OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

Date: February 2006

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE
RDT&E/ Defense Wide BA# 5	**0605140D8Z - Trusted Foundry**

Cost ($ in Millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total Program Element (PE) Cost	22.355	31.151	42.522	44.935	43.327	43.145	43.062
P014 Trusted Foundry	22.355	31.151	42.522	44.935	43.327	43.145	43.062

A. Mission Description and Budget Item Justification: The Department of Defense (DoD) and National Security Agency (NSA) require state-of-the-art microelectronics parts for incorporation into systems to satisfy existing and future DoD and NSA Information Assurance Directorate (IAD) and Signal Intelligence Directorate (SID) programs. The Director, NSA, has provided a mandate to continue operation of wafer manufacturing and mask-making in the Special Processing Laboratory (SPL), at least through FY 2006, to produce custom microelectronic parts for DoD/NSA and other external government consumers. The cost estimate to initially upgrade the SPL to keep pace with next generation NSA requirements is $1.7 billion. The estimate is beyond NSA's means. Advanced technology semiconductors are integral to a range of important capabilities and defense systems. Indeed, 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 SPL is not currently able to provide this cutting edge level of product, nor is it cost effective to incorporate the necessary improvements to attain such performance. Therefore, NSA has looked to commercial sources to satisfy their requirements. At the same time these needs have escalated, a variety of technical and economic pressures have eliminated many domestic on-shore suppliers and access to trusted fabrication sources for advanced technology semiconductors has declined. This trend is alarming to those uneasy about maintaining U.S. national competitiveness, but is of acute concern to the defense and intelligence community. Access to a Trusted Foundry 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.

The Trusted Foundry Program is a combined DoD-NSA project to develop and manufacture Application Specific integrated Circuits (ASICs) for critical DoD systems in a secure industrial environment. The Trusted Foundry process assures ASIC integrity from development and design through final delivery from NSA designated ASIC production facilities. ASD (NII) designates critical DoD systems to participate in the Trusted Foundry program. Identified Program Offices coordinate with NSA Trusted Foundry Program Office to design and deliver ASICs meeting DoD system specifications. The ASICs are provided to DoD programs as Government Furnished Equipment (GFE).The Department of Defense (DoD) and National Security Agency (NSA) require state-of-the-art design and manufacturing processes to produce custom integrated circuits designed specifically for military purposes. DoD and NSA have determined that integrated circuits in critical/essential systems need to be procured from trusted sources in order to avoid counterfeit, tampered, sabotaged or suborned parts. Worldwide competition from state-subsidized manufacturing facilities (foundries) is making 'fabless' semiconductor companies the norm in the U.S. Sophisticated off-shore design and software 'factories' with engineering labor rates vastly less than engineering rates in the U.S. have resulted in 'outsourcing' of many parts of the design of 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 alarming to those uneasy about maintaining U.S. national competitiveness, but 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.

DoD and NSA have established this jointly funded effort in microelectronics to assure that all DoD system programs, NSA Information Assurance Directorate (IAD) programs and Signal Intelligence Directorate (SID) programs would have access to state of the art design, fabrication, packaging and test processes from trusted suppliers for their mission critical/essential functions. The Director, NSA, has provided a mandate to continue operation of wafer manufacturing and mask-making in the Special Processing Laboratory (SPL), at least through FY

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2006, to produce custom microelectronic parts for DoD/NSA and other external government consumers.

Over the next six years this program will provide NSA with the trusted state-of-the-art microelectronics manufacturing necessary to meet the performance and delivery needs of their customers while at the same time providing the Services with a cadre of trusted suppliers that will meet the needs of their mission critical/essential systems for trusted integrated circuit parts. NSA, in their role of Trusted Access Program Office has 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.

B. Program Change Summary	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2006)	0.000	31.655	41.860
Current BES/President's Budget (FY 2007)	22.355	31.151	42.522
Total Adjustments	22.355	-0.504	0.662
Congressional Program Reductions		-0.504	
Congressional Rescissions			
Congressional Increases			
Reprogrammings	23.195		
SBIR/STTR Transfer	-0.840		
Other			0.662

C. Other Program Funding Summary	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
NSA funding support to the Trusted Foundry Program	30.000	31.151	42.522	44.935	43.327	43.145	43.062	0.000	278.142

Comment:

D. Acquisition Strategy NSA has negotiated a "take or pay" contract with IBM with 10 one year options going through FY 2013. IBM will provide custom integrated circuit parts in production and prototype quantities to meet DoD/NSA leading edge integrated circuit needs. Additional suppliers of 'behind the leading edge' production processes will be developed and accredited by DMEA and NSA as Trusted Suppliers to provide program managers the flexibility to acquire trusted parts appropriate to the minimum risk and vulnerability of their particular system needs. Process Intellectual Property will be obtained from trusted suppliers to assure the availability of parts over the long term. .

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E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
07						

Comment: All delivered parts will meet IBM standard commercial requirements. Any damaged or misprocessed parts will be replaced free of charge.

OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)

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Cost ($ in Millions)		FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
P014	Trusted Foundry	22.355	31.151	42.522	44.935	43.327	43.145	43.062

A. Mission Description and Project Justification: The Department of Defense (DoD) and National Security Agency (NSA) require state-of-the-art design and manufacturing processes to produce custom integrated circuits designed specifically for military purposes. DoD and NSA have determined that integrated circuits in critical/essential systems need to be procured from trusted sources in order to avoid counterfeit, tampered, sabotaged or suborned parts. Worldwide competition from state-subsidized manufacturing facilities (foundries) is making 'fabless' semiconductor companies the norm in the U.S. Sophisticated off-shore design and software 'factories' with engineering labor rates vastly less than engineering rates in the U.S. have resulted in 'outsourcing' of many parts of the design of 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 alarming to those uneasy about maintaining U.S. competitiveness, but 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.

DoD and NSA have established this jointly funded effort in microelectronics to assure that all DoD system programs, NSA Information Assurance Directorate (IAD) programs and Signal Intelligence Directorate (SID) programs would have access to state of the art design, fabrication, packaging and test processes from trusted suppliers for their mission critical/essential functions. The Director, NSA, has provided a mandate to continue operation of wafer manufacturing and mask-making in the Special Processing Laboratory (SPL), at least through FY 2006, to produce custom microelectronic parts for DoD/NSA and other external government consumers.

Over the next six years this program will provide NSA with the trusted state-of-the-art microelectronics manufacturing necessary to meet the performance and delivery needs of their customers while at the same time providing the Services with a cadre of trusted suppliers that will meet the needs of their mission critical/essential systems for trusted integrated circuit parts. NSA, in their role of Trusted Access Program Office has 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.

B. Accomplishments/Planned Program:

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Trusted Foundry (FY 2006 Plans)	0.000	31.151	0.000

Provide additional integrated circuits for the Army, Navy, Air Force, and DARPA to satisfy new and on-going programs. New product developments will occur, as well as production parts for some of the prototype developments sponsored the previous year(s). Dedicated secure communications equipment will be purchased and facility modifications necessary to clear the IBM fabrication facility in East Fishkill, New York will be initiated. Maintenance support for the facility infrastructure equipment in Vermont and New York is also included. NSA, DMEA & DSS will begin to assess supplier assurance processes leading to the accreditation of additional trusted suppliers.

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Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Trusted Foundry (FY 2007 Plans)	0.000	0.000	42.522

Provides additional integrated circuits for the U.S. Army, U.S. Navy, U.S. Air Force, and DARPA to satisfy new and on-going programs. Costs are projected to be higher due to increased number of parts estimated and cost increases necessary to procure advanced technology parts. Additional effort will be required to increase the number of trusted suppliers and to begin the acquisition of process IP and device codes to assure the long term availability of trusted parts. New product developments will occur, as well as production parts for some of the prototype developments sponsored the previous year(s). Maintenance support for the facility infrastructure equipment is also included.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy NSA has negotiated a "take or pay" contract with IBM with 10 one year options going through FY 2013. IBM will provide custom integrated circuit parts in production and prototype quantities to meet DoD/NSA leading edge integrated circuit needs. Additional suppliers of 'behind the leading edge' production processes will be developed and accredited by DMEA and NSA as Trusted Suppliers to provide program managers the flexibility to acquire trusted parts appropriate to the minimum risk and vulnerability of their particular system needs. Process Intellectual Property will be obtained from trusted suppliers to assure the availability of parts over the long term.

E. Major Performers Not Applicable.