GE and RCA Laboratories, through a proprietary approach developed at the David Sarnoff Research Center, have developed a new technology to take advantage of the digital storage capacity and data rate of the standard CD-ROM drive.

Called Digital Video Interactive (DVI) technology, the approach combines in an all-digital integrated system the interactivity of PC graphics and the realism of high-quality motion video and multitrack audio. DVI can display one hour of motion video from compressed digital data stored on a single standard CD-ROM disk. The motion video can be combined with foreground video objects, text, dynamic graphics, and multitrack audio, all under the user's control.

DVI uses a compression/decompression scheme to solve the problem of too much image data and not enough storage capacity in CD-ROM. With the new technology, before a master is made of the CD, the digital video and audio are compressed so that fewer bits are required to represent each second of video and audio. Although compression requires large amounts of computing power, it is done only once and need not be done in real time. Thus commercially available computers can be used.

A proprietary VLSI chip set performs the decompression and display processing that results in real-time video. The two-chip video display processor consists of a pixel processor and an output display processor.

The pixel processor is designed to function at 12.5 MIPS. The instruction set has several video/graphic instructions that can perform operations in parallel for combinations of full-motion video with video overlays, text, and dynamic graphics in the same video frame.

The output display processor provides resolution modes and pixel formats. Resolution ranges from 256 to 768 pixels horizontally and up to 512 pixels vertically. Any one of 16 million colors can be selected for each pixel.

In addition to the chip set, the video board has 1M byte of dual-ported video RAM, expandable to 4M bytes. An audio board and a utility board complete the package.

The system, now on prototype oversize boards, will be available in standard-size boards for IBM PC ATs and compatibles by the end of the year. Price not provided.

Reader Service Number 44

**INFORMATION SOURCES**

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**Book explores constraint programming languages**

*Constraint Programming Languages: Their Specification and Generation*, written by William Leler and published by Addison-Wesley, explores constraint languages, which can be applied in such areas as CAD, the simulation of physical systems, graphics, typesetting, artificial intelligence, and VLSI systems.

The book introduces the subject of constraint satisfaction, surveys existing systems, and introduces a technique said to make constraint-satisfaction systems easier to create and extend. According to the publisher, constraint languages are declarative, and therefore constraint programs are easy to build and modify, with their nonprocedural nature making them well suited for parallel processors.

Among the topics covered are augmented term rewriting, equation solving, graphics applications, execution, libraries and examples, operational semantics, and a general-purpose specification language called Bertrand, said to allow users to describe a constraint-satisfaction system using rules.

The softcover book has 202 pages and costs $24.95.

Reader Service Number 50

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**Guide describes products based on the TMS34010**

Texas Instruments has published the TMS34010 Third Party Guide, which compiles descriptions from more than 50 companies of their 34010-based products, including PC add-in boards, electronic publishing systems, and image processing systems.

The book is intended to be a guide on hardware for system designers and integrators. It also identifies software developers with graphics operating environments, development tools, and applications based on the 34010. TI plans to update the guide as new 34010-based products are released.

The guide is free.

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