EE2361: Introduction to Microcontrollers

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Course Information

- ~~**Class webpage**~~
  - ~~**Login to http://moodle.umn.edu**~~

- **Instructor: *Kia Bazargan***
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  - ~~***Office hours*: Wed 10-11, or by appointment**~~

Rough Course Overview

Topics	"hours"	Book ch	week
Administrative remarks	.5		
Introduction, History of Processors	1.5	1	1
Processor Fundamentals and the PIC Architecture	1.5	1	1
Introduction to Assembly (Operations and Operands)	1.5	2, 3	2,3
Data Structures in Assembly Language	1.5	4	3
Basic I/O and timing (with Analog Output)	1.5	8	4
Simple Interrupts	1.5	6	5,6
Intermediate Timing	2	8	6,7
Introduction to Embedded C Language	3	5	4,5
Analog to Digital Conversion	3	12	7
Interface between C and Assembly	1.5	5	8
Serial Interfaces	3	9	8,9
Advanced Parallel I/O (configuration, interrupts)	1.5	14	10,11
Advanced Timing (PWM, Capture, Compare)	2	8	11,12
Power Management, Special Operations	1.5	15	13

Class Materials

- **Textbook (none required):**
  - **"Learning to Fly the PIC24" by Lucio Di Jasio.**
  - **"Embedded Design with the PIC18F452 Microcontroller", by Peatman**
- **PIC microcontroller manuals**
  - **PIC24FJ64GA002 Data Sheet , Programmer Ref Manual**
- **Documents posted on Moodle**
  - **Slides**
  - **Lecture notes**
  - **Additional documents (not covered in class)**

Grading Policy

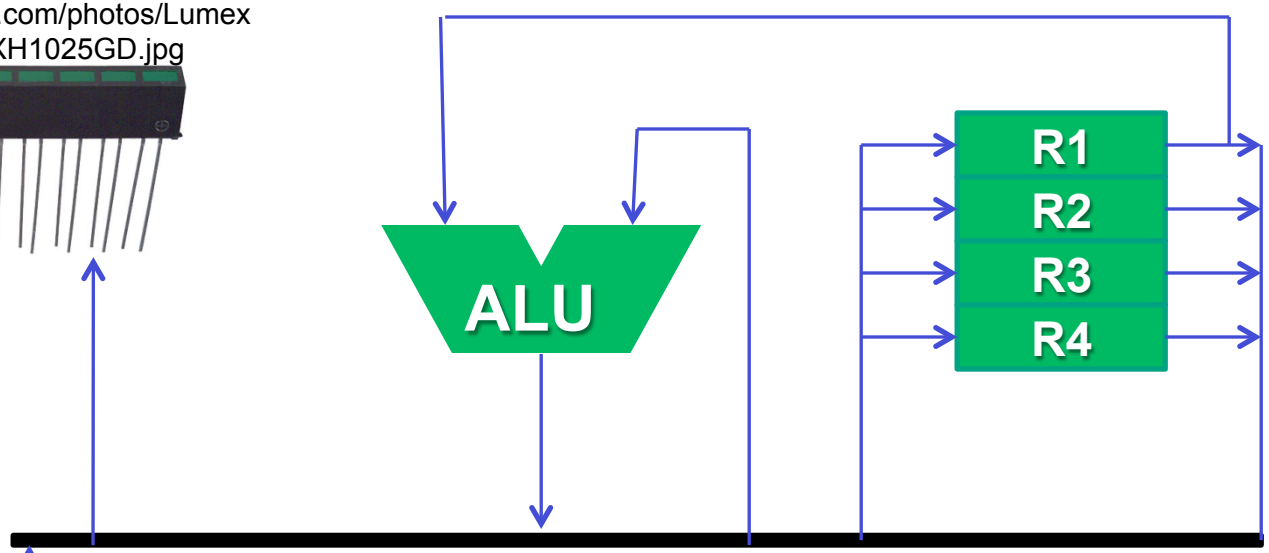
- Labs (20%)
  - 8 Labs, already posted first week's labs
  - Labs 1 and 5 are challenging
- Homework (20%)
  - 4-5 homework assignments and quizzes
- Midterm exam (30%)
  - In class, open book, open notes, calculators permitted
- Final exam (30%)
  - In class, open book, open notes, calculators permitted
  - Have to get at least 50% of the grade on the final and midterm to pass the course.

Class Policies

- **Students caught engaging in an academically dishonest practice will receive an F for the course.**
- **University policy on academic dishonesty will be followed strictly.**
  - **http://www1.umn.edu/oscai/**
- **3 days of grace period for homework submission (3 days for the whole semester)**
- **No extra work will be accepted for improving the final grade**
- **More policies on the syllabus (pdf)**

A Simple "Computer"

http://media.digikey.com/photos/Lumex%20Photos/SSA-LXH1025GD.jpg



Pull-up resistor needed?

http://www.doc.ic.ac.uk/~ih/doc/nxt-i2c/voti_switches_big.jpg

```
and     w5, w4, w4
mov     #0x9FFF, w4
mov     w4, PORTB
```

0x32C	0x628204
0x32E	0x29FFF4
0x330	0x881654

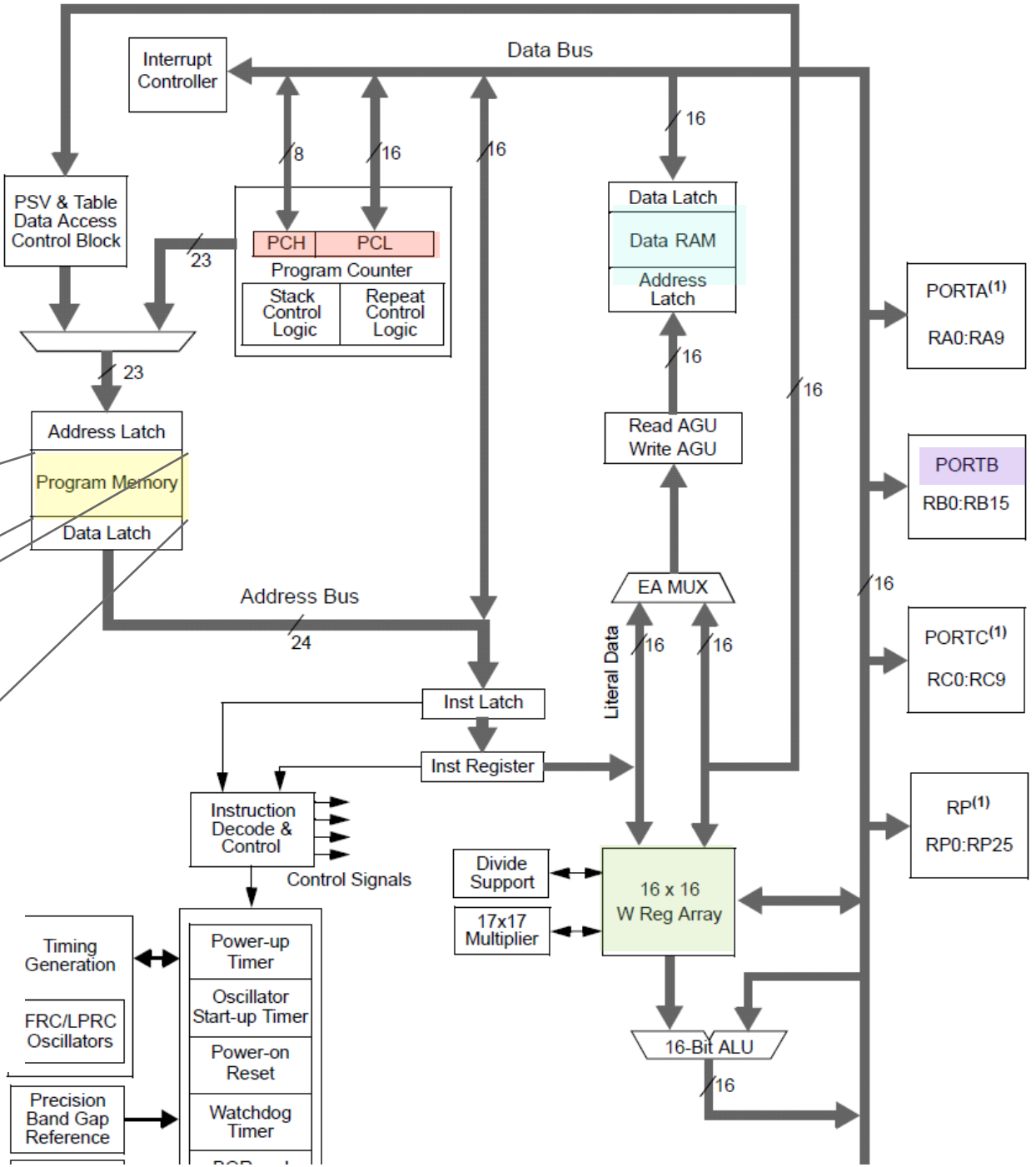


Fig from the PIC24FJ64GA004 manual