

BALLISTIC MISSILE DEFENSE  
ORGANIZATION  
INFORMATION SYSTEMS DIRECTORATE

OSD BUDGET ESTIMATES SUBMISSION (BES)  
REPORT ON INFORMATION TECHNOLOGY  
RESOURCES

EXHIBIT 43

1996

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**EXECUTIVE SUMMARY**

**BMD AGENCY MISSION**

The mission of BMDO is to manage, direct, and execute the Ballistic Missile Defense Program (BMDP) to achieve the following objectives:

- Enable deployment of an effective and rapidly relocatable Advanced Theater Missile Defense Capability to protect Forward-deployed and expeditionary elements of the Armed Forces of the United States as well as allies of the United States;
- Develop options for, and deploy when directed, an Antibalistic Missile (ABM) system capable of providing effective defense of the U.S. Homeland against limited attacks of the ballistic missiles, including accidental, unauthorized launches or deliberate attacks;
- Demonstrate advanced technologies - as options for enhancing initial BMD systems - such as Space-based Interceptors; and
- Continue programs of basic and applied research to develop follow-on technologies for both near-term and future technology insertion options and new systems options to sustain a highly effective missile defense capability.

The BMDP shall provide the basis for informed decisions regarding development, production, and deployment milestones, and shall be carried out in full consultation and, where appropriate, with participation of our allies. The program shall be conducted in compliance with all existing international agreements and treaty obligations and shall utilize non-nuclear weapon technologies to achieve the deployments of the Rapidly Relocatable Advanced Theater Missile Defense Capability and the Anti-ballistic Missile Defense System. The BMDP shall focus on the development, acquisition, and integration of theater missile defenses and strategic defenses against ballistic missile threats to the United States.

**MAJOR INITIATIVES THAT INFLUENCE THE BMD INFORMATION  
TECHNOLOGY FY 1998 BUDGET ESTIMATE**

This submission contains *two new IT resources included in Exhibit 43*; 1) the BMDO Graphics Center (Visual Information Production Center) and 2) BMDO long haul networking and communications costs. These new efforts represent additional resources submitted in the BMDO IT 43 were not previously reported. This IT submission also

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reports the transfer of the Joint National Test Facility ( reported formerly as the National Test Facility) mission and operations from the USAF to BMDO.

**BMDO IT PROGRAM**

1. **BMDO has no major Automated Information Systems. BMDO also does not submit an Exhibit IT-3, as there are no IDIQ contracts that meet the reporting thresholds.**
2. Initiatives that influence the Information Technology budget include the following core resources and capabilities required to support the BMD Program:
  - 2.1. BMDO Headquarters operates a non major AIS, Support and Programmatic Integrated Management System (SPIMS), an integrated program management system that supports BMD mission operations. The SPIMS provides a comprehensive automated program management capability. SPIMS modules provide BMDO users access to planning, financial, program management, contract, and administrative data via on-line computer workstations furnishing printed reports and graphics. SPIMS utilizes Commercial-Off-The-Shelf (COTS) products and Government-Off-The Shelf (GOTS) applications to optimize system performance. SPIMS reporting applications and tools provide users with enhanced planning, expenditure tracking, analysis and reporting capabilities.
  - 2.2. BMD IT Obsolescence and Infusion initiative supports the modernization of the BMD Information Technology Infrastructure. The technology infusion initiative is critical to maintain an effective communications, networking and computing infrastructure to meet the BMDO mission information management requirements. Technology infusion focuses on modernizing existing Federal Information Processing (FIP) resources. This initiative addresses the strategic IT modernization requirements at BMDO HQ and the BMDO Executing Agents.
  - 2.3. BMDO HQ Network and Systems Management supports the design, development and implementation of information systems at the BMD Headquarters facility, as well as coordination of network and systems policy for the BMD Executing Agents. Funded activities include network and systems policy, development and maintenance of IRM architecture plans. Also, the activities support the coordination of BMD-wide information resources management policies and procedures. These IRM policies and procedures integrate analyses efforts and facilitate the exchange of data throughout the BMD user community. Major IM task support the acquisition, maintenance and operation of an effective information technology infrastructure that provides BMDO users with enhanced management and oversight capabilities to support the R&D mission.

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- 2.4. The BMDO Video Teleconferencing Center (VTC) is an interactive conferencing capability that unites the Conference Briefing Room to remote BMD-related locations. The VTC employs voice, video and communications technologies. The system is integrated with the Defense Commercial Telecommunications Network (DCTN) and operates at T1 data rates. The VTC accommodates both classified and unclassified broadcast and integrates a variety of audio and video imagery system technologies. These technologies include projection systems, recording and playback systems, video distribution and routing systems, video input/output devices, and special purpose video/imagery software. The VTC provides a cost-effective alternative to travel, reducing costs across BMD mission.
- 2.5. The BMDO Visual Information Production Center VIPC is a full-service presentation graphics and multi-media production facility. The VIPC provides centralized quality control of internal and external presentations and acts as the official repository for the most accurate and up to date briefing information. The VIPC provides complete graphics support to the Director, BMDO, BMDO government personnel and authorized contractors in support of BMDO programs.
- 2.6. BMDO Long Haul Networking and communications are costs charged to provide connectivity between BMDO and remote Teleconferencing resources and the Joint Missile Defense Network. This networking connectivity enables BMDO to effectively communicate between BMDO HQ, the Executing Agents and remote BMDO sites.
- 2.7. BMDO Headquarters base level computing supports the planning and acquisition of IT resources, telecommunications and office automation equipment. The IRM program also provides guidance, direction and policy administration (e.g. Continuous Acquisition Life Cycle Standards and Electronic Commerce) to optimize the contribution of IT/IM to mission operations.
- 2.8. BMDO Data Administration Program (DASP) outlines the policies, standards and procedures necessary to operate and maintain an effective data administration infrastructure. DASP operations are minimal due to resource limitations. Current efforts support the review, analysis and standardization of data elements and data entities from various BMD technical projects with the goal of populating the DoD Defense Data Dictionary System (DDDS).
- 2.9. BMDO Joint National Test Facility (JNTF) provides a comprehensive simulation environment to support ballistic missile defense design, development, and follow-on operational test and evaluation activities. The JNTF provides US Space Command, the individual service space commands, and the various theater commanders-in-chief with real-time simulations to explore ballistic missile defense operational concepts and orders of battle. The JNTF supports BMD

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mission evolution from Theater Missile Defense to a more general support for theater commanders, using the full capabilities of space assets. The JNTF develops and validates models, simulation techniques and tools that are critical in determining requirements and assessing the performance capabilities of BMD systems. These cost effective modeling approaches reduces the high costs of research and missile test programs while establishing future technology requirements. The application of a Computational Fluid Dynamics (CFD) to modeling, replaces the higher costs associated with wind tunnel field tests.

- 2.10. BMD Multi-Level Security activity supports the development and implementation of information systems security engineering improvements with the objective to move toward multi-level secure environment. This effort is being undertaken to facilitate connectivity between BMDO HQ, other government agencies, our international allies and the commercial partners. Funding is provided to the JNTF, a BMDO component.

## **BMDO EXECUTING AGENTS IT OPERATIONS**

1. **BMDO executes the Research and Development (R&D) mission through the Executing Agents. These Executing Agents operate under the cognizant authority of their individual Services (e.g. Army, Navy and Air Force) and are neither owned or operated by BMDO. The resources contained in this exhibit represent the information technology operations required to support BMDO R&D mission.**

- 1.1. United States Army Program Executive Office (PEO) Missile Defense (MD), is a component of the Army that supports the BMD mission as an Executing Agent. The costs reported in this Exhibit 43 reflect BMDO's fair share of the US Army PEO's IT operations support costs that are charged to BMDO projects. The mission of the Army PEO MD is to conduct a coordinated development program in accordance with Department of Defense, BMDO, and Army guidance to ensure timely and cost effective development of Anti-Tactical Missile (ATM) weapons systems. The PEO MD mission supports the BMDO mission of defending against tactical and ballistic missiles. The Army PEO provides automated services for gathering, storing, sharing, and retrieving technical and management information to provide oversight of multiple research contracts and business needs.

- 1.2. United States Army Space and Strategic Defense Command (USASSDC) - Corporate Information Management System (CIMS) is also a component of the Army that supports the BMD mission as an Executing Agent. The costs reported in this Exhibit 43 reflect BMDO's fair share of the USASSDC CIMS operations

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IT support costs that are charged to BMDO projects. The USASSDC CIMS supports the financial, contractual, procurement, personnel, logistics, and administrative aspects of project management. CIMS focuses on the oversight of multiple research contracts and other critical business needs related to BMD research. CIMS also provides budget and execution information for tracking financial information. CIMS interfaces with finance and accounting office systems without duplicating functions. CIMS provides the capability to facilitate BMD research by providing automated storage and retrieval of technical documents.

- 1.3. The Advanced Research Center (ARC) / Simulation Center (SC) is a component of the Army that performs research and development activities in support of BMDO projects. The costs reported in this Exhibit 43 reflect BMDO's fair share of the ARC/SC IT operations support costs that are charged to BMDO projects.
  - 1.3.1. The ARC is a modular, multiple experiment test bed sufficiently comprehensive to participate as a principal node of the National Test Bed. The ARC supports technology research and development requirements as well as conducting experimentation activities in support of BMDO. Some 146 computer systems are operated and maintained, supporting approximately 1,000 users primarily under contract to USASSDC, performing software design, development and hardware/software modeling simulation verification for various BMD ground-based elements. From June 1993 to June 1996, more than 2760 demonstrations and experiments were conducted in support of reviews, meetings, and conferences at the ARC.
  - 1.3.2. The USASSDC SC is a self contained, fully operational computer information center providing support to approximately 600 BMDO users and over 70 BMDO contractors/activities. The SC is a centralized resource for classified and unclassified supercomputer processing, parallel processing, data visualization, modeling and simulation, network communications, testbed support, software development and technical and administrative support services. As a networked tail of the USASSDC Advanced Research Center (ARC), the SC participates as a node of the National Test Bed. A US Army component. The SC operates and maintains over 20 major computers systems and three Cray Systems to support a multitude of BMDO development, test and implementation requirements. During FY 96 the SC has performed approximately 675 demonstrations, experiments, reviews, meetings, training classes and conferences were conducted at the SC to support a variety of BMDO activities.

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1.4. The Air Force (AF) BMD is a component of the Air Force that supports the BMD mission as an Executing Agent. The costs reported in this Exhibit 43 reflect BMDO's fair share of the AF IT operations support costs that are charged to BMDO projects. The AF BMD activities define, design, acquire and support the integration of information technology systems and database management for the Air Force Ballistic Missile Defense Program Office. AF BMD supports the architecture and continual operation of local and wide area networks. These operations facilitate interoffice and site communications between office automation systems. AF network and systems management operations support the design, acquisition and integration of information technology for the AF Ballistic Missile Defense Office. Included in these operations are IT strategic planning, process reengineering, network analysis, maintenance, and management. These functions integrate the client server databases, graphic user interface, maintenance and training processes.

1.5. The Navy Background Data Center is a component of the US Navy that supports the BMD mission as an Executing Agent. The costs reported in this Exhibit 43 reflect BMDO's fair share for the IT operations support costs that are charged to BMDO projects. The mission of the Navy Background Data Center is to assist in the evaluation of defense system feasibility, development and deployment in support of the BMD missions. The IT program, managed by the Naval Research Laboratory, has two primary functions: 1) to conduct data archiving, management and database characterization activities in support of BMD research; and 2) to provide user support functions for researchers, including the design and development of hardware and software systems to store, catalog and distribute experiment data in support of BMD programs.

**2. DEVIATIONS OF 15% OR MORE FROM THE FY 97 OSD/OMB SUBMISSION**

Dollars in Thousands

Submission	FY 96	FY 97	FY 98	FY 99
1997 PBS	62,770	69,017	0	0
1998 BES	64,403	80,812	81,280	81,516
Delta	1,663	11,795	N/A	N/A
Percent	3%	17%	N/A	N/A

The \$11,795 (17%) increase in the FY 98 BES from the FY 97 PBS is the net result of several offsetting increases / decreases in the Exhibit 43 submission. This FY 98 BES submission also includes two additional BMDO IT resources the Visual Presentation Center (\$2,800) and BMDO Long Haul Communications costs (\$2,200) both IT resources are explained in the Exhibit 43 Summary. The above mentioned changes combine to explain the increase in the fiscal years (FY 96 to FY 97) columns. The deviations from the FY 97 PBS are explained in the following tables. The increase in the BMDO HQ initiatives and the JNTF costs account for the FY 96-FY 97 increase in development/modernization costs.



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**Explanation of Increases/Decreases in the Exhibit 43  
(Dollars in Thousands)**

	FY 97/ PBS	FY 98 BES	Deltas	Percent
Equipment	13,621	21,626	8,005	58.8%
Software	4,540	3,119	-1,421	-31.3%
Services	8,413	5,504	-2,909	-34.6%
Software Services	34,112	41,064	6,952	20.4%
Supplies	578	580	2	0.3%
Personnel	2,438	2,272	-166	-6.8%
Other	787	756	-31	-3.9%
Intragovernmental Payments	4,527	5,892	1,365	30.2%
Intragovernmental Collection	0	0	0	0
<b>Totals</b>	<b><u>69,016</u></b>	<b><u>80,813</u></b>	<b><u>11,797</u></b>	<b><u>17.1%</u></b>

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**Explanation of the FY 97 Increases / Decreases  
(Dollars in Thousands)**

	BMDO Headquarters		JNTF		FY 97 Totals
<i>Equipment</i>	1. Multi media Computers	1,600	1. Cray Jedi	1,700	3,300
	2. VIPC Upgrades	500	2. Mac and PC Workstations	400	900
	3. BMDO HQ Classified Network Servers	500	3. Sun File Servers Mass Storage Devices	3,300	3,800
		2,600		5,400	8,000
<i>Software</i>	Deferred BMD Software Modernization	-1,421			-1,421
<i>Services</i>	Deferred BMD Software Modernization	-2,909			-2,909
<i>Support Services</i>	1. BMDO JMDN Architecture Requirements Analysis	1,100			1,100
	2. BMD Telecommunications costs	3,500			3,500
	3. BMDO HQ Unclassified LAN/WAN Support	500			500
	4. USAF Networking Services	400			400
	5. BMD Information Security Systems Engineering	1,100			1,100
	6. BMDO ADP Maintenance	300			300
		6,900			6,900
<i>Intra-government Payments</i> <b>INCREASED TELECOMMUNICATIONS CONNECTIVITY COSTS USA PEO DOIM</b>					1,400

**EXHIBIT 43**

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	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>
<b>1. Equipment</b>				
A. Capital Purchases	645	5,755	5,534	7,938
B. Purchases/Leases	12,110	15,871	15,709	15,454
Subtotal	<u>12,755</u>	<u>21,626</u>	<u>21,243</u>	<u>23,392</u>
<b>2. Software</b>				
A. Capital Purchases	327	2,477	2,764	3,153
B. Purchases/Leases	607	642	1,142	841
Subtotal	<u>934</u>	<u>3,119</u>	<u>3,906</u>	<u>3,994</u>
<b>3. Services</b>				
A. Communications	4,448	4,495	4,545	4,545
B. Processing	650	670	650	650
C. Other	339	339	50	40
Subtotal	<u>5,437</u>	<u>5,504</u>	<u>5,245</u>	<u>5,235</u>
<b>4. Support Services</b>				
A. Software	5,130	4,800	4,871	4,973
B. Equipment Maintenance	7,799	7,917	7,813	8,083
C. Other	25,780	28,347	28,964	28,253
Subtotal	<u>38,709</u>	<u>41,064</u>	<u>41,648</u>	<u>41,309</u>
	288	580	590	589
<b>5. Supplies</b>				
<b>6. Personnel (Compensation/Benefits)</b>				
A. Software	150	150	100	100
B. Equipment Maintenance	0	0	0	0
C. Processing	83	88	89	92
D. Communications	33	39	39	39
E. Other	1,810	1,994	1,994	1,994
Subtotal	<u>2,076</u>	<u>2,271</u>	<u>2,222</u>	<u>2,225</u>
<b>7. Other (Non-FIP Resources)</b>				
A. Capital Purchases	0	0	0	0
B. Other Current	751	756	762	770
Subtotal	<u>751</u>	<u>756</u>	<u>762</u>	<u>770</u>
<b>8. Intra-Governmental Payments</b>				
A. Software	0	0	101	101
B. Equipment Maintenance	95	95	37	37
C. Processing	50	50	66	66
D. Communications	2,353	4,792	4,505	3,208
E. Other	955	955	955	591
Subtotal	<u>3,453</u>	<u>5,892</u>	<u>5,664</u>	<u>4,003</u>
<b>9. Intra-Governmental Collections</b>				
A. Software	0	0	0	0
B. Equipment Maintenance	0	0	0	0
C. Processing	0	0	0	0
D. Communications	0	0	0	0
E. Other	0	0	0	0
Subtotal	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>NET IT RESOURCES</b>	<u>64,403</u>	<u>80,812</u>	<u>81,280</u>	<u>81,517</u>
Workyears	28	30	31	33
Non-DBOF	28	30	31	33
DBOF	0	0	0	0

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<u>Appropriation/Fund</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>
0400 RDT&E, Def-Wide	64,403	80,812	81,280	81,517
Total By Appropriation:	64,403	80,812	81,280	81,517

NOTE 1: Military Personnel Cost in the DBOF is computed at the equivalent civilian rate as prescribed by the DBOF Guidance.

NOTE 2: FY 1995 estimates reflect a \$50 thousand investment/expense threshold, FY 1996 reflects a \$100 thousand investment/expense threshold as adjusted by Congress (Section 8065 in Public Law 104-61), and for FY 1997, appropriated funds will adhere to the centrally managed criteria in that the Department will budget for the purchase of noncentrally managed items (by definition installation/local level type items) in the O&M appropriation regardless of the unit cost of the item. DBOF will maintain the \$100 thousand threshold for FY 1997 and beyond.

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**Exhibit IT-1 Index**

<b>System</b>	<b>Category</b>	<b>Computer and Communication Infrastructure Areas</b>	<b>Functional AIS</b>	<b>Section</b>
<b>BMD IT PROGRAM</b>				
1. BMDO Data Administration	All other	Related Technical Activities		Page 2 - D3
2. BMDO HQ AIS Security	All other	Related Technical Activities		Page 2 - D3
3. BMDO HQ Base Level Computing	Non major	Base Level Computing		Page 2 - C2
4. BMDO HQ Graphic Center (VIPIC)	Non major	Value Added Services		Page 3 - E2
5. BMDO HQ IT Infusion	Non major	Value Added Services		Page 3 - E2
6. BMDO HQ Network Management	Non major	Value Added Services		Page 3 - E2
7. BMDO HQ Networking and Communications		Core DII Communications		Page 1 - B2
8. BMDO HQ SPIMS	Non major		Finance	Page 4 - F3
9. BMDO Personnel	All other	Civilian Personnel		Page 1 - A3
10. HQ SPIMS MIS	Non major	Value Added Services		Page 3 - E2
11. HQ Video Teleconferencing	Non major	Value Added Services		Page 3 - E2
12. Joint National Test Facility (IT-2)	Non major		Science & Technology	Page 4 - G2
<b>EXECUTING AGENT'S IT OPERATIONS</b>				
13. Naval Research Laboratory (Located in All other category)	All other			Page 4 - G3
14. USA PEO Network Management	Non major	Value Added Services		Page 3 - E2
15. USAF	All other	Base Level Computing		Page 2 - C3
16. USASSDC ARC/SC (IT-2)	Non major		Science & Technology	Page 5 - G2
17. USASSDC CIM	Non major	Base Level Computing		Page 2 - C2
18. USASSDC CIMS (Finance)	All other		Finance	Page 4 - F2

BMDO is committed to continuous process improvement strategies to accurately identify and report IT resources. This submission reflects two additional IT resources that are reported to comply with the recent BES guidance. These new IT resources are the BMDO Graphics Center (Visual Information Production Center) and BMDO long haul networking and communications costs. These new efforts represent additional resources in the BMDO IT 43 that were not previously reported.

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**Index IT-1  
Changes and Clarifications**

1. Due to a software glitch in the FY 97 PBS Application, several erroneous entries appeared in the FY 97 PBS Exhibit 43 IT-1. BMDO HQ personnel appear in the FY97 PBS as a non major AIS, this entry is incorrect, BMDO HQ personnel costs actually appear in the "all other category". The funds shown as BMDO HQ Personnel are actually for the Joint National Test Facility. The funds labeled as Joint National Test facility are actually the US Army Space and Strategic Command - Advanced Research Center/Simulation Center (ARC/SC). BMDO provided Excel spreadsheets of our actual IT-1 to OSD (C) IT FIN Management Office in June 1996 to supplement the erroneous FY 97 PBS application generated IT-1 reports. The current BES Application software accurately reflects BMD Information Technology initiatives.
2. The Joint National Test Facility is reported as a BMDO component activity for the first time in this budget estimate submission. It formerly came under the cognizant authority of the US Air Force, and was called the National Test Facility. Additionally, this is the first budget estimate submission in which the US Army Space and Strategic Defense Command (USASSDC) - Advanced Research Center (ARC) and the Simulation Center (SC) have submitted a combined ARC/SC BES submission.
3. This Exhibit reports the Joint National Test Facility (JNTF) and the US ARMY Space and Strategic Command, Advanced Research Center (ARC) and Simulation Center (SC), USASSDC ARC/SC in the IT-2, which reports non-major AISs. Data provided in the IT-2 reflects BMDO's fair share of the IT operational support costs charged to BMDO projects. Life Cycle costs are not applicable to the ARC/SC or JNTF operations. BMDO only reports these costs to comply with the Financial Management Regulation Volume 2b, Chapter 18. There are no milestones or technical changes associated with the JNTF or ARC/SC IT operations as required for the acquisition of systems. BMDO reports the IT-2 to comply with the BES requirement to report IT resource expenditures that exceed \$10 million annually.

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	FY 1996	FY 1997	FY 1998	FY 1999
<b>A. Civilian Personnel</b>				
1. Major Systems/Initiatives				
2. Non-Major Systems/Initiatives				
3. All Other Civilian Personnel				
Development/Modernization	0	0	0	0
Current Services	1,078	1,274	1,274	1,274
Subtotal	1,078	1,274	1,274	1,274
Appropriation/Fund				
RDT&E, Def-Wide	1,078	1,274	1,274	1,274
4. Total Civilian Personnel				
Development/Modernization	0	0	0	0
Current Services	1,078	1,274	1,274	1,274
Subtotal	1,078	1,274	1,274	1,274
Appropriation/Fund				
RDT&E, Def-Wide	1,078	1,274	1,274	1,274
<b>B. Core DII - Communications</b>				
1. Major Systems/Initiatives				
2. Non-Major Systems/Initiatives				
CORE DII COMMUNICATIONS				
Development/Modernization	0	0	0	0
Current Services	0	2,208	1,769	441
Subtotal	0	2,208	1,769	441
Appropriation/Fund				
RDT&E, Def-Wide	0	2,208	1,769	441
3. All Other Core DII - Communications				
4. Total Core DII - Communications				
Development/Modernization	0	0	0	0
Current Services	0	2,208	1,769	441
Subtotal	0	2,208	1,769	441
Appropriation/Fund				
RDT&E, Def-Wide	0	2,208	1,769	441



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	FY 1996	FY 1997	FY 1998	FY 1999
<b>3. Core DII - Computing</b>				
1. Major Systems/Initiatives				
2. Non-Major Systems/Initiatives				
BMDO HQ BASE-LEVEL COMPUTING				
Development/Modernization	874	3,362	3,046	4,469
Current Services	0	0	0	0
Subtotal	874	3,362	3,046	4,469
Appropriation/Fund				
RDT&E, Def-Wide	874	3,362	3,046	4,469
USASSDC-CIMS				
Development/Modernization	605	264	264	264
Current Services	3,053	3,046	3,046	3,046
Subtotal	3,658	3,310	3,310	3,310
Appropriation/Fund				
RDT&E, Def-Wide	3,658	3,310	3,310	3,310
3. All Other Core DII - Computing				
Development/Modernization	99	259	190	108
Current Services	1,582	1,289	1,353	1,422
Subtotal	1,681	1,548	1,543	1,530
Appropriation/Fund				
RDT&E, Def-Wide	1,681	1,548	1,543	1,530
4. Total Core DII - Computing				
Development/Modernization	1,578	3,885	3,500	4,841
Current Services	4,635	4,335	4,399	4,468
Subtotal	6,213	8,220	7,899	9,309
Appropriation/Fund				
RDT&E, Def-Wide	6,213	8,220	7,899	9,309
<b>D. Core DII - Related Technical Activities</b>				
1. Major Systems/Initiatives				
2. Non-Major Systems/Initiatives				
3. All Other Core DII - Related Technical Activities				
Development/Modernization	0	0	0	0
Current Services	827	847	1,617	1,486
Subtotal	827	847	1,617	1,486
Appropriation/Fund				
RDT&E, Def-Wide	827	847	1,617	1,486
4. Total Core DII - Related Technical Activities				
Development/Modernization	0	0	0	0
Current Services	827	847	1,617	1,486
Subtotal	827	847	1,617	1,486
Appropriation/Fund				
RDT&E, Def-Wide	827	847	1,617	1,486

DEPARTMENT OF DEFENSE  
Ballistic Missile Defense Organization  
Information Technology Resources by CIM Functional Area  
FY 1998 Budget Estimates Submissions  
(Dollars in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
<b>E. Core DII - Value Added Services</b>				
1. Major Systems/Initiatives				
2. Non-Major Systems/Initiatives				
BMDO / GRAPHIC CENTER				
Development/Modernization	0	0	0	0
Current Services	2,246	2,811	2,875	2,942
Subtotal	2,246	2,811	2,875	2,942
Appropriation/Fund				
RDT&E, Def-Wide	2,246	2,811	2,875	2,942
BMDO HQ IT INFUSION				
Development/Modernization	340	6,647	7,035	8,506
Current Services	0	0	0	0
Subtotal	340	6,647	7,035	8,506
Appropriation/Fund				
RDT&E, Def-Wide	340	6,647	7,035	8,506
BMDO HQ NETWORK MANAGEMENT				
Development/Modernization	0	0	200	200
Current Services	5,805	5,746	5,727	5,528
Subtotal	5,805	5,746	5,927	5,728
Appropriation/Fund				
RDT&E, Def-Wide	5,805	5,746	5,927	5,728
BMDO HQ SPIMS MIS				
Development/Modernization	886	720	736	753
Current Services	2,360	1,529	1,565	1,601
Subtotal	3,246	2,249	2,301	2,354
Appropriation/Fund				
RDT&E, Def-Wide	3,246	2,249	2,301	2,354
BMDO HQ VIDEO TELECONFERENCING				
Development/Modernization	0	0	0	0
Current Services	2,235	4,080	2,332	2,386
Subtotal	2,235	4,080	2,332	2,386
Appropriation/Fund				
RDT&E, Def-Wide	2,235	4,080	2,332	2,386
USA PEO NETWORK MANAGEMENT				
Development/Modernization	604	499	1,962	1,364
Current Services	1,090	1,198	1,378	1,014
Subtotal	1,694	1,697	3,340	2,378
Appropriation/Fund				
RDT&E, Def-Wide	1,694	1,697	3,340	2,378
3. All Other Core DII - Value Added Services				
4. Total Core DII - Value Added Services				
Development/Modernization	1,830	7,866	9,933	10,823
Current Services	13,736	15,364	13,877	13,471
Subtotal	15,566	23,230	23,810	24,294
Appropriation/Fund				

DEPARTMENT OF DEFENSE  
Ballistic Missile Defense Organization  
Information Technology Resources by CIM Functional Area  
FY 1998 Budget Estimates Submissions  
(Dollars in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
RDT&E, Def-Wide	15,566	23,230	23,810	24,294
<b>Finance</b>				
Major Systems/Initiatives				
Non-Major Systems/Initiatives				
USASSDC CIM-FINANCE				
Development/Modernization	404	176	176	176
Current Services	2,035	2,030	2,030	2,030
Subtotal	2,439	2,206	2,206	2,206
Appropriation/Fund				
RDT&E, Def-Wide	2,439	2,206	2,206	2,206
1. All Other Finance				
Development/Modernization	172	171	175	179
Current Services	115	80	82	84
Subtotal	287	251	257	263
Appropriation/Fund				
RDT&E, Def-Wide	287	251	257	263
1. Total Finance				
Development/Modernization	576	347	351	355
Current Services	2,150	2,110	2,112	2,114
Subtotal	2,726	2,457	2,463	2,469
Appropriation/Fund				
RDT&E, Def-Wide	2,726	2,457	2,463	2,469
<b>3. Science and Technology</b>				
1. Major Systems/Initiatives				
2. Non-Major Systems/Initiatives				
JOINT NATIONAL TEST FACILITY (JNTF)				
Development/Modernization	6,890	10,705	9,605	10,060
Current Services	13,494	13,972	14,727	14,082
Subtotal	20,384	24,677	24,332	24,142
Appropriation/Fund				
RDT&E, Def-Wide	20,384	24,677	24,332	24,142
USASSDC SC / ARC				
Development/Modernization	5,000	5,000	5,000	5,000
Current Services	11,000	11,300	11,812	11,812
Subtotal	16,000	16,300	16,812	16,812
Appropriation/Fund				
RDT&E, Def-Wide	16,000	16,300	16,812	16,812
3. All Other Science and Technology				
Development/Modernization	350	350	200	200
Current Services	1,259	1,249	1,104	1,090
Subtotal	1,609	1,599	1,304	1,290
Appropriation/Fund				
RDT&E, Def-Wide	1,609	1,599	1,304	1,290
4. Total Science and Technology				

DEPARTMENT OF DEFENSE  
 Ballistic Missile Defense Organization  
 Information Technology Resources by CIM Functional Area  
 FY 1998 Budget Estimates Submissions  
 (Dollars in Thousands)

	FY 1996	FY 1997	FY 1998	FY 1999
Development/Modernization	12,240	16,055	14,805	15,260
Current Services	25,753	26,521	27,643	26,984
Subtotal	37,993	42,576	42,448	42,244
Appropriation/Fund				
RDT&E, Def-Wide	37,993	42,576	42,448	42,244
<b>CIM Grand Total</b>				
Development/Modernization	16,224	28,153	28,589	31,279
RDT&E, Def-Wide	16,224	28,153	28,589	31,279
Current Services	48,179	52,659	52,691	50,238
RDT&E, Def-Wide	48,179	52,659	52,691	50,238
Total	64,403	80,812	81,280	81,517
Appropriation/Fund				
RDT&E, Def-Wide	64,403	80,812	81,280	81,517

Exhibit 43

IT-2

**OSD BUDGET ESTIMATES SUBMISSION (BES)  
REPORT ON INFORMATION TECHNOLOGY RESOURCES  
EXHIBIT 43**

**Exhibit IT-2 Index**

**Joint National Test Facility (JNTF)\***

1. This Exhibit reports the Joint National Test Facility (JNTF) IT operations in the IT-2, because the planned cost exceed the reporting threshold for submitting the IT-2. Life Cycle or Program Costs are not applicable to JNTF operations reported in the IT-2. Costs reported in this submission support the IT operations and maintenance support required to maintain an effective computing infrastructure. There are no milestones or technical changes associated with the JNTF IT operations as required for the acquisition of systems. BMDO submits the IT-2 to comply with the BES requirement to report IT resource expenditures that exceed \$10 million annually.
2. The FY 98 BES submission reflects a \$4.2M increase in the JNTF costs from the FY 97 - FY 98 columns. Of this amount approximately \$4.0 million is for the development and modernization of the JNTF IT operations. These funds are programmed to support modernization of the computational infrastructure more specifically to upgrade; 1) Cray Jedi, 2) PC and Macintosh workstations, 3) Sun File Servers and, 4) Mass Storage Devices.

**USASSDC ARC/SC\***

1. The USASSDC is a component of the US Army activity that BMDO uses to conduct IT research and development activities in support of BMDO projects. The resources reported represent BMDO's fair share of the USASSDC IT operations cost charged to BMDO. BMDO does not acquire, contract or own the resources associated with the either the Advanced Research Center or the Simulation Center.
2. There are no changes in funding greater than 15%.

**\*Note:**

Both the Joint National Test Facility (JNTF) and the US ARMY Space and Strategic Command (USASSDC), Advanced Research Center (ARC) and Simulation Center (SC), USASSDC ARC/SC are submitted in the IT-2 because the individual totals for these support contracts exceed the threshold (\$10 million annually) established by the IT-2 guidance. These costs for acquisition of systems as defined in the DOD Financial Management Regulation Volume 2b, Chapter 18, but rather reflect the fees charged for the JNTF and USASSDC IT operations and maintenance support.

**United States Army Space and Strategic Defense Command  
Joint National Test Facility (JNTF)  
Descriptive Summary  
FY 1998 OSD Budget Estimate Submission**

A. AIS Title and Number: JNTF Research and Development Contract, F05604-95-D-9001 and JNTF Operations & Maintenance Contract, F05604-95-C-9001.

B. CIM Function Area: Science & Technology

C. Life Cycle Cost and Program Cost:

1. Then year (Inflated) dollars

Life-cycle cost (Current Contract ): \* N/A.  
Program cost (Annual Funding requirement): \* N/A.

2. Current base year (FY97) dollars

Life-cycle cost (Current Contract ): \* N/A.  
Program cost (Annual Funding Requirement): \* N/A.

3. Sunk Cost (Actual Contract Expenditures To Date): \* N/A.

4. Cost To Complete (Then Year Current Contract (item 1) \* N/A.

\* See Section H

D. Cross Reference to Justification Books:

1. Line Item: RDT&E

2. Line Item Title: R-1

3. Line Item Page Number: (Reference 98 POM)

4. Appropriation/Fund: 0400/PMA 3352 & 4162

5. Budget Activity/Business Area: Science & Technology/TMD & NMD

**United States Army Space and Strategic Defense Command  
Joint National Test Facility  
Descriptive Summary  
FY 1998 OSD/OMB Submission**

**E. System Description:**

The JNTF provides a comprehensive simulation environment capable of supporting ballistic missile design, development, and follow-on RDT&E. Additionally the JNTF provides the US Space Command, the individual Services space commands and various theater Commanders-in-Chief with real-time simulation to explore Ballistic Missile Defense (BMD) operational concepts/order of battle. The JNTF supports the mission environment evolving from Theater Missile Defense (TMD) to a more general support for theater commanders (warfighters), using the full capabilities of space assets.

JNTF computational resources are employed on both classified and unclassified networks and stand-alone system activities. The classified systems not only serve the many classified programs within the JNTF; but are also available to server other BMDO programs via an existing wide area network (WAN). The unclassified network is separate and manages administrative and program management functions electronically. The JNTF IT system supports intensive batch-processed simulators, analysis simulators, analysis support tools and real-time, interactive, distributed wargaming. The JNTF is also a subscriber to the Defense Interactive Simulation and the Wargaming Networks.

The JNTF contains a fully operational supercomputing resource environment directly supports 8 BMDO projects, 25 Ballistic Missile Defense Organizations (BMDO) and 20 other DoD organizations and contractors/activities. The JNTF is a centralized resource for classified and unclassified supercomputer processing, parallel processing, data visualization, modeling and simulation and real-time interactive distributed wargaming. The system also includes the WAN and a Local Area Network (LAN) communications equipment, computer terminals (local and remote) equipment and over 1,200 hosted software products.

**F. Program Accomplishments and Plans**

1. FY 1996 Accomplishments: Current Cray 2 technology upgraded with FY96 purchase of a new Triton computer/processor. Added communication upgrades and increased connectivity to the JNTF from external nodes. Continued a multi-level security development program. Continued the maintenance of JNTF operations including services to provide continuous access to test and evaluation and modeling and simulation resources.
2. FY 1997 Planned Program: Current budget figures for FY 97, are designed to continue operations and maintenance of the JNTF IT operations. Plans call for the procurement of productivity tools to maximize the potential of the new Triton system. Further modernization of high end capacity domain platforms (such as SG Power Challenge) are



**United States Army Space and Strategic Defense Command  
Joint National Test Facility (JNTF)  
Descriptive Summary  
FY 1998 OSD Budget Estimate Submission**

required to support the JNTF mission with BMDO and optimize operational effectiveness.

3. FY 98 Planned Programs are designed to continue operations and maintenance of the JNTF IT operations. Plans call for the procurement of automated mass storage upgrades high end capacity domain platforms (such as Cray Jedi), 128GB Disk, ATM Hubs and engineering support to expand the JNTF computational capabilities available to BMDO Project Integrators.
4. FY 99 Planned Program are designed to continue operations and maintenance of the JNTF IT operations. Plans call for the procurement of capability domain platforms including a mass data storage, Cray Jedi, Hewlett Packard T500 and a DEC Giga switch. Additionally, it will be necessary to significantly upgrade the networking infrastructure to accommodate the demand for enhanced connectivity for BMDO users, industry and our commercial partners.

**G. Contract Information:**

1. Prime Contractors: The National Test Bed Integration Contract (NTBIC), F19628-88-C-0012, awarded to Martin Marietta Corporation, January 1988 was completed February 1995. This contract was rebaselined several times and within budget. Selection of the two follow on contractors was completed in the first quarter FY95. The NTF Research and Development Contract, F05604-95-D-9001, commenced 1 February 1995. The NTF Operations and Maintenance Contract, F05604-95-C-9001, commenced 1 February 1995.

**H. Comparison with FY 1996 Description Summary:**

1. The FY 98 BES submission reflects a \$4.2M increase in the JNTF costs from the FY 97 PBS. Of this amount approximately \$4.0 million is for the development and modernization of the JNTF IT operations. More specifically, new productivity tools to maximize the potential of the new Triton system. Further modernization of high end capacity domain platforms (such as SG Power Challenge) are required to support the JNTF mission with BMDO and optimize operational effectiveness.
2. The JNTF plans \$9.6 million of development/modernization in 1998, and 10.1 in FY 99. These enhancements support the phased replacement of an atrophied JNTF computational environment, that has not been upgraded since it became operational in 1989. In FY 98 and FY 99 JNTF plans to continue the phased upgrade of 1) high end capacity domain platforms (such as Cray Jedi), 2) workstations, 3) network improvements, 4) automated mass storage 5) ATM Hubs and 6) engineering support.

**United States Army Space and Strategic Defense Command  
Joint National Test Facility  
Descriptive Summary  
FY 1998 OSD/OMB Submission**

These planned upgrades serve to ensure BMDO users acquire timely access to, and uninterrupted use of mission critical assets (e.g. testing and modeling and simulation resources). Additionally, in FY 98 JNTF plans to begin installation of a Multi Level Secure Environment to support international wargaming exercises. Also, the JNTF will require a significantly upgrade the networking infrastructure to accommodate the increased demand for information sharing between BMDO, our commercial partners and international allies.

- \* **Life Cycle or Program Costs are not applicable to JNTF operations reported in the IT-2. Costs reported in this submission support the IT operations and maintenance support required to maintain an effective computing infrastructure. There are no milestones or technical changes associated with the JNTF IT operations as required for the acquisition of systems. BMDO submits the IT-2 to comply with the BES requirement to report IT resource expenditures that exceed \$10 million annually.**

**United States Army Space and Strategic Defense Command  
Advanced Research Center and Simulation Center  
USASSDC ARC/SC  
Descriptive Summary IT-2  
FY 1998 OSD Budget Estimate Submission**

A. AIS Title and Number: US Army Space & Strategic Defense Command Advance Research Center and Simulation Center (USASSDC ARC/SC); Category 4.

B. CIM Function Area: Science & Technology

C. Life Cycle Cost and Program Cost \*N/A:

1. Then year (Inflated) dollars

Life-cycle cost (Current Contract): \*N/A (in millions of dollars).

Program cost (Annual Funding requirement): \*N/A (in millions of dollars).

2. Current base year (FY97) dollars

Life-cycle cost (Current Contract): \* N/A (in millions of dollars).

Program cost (Annual Funding Requirement): \* N/A (in millions of dollars).

3. Sunk Cost (Actual Contract Expenditures To Date): \* N/A (in millions of dollars).

4. Cost To Complete: \* N/A (in millions of dollars).

\* See Section H

D. Cross Reference to Justification Books:

1. Line Item: RDT&E

2. Line Item Title: R-1

3. Line Item Page Number: (Reference 98 POM)

4. Appropriation/Fund: 0400/PMA 3352 & 4162

5. Budget Activity/Business Area: Science & Technology/TMD & NMD

E. System Description:

The United States Army Space and Strategic Defense Command (USASSDC) Advanced Research Center (ARC) and Simulation Center (SC) are managed by the USASSDC's Computer Resources Division under the Systems Directorate. The ARC and the SC are

**United States Army Space and Strategic Defense Command  
Advanced Research Center and Simulation Center  
(USASSDC - ARC/SC)  
Descriptive Summary IT-2  
FY 1998 OSD Budget Estimates**

funded by PMA 3352 and are managed by the United States Army Space and Strategic Defense Command s (USASSDC) Computer Resources Division (CRD). Reporting ARC/SC activities together more accurately represent USASSDC's CRD management of and funding allocations for ARC/SC resources. The ARC/SC requires \$16.000 million for FY96 and \$16.300 million for FY97 to operate the centers and upgrade current resources. To fully support BMDO requirements, ARC/SC requires substantial upgrade funds for FY 96 and FY 97. Both the ARC and the SC provide state-of-the-art computation, test bed, and engineering support for numerous BMDO, NMD, TMD and USASSDC projects/programs. The ARC and the SC are connected via a very high bandwidth T-3 link that allow the separate centers to be configured as a single computational resource.

The ARC/SC are self contained fully operational computational resources that provides over 1300 BMDO users and 70 Ballistic Missile Defense Organization (BMDO) contractors/activities. The ARC/SC is a centralized resource for classified and unclassified supercomputer processing, parallel processing, data visualization, modeling and simulation, networked communications, test bed support, software development and technical and administrative support services. The USASSDC ARC/SC are reconfigurable, multiple experiment test beds sufficiently comprehensive to participate as a principal node of the National Test Bed (NTB) and to support the technology research and development needs as well as experimentation activities within the Ballistic Missile Defense Organization (BMDO). Some 166 computer systems are operated and maintained, supporting users primarily under contract to USASSDC, performing software design, development and hardware/software modeling, simulation and verification for various BMD ground-based elements. The ARC/SC plans the use of Computational Fluid Dynamics (CFD) Technologies to replace expensive wind tunnel testing. CFD is critical to modeling and simulation activities that support the ARROW, CORPS SAM/MEAD, PATRIOT/PAC-3 and THAAD projects. This technology is needed to enable more effective simulation, modeling, evaluation, correct design defects in missiles/launchers and isolate test flight anomalies.

From June 1993 to June 1996, more than 3435 demonstrations and experiments were conducted in support of reviews, meetings, and conferences at the ARC/SC.

**F. Program accomplishments and Plans**

1. FY 1996 Planned Program: Upgrade computation and communications resources and continue to provide full-range computational support for DoD projects/programs (i.e. PEO MD, BMDO, USASSDC).
2. FY 1997 Planned Program: Upgrade visualization hardware and software, supercomputing tools and technologies needed to support acquisition of Computational Fluid Dynamics (CFD) technologies. Additionally, the acquisition of

**United States Army Space and Strategic Defense Command  
Advanced Research Center and Simulation Center  
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Descriptive Summary IT-2  
FY 1998 OSD Budget Estimate Submission**

3. Fiber Data Distributed Interface Network Environments are needed to expand improve connectivity and reduce processing time for research.
4. FY 1998 Planned Program: Minimal upgrades to the to modeling and simulation resources to achieve greater modeling and simulating fidelity and to improve the infrastructure capability to provide timely responses to critical missile defense objectives.
5. FY 1998 Planned Program: Minimal upgrades to the to modeling and simulation resources to achieve greater modeling and simulating fidelity and to improve the infrastructure capability to provide timely responses to critical missile defense objectives.

**G. Contract Information:**

1. Prime Contractors: COLSA Corporation, Huntsville, AL - Facilities Management/Operations.
2. Type of Government Obligation: Fixed Price
3. Length of Contract: ARC (9 Years); SC (5 Years)
4. When Procurement Authority Obtained From GSA: Current contract awarded in 1989 (ARC); 1991 (SC).
5. Contract Performance: On Schedule - Below Cost.
6. Other Significant Contract Information: ARC/SC is an on-going government computational, engineering and test bed support service for BMDO, TMD, NMD and USASSDC programs/projects.

**H. Comparison with FY 1996 Description Summary:**

1. There are no significant technical, schedule or funding changes.

\* Life Cycle costs are not applicable to the ARC/SC operations. The ARC/SC resources contained in the IT-2 belong to the Executing Agents. The IT-2 reflects BMDO's fair share of the ARC/SC IT operations costs charged to BMDO projects. BMDO only reports these costs to comply with the Financial Management Regulation Volume 2b, Chapter 18 and the BES Guidance.

**United States Army Space and Strategic Defense Command  
Advanced Research Center and Simulation Center  
(USASSDC - ARC/SC)  
Descriptive Summary IT-2  
FY 1998 OSD Budget Estimates**

**The BES guidance requires components report the acquisition of IT resources that exceed \$10 million annually. There are no milestones or technical changes associated with the ARC/SC operations as required for the acquisition of systems.**

**BMDO**

**COSTS OF YEAR 2000 ACTIVITIES**

**OSD BUDGET ESTIMATES SUBMISSION (BES)  
REPORT ON INFORMATION TECHNOLOGY RESOURCES  
EXHIBIT 43**

**YEAR 2000 Activities**

1. BMDO's assessment of the Year 2000 problem is not complete. Two of four BMDO Executing Agents have submitted Rough Order of Magnitude estimates of the funding required to solve the Year 2000 problem. The JNTF and the Army PEO have provided review of their operations and have identified a \$14.5 million dollar requirement to support Year 2000 Activities through 1999. This initial \$14.5M ROM Estimate projects that: 1) roughly 20% of the funding will be needed for "Software" to identify, analyze, correct SW/HW problems or provide replacement of S/W; and 2) approximately 80% of the funding for "Support Services" that are needed to identify, analyze and solve the Year 2000 Problem.
  
2. BMDO will continue to review our IT operations, as we continue to address the Year 2000 issues in the upcoming Year 2000 Steering Committee forums and during the FY 99 Program Objective Memorandum (POM). Attached is the revised Costs of Year 2000 Activities Summary for BMDO that reflects our current assessment of the Year 2000 problem. The resources contained in the Year 2000 Activities Summary are neither programmed or funded.



# BMDO COST of YEAR 2000 ACTIVITIES

(dollars in millions)

	FY 96	FY 97	FY 98	FY 99
1. Equipment	0	0	0	0
2. Software	0	0.967	0.967	0.967
3. Services	0	0	0	0
4. Support Services	0	3.867	3.867	3.867
5. Supplies (\$000)	0	0	0	0
6. Personnel (Comp/Benefits) (\$000)	0	0	0	0
7. Other	0	0	0	0
<b>NET IT RESOURCES (SUM 1-7 ABOVE)</b>	<b>0</b>	<b>4.833</b>	<b>4.833</b>	<b>4.833</b>