

LAB # 2**CONVERSION FROM ASCII TO PACKED BCD USING C**

1. **Title:** Introduction to compiling and debugging a C program using the MPLAB
2. **Objective:** The objective of this lab is to compile and debug a C program using MPLAB C18 compiler, to add two 16-bit numbers, each containing two ASCII numbers, and then store the result as a packed BCD byte.
3. **Prelab:**
 - i) Compile and execute the tutorial program written in C language using the MPLAB C18 Compiler (Appendix G of the book).
 - ii) Write a C language program to add two 16-bit numbers by converting each number from ASCII number representation into packed a BCD byte.
4. **Equipment, Software, and Components required:**
Microchip's MPLAB C18 Compiler /Debugger
5. **Description (corresponding topics covered in the textbook):**
ASCII numbers are 8-bit numbers with the high 4 bits as 0011_2 or 3_{10} . These numbers can be converted to packed BCD by masking off the high 4 bits. Since the numbers to be added are 16-bit wide, one can convert the numbers into 8-bit packed BCD by masking off the high 4 bits of each ASCII number. The high byte can be shifted 4 times to the left and logically ORed with the low byte. The two converted 8-bit packed BCD numbers can then be added.
6. **Prerequisites:** Sections 1.2.2 and 1.2.3, Pages 10-11
7. **Procedure:**
Compile, debug, and verify the C-program written for Prelab 3 ii).

8. Deliverables:

i) Postlab

Write a PIC18F assembly language program to accomplish the above.

ii) Lab report

Submit a final Lab report (Staple Signed prelab and typed postlab at the end of the quarter or semester).

8. Concluding remarks:

- Complete each prelab before coming to the lab. Please get it signed.