

Message from the Program Chairs of HOT Chips IV

The development of high-performance VLSI chips shows no signs of slowing down, and such chips remain a focus of attention for many people in both industry and academia. VLSI chips have been heavily used in desktop and mid-range machines for many years. More recently, they've been expanding upward as the main CPUs for bigger systems, including large parallel supercomputers, and downward, into laptops, handhelds, and even wearable computers. Each year, we get more transistors pre-chip, and usually higher clock rates, with 100MHz microprocessors already in production and heading higher. In addition, many of the most interesting areas of development in software, from new operating systems and user interfaces to state-of-the-art optimizing compilers, focus on these processor chips.

HOT Chips has a long tradition of providing leading-edge talks. As always, we encouraged designers to submit abstracts about chips in active development, and were willing to accept some where there was at least a reasonable chance they'd be ready to talk. However, life near the edge is often chancy, and in a few cases, talks had to be withdrawn at the last minute.

As usual, processor chips are well-represented, and we have several new mainline high-end micros, such as DEC's Alpha and HP's newest PA processor. We also have interesting papers on processors that expand the idea of individual hot chips by extensions for large-scale multiprocessing, vector processing, and multi-level on-chip caches. As our hot processors continue warming up, we need hot support chips to keep up with them, and we have papers on various interconnect support chips, ranging from high-performance, low-cost chips for the PC space through GaAs devices.

While 1992 looks like a vintage year for new high-performance CPUs entering production, a continuing and important trend is the continued downward migration of hot performance into low-cost, low-power devices. Look back at HOT Chips I in 1989, just 3 years ago. Many of the high-end production chips being described had clock rates in 25-33Mhz range, often with multiple chip sets. By HOT Chips IV, even very low cost, low-power, highly integrated single-chip solutions reach similar performance levels, but suitable for notebook or even handheld computers, rather than high-end workstations, and there are several papers on these topics, which constitute the "air-conditioned" portion of HOT Chips.

Each year, we pick a few examples of fascinating and very different work, such as chips that connect directly to human nerves. We expect that several of these hot chips will be described in longer papers in a 1993 issue of IEEE Micro. HOT Chips has become a classic event, and last year continued its tradition of success. It's truly exciting to select papers for a conference in such a fast-changing field, although it's a little daunting to realize that each year, a substantial fraction of what you thought you knew has become obsolete. One thing that does not change is the dedication and energy of the organizing committee and staff, who each year make this conference really happen. We thank our program committee for their efforts in soliciting and selecting good talks, and we hope you'll enjoy hearing them as much as we enjoyed gathering them.

John Mashey and David Patterson
Program Committee Co-Chairs