

THURSDAY  
NOVEMBER 20, 2003

Scaife Hall Auditorium  
Room 125

4:00 PM  
Refreshments—3:30 PM



## Bob Colwell

*INDEPENDENT CONSULTANT*

Bob Colwell was Chief Architect of Intel's IA32 microprocessors from 1992-2000, and managed the IA32 Arch group in Intel's Hillsboro, Oregon facility. Colwell joined Intel in 1990 as a Senior CPU Architect on the P6 (Pentium Pro) project, and became manager of the Architecture Group two years later. He was named an Intel Fellow in 1996, the highest technical grade at the company. Prior to his work at Intel, Colwell was a CPU architect and hardware designer at VLIW pioneer Multiflow Computer from 1985 until its demise in 1990. Prior to that he worked part time as a hardware design engineer at workstation vendor Perq Systems while attending graduate school at Carnegie Mellon. He was a member of the technical staff at the Bell Telephone Labs from 1977 to 1980, working on the BellMac series of microprocessors. He has published 16 technical papers and journal articles, is inventor or co-inventor on 45+ patents, and has participated in numerous panel sessions and invited talks. He is currently an independent consultant. Colwell is the Perspectives editor at IEEE Computer Magazine and author of the At Random column. Colwell received his BSEE degree from the University of Pittsburgh in 1977, and his MSEE and PhD from Carnegie Mellon University in 1978 and 1985.

*For more information:*  
<http://www.ece.cmu.edu/seminar/>

James C. Hoe, ECE Seminar Host  
[jhoe@ece.cmu.edu](mailto:jhoe@ece.cmu.edu)

## THINGS CPU ARCHITECTS NEED TO THINK ABOUT

Microprocessor architects have been trained to simulate and quantify their decisions, and the designs of Intel's Pentium II, Pentium III, and Pentium 4 microprocessors are very much a product of that way of thinking. Many other choices must be made, however, that are judgment calls, made more by feel and intuition, in a context that is much broader than microprocessor technology. These are intrinsically non-quantifiable. One learns how to make them from experience.

This talk relates some of the experiences I had while serving as Intel's chief IA32 architect in the 1990's. 