

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

DATE

February 2003

BUDGET ACTIVITY

05 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604740F Integrated Command & Control Applications

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
Total Program Element (PE) Cost	6,553	13,059	239	1,244	1,236	1,239	1,242	1,240	Continuing	TBD
2523 Product Lines	6,553	226	239	1,244	1,236	1,239	1,242	1,240	Continuing	TBD
2524 Reuse and Component Support	0	12,833	0	0	0	0	0	0	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

In FY03, Congress added \$13 million for Distributed Mission Interoperable Toolkit (DMIT), Reengineering and Enabling Technology (RET), Asset (Enterprise-wide Asset Identification)/eWING (Electronic Wing), Interactive 3D (Three Dimensional) Human Interface, and National Product Line Asset Center (NPLACE).

(U) **A. Mission Description**

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.

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

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

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0604740F Integrated Command & Control Applications(U) C. Program Change Summary (\$ in Thousands)

	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>
(U) Previous President's Budget	224	243	239	TBD
(U) Appropriated Value	6,824	13,226		TBD
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-48	-25		TBD
b. Small Business Innovative Research	-186			
c. Omnibus or Other Above Threshold Reprogram	-5	-2		
d. Below Threshold Reprogram	-14			
e. Rescissions	-18	-140		
(U) Adjustments to Budget Years Since FY 2003 PBR				TBD
(U) Current Budget Submit/FY 2004 PBR	6,553	13,059	239	TBD
(U) <u>Significant Program Changes:</u>				
In FY03, Congress added \$13 million for ASSET, NPLACE, and AF Product Line Engineering (Reuse and Component Support).				

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0604740F Integrated Command & Control
Applications

PROJECT

2523

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
2523 Product Lines	6,553	226	239	1,244	1,236	1,239	1,242	1,240	Continuing	TBD

(U) **A. Mission Description**

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.

(U) **FY 2002 (\$ in Thousands)**

(U) \$0 Accomplishments/Planned Program
 (U) \$208 Qualify components for product lines
 (U) \$2,500 ASSET
 (U) \$1,900 NPLACE
 (U) \$977 AF Product Line Engineering
 (U) \$968 Reengineering and Enabling Technology (RET)
 (U) \$6,553 Total

(U) **FY 2003 (\$ in Thousands)**

(U) \$0 Accomplishments/Planned Program
 (U) \$226 Qualify components for product lines
 (U) \$226 Total

Project 2523

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Exhibit R-2A (PE 0604740F)

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DATE

February 2003

BUDGET ACTIVITY

05 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604740F Integrated Command & Control
Applications

PROJECT

2523

(U) **A. Mission Description Continued**(U) **FY 2004 (\$ in Thousands)**

(U) \$0 Accomplishments/Planned Program

(U) \$239 Qualify components for product lines.

(U) \$239 Total

(U) **B. Project Change Summary**

Not applicable.

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

	<u>FY 2002</u>	<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>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.

(U) **E. Schedule Profile**

	<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Product Line Component Qualification (Ongoing)	*	*	*		*				X			
(U) ASSET-requirements development			*									
(U) ASSET-prototype IOC						X						
(U) NPLACE-DOT&E					*							
(U) Product Line-requirements development			*									
(U) Product Line-demonstration						X						

* - Completed Event

X - Planned Event

Note: IC2A is a support and management level of effort program. All activities are ongoing.

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Exhibit R-2A (PE 0604740F)

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE				PROJECT		
05 - System Development and Demonstration (SDD)					0604740F Integrated Command & Control Applications				2523		
(U) A. Project Cost Breakdown (\$ in Thousands)											
					FY 2002		FY 2003		FY 2004		
(U) Reengineering and Enabling Technology (RET)					968						
(U) Product Line Component Qualification					208		226		239		
(U) ASSET					2,500						
(U) NPLACE					1,900						
(U) Product Line Engineering					977						
(U) Total					6,553		226		239		
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
<u>Contractor or Government</u>		<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
Hughes		CPFF	19 Dec 92	N/A	N/A	453	0	0	0	Continuing	TBD
Raytheon		CPFF	19 Dec 92	N/A	N/A	1,000	0	0	0	Continuing	TBD
AGCS		CPFF	Dec 94	N/A	N/A	50	0	0	0	Continuing	TBD
Unisys		CPFF	29 Sep 93	N/A	N/A	30	0	0	0	Continuing	TBD
Other		Various	Various	N/A	N/A	0	968	0	0	Continuing	TBD
West Virginia High Technology Center		FFP	May 02	N/A	N/A	0	1,778	0	0	Continuing	TBD
SAIC		FFP	Various	N/A	N/A	3,214	2,254	0	0	Continuing	TBD
ProLogic		FFP	Various	N/A	N/A	1,294	890	0	0	Continuing	TBD
<u>Support and Management Organizations</u>											
Program Office Support/ITSP		Various	Various	N/A	N/A	874	663	226	239	Continuing	TBD
<u>Test and Evaluation Organizations</u>											
Not applicable.											
Project 2523											
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Exhibit R-3 (PE 0604740F)											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003	
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT	
05 - System Development and Demonstration (SDD)				0604740F Integrated Command & Control Applications			2523	
(U) <u>Government Furnished Property:</u>								
	<u>Contract</u>							
	<u>Method/Type</u>	<u>Award or</u>						
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>
<u>Product Development Property</u>								
N/A								
<u>Support and Management Property</u>								
N/A								
<u>Test and Evaluation Property</u>								
N/A								
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Subtotals</u>				<u>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>
Subtotal Product Development				6,041	5,890	0	0	TBD
Subtotal Support and Management				874	663	226	239	TBD
Subtotal Test and Evaluation								
Total Project				6,915	6,553	226	239	TBD

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Exhibit R-3 (PE 0604740F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

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BUDGET ACTIVITY

05 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604740F Integrated Command & Control
Applications

PROJECT

2524

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
2524 Reuse and Component Support	0	12,833	0	0	0	0	0	0	Continuing	TBD

In FY03, Congress added \$13M.

(U) **A. Mission Description**

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.

(U) **FY 2002 (\$ in Thousands)**

(U) \$0 Accomplishments/Planned Program
 (U) \$0 No Activity
 (U) \$0 Total

(U) **FY 2003 (\$ in Thousands)**

(U) \$0 Accomplishments/Planned Program
 (U) \$7,897 ASSET, NPLACE, and Interactive Three Dimensional Human Interface
 (U) \$987 Reengineering and Enabling Technology (RET)
 (U) \$3,949 Distributed Mission Interoperability Toolkit (DMIT)
 (U) \$12,833 Total

(U) **FY 2004 (\$ in Thousands)**

(U) \$0 Accomplishments/Planned Program
 (U) \$0 No Activity
 (U) \$0 Total

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Exhibit R-2A (PE 0604740F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

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BUDGET ACTIVITY

05 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604740F Integrated Command & Control
Applications

PROJECT

2524

(U) **B. Project Change Summary**

Not applicable.

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

	<u>FY 2002</u>	<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>Estimate</u>	<u>Complete</u>	

(U) Not applicable

(U) **D. Acquisition Strategy**

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

(U) **E. Schedule Profile**

	<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>			
	1	2	3	4	1	2	3	4	1	2	3	4

(U) ASSET - requirements development

*

(U) ASSET - prototype IOC

X

(U) NPLACE - DOT&E

X

(U) Product Line - requirements development

*

(U) Product Line - demonstration

X

(U) Distributed Mission Interoperability Toolkit

X

(U) Reengineering and Enabling Technology

X

* - Completed

X - Scheduled Event

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Exhibit R-2A (PE 0604740F)

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003				
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT	
05 - System Development and Demonstration (SDD)					0604740F Integrated Command & Control Applications					2524	
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>											
					<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>		
(U)	ASSET				0		2,566		0		
(U)	Product Line Suitability Testing				0		4,146		0		
(U)	Product Line Engineering				0		1,185		0		
(U)	Reengineering and Enabling Technology				0		987		0		
(U)	Distributed Mission Interoperability Toolkit				0		3,949		0		
(U)	Total				0		12,833		0		
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
(U) <u>Performing Organizations:</u>											
<u>Contractor or</u>		<u>Contract</u>									
<u>Government</u>		<u>Method/Type</u>		<u>Award or</u>		<u>Performing</u>		<u>Project</u>			
<u>Performing</u>		<u>or Funding</u>		<u>Obligation</u>		<u>Activity</u>		<u>Office</u>		<u>Total Prior</u>	
<u>Activity</u>		<u>Vehicle</u>		<u>Date</u>		<u>EAC</u>		<u>EAC</u>		<u>to FY 2002</u>	
<u>Budget</u>		<u>Budget</u>		<u>Budget</u>		<u>Budget</u>		<u>Budget</u>		<u>Total</u>	
<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>		<u>Complete</u>				<u>Program</u>	
<u>Product Development Organizations</u>											
West Virginia High		FFP		18 Nov 96		N/A		N/A		1,730	
Technology Center										0	
SAIC		ITSP		Various		N/A		N/A		0	
ProLogic		FFP		Various		N/A		N/A		0	
TBD		MIPR		TBD		N/A		N/A		0	
SSG		MIPR		TBD		N/A		N/A		0	
<u>Support and Management Organizations</u>											
Contractor Support		ITSP		Various		N/A		N/A		874	
<u>Test and Evaluation Organizations</u>											
Not applicable.											
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003		
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT		
05 - System Development and Demonstration (SDD)				0604740F Integrated Command & Control Applications			2524		
(U) <u>Government Furnished Property:</u>									
	<u>Contract</u>								
	<u>Method/Type</u>	<u>Award or</u>							
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>									
Not applicable									
<u>Support and Management Property</u>									
Not applicable									
<u>Test and Evaluation Property</u>									
Not applicable									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>	<u>Program</u>
Not applicable.									
Subtotal Product Development				1,730	0	11,763	0	TBD	TBD
Subtotal Support and Management				874	0	1,070	0		1,944
Subtotal Test and Evaluation									
Total Project				2,604	0	12,833	0	TBD	TBD

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