

# **DIGITAL CONTROLLER**

## **3<sup>ed</sup> STAGE**

### **CHAPTER: 4**

### **ON-CHIP EEPROM**

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# Chapter 4

## On-Chip EEPROM

**EEPROM:** it is an electrically erasable memory, and re-programmable. Once data is stored, like flash memory, it remains alive even when power is taken off, used to store various configuration / calibration data, dynamically updated lookup tables, and to remember last time active settings.

- Internally there are four special function registers used to control the reading and writing contents to the EEPROM: **①** EECON1 **②** EECON2 **③** EEDATA **④** EEADR
- PIC18F452 has EEPROM on chip.
- Memory in EEPROM is addressed as bytes. The address of first byte in EEPROM is (0) and increments by (1) successively.
- While storing and reading data to and from EEPROM, one must be careful about this addressing, as if you are storing a 16-bit data, like a word sized variable, it will occupy 2 bytes of memory, and next storage should be at address 2 bytes away.

### Writing data to EEPROM:

- **EEPROM Write** command will store data during program execution, and is therefore used mainly for updating the memory. Writing to EEPROM is somewhat slower procedure and also consumes its life cycles. Therefore, very frequent writes to EEPROM should be avoided if possible.
- Reading from EEPROM is however exceptionally good, and does not affect its life.
- Another method of writing data within EEPROM is at the time of programming. A default set of device parameters are stored at the time of chip burning, and then periodically updated as per requirements. This is done using **EEPROM Data** command.

## *Digital Controllers*

Q: Write a program using Micro C: programming the EEPROM to read and write data.  
Set device clock to 4MHz.

```
void main()
{
    unsigned int a, i;
    a=1;
    TRISC = 0;
    do
    {
        for(i=0;i<8;i++)
        {
            EEPROM_Write(i, a);
            a = a<<1;
        }

        for(i=0;i<8;i++)
        {
            PORTC = EEPROM_Read(i);
            Delay_ms(1500);
        }
    }while(1);
}
```

# Digital Controllers

