RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2003

BUDGET ACTIVITY 03 - Advanced Technology Development (ATD)	PE NUMBER AND TITLE 0603755F High Performance Computing Modernization Program	PROJECT 5093

COST ($ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
5093 High Performance Computing Modernization Program	0	0	185,282	186,911	191,407	193,425	196,816	199,976	0	0
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

Note: In FY 2004, the Office of the Secretary of Defense transferred this program to the Air Force.

(U)   A. Mission Description

This program provides High Performance Computing (HPC) activities that could enable future superior warfighting capabilities. Funds are used to support developmental operations, maintenance, and performance upgrades to the four major shared resource supercomputing centers and the several smaller special purpose distributed supercomputing centers. Funds also are used to develop and sustain area networks, information security/assurance technologies, and associated HPC-specific codes. These supercomputer centers support the Department of Defense by providing a resource that enables the modeling and simulation activities necessary to maintain and advance military superiority and dominance on the battlefield. By exploiting HPC technologies early in the research and development process, scientists and engineers are able to resolve critical scientific and engineering problems in a more timely and cost-effective manner than by using physical hardware experimentation and test. The four major shared resource supercomputing centers are located at: Air Force Materiel Command, Wright-Patterson Air Force Base, Ohio; Army Research Laboratory, Aberdeen Proving Ground, Maryland; Army Corps of Engineers Research and Development Center, Vicksburg, Mississippi; and Naval Oceanographic Office, Stennis Space Center, Mississippi. The smaller, special-purpose distributed supercomputing centers are located at various installations across the United States. This program is subject to long-range strategic planning and technical review by a DoD-led, tri-Service advisory and oversight panel.

(U)   FY 2002 ($ in Thousands)
(U) $0   Accomplishments/Planned Program.
(U) $0   No Activity; previously managed by OSD.
(U) $0   Total

(U)   FY 2003 ($ in Thousands)
(U) $0   Accomplishments/Planned Program.
(U) $0   No Activity; previously managed by OSD.
(U) $0   Total

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(U)   **A. Mission Description Continued**

(U)   FY 2004 ($ in Thousands)

(U) $0   Accomplishments/Planned Program.

(U) $84,846   Enhance, modernize, and expand the operational and research utility of high performance computing systems, scientific visualization equipment, and associated infrastructure at DoD major shared resource centers (MSRC). Ensure U.S. scientists' and engineers' access to state-of-the-art supercomputing resources enabling timely and high precision advanced technology computational services in the development and deployment of U.S. weapon systems and system support. Provide technical support to research, development, and operational users.

(U) $21,757   Enhance, modernize, and expand the operational and research utility of high performance computing systems, scientific visualization equipment, and associated infrastructure at DoD specialized distributed centers (DC) and establish new, unique capability, special purpose DCs. Ensure U.S. scientists' and engineers' access to state-of-the-art supercomputing resources enabling timely and high precision advanced technology computational services in the development and deployment of U.S. weapon systems and system support. Provide technical support to research, development, and operational users.

(U) $26,646   Continue development of an extensive nationwide DoD network (Defense Research and Engineering Network) ensuring scientists and engineers have rapid and secure connectivity between the major resource centers, distributed centers, and DoD Science and Technology and Test and Evaluation sites. Advance and exploit technologies and process improvements in information exchange.

(U) $52,033   Develop, benchmark, distribute, sustain, and employ validated supercomputing application code or software, as well as state-of-the-art information assurance/protection technologies, processes, and methodologies for DoD HPC systems. Evaluate optimum tradeoffs between code efficiency, performance, accuracy, and precision driven by the completeness of the theoretical principles incorporated. These efforts should be done, while simultaneously minimizing associated inefficiencies, inherent delays, and resource reallocation requirements. Conduct an aggressive research and development activity in Software Application Support. Develop and mature Common HPC Software Support Initiative activities in sharing and improving efficiencies in scalable HPC application software. Support the Programming Environments and Training efforts that provide computational and computer science sustainment through interaction and collaboration between academic, industry, and government institutions.

(U) $185,282   Total

(U)   **B. Budget Activity Justification**

This program is in Budget Activity 3, Advanced Technology Development, since it develops and demonstrates technologies to protect and enhance the performance of Air Force personnel in operational environments.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 2003

BUDGET ACTIVITY 03 - Advanced Technology Development (ATD)	PE NUMBER AND TITLE 0603755F High Performance Computing Modernization Program	PROJECT 5093

(U)   **C. Program Change Summary ($ in Thousands)**

		FY 2002	FY 2003	FY 2004	Total Cost
(U)	Previous President's Budget	0	0	0	
(U)	Appropriated Value				
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions				
	b. Small Business Innovative Research				
	c. Omnibus or Other Above Threshold Reprogram				
	d. Below Threshold Reprogram				
	e. Rescissions				
(U)	Adjustments to Budget Years Since FY 2003 PBR			185,282	
(U)	Current Budget Submit/FY 2004 PBR			185,282	

(U)   Significant Program Changes:

   This program is part of the OSD program management divestiture. Air Force program management begins in FY 2004.

(U)   D. Other Program Funding Summary ($ in Thousands)

(U)   Not Applicable.

(U)   E. Acquisition Strategy

   Not Applicable.

(U)   F. Schedule Profile

(U)   Not Applicable.