

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)						DATE FEBRUARY 2002			
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7			R-1 ITEM NOMENCLATURE PE1160401BB Spec Operations Technology Development						
COST (Dollars in Millions)	FY01	FY02	FY03	FY04	FY05	FY06	FY07	Cost to Complete	Total Cost
PE1160401BB	9.997	20.506	6.741	7.378	8.488	8.725	8.991	Cont.	Cont.
S100 SO TECHNOLOGY BASE DEV	9.997	20.506	6.741	7.378	8.488	8.725	8.991	Cont.	Cont.
<p>A. Mission Description and Budget Item Justification</p> <p>This program element enables USSOCOM to conduct studies and develops laboratory prototypes for applied research and advanced technology development, as well as leverage other organizations' technology projects that may not otherwise be affordable within MFP-11. Applying small incremental amounts of investments to DOD, other government agencies, and commercial organizations allows the Commander-in-Chief, USSOCOM to influence the direction of technology development or the schedule against which it is being pursued, and to acquire emerging technology for Special Operations Forces. This program provides an investment strategy for USSOCOM to link non-systems technology opportunities to USSOCOM deficiencies, capability objectives, technology development objectives and mission area analyses.</p> <p>Change Summary Explanation:</p> <p>Funding: --FY 2002 Congressional Actions: Dual Band Detector Imaging Technology (\$4.3 million) Lightweight Counter-Mortar Radar (\$3 million) SPIKE Urban Warfare System (\$4 million) Wireless Video Links for Special Operations Mobile Robotic Vehicle Technologies (\$1.6 million)</p> <p>Schedule: None.</p> <p>Technical: None.</p>									

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B. Program Change Summary		FY 2001	FY 2002	FY 2003
Previous President's Budget		9.957	7.606	8.241
Appropriated Value		10.260	20.506	
Adjustments to Appropriated Value / President's Budget		(.263)		(1.400)
Current Budget Submit		9.997	20.506	6.741

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COST (Dollars in Millions)	FY01	FY02	FY03	FY04	FY05	FY06	FY07	Cost to Complete	Total Cost
S100, Special Operations Forces Technology Base Development	9.997	20.506	6.741	7.378	8.488	8.725	8.991	Cont.	Cont.

A. Mission Description and Budget Item Justification

This project conducts studies and develops laboratory prototypes for applied research and advanced technology development, as well as leverages other organizations' technology projects that may not otherwise be affordable within MFP-11. Applying small incremental amounts of investments to DoD, other government agencies, and commercial organizations allow the Commander-in-Chief USSOCOM to influence the direction of technology development or the schedule against which it is being pursued, and to acquire emerging technology for Special Operations Forces (SOF). This project provides an investment strategy for USSOCOM to link non-systems technology opportunities to USSOCOM deficiencies, capability objectives, and technology development objectives and mission area analyses. Sub-projects include:

- Color Night Vision Fusion. Develop broad-spectrum sensors to include polarimetry and fuse these sensors while incorporating SOF size, weight, and human factor requirements.
- Special Operators Mobile Robotic Vehicle Technologies. Focus tele-operated and tele-supervised (limited autonomy) systems.
- SOF Clothing and Equipment. Peripheral sensor technologies to monitor status of an individual SOF operator and his equipment and to detect threats.
- Man-Portable Counter Mortar System. Small portable radar for the SOF operator.

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<ul style="list-style-type: none"> • PSYOP Extended-Range Broadcast. Technologies to increase the range of broadcasts from SOF assets. • Reconnaissance Technologies. Technologies providing the capability to identify, collect, store, transmit, exploit tactically significant information. • Cassandra. Fusion of Infrared, I2 and situational awareness information into a common heads up system for the individual operator. • Undersea Master Communications Node. Maritime communications device that transits across the air water boundary and within each medium. • Phrase Translation System. Hand held, tactical speech and language translator. • Restricted Line Of Sight (LOS) Personnel Locator. Communications techniques permitting communications through soil and into caves. • Wind Tunnel Integrated Real Time In the Cockpit/Real Time Out of the Cockpit Experiment and Demonstration (WIRED). Technologies to provide capability to interface SOF platforms communications and intelligence systems with new situational awareness transmissions. • Night Vision Windshield. Technologies permitting SOF pilots to weave visual sensor data into heads up display allowing the pilot to virtually see through the fuselage. Sensors are slaved to the head movements. • Special Threat Awareness Receiver. Advanced situational awareness receiver for SOF platforms. • Geological (GEO) Survey Kit. Technology to determine the California bearing ratio for surfaces to determine if safe for aircraft landing and use. • Accurate Tactical Navigation System. Navigation system for use in GPS denied areas. 	

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<ul style="list-style-type: none"> • Tactical Display Technologies. Technologies enhancing the presentation of information to the SOF operator. • Universal Fuse. Single explosive, multi capability, initiating device. • Shoulder Fired Smart Round. Fire and forget rocket for man portable use. • Dual Band Detector Imaging Technology. Integrated multi-spectrum capable system. <p>FY 2001 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> • (2.576) SOF C4I Technologies. Completed development of FY00 sub-projects. Continued to exploit technologies that provide SOF with improved situational awareness and communications in all environments. Developed technologies to provide significant improvements to SOF's capability to accurately detect and track threats or targets. Developed C4I technologies to support mission accomplishment with reality manipulation techniques. Sub-projects included: completed laboratory demonstrations of networked software and interfacing to SOF radios for imagery forwarding, continued to develop and evaluate the use of polarimetry to enhance SOF night vision capabilities, continued effort to demonstrate a man portable counter mortar radars. Initiated efforts to: demonstrate extended range psychological operations broadcasts, develop and demonstrate equipment to support SOF reconnaissance missions, Cassandra, and enhanced situational awareness and command and control of SOF forces in high threat environments, develop a communications radio frequency and acoustic communications node in a maritime environment. (1QTR01-3QTR01) • (1.303) SOF Mobility Technologies. Completed development of FY00 sub-projects. Continued to exploit technologies to improve the performance and reduce the detection of SOF mobility assets. Continued to exploit and develop technologies to provide SOF the capability to conduct undetectable ground, air, and sea mobility operations in denied areas. Sub-projects included: continued efforts to demonstrate a radio frequency device to support location of personnel in non line of sight environment, continued the WIRED, continued active noise cancellation, 	

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<p>completed effort to demonstrate terrain following/threat avoidance radar for SOF aircraft, completed effort to demonstrate tactile sensors for enhanced situational awareness avoiding information overload on SOF aircrews. Initiated efforts to: provide SOF aircrews with improved unobstructed night vision, development of a threat awareness receiver for SOF aircraft. (1QTR01-3QTR01)</p> <ul style="list-style-type: none"> • (1.155) SOF Weapons Technologies. Completed development of FY00 sub-projects. Continued to exploit technologies to provide SOF with standoff capabilities for targeting, tracking and locating personnel and equipment. Exploited technologies to discriminate targets and provide real-time active decision-making capabilities. Exploited technologies that enhance logistics, reduce cost and enhance performance of SOF weapons and munitions. Exploited technologies to reduce weapon overpressure in support of SOF missions. Sub-projects included: continued the development of a universal initiator for SOF munitions and weapons. Completed development and demonstration of wind sensing devices and development and demonstration of a 25mm anti-materiel round from a shoulder fired weapon. Initiated effort to demonstrate a shoulder launched fire and forget munition. (1QTR01-3QTR01) • (1.750) SOF Sustainment Technologies. Completed development of FY00 sub-projects. Continued to exploit technologies to increase SOF's survivability and performance. Continued to exploit technologies to improve the human sensory performance without interfering with normal sensory functions. Sub-projects included: Continued development of accurate tactical navigation system, the GEO survey kit and tactical display technologies. Completed SOF clothing, initiated phrase translation development. (1QTR01-3QTR01) • (0.200) Concept Exploration Studies. Explored/validated concepts for projects being continued or initiated in support of the USSOCOM desired operational capabilities. (2QTR01) • (0.199) Technology Development Exploitation. Exploited technologies to meet critical SOF capability objectives. Requirements in these areas may be advertised to industry and government research and development agencies via broad area announcements and calls for white papers. Initiated the phrase translation system. (3QTR01) 	

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<ul style="list-style-type: none"> • (2.814) Special Operators Mobile Robotics Vehicles. Focused on tele-operated and tele-supervised (limited autonomy) systems. (2QTR01) <p>FY 2002 PLAN:</p> <ul style="list-style-type: none"> • (2.305) SOF C4I Technologies. Complete development of FY01 sub-projects. Continue to exploit technologies that provide SOF with improved situational awareness and communications in all environments. Develop technologies to provide significant improvements to SOF's capability to accurately detect and track threats or targets. Exploit and demonstrate technologies that provide enhanced sensors and command and control. Continue the development of sub projects to include: the man-portable counter mortar system, development of polarimetry technology to enhance identification of hidden objects, psychological operations extended range broadcast system, the undersea master communications node, Cassandra, and reconnaissance technologies. Project planned for transition to Special Operations Special Technology: man portable mortar system. Planned C4I projects: initiate situational mission enhancements data for SOF, day/night/thermal video imaging device which explore in both the visual and infrared spectrum, higher resolution true color electro-optics integrated with more precise targeting and locating defensive countermeasures, and enhanced situational awareness technologies for SOF platforms while enroute and during prosecution of missions. (1QTR02-3QTR02) • (1.026) SOF Mobility Technologies. Complete development of FY01 sub-projects. Continue to exploit technologies to improve the performance and survivability, and reduce the detectability of SOF mobility assets. Continue to exploit and develop technologies to provide SOF the capability to conduct ground, air, and sea mobility operations in denied areas. Continue to exploit and develop technologies to enhance logistics support, reduce cost and improve the performance of SOF mobility platforms. Projects include: continue active noise cancellation, WIRED, night vision windshield, special threat awareness receiver/transmitter. Planned mobility projects: initiate conformal load-bearing antenna structure/systems low probability of intercept/low probability of detection antennas for SOF combatant craft, aircraft camouflage paint/visual and infrared signature reduction, ultra- hi-intensity, eye safe long range illumination for Naval Special Warfare craft. Investigate autonomous high fidelity modeling and scaling of maritime platforms and initialize composite type technologies for SOF craft reliability and survivability properties. (1QTR02-3QTR02) 	

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<ul style="list-style-type: none"> • (1.429) SOF Weapons Technologies. Complete development of FY01 sub-projects. Continue to exploit technologies to provide SOF with standoff capabilities for targeting, tracking and locating personnel and equipment. Exploit technologies to discriminate targets and provide real-time active decision-making capabilities. Exploit technologies that enhance logistics, reduce cost and enhance performance of SOF weapons and munitions. Exploit technologies to provide multipurpose, adaptable weapons applicable to SOF platform and missions. Projects include: continue the development of the shoulder fired smart round and the universal initiator. Planned project to be transitioned to SOST: universal initiator. Planned weapons projects: initiate enhanced M4 carbine technology prototypes and destructive countermeasures, which explore advanced munition technologies to improve indirect fire accuracy and lethality. (1QTR02-3QTR02) • (0.996) SOF Sustainment Technologies. Complete development of FY01 sub-projects. Continue to exploit technologies to increase SOF's survivability and performance. Continue to exploit technologies to improve the human sensory performance without interfering with normal sensory functions. Projects include: continue the development of the GEO survey kit, accurate tactical navigation, phrase translation system, and tactical display technologies. Planned projects: special tactics rappel/fast rope system. (1QTR02-3QTR02) • (0.750) Concept Exploration Studies. Explore/validate concepts for projects being continued or initiated in support of the USSOCOM desired operational capabilities. (2QTR02) • (0.300) Technology Development Exploitation. Exploit technologies to meet critical SOF capability objectives. Requirements in these areas may be advertised to industry and government research and development agencies via broad area announcements and calls for white papers. (3QTR02) • (0.800) Details of this project are provided under separate cover. (1QTR02-2QTR02) • (4.300) Dual Band Imaging Technologies. Develop manufacturing processes of novel optically coated lens assemblies and systems, demonstrated via custom prototypes, necessary to begin producing night vision systems in order to provide the warfighter with unprecedented night time advantage. (2QTR02-4QTR02) 	

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<ul style="list-style-type: none"> • (3.000) Lightweight Counter-Mortar Radar System. Continue the reduction in size, weight and power requirements of the current prototype, and enhance the detection algorithms of the system. (2QTR02-4QTR02) • (4.000) SPIKE Urban Warfare System. Continue to develop enhancements to shoulder fired guided missiles, and refine the guidance system for more accurate prosecution of hardened targets while reducing collateral damage. (2QTR02-4QTR02) • (1.600) Wireless Video Links for SOMROV. Develop high data rate video links between various unmanned systems. These systems will be evaluated during Millennium Challenge 2002 (MC02) and Olympic Challenge 2004. (2QTR02-4QTR02) <p>FY 2003 PLAN:</p> <ul style="list-style-type: none"> • (1.401) SOF Command, Control, Communications, Computers, and Intelligence (C4I) Technologies. Complete development of FY02 sub-projects. Continue to exploit technologies that provide SOF with improved situational awareness and communications in all environments. Develop technologies to provide significant improvements to SOF's capability to accurately detect and track threats or targets. Exploit and demonstrate technologies that provide enhanced sensors and command and control. Projects include: continue the development of the man-portable counter mortar system, Cassandra, the undersea master communications node, polarimetry and the psychological operations extended range system. (1QTR03-3QTR03) • (1.349) SOF Mobility Technologies. Complete development of FY02 sub-projects. Continue to exploit technologies to improve the performance and survivability, and reduce the detectability of SOF mobility assets. Continue to exploit and develop technologies to provide SOF the capability to conduct ground, air, and sea mobility operations in denied areas. Continue to exploit and develop technologies to enhance logistics support, reduce cost and improve the performance of SOF mobility platforms. Projects include: continue the development of WIRED, night vision windshield and the special threat awareness receiver/transmitter. (1QTR03-3QTR03) 	

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<ul style="list-style-type: none"> • (1.399) SOF Weapons Technologies. Complete development of FY02 sub-projects. Continue to exploit technologies to provide SOF with standoff capabilities for targeting, tracking and locating personnel and equipment. Exploit technologies to discriminate targets and provide real-time active decision-making capabilities. Exploit technologies that enhance logistics, reduce cost and enhance performance of SOF weapons and munitions. Exploit technologies to provide multipurpose, adaptable weapons applicable to SOF platform and missions. Projects include: continue the development of the shoulder fired smart round and the universal initiator. (1QTR03-3QTR03) • (0.992) SOF Sustainment Technologies. Complete development of FY01 sub-projects. Continue to exploit technologies to increase SOF's survivability and performance. Continue to exploit technologies to improve the human sensory performance without interfering with normal sensory functions. Projects include: continue the phrase translation system and complete and transition the accurate tactical navigation system, and the GEO survey kit to SOST. (1QTR03-3QTR03) • (0.600) Concept Exploration Studies. Explore/validate concepts for projects being continued or initiated in support of the USSOCOM desired operational capabilities. (2QTR03) • (0.300) Technology Development Exploitation. Exploit technologies to meet critical SOF capability objectives. Requirements in these areas may be advertised to industry and government research and development agencies via broad area announcements and calls for white papers. (3QTR03) • (0.700) Details of this project are provided under separate cover. (1QTR03-2QTR03) 	

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<p>B. <u>Other Program Funding Summary</u>: None.</p> <p>C. <u>Acquisition Strategy</u>: None.</p> <p>D. <u>Schedule Profile</u>: None.</p>		

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