The VxWorks and Tornado Architecture

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LAN System Block Diagram (Rev 1)

VxWorks OS

- Kernel - WIND
  - Multitasking
  - Preemptive priority Scheduler
  - Intertask Sync and Comm
  - Interrupt handling support
  - Watchdog timers
  - Memory Management
**VxWorks**
- POSIX Compatibility (mostly)
- I/O System
  - Network Driver
  - Pipe driver
  - RAM Disk Driver
  - IDE driver (x86 only)
  - Parallel Port Driver
  - SCSI
  - Keyboard
  - VGA Display Driver

**Memory**
- VxMP Memory Sharing between processors
  - Semaphores
  - Message Queues
  - Memory Regions
- Virtual Memory
  - Supports a variety of MMU

**Utilities**
- Interrupt Handling
- Message Logging
- Memory Allocation
- String routines
- Linear and ring buggers
- Linked List
- ANSC C Libraries
Other Tools

- Performance Eval tools (timers/CPU utilization)
- Target Agens (remote debugging)

Simulator

- Vx Sim
  - Simulator and Logic Analyzer

- Windview - Advanced Debugging tools

VxWorks Networking

- TCP/IP
  - MUX interface
  - Multicasting
  - polled mode ethernet
  - zero copy transmission
Networking

• BSD Sockets
• RPC - Remote Procedure Calls
• SNMP
• NFS Client
• BOOTP
• DHCP
• DNS
• RIP

Tornado

• Interesting Architecture
• Significant Security Issues with connectivity and code reconfiguration
• Solid RISC Platform
Potential Projects With Wind River

- Security Analysis of Tornado Architecture
- Quality of Service Issues
- CORBA connectivity
- TAO CORBA Orb Port
- Wireless Connectivity

Homework Assignment

Can you read your ballot?

You need to be working on your papers!