flyer number 13

the digital group

po box 6528 denver, colorado 80206 (303) 777-7133

software
OASIS operating system
MCOS operating system

hardware
96-character video interface
tractor-feed printer

MORE SOFTWARE

The Digital Group is delighted to announce not one, but two, major disk-based operating systems for its Z-80 based computers and their associated languages. It's our opinion that MCOS and OASIS are major extensions to the programming power available to today's microcomputer systems.

And best of all, they are available for use on Digital Group Systems. MCOS is available for immediate shipment and OASIS will be available May 15. (Extensive preliminary OASIS documentation is now available.)

OASIS and its upcoming extensions will form the base for future applications on larger Digital Group Systems.

In addition, we have two hardware announcements — a 96-Character Video Interface and a professional Tractor-Feed Printer.

FLYER NEWS

As you may have noticed, our first complete product line catalog is somewhat behind schedule. However, we did not want to wait to announce these new products so we're sending this flyer. The Bytemaster, however, is on schedule and will be shipped in quantity in May. In addition, for those of you who wish to significantly expand your memory and take full advantage of the new operating systems we've got a special through April 30. Either OASIS or MCOS plus 16K or 32K of memory at these packaged prices:

ORDER CODE	DESCRIPTION	PRICE
OASIS-16D	OASIS + 16K (MEM-16D)	$415
OASIS-32D	OASIS + 32K (MEM-32D)	$695
MCOS-16D	MCOS + 16K (MEM-16D)	$425
MCOS-32D	MCOS + 32K (MEM-32D)	$720

OASIS

OASIS is a totally integrated disk-based Z-80 operating system with extensive support and languages plus full ISAM support.

Major OASIS components available May 15:

Operating System (ORDER CODE = OASIS)
- Utilities (commands)
- File Management (including ISAM files)
- System Editor
- Exec Language

Extended BASIC Interpreter (O-BASIC)

These OASIS modules will be available June 15:

Word Processor (SCRIPT)
Z80 Macro Assembler (OASIS-ASSM)
- Assembler
- Debugger
- Linking Loader

All of these components operate with each other in an integrated fashion. The OASIS system requires at least 34K of memory, TVC-64 or TVR-96, and uses mini or standard disks (2 recommended).

The device-independent architecture of the OASIS operating system allows:
- Upgrading devices with minimal system impact.
- Devices to be dynamically attached and detached from the system.

Devices supported May 15:
• Standard Floppies	(DSS-COMP$_n$)
• Mini-Floppies	(DSM-COMP$_n$)
• Standard Keyboard	(KEY1-COMP)
• 64-Char Video	(TVC-64)
• 96-Char Printer	(PT96-COMP)
• Tractor-Feed Printer	(PT-TRAC$_n$)

Devices supported June 15:
• Phideck—as data storage	(PHI$_n$-COMP)
• Audio—as data storage	(CAS-1)
• 96-Char Video	(TVR-96)

COMMAND FUNCTION

ATTACH	Make a disk drive available to OASIS and assign a name to its directory
ASSIGN	Assign files or devices to I/O channels for BASIC
*ASSEMBLE	Assemble Assembler Language source code
BASIC	Load the BASIC Interpreter and optionally execute a BASIC source program
BACKUP	Copy the entire contents of a diskette to another diskette
COPYFILE	Copy a file or group of files to another file or group of files
CREATE	Create a new direct or indexed sequential file
*DEBUG	Load and execute the on-line debugger
DUMPDISK	Display the contents of a file or disk on the CRT or printer in hexadecimal or ASCII
EDIT	Create or modify an ASCII sequential file
ERASE	Delete a file or files from a diskette
EXEC	Change the input to the CSI to an indirect command file
FILELIST	Display the files and their attributes on the CRT, printer, or to a disk file
INITDISK	Initialize a diskette format, directory, or label
*LINK	Create a memory image file on an assembled program
LIST	Display the contents of a file on the CRT or printer
MEMTEST	Perform diagnosis of memory
MOUNT	Allow a change of diskettes
RENAME	Change the name or type of an existing file
RUN	Execute a BASIC source program
*SCRIPT	Print documents according to the control words in the file
SET	Change OASIS system parameters
SHOW	Display OASIS system parameters
SYSGEN	Permanently save SET and ATTACH status

*AVAILABLE JUNE 15

FILE MANAGEMENT

OASIS File Management supports many types of files:

- Keyed access (ISAM)
- Random direct
- Sequential
- Program
- Libraries

EXEC LANGUAGE

• Enables the programmer to specify initial program loads, defines system command sequences, and provides the end user with a graceful means to implement complex and sophisticated system functions.

SYSTEM EDITOR

• Allows extensive creation and modification of: a) BASIC Programs b) ASSEMBLER Programs c) EXEC Programs d) Text (letters, manuals, etc.) • Macro Commands • Global Search / Locate / Replace • Automatic Prompting • Line, Word and Character Insert, Delete and Replace

ORDER CODE = OASIS

BASIC INTERPRETER

• Supports all file structures including keyed access (ISAM) • Cursor Control • Chaining and Linking • Multiple Statements on a Line • PrintUsing • Protected Fields • Extensive String Functions • Access to Device Handlers • Interacts with EXEC Language • Extended Precision • Get Memory (PEEK) and Put Memory (POKE) • Read Device (GET) and Write Device (PUT) • **ANSI** Compatible

BASIC INTERPRETER LANGUAGE SPECIFICATIONS

STATEMENTS

All statements may be executed in immediate mode (w/o line numbers).

IF...THEN...ELSE	LINPUT
IF...GOTO...	STOP
REM	END
FOR...=...TO...STEP	PROMPT
NEXT	NULL
LET	CHAIN
DIM (Numeric and String Arrays)	ERASE
RANDOMIZE	OPEN
GOTO	CLOSE
ON ... GOTO	LINK
ON ... GOSUB	MOUNT
GOSUB	OPTION
RETURN	SLEEP (delay)
READ	POKE/PEEK
DATA	PUT
RESTORE	WAIT
PRINT	READ NEXT
PRINTUSING	WRITE
INPUT	RUN

COMMANDS

All commands may be used as a BASIC statement in a program.

CONTINUE	PUNCH
LENGTH	QUIT
KEY	RUN
LIST	SAVE
LPLIST	TAPE
LOAD	DELETE
NEW	

FUNCTIONS

ABS(X)	RPT(N1,A$)
ATN(X)	LEF(A$,N)
COS(X)	RIG(A$,N)
EXP(X)	MID(A$,N1,N2)
FIX(X)	LEN(A$)
INT(X)	SCH(N1,A$,B$)
LOG(X)	SPA(N)
PI	STR(N)
RND	VAL(A$)
RND(X)	DTE(A$)
SGN(X)	CRT(N1,N2)
SIN(X)	INP(X)
SQR(X)	POS(X)
TAN(X)	TAB(X)
HEX(A$)	NBR(A$)
MOD(X,Y)	EOF(X)
CRT(A$)	EXT(A$,N1,N2)
PEEK(X)	REP(A$,N1,N2,B$)
GET(X)	INS(A$,N1,N2,B$)
FRE(X)	DEL(A$,N1,N2)
OVR(A$,X,Y,B$)	LAN(N1,N2)
DAT(A$)	LOR(N1,N2)
DAT(X)	LXO(N1,N2)
SEC(A$)	LNO(N1)
TIM(X)	LSL(N1,N2)
ASC(A$)	LSR(N1,N2)
CHR(X)	LRL(N1,N2)
RPT(N1,N2)	LRR(N1,N2)

ORDER CODE = O-BASIC

WORD PROCESSOR (SCRIPT)

• Produces a) manuals b) letters c) manuscripts d) documents • Allows a) justification b) headings c) footings d) automatic page numbering • Generates table of contents, chapters, sections, etc.

ORDER CODE = SCRIPT

Z80 MACRO ASSEMBLER, DEBUGGER, AND LINKING LOADER

• Supports complete Z-80 instruction set • Symbolic or Absolute Addressing • Conditional Assembly • Listing Control • Symbol Table and Cross Reference • Generates Absolute or Relocatable Code • Macros

DEBUGGER

• Disassembler • Sets break points • Modify or inspect registers • Trace - Single Step Mode • Symbolic Assembling • Read and Write to Disk • Has Calculate Mode

LINKING LOADER

• Combines and edits modules to produce a single load module that can be brought into main storage for execution by program fetch

• Provides several processing facilities (such as overlays, output map and cross-reference listings) that are performed automatically or in response to control statements.

ORDER CODE = OASIS-ASSM

MCOS

Introduction

MCOS is an advanced-floppy-disk operating system designed just for Digital Group's disk based Z-80 microcomputers by Micro Com. MCOS provides the user with full control of all disk facilities and advanced and extended features such as: named file structure, dynamic file space allocation, random and sequential file access, batch processing, automatic batch processing on start up, program editing and instantaneous program load and execution - - all of which results in facilities superior to those in some large-scale computers.

MCOS is the central point of Micro Com's extensive disk-based software. Thus, all of Micro Com's disk-based software has coherence. Such software includes the compilers, assembler and text-processor. MCOS differs from OASIS in that it is compatible with CP/M (MCOS is a superset of CP/M).

COMMAND DESCRIPTION

MCOS Commands

BYE	Shutdown system preventing unauthorized use of the system
DIR	List entire directory or selected portions and display how much space those files occupy
ERA	Erase selected file entries, groups of files or entire disk contents
REN	Rename files or group of files
SAVE	Save contents of memory and assign a file name to it
TYPE	Type the contents of an ASCII file at the console or list device
@	Is the batch processing feature of MCOS, which allows the submittal of a job stream file for automatic execution
COPY	Copy entire disk contents from any drive to another drive
EDIT	Current version of the system text editor. The text editor is used to generate batch job files, and BASIC source programs, assembler source programs, and text for the word-processor
FORMAT	Format disk surface in IBM-standard format
STRIP	Remove non-ASCII characters from ASCII file
TYPEPAGE	List file in page format at the console or printer
VERIFY	Verify the integrity of data recorded on the disk without destroying its contents
WRTSYS	Write new system image on boot tracks
XFER	Is the file transfer program. It allows transfer of files between devices and disk files, file concatenation, transfer with verification as well as comparison
XSTAT	Report disk status, including space left and number directory entries

MCOS is distributed on a soft-sectored IBM compatible diskette, along with complete documentation for its operation. A special bootstrap EPROM for instantaneous system start up is also provided.

ORDER CODE = MCOS

C-BASIC

C-BASIC is a comprehensive compiler/interpreter meant for the development of business and financial applications. C-BASIC runs with MCOS.

STATEMENTS - GENERAL

Line numbers are optional in C-BASIC programs except when required on lines referenced by GOTO. GOSUB, etc. Long variable names (up to 31 characters) and remarks may be used freely since they do not affect the size of the program after compilation. Numeric precision is 14 digits.

STATEMENT TYPES

LET	WHILE
IF . . . THEN line number	WEND
IF . . . THEN any statement	STEP
IF . . . THEN . . . ELSE . . .	STOP
FOR	L PRINTER
NEXT	CONSOLE
GOTO	POS
GOSUB	TAB
RETURN	INPUT "STRING"
ON . . . GOTO list	INP
ON . . . GOSUB list	PEEK
RANDOMIZE	POKE
PRINT	CALL
READ	PRINT USING
OUT port, data	DATA
RESTORE	REM
END	DEF FN
DIM	

FUNCTIONS

ABS(X)	TAB(X)
ATN(X)	EXP(X)
COS(X)	TAN(X)
FRE	ASC(A$)
INP(X)	CHR$
INT(X)	LEFT$(A$,length)
LOG(X)	LEN(A$)
POS(X)	MID$(A$,start, length)
RND	RIGHT$(A$,length)
SGN(X)	STR$(X)
SIN(X)	VAL(A$)
SQR(X)	MATCH

DISK FUNCTIONS

RENAME	CREATE
SIZE	DELETE
OPEN	IF END
CLOSE	FILE

Four forms of "read" and four forms of "print" can access disc files, randomly or sequentially with fixed or variable record lengths.

ORDER CODE = C-BASIC

E-BASIC

A hobbyist oriented BASIC compiler/interpreter that features sequential and random diskette file capabilities, a wide range of predefined functions, user-defined functions, and strings up to 255 characters long. Arrays may have any number of subscripts and may be string or numeric. In a string array, each element can be a string of up to 255 characters. Numbers in E-BASIC are represented internally in binary floating point and approximately 7 significant decimal digits are carried. E-BASIC has no provision for formatted printing nor for calling machine language subroutines. These and other extensive features are in C-BASIC, a business oriented BASIC compiler.

Unlike most microcomputer BASICs, E-BASIC is not interactive. Instead of typing statements into the BASIC language processor, the user prepares a file containing the desired program (usually the editor is used to do this), compiles it with the E-BASIC compiler, then with the E-BASIC run-time interpreter executes it as many times as he wishes.

ORDER CODE = E-BASIC

RELOCATING MACRO ASSEMBLER

A relocating macro-assembler is the most sophisticated programming tool yet developed for a micro-processor. In terms of number of functions, scope of abilities, and usefulness, it has no comparison.

Here are some of its features:

- Generates fully relocatable object code so that the programs you write can be relocated anywhere in memory.

- Has complete macro-generation capability, with infinite nesting of macros.

- Uses an opcode set for the Z-80 developed by TDL's software engineers for ease of learning and optimum 8080 compatability. The 8080 subset of the Z-80's instructions has the same opcodes as the familiar INTEL mnemonics. And, when specific Z-80 functions resemble these functions, the TDL mnemonics are logical extensions of opcodes. Your current 8080 source can be reassembled directly by this assembler, with only minor text editing necessary.

- The Macro-Assembler contains a "switch" which can be set to "8080 opcodes only", thus it generates 8080 software with no chance that Z-80 opcodes will be slipped in.

This Macro-Assembler has been fully implemented in the MCOS environment. Source statements reside on the disk and all generated object code is returned to the disk so that large source files can be assembled quickly.

ORDER CODE = MCOS-ASSM

TEXT OUTPUT PROCESSOR

The Text Output Processor is a general purpose word-processor for the Z-80. Used in conjunction with the Text-Editor and MCOS, it provides POWERFUL word-processing capability.

The use of the Processor is straight forward.

The Text Output Processor has a number of commands that you simply enter into the text while you are text editing. Then, you take the output of the editor, run it through the Processor, and its output is formatted as you have commanded.

The variety of applications for this word-processing power is limited only by your imagination.

The TOP functions under MCOS. Text files reside on the disk, giving unlimited word-processing power.

ORDER CODE = MCOS-TOP

UTILITY ROUTINES PACKAGE

This utility package is a collection of 'external' commands directly executable by MCOS. These commands will alleviate disk file maintenance and basic machine interfacing tasks. A minimum of 20 command files are included in the disk and are fully described in an ASCII DOC file on the disk itself. Some of these utilities are:

AUDIOROM	RAM image of Digital Group's Audio boot EPROM. It allows the system to behave as an audio-based system and to use older audio tapes
PHIROM	RAM image of Digital Group's PHIMON boot EPROM
DISKROM	Allow the system to boot forthcoming Digital Group disk software without switching EPROMs
LCOPY1	Versatile and improved version of a disk-to-disk copy routine
MAZE	Machine language game from the INTEL user's library
DUMP	Machine language routine that dumps the contents of a file at the console in HEX
DUMPA	Same as DUMP, except that it dumps the contents of a file at the console in ASCII
DISK DUMP	Dump physical contents of disk sectors at the console
COMPARE	Compare contents of two files to see if they are equal

and more . . . .

These routines greatly enhance the functions MCOS is capable of performing and will become an indispensable addition to your collection of MCOS commands.

ORDER CODE = MCOS-UTIL

GAME PACKAGE

This diskette is loaded with C-BASIC/E-BASIC games. Source code is provided for each of the programs, giving the user a perfect example of programming techniques that can be used in either of these compilers to properly document and structure your source programs for better readability and maintenance. All users of these BASIC compilers will greatly benefit from the programming structure demonstrated in these games and will enjoy the hours of entertainment they provide.
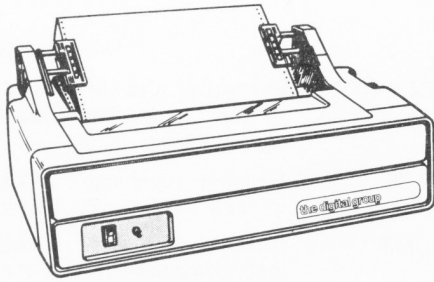
Among the games included are:

TIC-TAC-TOE
BAGELS
HANGMAN
BIORHYTHM
LEM
LANDER
CRAPS
CANNONS
BLACKFRIDAY
STORY
SUPER TREK

and more . . . filling an entire disk!

ORDER CODE = MCOS-GAMES

MCOS System Requirements:

- 26K (34K recommended)
- TVC-64
- Mini or Standard Disk (2 recommended)

TRACTOR-FEED PRINTER

The Centronics 779-1 Tractor-Feed Printer is now available. We've dressed up their cabinetry slightly and are including a 4' cable for connection to a Digital Group System and support software.

FEATURES:

Print Speeds	60 cps	110 cps
Print Densities	10 cpi	16.5 cpi
Lines Per Minute		
@ 10 char/line	90	130
@ 132 char/line	N/A	21
Max. Print Width	8″	
Horizontal Spacing		
(operator adjustable)	10-16.5 cpi	
Vertical Spacing	6 Lines/Inch	
Paper Entry	Rear	
Auto Line Feed		

SPECIFICATIONS:

Characters:

- 5 X 7 dot matrix, 64 character
- Standard ASCII

Printing Method:

- Impact, character-by-character, unidirectional
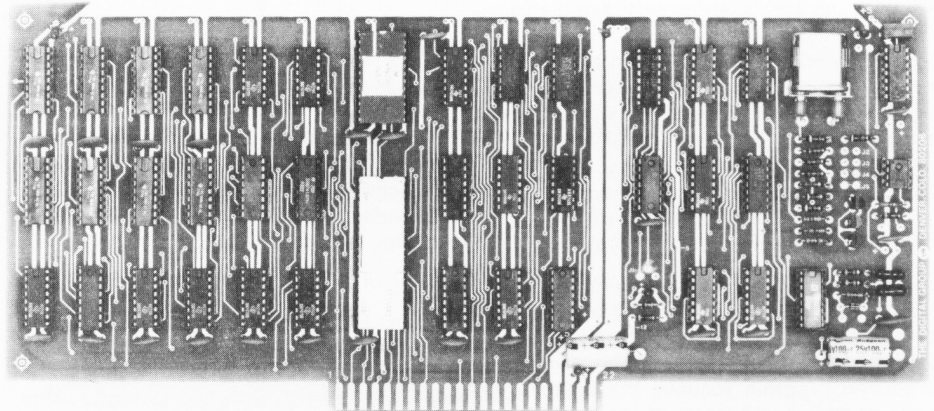
Number of Copies:

- Prints original and up to four carbon copies

Data Input:

- 7 Bit ASCII parallel; TTL levels with strobe. Acknowledge pulse indicates data was received.

ORDER CODE = PT-TRAC1
PRICE = $1,295.00 assembled only

96-CHARACTER VIDEO INTERFACE

FEATURES:

- Up to 2264 characters
- 96 characters per line — same line length as PT96-COMP
- 20 lines of upper and lower case
- 24 lines of upper case only
- Other line lengths available with different crystal
- On-board screen buffer — no main memory required
- Hardware scrolling — forward and reverse
- Cursor is video inverted block (may be turned on/off)
- Emphasis by character may be provided through video inversion or double-wide characters
- Port driven
- 128 ASCII characters

SOFTWARE DEVICE DRIVER FUNCTIONS:

HOME
SCROLL UP 1 LINE
ERASE SCREEN (w/o HOME)
ERASE TOP LINE
WRITE CHAR + CURSOR
CHARACTER RETURN/LINE FEED
CARRIAGE RETURN
LINE FEED
REVERSE LINE FEED
BACKSPACE — DESTRUCTIVE
BACKSPACE — NON-DESTRUCTIVE
HOME ERASE
ERASE LINE
FORWARD SPACE — NON-DESTRUCTIVE
X, Y POSITIONING OF CURSOR

Note: The 96-Character Video Interface will initially be supported only with device driver software and under OASIS. Also, a high-quality data monitor (such as our MON-9D) is required for best legibility.

ORDER CODE = TVR-96

Description	Available	Order Code	Assembled Price
HARDWARE			
96-Character Video Interface	June 1	TVR-96	$ 295.00
Tractor-Feed Printer	May 15	PT-TRAC1	1,295.00
SOFTWARE (Includes Documentation)			
OASIS			
OASIS Operating System	May 15	OASIS	75.00
OASIS-BASIC	May 15	O-BASIC	50.00
Word Processor	June 15	SCRIPT	30.00
Z80 Macro Assembler	June 15	OASIS-ASSM	50.00
MCOS			
MCOS Operating System	Now	MCOS	110.00
C-BASIC	Now	C-BASIC	100.00
E-BASIC	Now	E-BASIC	30.00
Text Output Processor	Now	MCOS-TOP	65.00
Macro Assembler	Now	MCOS-ASSM	65.00
Utilities	Now	MCOS-UTIL	25.00
MCOS Games	Now	MCOS-GAMES	25.00
SOFTWARE DOCUMENTATION			
DOC-OASIS, Editor & BASIC (Preliminary)	Now	DOC-OASIS1	25.00
DOC-MCOS & C-BASIC	Now	DOC-MCOS1	25.00

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THE DIGITAL GROUP ORDER FORM

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Amount Enclosed _____

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Expiration Date: _____

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Signature:

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OASIS Operating System
OASIS BASIC
OASIS Word-Processor
OASIS Macro Assembler

MCOS Operating System
MCOS C-BASIC
MCOS E-BASIC
MCOS Text Output Processor
MCOS Macro Assembler

Tractor-Feed Printer
96-Character Video
and more!