



Basic Operating System (BOS)

Bernhard Danninger 0422594

Clemens Krainer 9020112



Contents

- Environment
- Highlights
- Bare Metal Live Demo
- Planned Tasks
- Questions & Answers



Environment

- GeekOS 0.3
- bochs 2.3
- gcc, nasm, vim / anjuta
- COMPAQ DESKPRO XL 590
(90 MHz Pentium I)



Highlights

- Virtual Memory Management
 - Segmentation and Paging
- Scheduling
 - Round Robin Scheduling
 - Multilevel Feedback Scheduling
- Semaphores
- IPC
 - Pipes, Message Queues
- Virtual File System Layer
 - Console, Pipes, PFAT, GosFS



Bare Metal Live Demo

- Filesystem / Pipes
 - Sender / Receiver
- Message Queues
 - Sender / Receiver
- Scheduling
 - Response Time: CPU hog vs. I/O Process
- Paging
 - Memory allocation until Paging starts



Demo: Filesystem / Pipes

- Filesystem
 - Names not in Inode (GeekOS), rather Unix like
- Pipes implemented Unix like
 - Sender: `ls /c`
 - Receiver: `more`
- Example

```
p5test
ls /c
ls /c | more
```



Demo: Message Queues (MQ)

- Implementation not GeekOS, rather Unix like
 - MQ can exist without a program
 - `fsend` places messages in MQ and terminates
 - `frecv` reads messages from MQ
- Example
 - `fsend`
 - `frecv`

Demo: Scheduling

- 2 types of test programs
 - 3x CPU hogs print green „C“
 - 4x I/O hogs print red „H“

*load program
to FS cache*

- Example

```
schedset rr 1
workload 1
workload
schedset mlf 1
workload
```

	RR	MLF
CPU	1,4 Mio	0,9 Mio
HDD	16 k	23,5 k
total	210	210



Demo: Paging

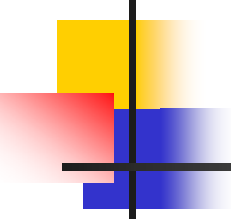
- Recursive Program that takes 1kB stack memory per recursive call
 - Each call: print dot „.“
 - Every 50 calls: print number
- 2 Algorithms: default / wsclock
- Start at 3750 descending, slows at ~150
- Example

```
rec 3750
paging-wsclock
rec 3750
```



Planned Tasks

- Documentation
- Files > 4,2 MB
- ACLs
- User Heap



Q

&

A