

# Control and Addresses of Pic EVB

*Designed and Written by: Dr. Eli Flaxer\**

## Control Register (DB[7..4] = '1000'):

R/W	3	2	1	0
W	WR	A0	E	RS

## Address Register (DB[7..4] = '0000'):

R/W	3	2	1	0
W	SW/Pin	Pout	Leds	Data

## Read & Write Bits:

DRD = PE2    DWR = PE1    AWR = PE0

## The Master Data bus:

DB[0..7] = PD[0..7]

## Input and Output Procedure:

The CPU communicate with the peripherals by the master data bus. All the peripherals, except the keyboard and buzzer, connected to the CPU via the CPLD. Previously to any I/O command, the user must configure the address register to communicate with specific hardware. For all output command the DRD = '0' and for all input command DRD = '1'.

To write a data to control or address registers AWR = '1' (and DRD = '0'). If the high nibble of data (DB[7..4]) is '1000' the data directed to control register, if the high nibble of data is '0000' the data directed to address register. In addition, the user can write a single bit to control register by writing the data in the below table instead of the the control byte.

	CLR	SET
RS	0xC0	0xC1
E	0xD0	0xD1
A0	0xE0	0xE1
WR	0xF0	0xF1

To write a data to peripherals AWR = '0', DWR = '1', and DRD = '0'. The specific peripheral is determined by correspondent bit in the address register. To read a data from peripherals DRD = '1' and the specific peripheral are determined by bit 3 of the address register.

If bit 0 - "DATA" in the address register is set, the Data Bus is directed to DAC or Display.

If bit 1 - "LEDS" in the address register is set, the Data Bus is directed to Leds Port.

If bit 2 - "POUT" in the address register is set, the Data Bus is directed to Ext. Bus (JP2).

If bit 3 - "SW/PIN" in the address register is set, the External Bus (JP2) is directed to DB.

If bit 3 - "SW/PIN" in the address register is clr, the Switches is directed to Data Bus.

### **Display & DAC:**

The controls of Liquid Crystal Display and Digital to Analog Converter is done by 4 bits of the control register: RS, E, A0, WR. To understanding how to use those bits, see the data sheet of LCD & DAC.

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