

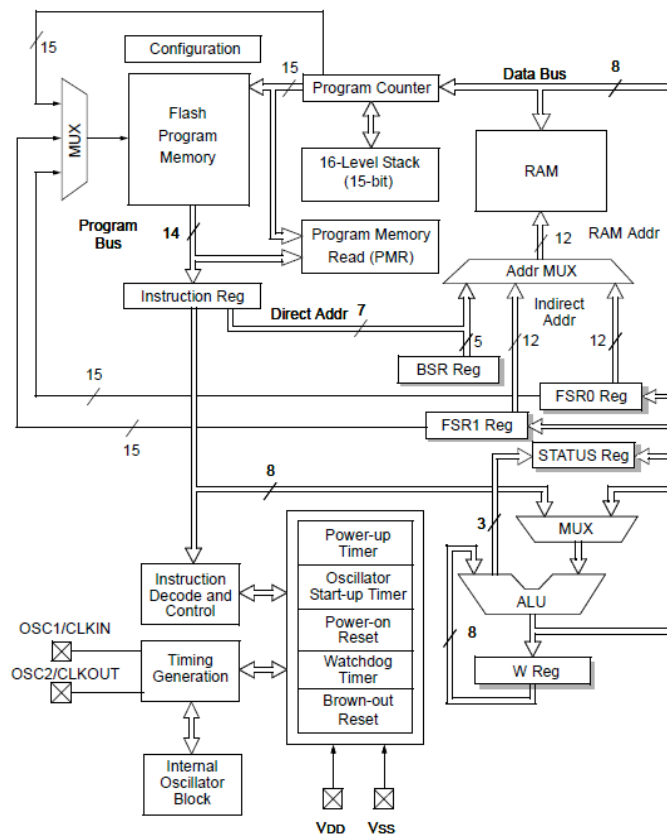
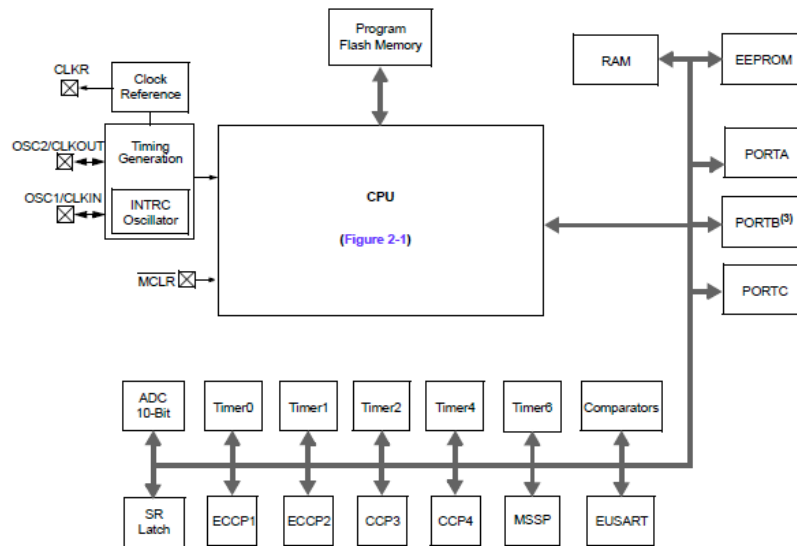
# **EECE.3170: Microprocessor Systems Design I**

Summer 2016

## Lecture 9: Key Questions June 8, 2016

1. Explain the major differences between a microprocessor and a microcontroller, including the typical features of a microcontroller.
2. Explain the major benefits and limitations of using a microcontroller.

3. Explain the general components of the PIC16F1829 block diagrams shown below.



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11. Describe the instruction formats of the PIC 16F1829.

12. Describe how variables can be declared in PIC assembly language.

13. Describe the PIC instructions for clearing or moving registers.



14. Describe the PIC instructions for manipulating a single bit.

15. **Example:** Show the values of all changed registers after the following sequence

```
cblock    0x30
    x
    y
endc
clrw
movwf     x
movlw     0xFE
movwf     y
swapf     y, F
bcf        y, 3
bsf        x, 3
movf       y, W
```

16. Describe the PIC instructions for increment, decrement, and complement operations.

17. Describe the PIC instructions for addition and subtraction.



18. **Example:** Show the values of all changed registers after the following sequence

```
cblock      0x20
    varA
    varB
    varC
endc
clrf        varA
clrf        varB
clrf        varC
incf        varA, W
sublw       0x0F
addwf       varB, F
decf        varB, F
comf        varB, W
subwf       varC, F
```