ECE373 Linux Drivers

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Assignment #3

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ECE373 (Spring 2017)
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PART 1: Digging for Details
Computer Box: AIMB-212 from Advantech

[1] Atomic Motherboards (go boom)
1a. What is the audio device?
Realtek ALC888

1b. What device is the GPIO connected to?
8-bit GPIO is connected to Super IO Winbond W83627DHG-P
(User Manual ed.1 pg7)

1c. How many network (LAN) devices are on the motherboard and what are they?
2 Ethernet LAN controllers: (User Manual ed.1 pg3)
LAN1: Intel 82567v
LAN2: Intel 82583v

1d. How many total serial ports does the box support, inside and out?
6 Serial ports in total
Rear I/O: RS-232 (x2), RS232/422/485
Internal: RS-232 (x3)

[2] Network Noodling
2a. What pins control the LEDs?
LED0: pin 31
LED1: pin 30
LED2: pin 33

2b. What address offset is the Device Control Register?
Device Control Register offset 0x00000 and 0x00004 (datasheet pg 197)

2c. What bit in the Device Control Register will force a reset of the network chip?
Device Reset bit 26, write 1b initiates reset, reset of MAC function of device (pg 202)

[3] Winken, Blinken, and Nod

3a. What register (name and address) controls the LEDs?

**Default activity can be modified in NVM. Functionality can be modified in LEDCTL.
LED Control (offset 0x00E00)

3b. What bit pattern should you use to turn off LED1?

LED1_MODE bits 11:8
LED1_IVRT bit 14

	...	14	...	11	10	9	8	...
LED1 off	X	0	X	1	1	1	1	X
LED1 on	X	1	X	1	1	1	0	X

3c. What bit pattern should you use to make LED2 blink?

LED2_MODE bits 19:16
LED2_BLINK bit 23

	...	23	...	19	18	17	16	...
LED2 blink	X	1	X	1	1	1	0	X

[4] EIEIO

4a. What company makes the Super I/O chip in this box?

Winbond

4b. Can you find the datasheet on the web?

Yes

4c. Where/how can you find this chip's datasheet if you aren't able to find it with a standard web search?

Go the the company's website.

[6] Register a PCI driver

Device ID: 0x8086, 0x150c
3:00.0 Ethernet Controller: Intel Corporation 82583V Gigabit Network Connection