

ECGR 4101/5101 - Lecture 2

①

Chapter 1 → Mfg, example of a PCB

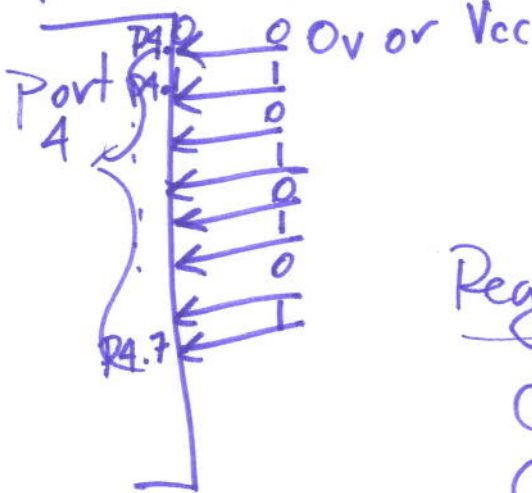
Analog - examples → Radio, power, voltage, osc

Digital → representation of pictures, o/i, mproc

Analog → continuous voltage (power/voltage, light, sound)

Digital → discrete, 0/1, 0v & Vcc
on/off

Input - Digital



Input or Output:

Port direction

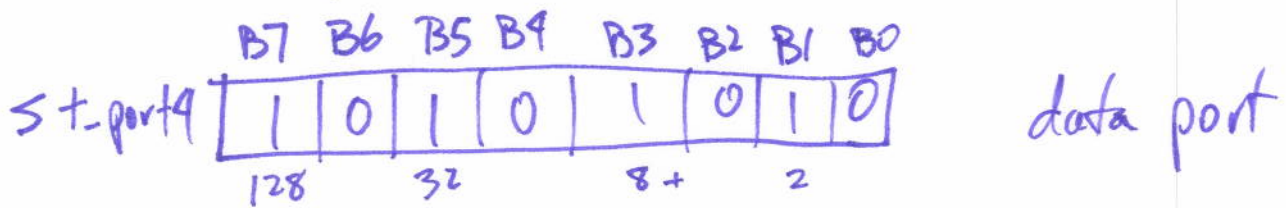
Registers:

data
Control

name

st_port 4

Example = what is on st_port 4 ?



②

```
int myinput;
```

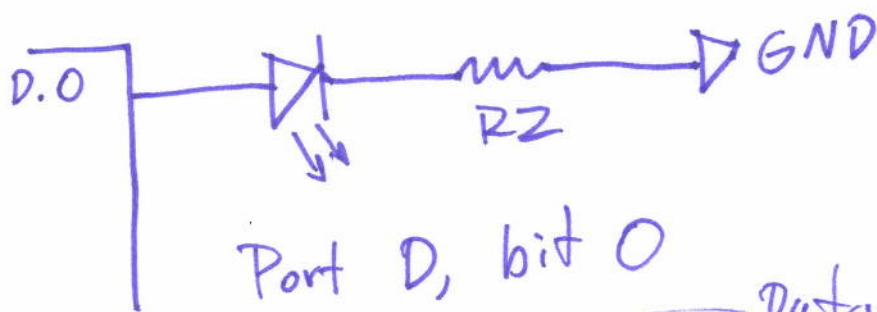
```
myinput=(int)st_port4;
```

(myinput is 170 decimal)

port direction is controlled with another register

Actually in RX62N

```
PORTD.DDR.BYTE = 0x00; // inputs
```

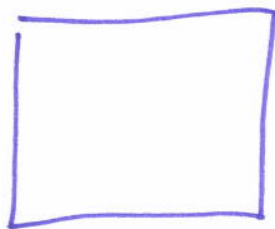


Data direction register

```
PORTD.DDR.BIT.B0 = 1; // direction = output
PORTD.DR.BIT.B0 = 1; // light the LED
```

Data Register

Actual address of PORTD.DR, PORTD.DDR is in an include file 3

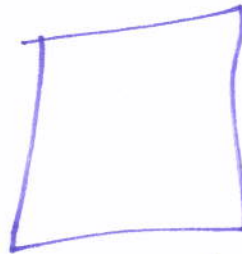


32K flash

RX62A



PORTD = 0x0000 100E



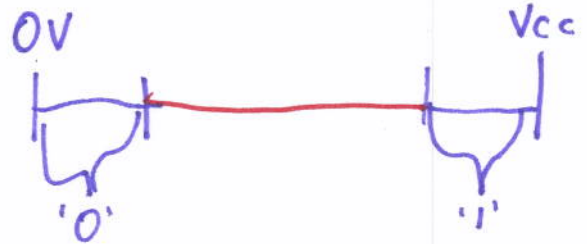
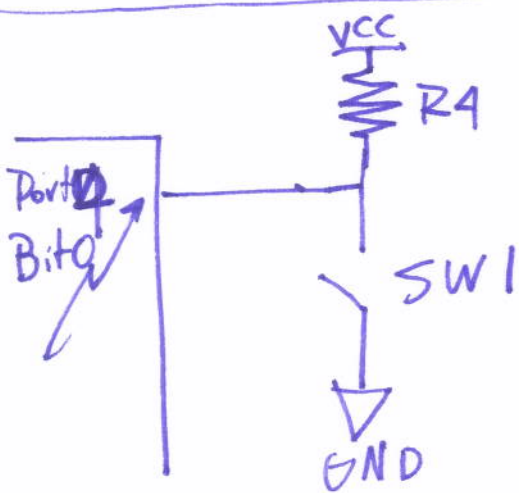
1 meg flash

RX62N



PORTD = 0x0000 103E

Include file have a mapping from ports (data registers) to hardware addresses

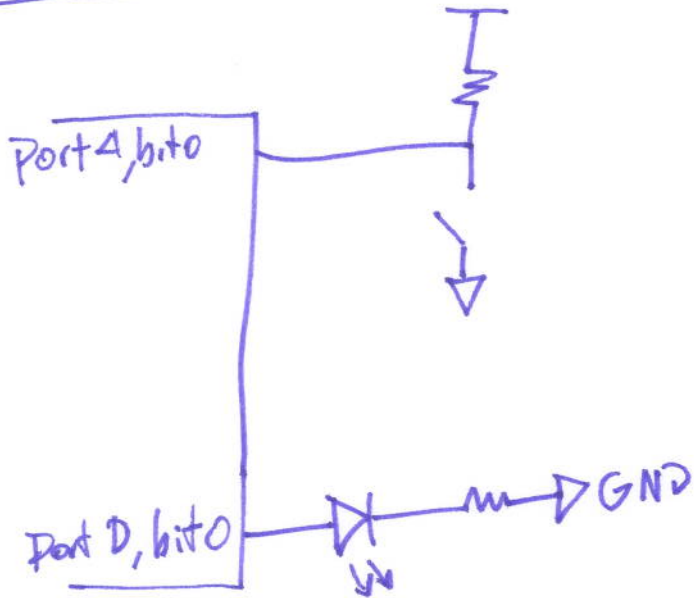


Write the code:

- 1) Direction
- 2) Read the bit & put into the variable myinput

Answer:

```
int myinput;
PORT4.DDR.BIT.B0 = 1;
myinput = (int) PORT4.DR.BIT.B0;
```



write the code to:

- 1) Directions of everything
- 2) Read the button, and if pressed, light the LED
- 3) Do this Forever

Answer

```
while (1) {
```

Hint →

this means do forever

```
}
```

Answer

```
PORT4.DDR.BIT.B0 = 0; // push button → input  
PORTD.DDR.BIT.B0 = 1; // LED → output
```

```
while (1) {
```

```
    if (!PORT4.DR.BIT.B0) PORTD.DR.BIT.B0 = 1  
    else PORTD.DR.BIT.B0 = 0;
```

```
}
```

045-00PCB-002
10-1-2010
Wagner (C) 94V-0
12 10

IMAG



P8_7
P8_6
P8_5
P7_3
P7_2
P7_1
P7_0
P10_7
P10_6
P10_5
P10_4
P10_3
P10_2
P10_1
P10_0
P8_3
P8_2
+3.3V
GND

CNUSS
P5_5
P6_7
RST
P6_0
P6_1
P6_2
P6_3
P8_0
P8_1
P6_4
P6_5
P6_6
P6_7
P7_4
P7_5
P6_6
P7_7
+3.3V
GND

