Aztec C II is a complete implementation of the "C" language. Aztec C II is not a subset. It has full standard support for "C" as defined by Dennis M. Ritchie and Brian W. Kernighan in their book, *The C Programming Language.*

Aztec C II is not just a great "C" compiler. It is a comprehensive software development system that includes a compiler, relocating assembler, linkage editor, and librarian. It can also be used with the MICROSOFT MACRO-80 assembler and it supports the Digital Research SID/ZSID symbolic debugger.

Aztec C is portable. It is currently available for CP/M (MP/M), HDOS, APPLE CP/M, and APPLE DOS. In the first half of 1983 Aztec C II will be released for CP/M-86 (MP/M-86), IBM PC DOS, MSDOS, CP/M-68K, and UNIX. It will also be released for the following machines: TRS-80 model III, ATARI 800, and COMMODORE 64. It is also compatible with UNIX version 7 "C". There are several cross compiler options available. This wide range of compatible "C" compilers provides for easier conversion of code which significantly reduces conversion overhead.

There are no royalty requirements for composite programs or programs that use the run time library routines.

The outstanding performance, impressive features, and modest price of Aztec C II make it one of the most worthwhile software purchases you can make.

AZTEC C II FEATURES

Basic Components

- ► "C" compiler, relocating assembler, linkage editor, librarian, utilities, run time support routines, and owners manual

Compiler

- ► All C Operators including full standard support for float, double and longs
- ► Storage classes: auto, static, extern, register, typedef
- ► Data types: char, short, long, unsigned, float, double, int, union, struct
- ► Multi-dimensional arrays
- ► Data initialization including statics and structures—all expressions
- ► If, while, do, for, switch, case, goto
- ► # define (macro), # include
- ► Produces relocatable assembler code
- ► Supports assembler subroutines and imbedded assembler code
- ► Conditional compilation with # ifdef, # ifndef, # else, # endif
- ► Interfaces with MICROSOFT M80 or MANX AS/80 relocating assembler
- ► Generates 8080 only or Z80 code (with 8080 mnemonics)

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Assembler

► Accepts 8080 mnemonics

► Produces relocatable object files

Linker

► True extern support for multi-module linking and library support

► Overlay linker

► Librarian utility to create, modify, or extend system and user libraries

Debugging

► Interfaces with SID/ZSID debugging system

Run time support

► Command line arguments using argc and argv

► Large run time library supplied with source

► Full stream and block I/O support including printf, scanf, and random I/O

► Scientific math functions

► I/O redirection

General

► Fast compilation and execution

► Source compatible with Aztec C II for APPLE DOS 3.3

► Source compatible with Aztec C86 for IBM PC, CPM/86, and MSDOS

REQUIREMENTS

Aztec C II requires 56K of memory (48K for TPA with 8K assumed used by system) and CP/M 2.2, CP/M 3.x, or any MP/M. Aztec C II for APPLE CP/M requires a 16K (or "language") card and lower case ability. The compiler, assembler, linker, and libraries require approximately 150K of disk space. Disk space requirements will vary since there are several compilers and libraries provided on the distribution disks.

DOCUMENTATION

The owner's manual is supplied with the package and details the use of the system including compiler, assembler, linker, librarian, a description of the MICROSOFT M80 interface, and Digital Research SID/ZSID debugger interface. There are also some short examples of Aztec C II programs with the resulting assembler output, and a complete description of the function and format of the standard library routines.

We recommend that you obtain a copy of Kernighan and Ritchie's *The C Programming Language* for use as a reference text. This book is not supplied with the standard package, but is available for purchase from Manx Software.

UPDATES

Updates are available with appropriate documentation for a nominal fee. Also available is an annual automatic update service.

Aztec C II for Apple DOS is a complete software development system that offers a full feature UNIX v7 compatible "C" compiler. The system consists of a "C" compiler that generates extremely fast executing 6502 code, a pseudo code "C" compiler that generates terse interpreted code, a 6502 relocating assembler, a linkage editor, a librarian, a UNIX like SHELL system, a full screen program editor, an extensive run time library with full IO, storage, and string handling routines, and a set of system utilities.

The "C" compilers provided in this system are source compatible with Aztec C compilers available for 8080, 8085, Z80, 8086, 8088, and other 6502 based systems. A number of cross compilers are available including A UNIX to 6502 cross compiler.

MAJOR COMPONENTS AND THEIR FEATURES

CC:
- ► Full C compiler—supporting all data types but bit fields
- ► Compiler produces fast executing 6502 assembler code
- ► Easily interfaced with CCI pseudo code
- ► Easily interfaced with 6502 assembly language routines

CCI:
- ► Full C compiler—supporting all data types but bit fields
- ► Compiler produces space-saving pseudo-code interpreted at run time
- ► Easily interfaced with CC 6502 code
- ► Easily interfaced with 6502 assembly language routines

SHELL:
- ► UNIX-like command parsing complete with argument passing
- ► Input/Output redirection to files or devices'
- ► Built-in file manipulation utilities:

lock	unlock	rm
cp	mu	cat

- ► Built-in machine language support:

boot	bye	call
load	save	run

- ► Real device drivers which can be written and/or customized by the user
- ► Dynamically loaded device drivers
- ► Shell files for executing common sequences of commands
- ► Runs in RAM card allowing maximum program space
- ► Programs loaded automatically from drive other than current (cd, ce)

ASI:
- ► Assembles pseudo-code assembly language into relocatable object module.

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MAJOR COMPONENTS AND THEIR FEATURES *(continued)*

AS65:
- ► Assembles 6502 assembly language into relocatable object module
- ► Standard MOS Technology format

LN:
- ► Linkage editor that creates binary files that execute in the Aztec SHELL environment or Apple DOS environment.
- ► Input to the lingage editor can be any combination of 6502 native code produced by the assembler or "C" compiler, pseudo code, system run time library routines, or user run time library routines.
- ► A utility is provided to modify system run time libraries, or to create and maintain user run time libraries.
- ► Routines from system and user run time libraries are included in the binary program file created by the linker only if they are referenced.

VED:
- ► Full screen editor
- ► Long lines wrapped on screen
- ► Character insertion/deletion
- ► Line insertion/deletion
- ► Search capability
- ► Control characters displayed, i.e. ^A

ARCH:
- ► Archive and library utility
- ► Create archives of any type of file, text, binary, etc.
- ► File types may be intermixed
- ► Archives may be added to at any time
- ► Files extracted selectively or completely
- ► Space-saver for library source
- ► Archive of relocatable object modules can be used as a library searched by linkage editor

REQUIREMENTS

Aztec C II for APPLE DOS 3.3 requires a 6502 APPLE with a 16K ram card and DOS 3.3. Two disk drives are recommended. Programs created with Aztec C II do not require a 16K ram card.

DOCUMENTATION

The owner's manual is supplied with the package and details the use of the system including compilers, assemblers, linker, librarian, and a complete description of the function and format of the standard library routines.

We recommend that you obtain a copy of Kernighan and Ritchie's *The C Programming Language* for use as a reference text. This book is not supplied with the standard package, but is available for purchase from Manx Software.

UPDATES

Updates are available with appropriate documentation for a nominal fee. Also available is an annual atuomatic update service.

STANDARD LIBRARY FUNCTIONS

Buffered File I/O   **(K & R chapter 7)**

agetc/aputc	—ASCII version of getc/putc
fclose/fopen	—close/open file
fgets/fputs	—read/write string
fread/fwrite	—buffered read/write
printf/fprintf/sprintf	—formatted output conversions
scanf/fscanf/sscanf	—formatted input conversions
fseek/ftell	—set/test current file position
getc/putc/ungetc	—get/put/unget a character
getchar/putchar	—read/write standard input/ output
gets/puts	—read/write a line
getw/putw	get/put word

Unbuffered I/O   **(K & R chapter 8)**

open/close/creat	—open/close/create file
iseek/posit	—position file to character record
read/write	—read/write buffer
rename/unlink	—rename/erase a file

String Manipulation

atof/atoi/atol	—convert ASCII to float/ integer/long
ftoa	—converts float to ASCII
index/rindex	—search for character
strcmp/strncmp	—compare strings
strcpy/strncpy	—string copy
strien	—length of string

Utility Routines

alloc/blockmv/clear	—allocate/move/initialize storage
format	—format data
isdigit/islower/isupper	—test digit/lower case/ upper case
isspace	—test space
tolower/toupper	—converts to lower/upper case

Operating System Interface (CP/M)

bdos	—calls bdos
bios	—calls the BIOS
bioshl	—calls the BIOS
cpm	—calls bdos
exit	—returns to operating system
fcbinit	—initializes file control blocks
settop	—bumps top of program memory

Math and Scientific Routines

acos/asin	—arc cosine/arc sine
atan/atan2	—arc tangent
cos/sin	—cosine/sine
cosh/sinh	—hyperbolic cosine/sin
tan/cotan	—tangent/cotangent
exp/pow/sqrt	—exponential/power/square root
log/log10	—natural log/log base 10
tanh/cotanh	—hyperbolic tangent/ cotangent

Specific implementations may have differences from the general descriptions given here.

DATA FORMATS

TYPE	LENGTH	RANGE
char	8 bits	0 to 255 (ASCII character set)
short	16 bits	-32768 to 32767
int	16 bits	-32768 to 32767
unsigned	16 bits	0 to 65535
long	32 bits	$-2^{**}32-1$ to $2^{**}32-1$
float	32 bits	$-2.9*10^{**}-157$ to $5.2*10^{**}151$
double	64 bits	$-2.9*10^{**}-157$ to $5.2*10^{**}151$

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ITEM NUMBER	DESCRIPTION	UNIT PRICE
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AC02B	AZTEC C II APPLE CP/M 5"	199
AC03C	AZTEC C II OSBORN 5" CP/M	199
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IC22J	AZTEC C86 IBM CP/M-86 5"	249
IC23K	AZTEC C86 CP/M-86 8"	249
IC24L	AZTEC C86 MANUAL ONLY	30
LM90M	"THE C PROGRAMMING LANGUAGE"	20
LM91N	"THE C PUZZLE BOOK"	18
LM92O	"LEARNING TO PROGRAM IN C"	25

OTHER DISK FORMATS ARE AVAILABLE.
AZTEC C86 WILL BE AVAILABLE AFTER 5/83.

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September 1982

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