

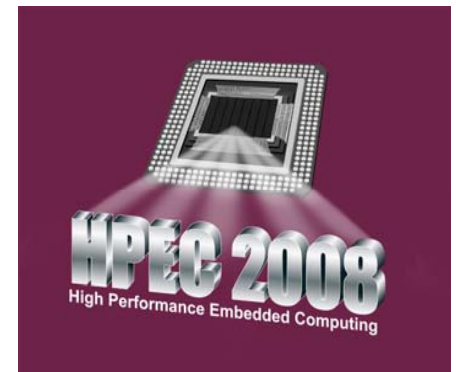


Session 4: Networking

Rick Pancoast / Lockheed Martin

HPEC Conference

24 September 2008



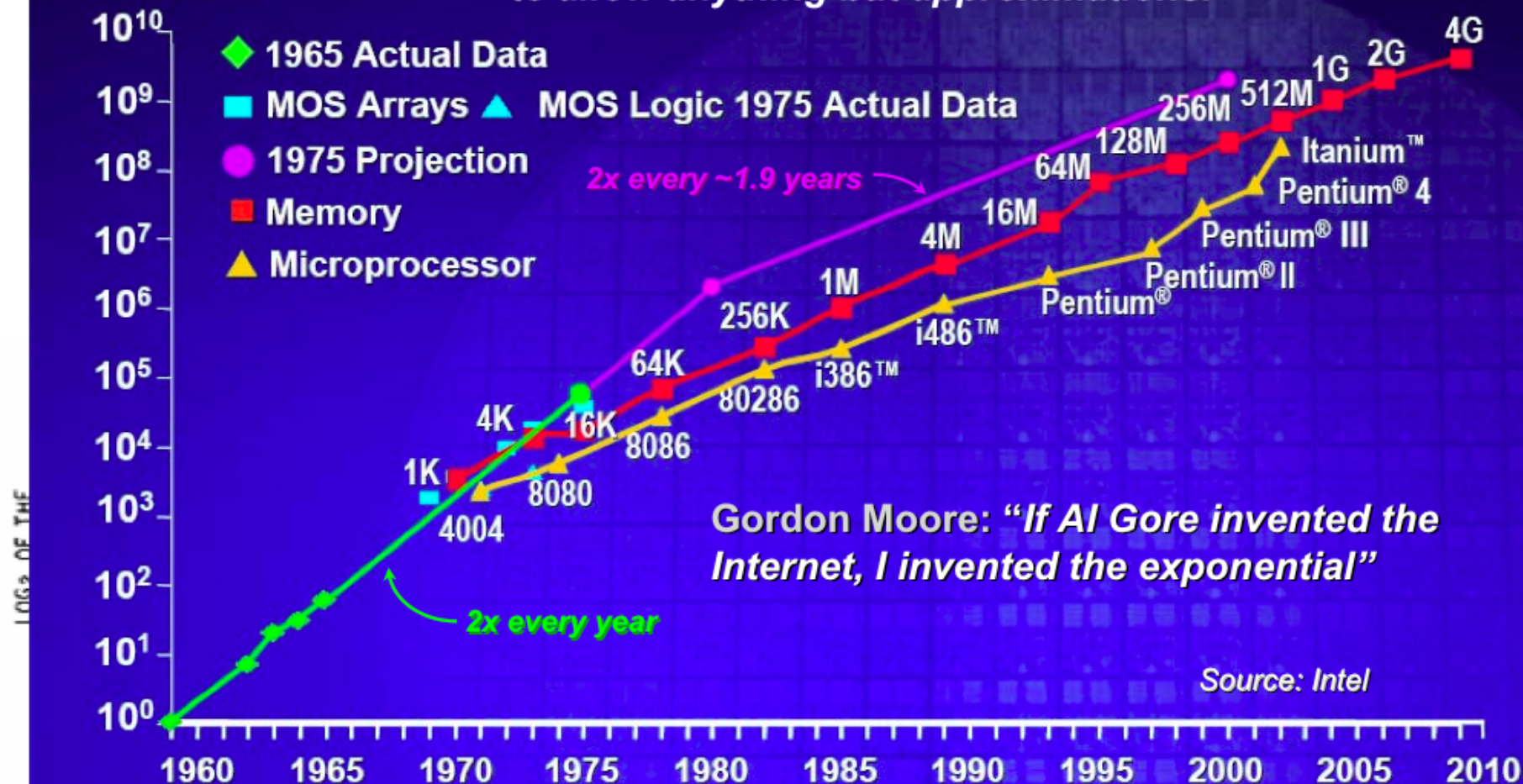
MIT Lincoln Laboratory



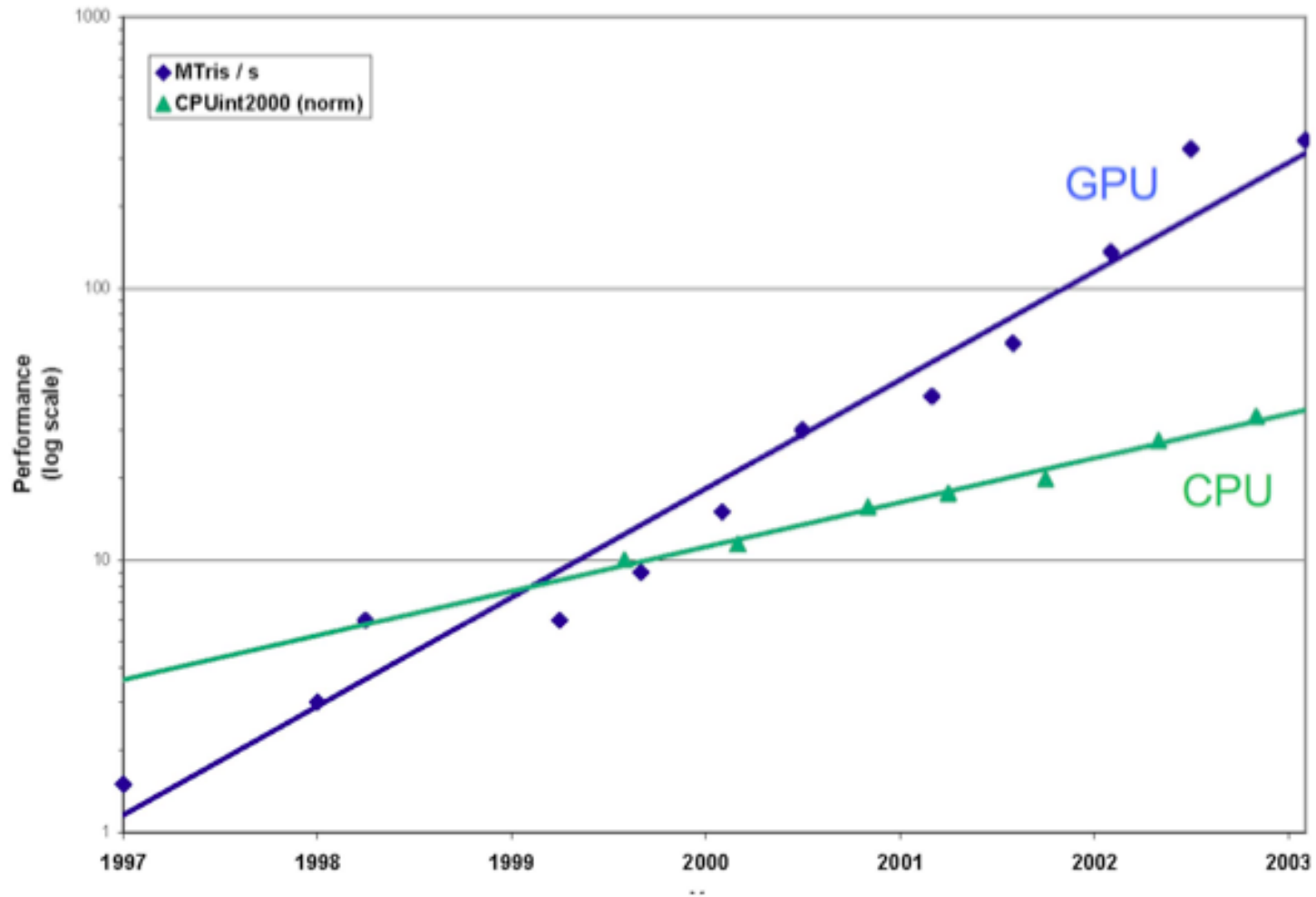
Moore's Law: Prediction and Realization

Transistors
Per Die

John von Neumann: *"Truth is much too complicated to allow anything but approximations."*



Long-Term Trend: CPU vs. GPU



Courtesy Naga Govindaraju

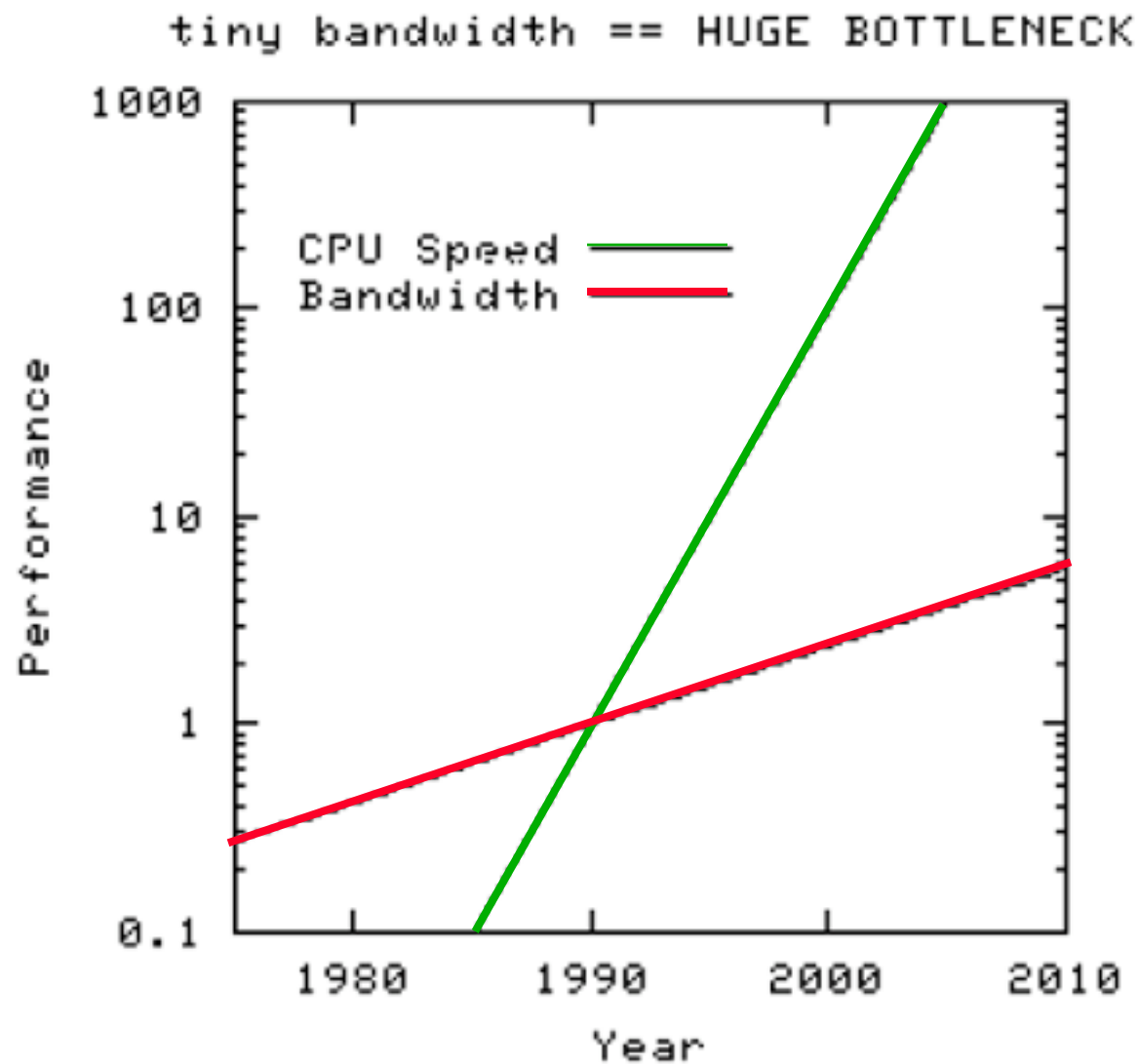


Figure 5: McCalpin's CPU Speed vs. Bandwidth



Session 4: Networking

- **Using Layer 2 Ethernet for High-Throughput, Real-Time Applications**
Robert Blau / Mercury Computer Systems, Inc.
- **Performance and Energy Comparison of Electrical and Hybrid Photonic Networks for CMPs**
Shoaib Kamil / University of California at Berkeley, Lawrence Berkeley National Laboratory
Ankit Jain and Marghoob Mohiyuddin / University of California at Berkeley
John Shalf / Lawrence Berkeley National Laboratory
John Kubiawicz / University of California at Berkeley



Session 4: Networking

INVITED SPEAKER:

- **Invited: A Real-Time Publish-Subscribe Control Plane for a COTM Node**
Darby Mitchell / MIT Lincoln Laboratory