ASC PRIMER
TABLE OF CONTENTS

1. The Background of ASC 2
1.1 Introduction 2
1.2 SIMD Machines the Target Architecture 2
1.3 Associative SIMD Computers 2
1.4 The ASC Emulator 3
1.5 The Associative Computing Model 3

2. Getting Started
2.1 How to Execute ASC programs on the Emulator 4
2.2 Program Structure 4
2.3 Defining Constants 5
2.4 Reserved Words 5
2.5 Declaring Variables 5
2.6 Multi-Dimensional Variables 6
2.7 The DEFVAR Statement 7
2.8 The Scalar IF Statement 7
2.9 Establishing Associations between Variables 8
2.10 Operators in ASC 9
2.11 Parallel Arithmetic Operations 9
2. 12 The Assignment Statement 9
2.13 Comments, Delimiters, and Program Lines 11
2.14 Embedded Assembler Code 11

3. Parallel Input and Output 12
3.1 The Parallel READ Statement 12
3.2 The Input File 12
3.3 The Parallel PRINT Statement 13
3.4 The MSG Statement 13

4. Parallel Searching 15
4.1 The SETSCOPE Statement 15
4.2 The Parallel IF-THEN-ELSE Statement 15
4.3 The Parallel IF-NOT-ANY Statement 16
4.4 The ANY Statement 17

5. Looping and Retrieving 20
5.1 The LOOP-UNTIL Statement 20
5.2 The Parallel FOR-LOOP Statement 21
5.3 The Parallel WHILE Statement 21
5.4 The NEXT Statement 22
5.5 The GET Statement 23

6. Programming at Large 25
6.1 Modular Programming: The CALL Statement 25
6.2 Using Subroutines 26
6.3 The INCLUDE File Statement 26
6.4 The MAXVAL and MINVAL Functions 27
6.5 The MAXDEL and MINDEL Functions 27
6.6 The COUNT Function 28
6.7 The NthVAL and NthDEX Functions 28
6.8 Interprocess Communications 28
6.9 ASC Pronouns and Articles 29
6.10 Dynamic Storage Allocation 30
6.11 The ASC Performance Monitor 30
6.12 ASC Recursion: The STACKWHILE-RECURSE Construct 31
6.13 Complex Searching: The ANDIF and ANDFOR Statements 31
6..14 ASC Debugger 32

7. Bibliography 33

8. Appendices: Examples and ASC Specifications 34
Appendix A - A Parallel Sort Example 34
Appendix B - The Minimal Spanning Tree Example 35
Appendix C - Traveling Salesman Problem Example 36
Appendix D - Specifications for ASC Language 39
ASC Program Format 39
Reserved Words 39
ASC Operators 40
ASC Functions 40
ASC Statements 41-42

Note: The coded ASC examples may require a few minor corrections, as the complier has been modified since they were created, etc. However, they should be "essentially correct" and serve as useful examples as to how to code in the ASC Language.