FW02-BIN2BCD: Routine For Binary to BCD Conversion

Description

BIN2BCD is a routine we wrote to convert 8 bit binary numbers to BCD. It is useful for displaying binary data into a user readable format (use BCD2ASC to convert BCD values to ASCII characters for display on a LCD or for serial transmission).

What's Included

BIN2BCD.INC	The conversion routine
B2B_DEMO.ASM	Demo program
P16F84.INC	PIC16F84 definitions
BIN2BCD.PDF	This file

Operation/Usage

BIN2BCD first subtracts 100 from the binary number to be converted. Each time it can do this without hitting a negative number it increments the HUND register. When it does hit a negative number it moves on to generate the 10's data. Now 10 is subtracted from the binary number; each time it can do this without hitting a negative number it increments the TEN register. What is left over when it does finally hit a negative number this time is the value for the ONE register.

To use this routine, move an 8 bit value into the W register and call BIN2BCD. The BCD output from this routine is stored in the HUND, TEN, and ONE registers.

Testing

B2B_DEMO.ASM is a program that demonstrates the BIN2BCD routine. It sets the W register to 7Fh (127d) then calls the BIN2BCD routine.

We simulated the program using MPLAB and watched the HUND, TEN, and ONE registers. Upon completion, the HUND, TEN and ONE registers contained 1, 2, and 7 respectively corresponding to a 127d value.

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