establish a cadre of trusted suppliers for the critical trusted components and services needed for appropriate Defense systems. Enhance Trusted Foundry products to include key specialty processes requested by DoD programs, such as high voltage, extreme environments, and embedded non-volatile memory. Enhance trusted design activities to encompass new processing capabilities. Establish a line of trusted catalog components that can be purchased by Defense contractors.					
Accomplishments/Planned Programs Subtotals	39.464	40.808	35.512	0.000	35.512

	FY 2009	FY 2010
Congressional Add: Congressional add to the Trusted Foundry Program of $10M *FY 2010 Plans:* Additional funding will be applied to the tasks on the Trusted Foundry program consistent with the intentions of the congress.	0.000	10.000
Congressional Adds Subtotals	0.000	10.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NSA has negotiated a "commercial" capacity type IDIQ contract with IBM with 10 one year options. IBM will provide custom and semi-custom integrated circuit parts in production and prototype quantities to meet DoD/National Security Agency (NSA) leading edge integrated circuit needs. Additional suppliers of behind the leading edge production processes will be developed and accredited by the Defense Microelectronics Activity (DMEA) as Trusted Suppliers to provide program managers the

Exhibit R-2A, RDT&E Project Justification: PB 2011 Office of Secretary Of Defense		DATE: February 2010
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flexibility to acquire trusted parts appropriate to the minimum risk and vulnerability of their particular system needs. Process IP will be obtained from trusted suppliers to assure the availability of parts over the long term.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Office of Secretary Of Defense			DATE: February 2010
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Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Aggregate Volume Purchase Agreements	MIPR	NSA Washington, DISTRICT OF COLUMBIA	25.982	26.544	Jan 2010	23.210	Jan 2011	0.000		23.210	Continuing	Continuing	Continuing
Form Partnerships with Suppliers to Improve the Infrastructure for Trust	MIPR	NSA Washington, DISTRICT OF COLUMBIA	6.873	7.132	Jan 2010	6.070	Jan 2011	0.000		6.070	Continuing	Continuing	Continuing
Accreditation of Trusted Suppliers	MIPR	NSA Washington, DISTRICT OF COLUMBIA	4.449	4.617	Jan 2010	3.928	Jan 2011	0.000		3.928	Continuing	Continuing	Continuing
Post 2012 Plans and Backup Operations	MIPR	NSA Washington, DISTRICT OF COLUMBIA	1.160	2.515	Jan 2010	2.304	Jan 2011	0.000		2.304	Continuing	Continuing	Continuing
Congressional Add	MIPR	NSA Washington, DISTRICT OF COLUMBIA	0.000	10.000	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	38.464	50.808		35.512		0.000		35.512			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Office of Secretary Of Defense			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605140D8Z: *Trusted Foundry*	PROJECT Trusted Foundry: *P014*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	38.464	50.808		35.512		0.000		35.512			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Office of Secretary Of Defense			DATE: February 2010
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	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Funding Received	■	■	■	■																								
Aggregate Volume Purchase Agreements	■	■	■	■	■	■	■	■	■	■	■	■																
Intellectual Property (IP)	■	■	■	■																								
Security Upgrades	■	■	■	■																								
Certify Trusted Suppliers	■	■	■	■																								
Funding Received (estimate)						■	■	■	■	■	■	■																
Form Partnerships with Suppliers to Improve the Infrastructure for Trust						■	■	■	■	■	■	■																
Accreditation of Trusted Suppliers						■	■	■	■	■	■	■																
Post 2012 Plans and Backup Operations						■	■	■	■	■	■	■																

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Office of Secretary Of Defense		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605140D8Z: *Trusted Foundry*	**PROJECT** Trusted Foundry: *P014*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Funding Received	1	2009	4	2009
Aggregate Volume Purchase Agreements	1	2009	4	2011
Intellectual Property (IP)	1	2009	4	2009
Security Upgrades	1	2009	4	2009
Certify Trusted Suppliers	1	2009	4	2009
Funding Received (estimate)	2	2010	4	2011
Form Partnerships with Suppliers to Improve the Infrastructure for Trust	2	2010	4	2011
Accreditation of Trusted Suppliers	2	2010	4	2011
Post 2012 Plans and Backup Operations	2	2010	4	2011