

UNCLASSIFIED

PE NUMBER: 0604740F
 PE TITLE: Integrated Command & Control Applications

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	12.573	11.105	0.258	0.259	0.264	0.272	0.276	Continuing	TBD
2523 Product Lines	0.226	0.239	0.258	0.259	0.264	0.272	0.276	Continuing	TBD
2524 Reuse and Component Support	12.347	10.866	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

In FY04, Congress added \$11.2 million for Distributed Mission Interoperable Toolkit (DMIT), Asset Source for Software Engineering Technology (Asset)/eWING (Electronic Wing), Visual Computing for Productive Collateral Damage, Interactive 3-D (Three Dimensional) Human Interface, and National Product Line Asset Center (NPLACE).

(U) A. Mission Description and Budget Item Justification

The goal of the IC2A Program is to reduce the development time, costs, and risks associated with the acquisition and development of an enterprise oriented C2 capability by defining a reference architecture to enhance a common application use and reuse. Project 2523 minimizes development cost and time by defining a C2 architecture approach, supporting Defense Information Infrastructure Common Operating Environment (DII COE) acceptance testing to ensure compliance and interoperability, and providing tested, reusable software components from mature programs. The use of common product line designs during development based on a C2 reference architecture can improve software quality, interoperability and reliability while reducing fielding times and overall life cycle costs. Project 2524, Reuse and Component Support (RCS) identifies, tests, and provides reusable software components and products to the IC2A program. The RCS project developed a software reuse strategy for the DoD; and is developing a National Product Line Asset Center (NPLACE), a Congressional special interest item, to evaluate and analyze enterprise C2 system components based on primarily commercial off-the-shelf (COTS) products. The IC2A program has determined that over 80% of the functionality of any command center software is common to all command centers for programs using product line concepts based on a C2 reference architecture.

Program is in Budget Activity 5 - System Demonstration and Development (SD&D) due to the nature of the effort.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	0.226	0.239	0.258
(U) Current PBR/President's Budget	12.573	11.105	0.258
(U) Total Adjustments	12.347	10.866	
(U) Congressional Program Reductions	-0.025		
Congressional Rescissions	-0.140	-0.095	
Congressional Increases	12.514	11.294	
Reprogrammings	-0.002		
SBIR/STTR Transfer		-0.333	

(U) Significant Program Changes:

In FY03, Congress added \$12.5 million for ASSET, NPLACE, and AF Product Line Engineering (Reuse and Component Support).

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In FY04, Congress added \$11.2M for NPLACE, DMIT, ASSET/EWing, Iterative 3-D Human Interface, and Visual Computing for Productive Collateral Damage.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications			PROJECT NUMBER AND TITLE 2523 Product Lines		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
2523 Product Lines	0.226	0.239	0.258	0.259	0.264	0.272	0.276	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The software architecture, developed by the Product Lines Project, forms a vital component of the Integrated Command and Control Applications (IC2A) program by providing pre-defined reference architecture as a foundation for a DoD enterprise C2 capability. Using rapid prototyping techniques, a contractor can quickly tailor a reference architecture-based C2 component to the warfighter's needs and deliver an integrated, combat-ready system. All product lines and components are based on Defense Information Infrastructure Common Operating Environment (DII COE) principles to ensure joint compliance and interoperability; make maximum use of open system architectures, industry standards, Commercial off-the-shelf (COTS) products, and government furnished equipment; and incorporate multilevel security (MLS) features. This effort ensures that components and systems are developed with a view of operating within a C2 enterprise instead of stovepipe functionality. Contractors develop and maintain a common integrated infrastructure in a collaborative, synergistic environment using validated, mature software engineering processes to help ensure the quality of the designs and components. Reference architecture based designs and tested software components reduce development costs, risks and time for the user. New technologies, capabilities, and incremental developments are assessed and integrated into the architecture and components design as part of the product line development process to minimize any impact to the user.

Program is in Budget Activity 5 - System Demonstration and Development (SD&D) due to the nature of the effort.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Qualify components for product lines	0.226	0.239	0.258
(U) Total Cost	0.226	0.239	0.258

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable									

(U) D. Acquisition Strategy

All major contracts within PE 0604740F were awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications				PROJECT NUMBER AND TITLE 2523 Product Lines				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
<u>(U) Product Development</u>												
Hughes	C/CPFF	ESC Hanscom AFB, MA	0.453	0.000		0.000		0.000		Continuing	TBD	
Raytheon	C/CPFF	ESC Hanscom AFB, MA	1.000	0.000		0.000		0.000		Continuing	TBD	
AGCS	C/CPFF	ESC Hanscom AFB, MA	0.050	0.000		0.000		0.000		Continuing	TBD	
Unisys	C/CPFF	ESC Hanscom AFB, MA	0.030	0.000		0.000		0.000		Continuing	TBD	
Other	Various	ESC Hanscom AFB, MA	0.000	0.000		0.000		0.000		Continuing	TBD	
West Virginia High Technology Center	C/FFP	University of West Virginia	0.000	0.000		0.000		0.000		Continuing	TBD	
SAIC	C/FFP	ESC Hanscom AFB, MA	3.214	0.000		0.000		0.000		Continuing	TBD	
ProLogic	C/FFP	ESC Hanscom AFB, MA	1.294	0.000		0.000		0.000		Continuing	TBD	
Subtotal Product Development			6.041	0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												
Program Office Support/ITSP	Various	ESC Hanscom AFB,	0.874	0.226	Oct-03	0.239	Oct-04	0.258	Oct-05	Continuing	TBD	

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Exhibit R-3, RDT&E Project Cost Analysis							DATE February 2004				
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)				0604740F Integrated Command & Control Applications			2523 Product Lines				
		MA									
Subtotal Management				0.874	0.226	0.239	0.258	Continuing	TBD	0.000	
Remarks:											
(U) Total Cost				6.915	0.226	0.239	0.258	Continuing	TBD	0.000	

Exhibit R-4, RDT&E Schedule Profile

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PE NUMBER AND TITLE

0604740F Integrated Command & Control Applications

PROJECT NUMBER AND TITLE

2523 Product Lines

Product Line Management Oversight for Congressional Programs

1 Oct 2003



30 Sep 2004

**Travel and Information Technology Services Program (ITSP) support
are primary requirements in this funding line**

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications	PROJECT NUMBER AND TITLE 2523 Product Lines
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(U) <u>Schedule Profile</u> (U) Qualify components for product lines	<u>FY 2003</u> 1-4Q	<u>FY 2004</u> 1-4Q	<u>FY 2005</u> 1-4Q
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Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)							PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications		PROJECT NUMBER AND TITLE 2524 Reuse and Component Support	
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
2524 Reuse and Component Support	12.347	10.866	0.000	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

In FY04, Congress added \$11.2M.

(U) A. Mission Description and Budget Item Justification

The Reuse and Component Support project identifies, tests, and provides a set of common integrated infrastructure products for use by Air Force and Department of Defense program offices. This requires industry involvement for technology development and knowledge of direct and indirect impact to DoD missions in order to provide a skillful technical transition to fully state-of-the-art enterprise C2-based warfighting capability. Reuse and component architecture builds on the AF technical architecture and provides those pre-defined product line architectures with tested, reusable software components from mature programs. A software reuse strategy for DoD was developed as part of this effort. Efforts are continuing with development of a Product Line Asset Center Software Reuse Repository to evaluate and analyze enterprise C2 system components based on primarily commercial off-the-shelf (COTS) products through the National Product Line Asset Center (NPLACE) cooperative agreement. NPLACE functions include the application of standards compliance testing to ensure greatest interoperability among C2 systems.

DMIT funding enables on-demand, trusted, interoperability among and between Command, Control, Communications, Computers, & Intelligence (C4I) systems and simulation models. ATIS (formerly ASSET)/eWing funding enables single point access to Air Force Command & Control (C2) legacy data sources through standard Web browsing technologies. Visual Computing for Productive Collateral Damage Congressional funds enables blast visualization and blast effects modeling tool development. Interactive 3-D Human Interface Congressional funding enables the development of a 3-D visualization toolkit with interactive human interface capability. Specifically, it enables concept exploration and development of interactive 3-D human interface tools, such as: VROOM, STK and PowerScene to be incorporated into the toolkit. NPLACE funding enables the Air Force to continue the development of the NPLACE Software Reuse Repository.

Program is in Budget Activity 5 - System Demonstration and Development (SD&D) due to the nature of the effort.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) ASSET, NPLACE, and Interactive Three Dimensional Human Interface	7.347	5.919	0.000
(U) Reengineering and Enabling Technology (RET)	1.000	0.000	0.000
(U) Distributed Mission Interoperability Toolkit (DMIT)	4.000	3.395	0.000
(U) Visual Computational Predictive Collateral Damage	0.000	1.552	0.000
(U) Total Cost	12.347	10.866	0.000

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PE NUMBER AND TITLE

0604740F Integrated Command &
Control Applications

PROJECT NUMBER AND TITLE

2524 Reuse and Component Support

(U) C. Other Program Funding Summary (\$ in Millions)(U) D. Acquisition Strategy

All major contracts for Reuse and Component Support development will be awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications					PROJECT NUMBER AND TITLE 2524 Reuse and Component Support		
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> Prior to FY 2003 Cost	<u>FY</u> 2003 Cost	<u>FY</u> 2003 Award Date	<u>FY</u> 2004 Cost	<u>FY</u> 2004 Award Date	<u>FY</u> 2005 Cost	<u>FY</u> 2005 Award Date	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
<u>(U) Product Development</u>												
NPLACE	C/FFP	West Virginia High Technology Center	0.000	3.630	Dec-02	2.220	Dec-03	0.000		Continuing	TBD	
SAIC	Information Technology Services Program (ITSP)-C/T&M	West Virginia High Technology Center	0.000	2.290	May-03	2.130	May-04	0.000		Continuing	TBD	
ProLogic	C/FFP	West Virginia High Technology Center	0.000	1.000	Apr-03	1.310	Apr-04	0.000		Continuing	TBD	
Gestalt	MIPR	Pennsylvania	0.000	3.340	Apr-03	2.900	Apr-04	0.000		Continuing	TBD	
SSG/GSA	MIPR	West Virginia High Technology Center	0.000	0.940	Apr-03	0.000		0.000		Continuing	TBD	
TBD	Various	Various	0.000	0.000	May-03	1.380	May-04	0.000		Continuing	TBD	
Subtotal Product Development			0.000	11.200		9.940		0.000		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
Contractor Support	Information Technology Services Program (ITSP)-C/T&M	ESC Hanscom AFB, MA	0.874	1.147	Dec-02	0.926	Dec-03	0.000		Continuing	TBD	
Subtotal Support			0.874	1.147		0.926		0.000		Continuing	TBD	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
<u>(U) Management</u>												

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Exhibit R-3, RDT&E Project Cost Analysis					DATE February 2004			
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)	0604740F Integrated Command & Control Applications			2524 Reuse and Component Support				
Subtotal Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U) <u>Not applicable.</u>								
(U) Total Cost	0.874	12.347	10.866	0.000	Continuing	TBD	0.000	
Remarks:								

Exhibit R-4, RDT&E Schedule Profile

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PROJECT NUMBER AND TITLE

2524 Reuse and Component Support

TASK NAME	2003				2004				2005			
	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
NPLACE	▶											
ATIS/eWing	▶											
ATIS/eWing transition to field	▬											
C2C Web Broker Support	▬											
3-D VIZ Technology Refinement Toolkit	▶											
	▬											
DMIT	▶											
Visual Computing for PCD	▶											

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications	PROJECT NUMBER AND TITLE 2524 Reuse and Component Support
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) NPLACE	1-4Q	1-4Q	
(U) ATIS (formerly ASSET)/eWing	4Q	1-4Q	
(U) 3-D Viz Texh Requirement	2-4Q	2-4Q	
(U) DMIT	4Q	1-4Q	
(U) Visual Compting for PCD		1-3Q	
(U) Reengineering and Enabling Technology	3-4Q		