Architecture and applications of the HEP multiprocessor computer system

TCP Offload Engine connections

Eric Siegfried, Qian Wan, Sailesh Kumar
HEP synopsis

• The Denelcor HEP was a uniform shared memory multiprocessor that used fine-grain multithreading to tolerate memory latency, synchronization latency, and even functional unit latency.
HEP vs. IXP

- Pipelined processors
  - Pipelined Micro Engines (MEs)
- Shared data memory modules
  - Shared registers and memory among MEs
- Run several independent programs
  - Microblocks
- Scalability via switch
  - Buses
HEP Processor Details

- Control loop and Data loop
- Constant memory & Supervisor process
- Synchronizing through access states
TOE implementations on HEP

- Language and Library
- Threads
  - context switching overhead
  - Define interactive signals
- Performance Evaluation
- Supervisor processes
TOE improvements

- Access States
  - Full, Empty and Reserved
- Supervisor call and memory access
- Modularity