Session 4 highlights. Mike Carrio discussed Teledyne-Brown’s tools and future plans for managing the design of large systems with integrated software and hardware.

Chris Tong spoke on the evolution of a knowledge-based design process and showed how activities could be ordered to achieve goal-directed planning. He has developed an automated design system called Dante, which designs TTL logic.

Allen Sullivan described a different application area. Arizona State University is doing work on applying an expert system to design analog circuits. The system, called ACS3, accepts user requirements in menu-driven form, and designs multistage amplifiers.

William Ho of SMU presented a design process model that is incrementally refined through successively more detailed levels of representation.

Session 5 highlights. In a combined presentation, Richard Mott of Prime Computers and Nayel El-Shafei of MIT described the architecture of a mechanical engineering CAD system that they are developing. The system consists of a design assistant, called Enkidu; advisors; a knowledge base; an AI base, a case library; and integrated mechanical engineering tools.

Khurshid Ahmad of the University of Surrey discussed the problems of a knowledge-based approach to tolerance specifications in mechanical systems. The main difficulty in developing such systems, he felt, was the lack of formal methods of reasoning for geometrical models.

Kathrin Chaffam of Boeing Computer Services described an “expert executive” that integrates existing aircraft design programs. The integration reduces the length of some system design activities from weeks to hours.

Barry Winston of Unisys discussed the use of AI techniques for fault simulation and test generation. The test generation system is interactive and written in Prolog. It is used mostly for logic with imbedded RAMs. The fault simulator is implemented in Flavors and Lisp and is object oriented. Both programs run on an LMI machine.

Jack Mostow presented some applications of machine learning to design. One system, called Leap, is a learning apprentice that observes manual refinements of the design, proves their correctness, and then transforms the proof into a rule. A second system, called Bogart, replays previous design steps and attempts to use them for a current design. A third system, called Fail Safe, learns “things not to do” in searching.

Future workshops

Next year’s workshop organizers are Walling Cyre, Control Data Corp., 2800 E. Old Shakopee Rd., Box 1249

HQM173, Minneapolis, MN 55440; (612) 853-2692, and Barry Winston, Unisys, 2276 Highcrest Rd., Roseville, MN 55113; (612) 635-7777. Those interested in participating are welcome to call.

Erratum

The conference item in the December 1986 issue of D&T, “Perspectives on ITC 86” was jointly written by Charles Radke of IBM and Magdy Abadir of MCC. Abadir’s name was inadvertently omitted.

A CONFERENCE PREVIEW

CICC 87: Advances in custom ICs

The latest in design methodologies, engineering workstations, DSP applications, packaging, circuit simulation, testing and reliability will be among the topics covered at the 1987 IEEE Custom Integrated Circuits Conference, to be held May 4-7 in Portland, Oregon.

The conference, the ninth since CICC began, features a technical program that is decidedly international in scope—almost a third of the 155 papers are from outside the US.

The program includes important contributions in gate arrays, silicon compilation, standard cells, full-custom ICs, circuit simulation, testing, packaging, and GaAs custom circuits. The Technical Program Committee received over 340 submissions from which to select final papers.

The keynote speaker will be Andy Rappaport of Technology Research Group, who will examine the technical and economic forces that are shaping the custom IC business in “The Custom IC Business is Dead, Long Live Custom ICs.”

Kyle Fairchild of NASA-Lewis will be the Conference Luncheon speaker, addressing “The Future of Space Colonization.”

Three evening panel discussions will complement the technical sessions. The topics planned for discussion include layout tools and methodologies, front-end trade-offs in ASIC design, and high-performance packaging. A product announcement session has also been added this year to introduce new, commercially available tools and design platforms.

The exhibits area will once again be expanded to accommodate a greater variety of custom IC vendors, workstations, manufacturers, CAD tools, demonstrations, and other state-of-the-art equipment displays.

A full day of educational presentations is planned on May 4, covering such topics as VLSI fabrication; analog, bipolar, and MOS IC design; GaAs technology; custom IC design; simulation tools; and synthesis/silicon compilation. The eight sessions are taught at a first-year graduate level.

For more information on CICC 87, contact Laura Silzars, Conference Coordinator, CICC, 6900 SW Canyon Dr., Portland, OR 97225; (503) 292-6347. For more information on the technical content, contact Richard Bryant, Conference Chairman, Ford Microelectronics, 10349 State Hwy. 83, MS-FMI, Colorado Springs, CO 80908; (303) 528-7620.