PCI driver registration

Objective: Get familiar with PCI device and driver registration

After this lab, you will be able to

- Register devices supported by a PCI driver
- Register a PCI driver
- Enable a PCI device and request the I/O port and memory regions used by the device.

Setup

Go to the `/home/<user>/felabs/linux/pci` directory.

Install the `qemu` package if you don't have it yet:
`sudo apt-get install qemu`

Compile a Linux 2.6.36 kernel for `x86` with the configuration file provided in the `data/` subdirectory, and boot it through NFS on the `nfsroot/` directory, using the supplied `run_qemu` script.

We are going to work with the `ens1370.c` driver available in `nfsroot/root/`. Check that the existing template driver compiles and loads well.

PCI questions

What's the IRQ line used by this audio card device?

Find the IRQ number from userspace in your virtual system.

Find the vendor and device ids for the card, and declare the supported device in the driver code.

Also find these ids from userspace.

PCI driver registration

Register the pci driver, and see your new driver in `/sys/bus/pci/drivers`.

Add the calls to the `pci_enable_device()` and `pci_disable_device()` functions, and see a message in the console confirming the IRQ assigned to your device.

Reserve all the I/O ports for your device and see these reservations in `/proc`.