

OSLab5 实验报告

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Notes: 如果运行出错, 可能需要您安装 nasm & ImageMagick & gcc 4.9.2
Git 记录可查询

实验目标:

为操作系统建立文件系统, 建立根目录, 并提供搜索读取机制, 为硬件驱动增加写功能.

实验步骤:

1. 规划磁盘镜像的地址分配, 把程序提前写入镜像.
2. 在根目录文件信息初始化时增加预先写入信息.
3. 提供字符串操作函数
4. 提供根据文件名访问的方法
5. 测试

实验难点:

1. 镜像文件的地址空间分配需要提前做好安排, 不然很容易出现冲突
2. 页面大小, 目录项数, 字符大小等等有很多需要提前定义的内容, 定义需要经验性.
3. 文件读取的机制, 是否先创建内存分块镜像, 本实验中采用简单的做法, 由用户程序指定文件读入位置, 操作系统将会加载完整文件至指定位置.
4. 提供字符串比较与查找功能.

```
jerry@ooo000ooo: ~/Desktop/oslab
commit 9ff99737c8bf9d2dea4fd274caf55ba4d1cbddc4
Author: jerry/QiulingXu <bluecar2005@126.com>
Date: Sat Jul 2 20:43:58 2016 +0800

    add the function of string functions, and a root directory and read program from that point.

commit 6fb9918e5ac348446eae43c98af78df826321e2c
Author: jerry/QiulingXu <bluecar2005@126.com>
Date: Tue May 24 12:09:28 2016 -0700

    add the binary semaphore functions besides original rotation lock and now debug many bugs except one strange one list as the branch. settle this problem by rename the variable.

commit 805410229614f5c3076e7d4f44f4a63b71468ef1
Author: jerry/QiulingXu <bluecar2005@126.com>
Date: Tue May 24 08:26:13 2016 -0700

    finish the stage 3 ping pong program. PA3 officially with no bugs.

commit e03af90099b0a1e9043e94d71d450c6c6ff4dd3
Author: jerry/QiulingXu <bluecar2005@126.com>
Date: Thu May 12 02:29:20 2016 -0700

    ..

commit e930ea68c3baa9de4896cf4f1b20be8cfc6fae15
Author: jerry/QiulingXu <bluecar2005@126.com>
Date: Thu May 12 02:28:08 2016 -0700

    test for branch

commit 36eae99f4580acaf55eaa4fb802a570e0c4bc40
Author: jerry/QiulingXu <bluecar2005@126.com>
Date: Wed May 11 08:15:38 2016 -0700

    add the forkex and semaphore function

commit 629e929997ee03d4dc856e6fb554e727fef9bbdf
Author: jerry/QiulingXu <bluecar2005@126.com>
Date: Wed May 4 01:29:12 2016 -0700

    basically finish all the functions next step is to fulfill and test them
```

实验结果：

完成了讲义要求的所有功能，并且系统休眠程序仍可正常运行。

```
jerry@ooo000ooo: ~/Desktop/oslab
qemu-system-i386 -nographic -serial stdio -m 256 -monitor telnet:127.0.0.1:1111,server,nowait -vga std boot512b.img
WARNING: Image format was not specified for 'boot512b.img' and probing guessed raw.
         Automatically detecting the format is dangerous for raw images, write operations on block 0 will be restricted.
         Specify the 'raw' format explicitly to remove the restrictions.
The sva stream entry address is 0xfd000000
the pitch is 0xc00
init to pass
choos ptr:0x1204c60
kernel
timer int rcv
load process into addr 0x3000000 slot 0x1
choos ptr:0x120507c
program slot 1
it's the start of Jerry's game, enjoy it
gogo
init game pass
new syscall semaphore segoff:0x3000000 off:0x1ffffcc sid:0
get semaphore sid:0x0
get lock 0x0 a0x0
call fork
i'm process 0x0sleep call 100ms
sleep set slot:1 time:100
i'm process 0x2sleep call 100ms
sleep set slot:2 time:100
i'm alive
sleep call 100ms
sleep set slot:2 time:100
i'm alive
sleep call 100ms
sleep set slot:1 time:100
i'm alive
sleep call 100ms
sleep set slot:2 time:100
i'm alive
sleep call 100ms
sleep set slot:1 time:100
i'm alive
sleep call 100ms
sleep set slot:2 time:100
i'm alive
sleep call 100ms
sleep set slot:1 time:100
```