The National Center for Advanced Information Components Manufacturing: Program Update

*James L. Jorgensen, National Center for Advanced Information Components
Manufacturing, Sandia National Laboratories, Albuquerque, New Mexico*

Steve McBurnett, Advanced Research Projects Agency, Arlington, Virginia

Abstract

The National Center for Advanced Information Components Manufacturing (NCAICM) projects focus on manufacturing processes, materials, user facilities, standard tools, and equipment for large area emissive flat panel displays and microelectronics. Two types of projects are funded; 1) pre-competitive projects done at the Center and 2) joint industry/national laboratory projects, which may carry intellectual property rights, where the work will be done at the appropriate industry or laboratory site. A summary of the NCAICM projects will be presented.

Introduction

The National Center for Advanced Information Components Manufacturing (NCAICM) was established by congressional appropriation in the FY93 Defense Appropriation Bill. The Center, located at Sandia National Laboratories in Albuquerque, NM, is funded through the Advanced Research Projects Agency (ARPA). The technical focus of NCAICM is emissive flat panel displays and associated microelectronics, specifically targeting manufacturing issues such as materials, processes, equipment, and software tools.

This Center is a new avenue of collaboration between ARPA and the Department of Energy (DOE). It will help the government meet its

obligation to develop dual-use capabilities for the defense and civilian sectors of the economy and provide a new method for cooperation and collaboration between the federal government and American industry. In particular, one of NCAICM's goals is to provide industry access to the broad resource base available at three DOE Defense Programs laboratories -- Sandia National Laboratories, Los Alamos National Laboratory, and Lawrence Livermore National Laboratory.

Technical Discussion

NCAICM was dedicated at Sandia on January 14, 1993. On March 30-31, 1993, a workshop in Albuquerque explained the process for industrial participation in this program. In addition, the workshop defined the NCAICM technical project areas, requested input on industry needs, and described the resource areas available from Sandia, Los Alamos, and Lawrence Livermore National Laboratories. The workshop had 397 attendees representing 193 companies, 10 government agencies, and 5 universities.

Organizationally, the NCAICM program office consists of four permanent staff; a manager, two technical program managers, and an administrative support person. Technical staff and resources for the Phase I projects will be drawn from industry, universities, and the three laboratories; Sandia, Los Alamos, and

Lawrence Livermore. Policy and project oversight are provided through a Project Advisory Board (PAB), whose current membership is:

- Industry: Gene Feit, Sematech; Roger Johnson, SAIC
- ARPA: Steve McBurnett
- DOE: Charles Fowler
- National Labs: Ray Bair, Sandia; David Watkins, Los Alamos; Tony Bernhardt, Lawrence Livermore
- Center Manager, PAB Chair: Jim Jorgensen

NCAICM supports two types of projects: Phase I -- precompetitive, technology enabling projects that will be done at the Center; and Phase II -- joint industry/lab projects, which may carry intellectual property rights, that will be accomplished at the appropriate site: industry, national lab, and/or Center. The NCAICM funding is \$60 Million with \$12 Million to operate the Center and fund the Phase I projects, and \$48 Million available for the Phase II projects. All projects are scheduled for completion on or before September 30, 1995.

At the workshop, ARPA defined the Phase II technology areas:

- Flexible Single Wafer Processing
- Advanced Contamination Free Manufacturing
- Advanced On-chip Interconnects
- Advanced Lithography
- Next Generation Microelectronics and Optoelectronics
- Emissive Displays
 - Materials, Design, and Fabrication Techniques
 - Manufacturing Tools and Processes
 - Robust Manufacturing Development

Joint industry/national lab proposals were submitted to ARPA by the lead industrial

partner. Announceable awards will be discussed in the presentation.

The Phase I projects were selected by the Project Advisory Board. From 23 proposals, six were selected and formed into four funded projects:

- Flat Panel Display Factory Modeling
- Field Emission Display Characterization Facility
- In-situ Process Sensors and Metrology
- Automated System Identification

Summary

NCAICM provides a new way to integrate federal and commercial research and development. Industry-driven projects determine which technologies are of prime interest to industry, and, at the same time, industry can select which resources from the national laboratories can best help them improve their manufacturing capabilities. Projects ranging from precompetitive technology enablers to those retaining intellectual property rights where a commercialization path is in evidence are supported. Information components help enable the information industry, and NCAICM is a new approach to help the US improve its national competitiveness in that area.

DATE

FILMED

3 / 7 / 94

END

 