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Real-Time Linux

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❒ Objective

– Show that Linux can work as a real time operating system.

❒ Method

– Measure the interrupt latency time of the kernel under various load conditions.

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Real Time Linux

- **Operating System**
  - Linux 2.4.19 from Galileo tree
  - Tests done with and without preemptive kernel patch

- **Hardware:**
  - Power PC operating at 312.5 MHz
  - Galileo memory chip operating at 125 MHz
  - No disk drive
  - Connected to network

- **Application used to measure interrupt latency**
  - Realfeel, publicly available application used to measure interrupt latency
  - Measured under three load programs
    - 1) Find script - Copies various kernel structures to nowhere
    - 2) Launch script - Continuously launches trivial programs
    - 3) File move script - Continuously moves files

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Results

Largest Interrupt Latency Time Measured

Script	Interrupt latency without preemptive kernel patch	Interrupt latency with preemptive kernel patch
Find Script	78.51 ms	0.48 ms
Launch Script	0.61 ms	0.41 ms
File move script	0.62 ms	0.31 ms