

HOT
A Symposium on
High Performance Interconnects
INTERCONNECTS



Organizing Committees

- General Chair
 - John Lockwood
- Program Chair
 - Bryan Lyles
- Tutorial Chair
 - James Sterbenz
- Panel Chair
 - Fabrizio Petrini
- Local Chair & Webmaster
 - Liz Rogers
- Treasurer
 - Anne Watters
- Steering Committee
 - Daniel Pitt
 - Mark Laubach
 - Allen J. Baum
 - Hasan Alkhatib
 - Paul Borrill
 - Glen Langdon



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 Technical Writers
 www.warthman.com

QUADRICS



HOT INTERCONNECTS
 A Symposium on High Performance Interconnects

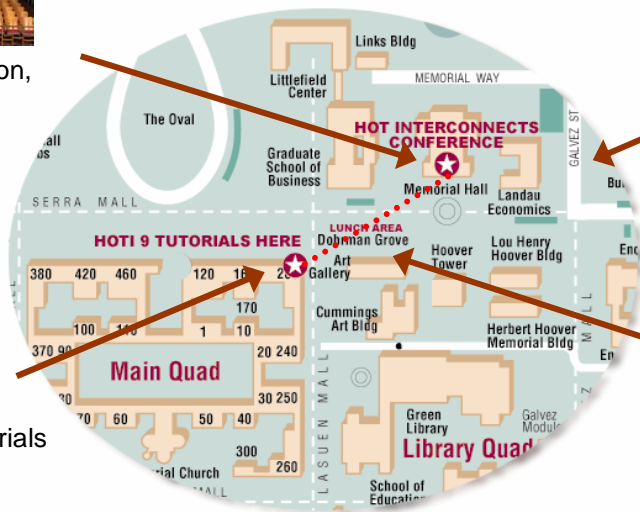
Event Locations



Registration, keynotes, talks, & panel



Friday Tutorials



Parking



Coffee, snacks, and meals

HOT INTERCONNECTS
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Networking at Memorial Auditorium

– Wireless LAN

- Atheros' high speed wireless equipment



- Stanford's high speed internet connection

- 3 modes of Wi-Fi:

- 802.11a
- 802.11b
- 801.22g

- SSID = conference

- DHCP : Automatically provides address & name server

- Coverage: Auditorium, Lobby, Break area, Greenroom

– Human Networking

- Between sessions, in the break area



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Conference Proceedings

- Current-year proceedings
 - Bound, printed copy of IEEE proceedings will be distributed on Thursday.
- Previous-year proceedings available free for registered attendees
 - HotI-10 (2002)
 - HotI-9 (2001)
 - HotI-8 (2000)



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<http://www.hoti.org/>



Friday Tutorials

- **T1:** High-Speed Networking: A Systematic Approach to High-Bandwidth, Low-Latency Communication
– James Sterbenz of BBN (Full Day)
- **T2:** Designing Next Generation Clusters, Cluster-based Servers and Datacenters with InfiniBand: Opportunities and Challenges
– Dhabaleswar Panda (Ohio State) (Friday Morning)
- **T3:** SLA/QoS in Partially Available and Intermittent Network Services:
– Petre Dini (Cisco) (Friday Afternoon)



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Schedule for Friday, Aug 22, 2003

- 7:30 am : **Breakfast (provided)**
- 8:30 am - Noon
 - **Tutorial 1:**
 - High-Speed Networking: A Systematic Approach to High-Bandwidth Low-Latency Communication:
 - James Sterbenz (BBN)
 - **Tutorial 2:**
 - Designing Next Generation Clusters, Cluster-based Servers and Datacenters with InfiniBand: Opportunities and Challenges:
 - Dhableswar Panda (OSU)
- 9:45 : **Break (provided)**
- Noon : **Lunch (provided)**
- 1:30 pm - 5:00 pm
 - **Tutorial 1 (continued):**
 - High-Speed Networking: A Systematic Approach to High-Bandwidth Low-Latency Communication:
 - James Sterbenz (BBN)
 - **Tutorial 3:**
 - SLA/QoS in Partially Available and Intermittent Network Services:
 - Petre Dini (Cisco)
- 3:00pm : **Break (provided)**



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- Bryan Lyles
 - Program Chair

Program Committee

- | | | | |
|--|---|--|---|
| <ul style="list-style-type: none"> • Francois Abel <ul style="list-style-type: none"> - IBM Zurich Research • Adnan Aziz, <ul style="list-style-type: none"> - University of Texas • Andrew Campbell <ul style="list-style-type: none"> - Columbia University • Hans Eberle <ul style="list-style-type: none"> - Sun | <ul style="list-style-type: none"> • Mounir Hamdi <ul style="list-style-type: none"> - Hong Kong University • Ken Calvert <ul style="list-style-type: none"> - University of Kentucky • John lockwood <ul style="list-style-type: none"> - Washington University • Shubu Mukherjee <ul style="list-style-type: none"> - Intel | <ul style="list-style-type: none"> • Rong Pan <ul style="list-style-type: none"> - Stanford • Li-Shiuan Peh <ul style="list-style-type: none"> - Princeton • Fabrizio Petrini <ul style="list-style-type: none"> - Los Alamos National Laboratories • James P.G. Sterbenz <ul style="list-style-type: none"> - BBN • Dimitrios Stiliadis <ul style="list-style-type: none"> - Bell Labs | <ul style="list-style-type: none"> • Ion Stoica <ul style="list-style-type: none"> - UC Berkeley • Anujan Varma <ul style="list-style-type: none"> - UC Santa Cruz • Marcel Waldvogel <ul style="list-style-type: none"> - IBM Zurich Research • Ben Yoo <ul style="list-style-type: none"> - UC Davis • Zhi-Li Zhang <ul style="list-style-type: none"> - University of Minnesota |
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Technical Sessions

- Authors:
 - Upload presentations to:
 - <http://www.gradebot.com/hoti/>
 - Meet with session chair
 - Meet at left of stage 15 minutes before session begins
 - Have presentation ready to run and provide bio to chair
- Presentation slides
 - Will be posted on-line at:
 - <http://www.hoti.org/>
- Full articles
 - Published in IEEE proceedings
 - Provided with registration
 - Additional copies available at registration desk



Keynotes

- RFID – The New Network of Objects
 - Stav Prodromou
 - CEO: Alien Technology
- Policy-based Virtual Networking
 - Hasan Alkhatib
 - President, CEO, and Chairman: IP Dynamics



Schedule for Wednesday, Aug 20, 2003

- 7:30 - 8:30 am : Breakfast
- 8:30 am : **Welcome**
 - Message from General Chair
 - Message from Program Chair
- 8:45 am : **Keynote**
 - RFID: The New Network of Objects
- 9:45 am : **Break (Provided)**
- 10:15 : **Session 1**
 - Interconnect Technology
- Noon : **Lunch (Provided)**
- 1:30 pm : **Session 2**
 - Associative Technologies
- 3:00 pm : **Break (Provided)**
- 3:30 pm : **Session 3**
 - Network and Clustering Technologies
- 5 pm : **Dinner (Provided)**
- 6:30 pm : **Panel**
 - High-Performance Interconnection Networks for Cluster Computing



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Session 1: Wednesday 10:15am - Noon

Interconnect Technology

Session Chair: Bryan Lyles

- Using GALS Interconnect for Single Clock cycle SoC Design
 - Andrew Lines (Fulcrum Microsystems)
- A Wave-Pipelined On-chip Interconnect Structure for Networks-on-Chips
 - Jiang Xu, Wayne Wolf (Princeton)
- Dynamic Power Management for Power Optimization of Interconnection Networks Using On/Off Links
 - Vassos Soteriou, Li-Shiuan Peh (Princeton)
- PCI Express and Advanced Switching: Evolutionary Path to Building Next Generation Interconnects
 - David Mayhew, Venkata Krishnan (Stargen)



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Session 2: Wednesday 1:30p – 3:00pm

Associative Technologies

Session Chair: Dan Pitt

- A Rule Grouping Technique for Weight-Based TCAM coprocessors
 - Hao Che, Yong Wang, Zhijun Wang (University of Texas at Arlington)
- A Dual-Level Matching Algorithm for 3-Stage Clos-Network Packet Switches
 - H. Jonathan Chao, Soung Y. Liew, Zhigang Jing, (Polytechnic University)
- Deep Packet Inspection Using Parallel Bloom Filters
 - Sarang Dharmapurikar, Praveen Krishnamurthy, Todd Sproull, John Lockwood (WashU)



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Session 3: Wednesday 3:30pm – 5pm

Network and Clustering Technologies

Session Chair: Fabrizio Petrini

- Scalable Collective Communication on the ASCI Q Machine
 - Fabrizio Petrini, Salvador Coll, Juan Fernandez Peinador, Eitan Frachtenberg (LANL)
- Micro-Benchmark Level Performance Comparison of High-Speed Cluster Interconnects
 - Jiuxing Liu, Balasubramanian Chandrasekaran, Weikuan Yu, iesheng Wu, Darius Buntinas, Sushmitha Kini, Peter Wyckoff, Dhableswar K. Panda (Ohio State)
- A Case for Network-Centric Buffer Cache Organization
 - Gang Peng, Srikant Sharma, Tzi-cker Chiueh (Stony Brook)



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Panel: Wednesday 6:30pm - 8pm

High-Performance Interconnection Networks for Cluster Computing

- Moderator
 - Fabrizio Petrini (LANL)
- Panel Members
 - Greg Pfister (IBM Austin)
 - Kevin Daierling (Mellanox)
 - Moray McLaren (Quadrics)
 - Ron Brightwell (Sandia)
 - David Mayhew (StarGen)



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Schedule for Thursday, Aug 21, 2003

- 7:30 - 8:30 am : **Breakfast**
- 8:30 am : **Welcome**
 - Message from Tutorial Chair
- 8:45 am : **Keynote**
 - Policy-based Virtual Networking
- 9:45 am : **Break (Provided)**
- 10:15 : **Session 4**
 - Packet Processors
- Noon : **Lunch (Provided)**
- 1:30 pm : **Session 5**
 - Optical Networks
- 3:00 pm : **Break (Provided)**
- 3:30 pm : **Session 6**
 - Hardware Accelerators and Network Interfaces



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Session 4: Thursday 10:15am – Noon

Packet Processors

Session Chair: James Sterbenz (BBN)

- **ETA: Experience with an Intel Xeon Processor as a Packet Processing Engine**
 - Greg Regnier, Dave Minturn, Gary McAlpine, Vikram Saletore, Annie Foong (Intel)
- **Network Processors as Building Blocks in Overlay Networks**
 - Ada Gavrilovska, Karsten Schwan (Georgia Tech)
- **Architecture for a Hardware Based, TCP/IP Content Scanning System**
 - David V. Schuehler, James Moscola, and John Lockwood (WashU)



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Session 5: Thursday 1:30pm – 3pm

Optical Networks

Session Chair: John Lockwood

- **On Slotted WDM Switching in Bufferless All-Optical Networks**
 - Soung Y. Liew, H. Jonathan Chao, Soung Yue Liew (Polytechnic University)
- **Dynamic Scheduling of Optical Data Bursts in Time-Domain Wavelength Interleaved Networks**
 - Kevin Ross, Nicholas Bambos, Krishnan Kumaran, Iraj Saniee, Indra Widjaja (Stanford, Bell Laboratories)



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Session 6: Wednesday 3:30pm – 5pm

Hardware Accelerators and Network Interfaces

Session Chair: David Mayhew

- Initial End-to-End Performance Evaluation of 10-Gigabit Ethernet
 - Justin (Gus) Hurwitz, Wu-chun Feng (LANL)
- Implementation of a Streaming Content Search-and-Replace Module for an Internet Firewall
 - James Moscola, Michael Pachos, John Lockwood, Ronald Loui (WashU)
- Efficient Exploitation of Kernel Access to Infiniband: a Software DSM Example
 - Liran Liss, Yitzhak Birk, Assaf Schuster (Technion)



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Conference Survey Forms

- Will be distributed Thursday afternoon
- Please submit your surveys to the front desk at the end of conference
 - *Your comments are important!*
- Best Paper award
 - *Determined by vote from audience*



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