

# PC Assembly Language

Paul A. Carter

March 20, 2005

Copyright © 2001, 2002, 2003, 2004 by Paul Carter

This may be reproduced and distributed in its entirety (including this authorship, copyright and permission notice), provided that no charge is made for the document itself, without the author's consent. This includes "fair use" excerpts like reviews and advertising, and derivative works like translations.

Note that this restriction is not intended to prohibit charging for the service of printing or copying the document.

Instructors are encouraged to use this document as a class resource; however, the author would appreciate being notified in this case.

# Contents

<b>Preface</b>	<b>v</b>
<b>1 Introduction</b>	<b>1</b>
1.1 Number Systems . . . . .	1
1.1.1 Decimal . . . . .	1
1.1.2 Binary . . . . .	1
1.1.3 Hexadecimal . . . . .	3
1.2 Computer Organization . . . . .	4
1.2.1 Memory . . . . .	4
1.2.2 The CPU . . . . .	5
1.2.3 The 80x86 family of CPUs . . . . .	6
1.2.4 8086 16-bit Registers . . . . .	7
1.2.5 80386 32-bit registers . . . . .	7
1.2.6 Real Mode . . . . .	8
1.2.7 16-bit Protected Mode . . . . .	9
1.2.8 32-bit Protected Mode . . . . .	10
1.2.9 Interrupts . . . . .	10
1.3 Assembly Language . . . . .	11
1.3.1 Machine language . . . . .	11
1.3.2 Assembly language . . . . .	11
1.3.3 Instruction operands . . . . .	12
1.3.4 Basic instructions . . . . .	12
1.3.5 Directives . . . . .	13
1.3.6 Input and Output . . . . .	16
1.3.7 Debugging . . . . .	16
1.4 Creating a Program . . . . .	18
1.4.1 First program . . . . .	18
1.4.2 Compiler dependencies . . . . .	22
1.4.3 Assembling the code . . . . .	22
1.4.4 Compiling the C code . . . . .	23
1.4.5 Linking the object files . . . . .	23
1.4.6 Understanding an assembly listing file . . . . .	23

End of ebook preview

Download the full PDF tutorial from the link below :

[Click Here](#)