Lab 9 for VE482

Group 5

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1. What needs to be returned by read and write file operations for a character device?

Read: if error, -1; if success the number of bytes read.

Write: if error, -1; if success, the number of bytes written.

1. How are exactly those major and minor numbers working? You vaguely remember that you can display them using ls -l /dev.major numbers: same when driven by the same driver. It identifies the driver associated with the device.

minor numbers: unique for devices with the same driver. It is used by kernel to determine exactly which device is being referred to.

1. Knowing the major number and minor numbers of a device, how to add a character device to /dev?

mknod /dev/mydev c [major #] [minor #]

(Create a new device directly)

cdev\_add(struct cdev \*dev, dev\_t num, unsigned int count);

(add a character device to /dev)

1. Where are the following terms located in linux source code?– module\_init include/linux/module.h

– module\_exit include/linux/module.h

– printk include/linux/printk.h

– container\_of include/linux/kernel.h

– dev\_t include/linux/types.h

– MAJOR include/linux/kdev\_t.h

– MINOR include/linux/kdev\_t.h

– MKDEV include/linux/kdev\_t.h

– alloc\_chrdev\_region fs/char\_dev.c

– module\_param include/linux/moduleparam.h

– cdev\_init fs/char\_dev.c

– cdev\_add fs/char\_dev.c

– cdev\_del fs/char\_dev.c

– THIS\_MODULE include/linux/export.h

1. How to generate random numbers when working inside the Linux kernel? You think that a while back you read something about getting the current time.#include <sys/random.h>

ssize\_t getrandom(void \*buf, size\_t buflen, unsigned int flags);

1. How to define and specify module options?

Define:

By using ioctl function.

static long my\_ioctl (struct file \*file, unsigned int cmd, unsigned long arg);

List options:

modinfo -p XXXXX