Panel Sessions: Monday, June 12, 1989

Panel Session I
MIMIC Program Benefits to the MMIC Industry

Date: *Monday, June 12, 1989, 7:30 P.M.*

Location: *Hyatt Regency, Regency Ballroom A*

Organizer: *E. D. Cohen, MIMIC Program Manager, DARPA*

Panelists: *E. D. Cohen, Panel Moderator, MIMIC Program Manager, DARPA*
William G. Debsole, Manager, Martin-Marietta/ITT Joint Venture MIMIC Contract Program
Eugene Gregory, Manager, Hughes/GE MIMIC Contract Program
Steven Temple, Manager, Raytheon/TI Joint Venture MIMIC Contract Program
Herbert Trachtenberg, Manager, TRW MIMIC Contract Program

Abstract:

The Defense Advanced Research Program Agency (DARPA) is sponsoring the Microwave/Millimeter Wave Monolithic Integrated Circuits (MIMIC) program with the primary objective of developing and making available affordable, reliable microwave and millimeter wave monolithic products for use in a wide variety of military systems. As the program progresses and the technology matures it is also expected that the MIMIC program will provide a strong stimulus for commercial applications, further increasing the industrial base for MIMIC technology. The first of two three-year hardware development phases of the program has been underway since May, 1988. The program invokes manufacturing discipline for the production of the circuits and subsystems needed by the Department of Defense. Design, fabrication and testing activities are closely coupled to each other to maximize both circuit yields and the probability of "first pass" fabrication success. Strong emphasis is being placed upon activities that will enhance the program's value to all contractors producing microwave and millimeter wave systems for the Department of Defense. Program objectives include making MIMIC products readily available to all other appropriate organizations, incorporation of standard interfaces for computer aided design systems so that software from all vendors can be used, development of metrology standards in conjunction with the National Institute of Standards and Technology for gallium arsenide material, MIMIC devices and circuits, development of extensive process databases, and the inclusion of companies on MIMIC teams that will serve as "foundries" to produce MIMICs for both the military and commercial markets. Through these activities and other program developments a viable MIMIC industry will be sustained, grow and prosper.

This panel session is intended to provide managers and engineers with insight as to how on-going MIMIC program activities will benefit their circuit, subsystem and system development work.

After the speakers' comments, the panel will be open for questions from the audience.

Monday, June 12, 1989

Panel Session II
"FETs Beware, Advancing Bipolar Technologies for High Frequency Applications: Si vs GaAs vs InP Bipolar Transistors"

Date: *Monday, June 12, 1989, 7:30 PM*

Location: *Hyatt Regency, Regency Ballroom B & C*

Organizer: *M. E. Kim, TRW Electronics & Technology Division*

Panelists: *Michael E. Kim, Panel Moderator*
Peter Asbeck, Rockwell (GaAs & InP HBTs for microwave/millimeter-wave)
Burhan Bayraktaroglu, Texas Instruments (GaAs HBT for microwave power)
Gary Gorman, TRW (GaAs HBT for baseband/RF analog)
Joseph Jensen, Hughes (InP HBT for digital and RF)
Steve Kofol, Hewlett-Packard (GaAs HBT for instrumentation)
Kevin Negus, Avantek (Si bipolar for baseband/RF analog)

Abstract:

In the past few years, advanced bipolar technologies, from silicon (both conventional and heterojunction) to GaAs and InP HBTs, have emerged to offer more attractive alternatives to GaAs and InP field-effect transistors (MESFETs, HEMTs, JFETs) in many baseband/RF analog, digital, analog/digital conversion, and microwave/millimeter-wave functions. The rapidly advancing bipolar technologies are expected to displace the FETs, beset with inherent device limitations (poor device matching, critical lithographic dimensions for high frequency operation, channel conduction trapping effects, limited current/voltage handling capability, etc., etc., etc.) in more and more applications. Within the bipolar community, the renewed vigor driven by a variety of advanced epitaxial material and device fabrication techniques has made the different technology approaches extremely competitive among themselves. The panel session will address the role of various bipolar transistor technologies (Si vs GaAs vs InP) for high frequency functions (analog, digital, A/D conversion, and microwave/millimeter-wave) in military and commercial applications.

Monday, June 12, 1989

Panel Session III
Computer-Aided-Engineering for MICs and MMICS

Date: *Monday, June 12, 1989, 7:30 P.M.*

Location: *Hyatt Regency, Regency Ballroom (D, E, F)*

Sponsor: *IEEE Microwave and Millimeter Wave Monolithics Circuits Symposium*

Organizer: *Octavius Pitzalis, Jr., EEsof, Inc.*

Panelists: *Tom Reeder, EEsof*
Rowan Gilmore, Compact Software
Jim Fitzpatrick, Hewlett Packard
Bob Trew, North Carolina State Univ.
Tony Pavio, Texas Instruments

Abstract:

The personal computer and the computer workstation have become popular platforms for microwave circuit design and performance simulators. Today, a designer working with an integrated family of software tools can begin from a schematic, then proceed through the small signal and large signal circuit design process while simultaneously defining the layout for MIC or MMIC fabrication.

This session will provide a forum to explore and discuss MIC and MMIC related computer-aided-design issues with the expert panel. The panelist presentation will highlight timely topics including:

User perspectives on CAE needs

- CAE for MIMIC tasks
- Process-based physical MESFET models
- Maximizing MIC and MMIC production yield through the use of design centering