E. The Research Foundation – Binghamton University's Center of Excellence – Small Scale Systems Integration and Packaging Center Working Capital (W881)
October 21, 2010

Grantee: The Research Foundation of State University of New York (the "Research Foundation")

Beneficiary Organization: The Small Scale Systems Integration and Packaging Center

ESD Investment: A grant of up to $815,666 to be used for a portion of the operating costs for Binghamton University's Center of Excellence, Small Scale Systems Integration and Packaging Center ("S^3IP" or the "Center").

Project Location: 85 Murray Hill Road, Vestal, Broome County

NYS Empire Zone (or equivalent): N/A

Project Completion: December 31, 2010

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Project Team:

Project Management	Robin Alpaugh
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Project Description:

Background

Grantee

The Research Foundation of State University of New York is a private, 501 (c)(3) not-for-profit educational corporation that administers externally funded contracts and grants for and on behalf of the State University of New York. It is a separate, not-for-profit corporation, and as such is not supported by state appropriated tax dollars, nor does it receive support services provided to New York State agencies. The Research Foundation provides the

administrative flexibility to respond quickly to the special demands of externally funded contracts and grants in a manner that facilitates their scientific or technical execution.

Beneficiary

S^3IP was established by Binghamton University (the "University") in 2003. The Center is focused on microelectronics, a technology focus with a historic industrial core in the Southern Tier. Building on the successful Integrated Electronics Engineering Center, a National Science Foundation/State/Industry/University Cooperative Research Center since 1991 and a New York State Center of Advanced Technology since 1993, the Center received designation from New York State in 2004 as a High-Technology Commercialization Center. The designation came with a $21M capital equipment grant through the Governor's office, SUNY Construction Fund and Dormitory Authority, to build infrastructure in the area of small scale systems so as to enable commercialization activities in the Southern Tier and New York State. In 2005, the Center developed an additional focus in the emerging field of flexible electronics, and won a $12.5M national peer-reviewed contract from the United States Display Consortium to build the Center for Advanced Microelectronics Manufacturing ("CAMM", which is part of S^3IP, but located off-campus) for the research and development of flexible electronics in a roll-to-roll manufacturing format. S^3IP was designated as a NASA National Center of Excellence in 2005 and received New York State Center of Excellence designation in 2006.

S^3IP is focused on five initial thrust areas which are expected to grow as the Center develops: systems integration and packaging; flexible electronics; sensors and new materials for electronic systems; advanced analytical and diagnostics expertise; and energy efficient systems. The five areas are inherently multi-disciplinary and complementary, and are significant for the advancement of the medical, military, solar and energy, computer, telecommunications, and consumer products industries. The Center's objectives are to conduct research and development activities in conjunction with federal, state, academic, and private partners, to facilitate new applications and systems that will improve people's lives and result in commercialization and new product development.

In the area of infrastructure, the Center has developed the Analytical and Diagnostics Laboratory ("ADL") to complement its electronics packaging and flexible electronics instrumentation. The ADL is a centralized, interdisciplinary, fully staffed research facility that enables the commercialization of microelectronic technologies by providing major instruments and technical support for materials diagnostics, analysis and device processing in areas such as electronics systems integration and packaging, materials research and flexible electronics. The Lab also supports life sciences research applications in medical areas, security systems for detection of pathogens and additional industrial and consumer applications, both directly as well as through related emerging technologies.

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In February 2008, ESD approved a $1,179,166 working capital grant for the ADL (V833) to assist with training, facility activities and operational expenses. This project was completed/closed in September 2009. In July 2009, a second appropriation of working capital funds in the amount of $1,155,666 (W599) was approved by ESD to assist with S^3IP operating costs. The grant was fully disbursed in April 2010.

The Project

As part of the overall mission of the Center, this third appropriation of working capital funds, as with the second appropriation, will be utilized for project costs in the following areas: 1) provide a portion of the salaries and fringes for the Center's Director, Associate Director, Assistant Director for Administration, Postdoctoral Research Associate, Administrative Assistants, Microfab Director and Senior Scientists, ADL Laboratory Manager and Grad Assistant; 2) travel funds for faculty and students to attend professional meetings/conferences, visits to New York State companies to promote S^3IP facilities and expertise, and for travel associated with equipment training for ADL staff; 3) research materials and supplies for the CAMM, ADL research supplies and Center office supplies for staff; 4) additional costs involved in Center initiatives including publication expenses, seed grants for faculty equipment usage, S^3IP seminar series, "Go Green" K-12 Institute, software licensing, publication costs, and marketing materials; and 5) facilities and administrative costs. ESD funds will be used for eligible working capital expenses.

Activities for 2010 include completion of the design phase for the new Center of Excellence building that will house the research thrust areas, scheduled to open in 2013. Additional focus areas include further development in systems integration and packaging at the Integrated Electronics Engineering Center, flexible electronics at the CAMM, and research on sensors and new materials for electronic systems at the University's Center for Advanced Sensors and Environmental Systems. Advanced analytical and diagnostic research will continue with the opening of the new Microfabrication Laboratory, and the Center for Autonomous Solar Power ("CASP") will focus on the development of energy efficient electronic systems. CASP is working closely with Emerson Network Power, which designs, manufactures and distributes electric power surge suppression products, to create a research data test facility at the company's new facility in Binghamton. ESD assisted in establishing Emerson Network Power's facility, which was a significant retention project in the Southern Tier (V752). Lastly, the University will continue its economic development initiatives with company visits and conference participation, as well as education and outreach in area schools.

Upon completion of the project, and semi-annually thereafter, the Grantee will furnish a final report consisting of project impact and performance measurements in a manner prescribed by ESD.

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Financing Uses	Amount	Financing Sources	Amount	Percent
Personnel costs - Director, Assoc. Director, Assist. Director, Research Assoc., Admin. Assists, Microfab Director, Sr. Scientists, Lab Mgr, Grad Assistant	$3,211,658	ESD Grant	$815,666	9%
Materials and Supplies	299,976	Binghamton University Equity	363,940	4%
Travel	114,395	Other Sources*	7,601,840	87%
Equipment	244,167			
Other Direct Costs - Go Green Institute	3,497,142			
Indirect Soft Costs - sofware licensing, marketing	1,414,108			
Total Project Costs	$8,781,446	Total Project Financing	$8,781,446	100%

*Other Sources include: US Army Research Lab, NASA, NYSTAR, US Department of Defense, US Department of Energy, Semiconductor Research Corporation, Xerox, National Science Foundation, Industrial Members of the CAMM and the Integrated Electronics Engineering Center

Financial Terms and Conditions:

1. The Grantee will be obligated to advise ESD of a material adverse change in its financial condition prior to disbursement.

2. Up to $815,666 will be disbursed to Grantee as follows:

   a) An initial disbursement of $612,506 will be disbursed to Grantee upon documentation of $6,586,085 in eligible working capital project costs, assuming that all project approvals have been completed and funds are available. Payment will be made upon presentation to ESDC of an invoice and such other documentation as ESDC may reasonably require. Expenses must be incurred on or after April 1, 2009 to be considered eligible project costs.

b) A second disbursement of $203,160 will be disbursed to Grantee upon completion of the project and documentation of an additional $2,195,361 in eligible working capital project costs (aggregate total of $8,781,446), assuming that all project approvals have been completed and funds are available. Payment will be made upon presentation to ESDC of an invoice and such other documentation as ESDC may reasonably require. Expenses must be incurred on or after April 1, 2009 to be considered eligible project costs.

3. ESD may reallocate the project funds to another form of assistance, at an amount no greater than $815,666, for this project if ESD determines that the reallocation of the assistance would better serve the needs of the Grantee and the State of New York. In no event shall the total amount of any assistance to be so reallocated exceed the total amount of assistance approved by the Directors.

Statutory Basis – Local Assistance – Centers of Excellence:
The project was authorized in the 2009-2010 New York State budget and reappropriated in the 2010-2011 New York State budget. No residential relocation is required as there are no families or individuals residing on the site.

Disclosure and Accountability Certifications:
The Grantee and Beneficiary have provided ESD with the required Disclosure and Accountability Certifications. Grantee's and Beneficiary's certifications indicate that there are no conflicts of interest or good standing violations and, therefore, staff recommends that the Corporation authorize the grant to the Grantee as described in these materials.