

# Developing a New Approach for Multimedia Design



**Walden (Wally) C. Rhines**

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The term multimedia covers an incredible range of possible applications, from movies on demand and video conferencing to sophisticated voice recognition systems. Creating these complex systems — that meld high-performance graphics, real-time encoding and decoding with sound and large quantities of data — requires high-performance digital signal processing (DSP) design implemented in an ASIC form or as hardware accelerator to complement today's high-performance CPUs. These DSP designs can even be targeted for the VLIW (very long instruction word) format, now emerging as a viable alternative for multimedia applications.

Wally Rhines, President and CEO of Mentor Graphics Corporation, will discuss the challenges confronting VLSI designers for multimedia applications. After exploring the diverse demands of this broad market, Rhines will outline a new approach in electronic design automation to meet the aggressive requirements of multimedia/DSP design.

First, the design team for a multimedia application must have the freedom to easily explore various possibilities at the algorithmic level — the most efficient place to evaluate different approaches. The team also needs the ability to quickly determine the optimal architecture for both the hardware and software components of the design. In addition, the crucial step of moving from a behavioral description to an actual hardware implementation, especially for bit-parallel designs such as VLIW, must be automated. Most importantly, the software and hardware must be developed and verified as an integrated entity to ensure exacting quality and throughput expectations for multimedia designs are met.

## **Biography**

### **Walden (Wally) C. Rhines**

Walden (Wally) C. Rhines joined Mentor Graphics as president and chief executive officer in October 1993. He has worldwide responsibility for all aspects of the company and also holds a position on the company's board of directors.

Prior to Mentor Graphics, he served 21-years at Texas Instruments, where he directed the company's worldwide semiconductor business as executive vice president of TI's Semiconductor Group. While at TI he held a variety of technical and business management positions, primarily in the Semiconductor Group, but also in the Consumer Products Division, Central Research Laboratories and Data Systems Group. Rhines was president of the Data Systems Group from 1985 to 1987.

During his career at TI, Rhines was responsible for development of numerous products including TI's first speech synthesis devices (used in "Speak & Spell"), the TMS 320 family of digital signal processors, several generations of dynamic RAMs, the TI/IBM token ring local area network chip set and the TMS 340 family of graphic controllers.

He has served as chairman of the Semiconductor Technical Advisory Committee of the U.S. Department of Commerce, as a member of the executive committee of the board of directors of the Corporation for Open Systems, as a member of the board of directors of the Computer and Business Equipment Manufacturers' Association (CBEMA), and as a member of the board of directors of Sematech. He is currently chairman of Electronic Design Automation Companies (EDAC).

Rhines, holds a bachelor of science degree in metallurgical engineering from the University of Michigan, master and doctorate in materials science and engineering from Stanford University, and a master of business administration from Southern Methodist University.