

Hot Chips 11

A Symposium of High-Performance Chips

Sunday, August 15, 1999 - Tuesday, August 17, 1999

Memorial Auditorium
Stanford University

Sunday, August 15, 1999

Tutorial I: Digital Signal Processing

Chair: Teresa Meng

Video Algorithms and Architectures

Dr. Kees A. Vissers, Philips Research

Signal Processing in Communications I: xDSL

Dr. Sam Sheng, DataPath Systems

Signal Processing in Communications II:CDMA

Dr. Sam Sheng, DataPath Systems

Tutorial II:IA64 Architecture and Compilers

Chair: Ken Shoemaker

IA-64 Architecture Basics/Introduction

Dr. Allan Knies, Intel

Optimization Techniques/Using IA-64 Features

Dr. Allan Knies, Intel

Compiler Technology on IA-64

Dr. Jesse Fang, Intel

Dynamic Compilation Technology on IA-64

Dr. Jesse Fang, Intel

Monday, August 16, 1999

Welcome, Opening Remarks

General Chair: Michael Blasgen

Program Co-Chairs: Forest Baskett, Monica Lam

Session 1: Parallel Machines

Session Chair: John Kubiatoiwitz

A Multi-Threaded 64-bit PowerPC Commercial RISC Processor Design

S. Storino, J. Borkenhagen, IBM

A RISC Processor for SR8000: Accelerating Large Scale Scientific Computing with SMP

Y. Tamaki, T. Kurihara, K. Shimada, E. Kamada, T. Shimizu, Hitachi

The Stanford Hydra CMP

L. Hammond, B. Hubbert, M. Siu, M. Prabhu, M. Willey, M. Chen, M. Kozyrczak, K. Olukotun, Stanford University

Session 2: New Technology

Session Chair: Peter Hsu

A 1GHz Power4 Testchip Design

B. McCredie, J. Badar, R. Bailey, P. Chou, C. Carter, D. Ervin, M. Floyd, J. Keaty, B. Krauter, J. LeBlanc, L. Leitner, D. Mikan, Jr., M. Nealon, J. Petrovick, K. Reick, P. Restle, T. Skergan, H. Stogdon, J. Vargus, J.D. Warnock, IBM

A Synchronous Wave-Pipeline Interface

E. Cordero, D. Dreps, F. Ferraiolo, M. Floyd, K. Gower, B. McCredie, IBM

A Field-Sequential Color 1040 by 768 Liquid Crystal on Silicon Display

Michael Bolotski, The MicroDisplay Corporation

Keynote: New Millenium for Computer Entertainment

Ken Kutaragi, President, Sony Computer Entertainment

Chair: Mitsuo Saito

Session 3: Graphics Processors

Session Chair: Henry Moreton

5.5 GFLOPS Vector Units for Emotion Synthesis

A. Kunimatsu, N. Ide, T. Sato, Y. Endo, H. Murakami, T. Kamei, M. Hirano, M. Oka, A. Ophba, T. Yutaka, T. Okada, M. Suzuoki, System ULSI Engineering Laboratory of the Toshiba Corporation, Sony Computer Entertainment.

Massively Parallel SIMD Computing on a Single Chip

R. McConnell, PixelFusion

MAP1000A: a 5 μ m, 230 MHz VLIW Mediaprocessor

J.O'Donnell, Equator

Session 4: Embedded Machines

Session Chair: Howard Sachs

High Speed Low Cost TM1300 Trimedia Enhanced PCI VLIW Mediaprocessor

L. Lucas, Philips Semiconductors

The ARM9TDMI and ARM9ESP Synthesizable Families

A. Burdass, ARM

Configurable/Extensible Processors Change System Design

R. Gonzalez, Tensilica

Panel: Information Appliances in the Home

Panel Chairs: Norm Jouppi and Ken Shoemaker

Moderator: Kathy Richardson - Compaq Computer / Institute for Women and Technology

Panelists: David Armitage, President Qubit

Jim Barton, CTO, TiVo

Natasha Flaherty, Market Manager, Asia, Phone.com

Elizabeth Houck, Philips Research

Tuesday, August 17, 1999

Session 5: PC and Special-purpose Chips

Session Chair: Gert Slavenburg

*IGR4-A High Performance AMD K7 Northbridge w/
RDRAM Memory Controller*

*C. Keltcher, J. Kelly, R. Krishnan, J. Peck, S. Polzin,
S. Subramanian, F. Weber, AMD*

High-Performance Sort Chip

*S. Azuma, T. Sakuma, T. Nakano, T. Ando. K.
Shirai, Mitsubishi*

The vg500 Real-Time Ray-Casting ASIC

H. Pfister, Mitsubishi Electric Research Laboratory

Session 6: Software

Session Chair: Marc Tremblay

*Virtual Platform-A Virtual Machine Monitor for a
Commodity PC*

M. Rosenblum, VMware

Wiggins/Redstone-An On-line Program Specializer

R. Gordon, Compaq

*Hardware Support for Out of Order Instruction Profiling on
Alpha 21264a*

*J. Anderson, L. Berc, J. Dean, S. Ghemawat, S.
Leung, M. Litchenberg, M. Vandevoorde, G. Verns,
C. Waldspurger, W. Wehl, J. White, Compaq*

**Keynote: Broadband Communications IC's for High-Speed
Networking in the Home**

*Henry Samuelli, Co-Chairman and Chief Technical
Officer, Broadcom*

Chair: John Hennessy

Session 7: Network Chips

Session Chair: Earl Killian

The Epigram EPI41210/EPI41100 16bps Home Phoneline Networking Chipset

A. Corry, G. Efland, E. Frank, N. Ferrario, H. Garlapati, R. Hayes, J. Holloway, H. Kuo, J. Laudon, T. Mallory, W. Morton, G. Loyola, N. Nucklos, J. Pattin, H. Ptasinski, K. Peterson, E. Ojard, D. Snow, W. Stafford, T. Robinson, J. Trachewsky, L. Yamano, C. Young, C. Warth, R. Alva, B. Bunch, D. Fifield, N. Castagnoli, M. Dove, M. Kobayashi, R. McCauley, S. Mohapatra, T. Moorti, A. Siddeqee, W. Shieh, S. Siener, Epigram

Broadcom BCM5600 StrataSwitch: A Highly Integrated Ethernet Switch On A Chip

A. Essen and James Mannos, Broadcom Corporation

SiRFstar II Architecture: A Powerful System Platform for Consumer GPS Application

G. Turetzky, J. Knight, R. Tso, L. Peng, SiRF Technology

Session 8: Instruction Sets

Session Chair: Alan Smith

An Architecture Extension for Efficient Geometry Processing

R. Thekkath, MIPS Technologies

An Architecture for the New Millenium

M. Tremblay, Sun Microsystems

The Internet Streaming SIMD Extensions

S. Thakker, Intel

Closing Remarks