RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE FEBRUARY 2002	
APPROPRIATION/BUDGET ACTIVITY RDT&E/Defense Wide/BA 1							R-1 ITEM NOMENCLATURE Government/Industry Co-sponsorship of University Research **PE 0601111D8Z**			
COST *(In Millions)*		FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	Cost to Complete	Total Cost
Total Program Element (PE) Cost		6.654	9.195	3.467	0.000	0.000	0.000	0.000	Continuing	Continuing
GICUR/P111		6.654	9.195	3.467	0.000	0.000	0.000	0.000	Continuing	Continuing

(U) A. Mission Description and Budget Item Justification

(U) BRIEF DESCRIPTION OF ELEMENT

(U) A shared commitment between industry and Government continues to be created via the Government/Industry Co-sponsorship of University Research (GICUR) program. It will capitalize on university-based research, education and training in technologies of strategic importance to national defense and also to industry. It provides an emphasis on ground-breaking research with a long-term horizon, and education and training in selected research areas which are vital to advancement of technologies. The commitment is a jointly formed pool of funding and a shared management structure for sponsoring this sort of long-term basic research at universities. This will provide the military with leading-edge technologies as well as reducing vulnerabilities of industries involved, increase long-term technical growth in these areas, infuse new ideas and approaches, all of which are important for national security. Industry and government share responsibility for research focus area selection and overall direction. Mechanisms will be established for personnel exchange and interactions to provide for continuing education of highly qualified researchers already working in leading edge and emerging S&T. One of the areas emphasizes basic concepts for DoD needs in high frequency applications such as radars, millimeter/microwave communications and radiometry, with special attention to devices fabricated from compound semiconductors, such as gallium arsenide.

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This thrust is unique to DoD. The thrust is by no means limited to silicon-based CMOS (complementary metal oxide silicon) digital topics. Research here is aimed at breakthroughs to enable rapid, correct, verifiable, implementable designs of complex circuits. Interconnect research will include causes of delays and performance limits as features become smaller (for higher speed). Higher conductivity metals and very low dielectric constant materials will be investigated, as will non-conventional, innovative fabrication processes beyond present vision. These areas require truly innovative research. A new focus on research on sub-10-nanometer silicon-based quantum effect devices, molecular and organic semiconductor electronics and nanotube electronics.

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COST*(In Millions)*	FY 2001	FY 2002	FY2003	Cost to Complete	Total Cost
Total Program Element (PE) Cost	6.654	9.195	3.467	0	
GICUR/P111	6.654	9.195	3.467	0	

(U) Project Number and Title: P111 GICUR

(U) PROGRAM ACCOMPLISHMENTS AND PLANS

(U) FY 2001 Accomplishments: (U) Continue research in semiconductor technology. Theoretical and experimental achievements will be fully documented. Research will continue along lines both needs and opportunity driven, dependent upon success to date.($ 6.654 million)

(U) FY 2002 Plans:

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(U) In cooperation with the Microelectronics Advanced Research Corporation (MARCO) the Semiconductor Electronics Microelectronics project funds four university research centers. The University of California at Berkley leading a team of 14 other universities performing research into "Design and Test" technologies for the Giga-scale semiconductor integrated circuits. Georgia Tech leads a team of six universities for research into "Interconnect" technologies to solve the impending materials, processes, and architecture challenges in connecting billions of devices. Two new Focus Research Centers were initiated in FY2001. The "Materials, Structures and Devices" Center is led by MIT and involves 9 other major research universities and focuses on sub- 10 –nanometer silicon-based FETS, silicon-based quantum effect devices, molecular and organic semiconductor electronics, nanotube electronics and modeling and simulation. The new "Circuits, Systems and Software" Centers led by Carnegie Mellon University and involves 9 other major research universities. The Center's research focuses on the analysis and synthesis of analog and analog/mixed signal circuits, explores novel system level technologies and seeks software solutions and workarounds for the deep submicron CMOS process limitations. Under MARCO the electronics Industry provides at least three dollars for each dollar provided by DoD ($ 9.195 million).

(U) FY 2003 Plans:

(U) Complete the Semiconductor Electronics Microelectronics technology projects funded at 2 university centers ($ 3.476 million). Continue support for the 2 new research centers.

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(U) B. Program Change Summary	FY2001	FY2002	FY2003	Total Cost
Previous President's Budget Submit	6.715	6.838	4.026	
Delta	0.000	-3.417	0.000	
FY02 Amended President's Budget Submission	6.715	3.421	4.026	Continuing
Appropriated Value	0.000	10.221	0.000	
Adjustments to Appropriated Value				
a. Congressionally Directed Undistributed Reduction	-0.000	0.226	0.000	
b. Rescission/Below-threshold Reprogramming, Inflation Adjustment	-0.061	0.800	0.009	
c. Other	0.000	0.000	-0.550	
Current FY 2003 Budget Submission	6.654	9.195	3.467	Continuing

Change Summary Explanation:

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(U) **Funding** FY 2001and FY 2002 reductions reflect Section 8086 adjustments and Congressional undistributed and program reductions.

(U) **Schedule**: N/A

(U) **Technical**

(U) **C.** **OTHER PROGRAM FUNDING SUMMARY COST**: N/A

(U) **D.** **ACQUISITION STRATEGY**: N/A

(U) **E.** **SCHEDULE PROFILE**: N/A