

Commodore Colors NCC

Introduces New 8032, Micro-Mainframe

Unfortunately, I couldn't make it to NCC in Chicago last May, but I did receive several new product announcements from Commodore. For those that haven't heard, a few new goodies are on the way that should create quite a stir. Pricing and availability were to have been announced at NCC, so watch for further details.

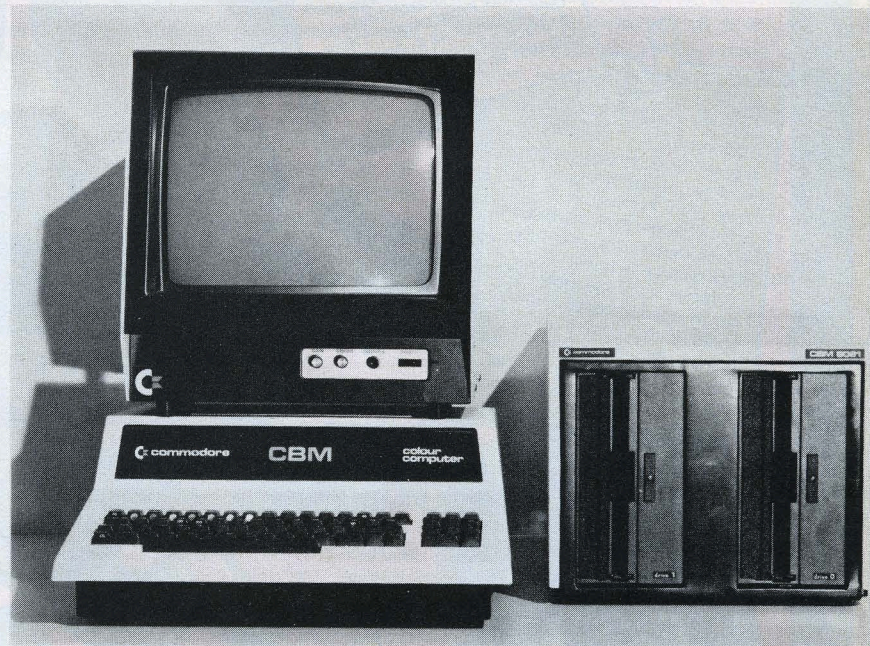
A Color 8032!

First of all, Commodore has announced a color version of their 80-column 8032 system. The new color 8032 has a high-resolution, direct drive RGB (red, green, blue) color monitor. It is supposed to provide a crisp, easy-to-read display in both text and graphics modes.

Normally, the color 8032 system displays green characters on a black background, just like the regular 8032. Using the control key, the user can then display information on the screen using a variety of foreground and background color combinations. You can even use reverse field with colors for highlighting. Color displays can be generated character-by-character, either directly by the user, or under program control from within a single print statement.

In all, there are eight colors (black, blue, green, cyan, red, magenta, yellow and white) available for the background color and foreground display. This gives you 64 possible combinations in each of the three character modes (text, graphics and plot). In the graphics mode there's a 160 x 100 point resolution for creating a high-resolution display.

You should be able to run all software developed for the standard CBM 8032 on the color version without modification. Fortunately, the standard CBM version 4.0 BASIC interpreter remains un-



Commodore's new CBM 8032 color microcomputer.

changed. However, the new color system contains an enhanced 32K Screen Edit ROM to provide the color handling capability. If a program uses any Screen Edit routines, it may need some work to run on the new color system.

Micro-Mainframe

The other new system from Commodore is their Micro-Mainframe. This is a new-generation computer that combines the power and languages available on mainframe systems with the low cost of microcomputers. Applications developed on the Micro-Mainframe can be transmitted to a mainframe system and executed without modification.

The new computer is based on the standard CBM 8032 with the familiar 12-inch green phosphor display, 73-key typewriter-style keyboard, and full cursor controls. However, the Micro-Main-

frame is a pseudo 16-bit 6809-based system with 36K ROM, 96K user RAM and 2K screen RAM (134K total). The system supports all current CBM peripherals except the C2N cassette recorder. Additionally, a new communication facility has been included to support standard RS-232C interfaces with speeds up to 9600 baud. All files are stored in true ASCII format for communication and compatibility with mainframe systems.

An extensive software package for the new system has been developed by Waterloo Computing Systems Limited to meet the requirements of the University of Waterloo in Waterloo, Ontario, Canada. This portable software is particularly suited to microcomputers, but identical versions are available on medium- and large-scale systems. Thus, a user is not limited by the capacity of the micro; the identical program will run without modification on many of the largest and fastest

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systems available.

The software package consists of interpreters for various languages, an editor, an operating system (supervisor) and an assembly-language development system. The four language interpreters include Waterloo microBASIC, microPascal, microFORTRAN and microAPL. COBOL is not yet available, but is under development. These language interpreters have been designed specifically for teaching computer programming. Their design emphasizes good error diagnosis and debugging capabilities which are useful in educational and other program development environments.

Waterloo microBASIC includes ANS Minimal BASIC, with certain minor exceptions, and several extensions. Such things as structured programming control, long names for variables, sequential and relative file capabilities, integer arithmetic, debugging facilities and convenient program entry and editing facilities have all been included.

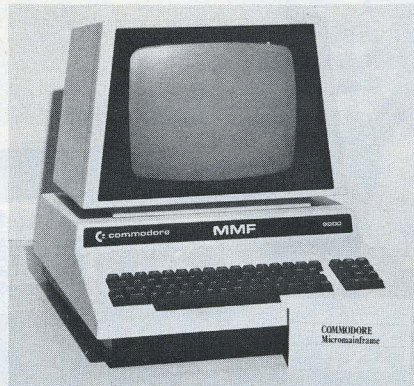
Waterloo microPascal is an extensive implementation of Pascal, corresponding very closely to draft proposals being produced by the ISO Pascal Committee. The ISO draft language is a refinement of the language originally defined by Wirth, varying only in minor aspects. This implementation includes sophisticated features such as text file support, pointer variables and multidimensioned arrays. A significant feature of Waterloo microPascal is its powerful interactive debugging facility.

Waterloo microFORTRAN is a special dialect designed for teaching purposes. It has many of the characteristics and much of the flavor of normal FORTRAN, but varies significantly from established standards for that language. It has many of the important characteristics of the WATFIV-S compiler, which is widely used on IBM computers, plus some features from the new FORTRAN-77 definition. It supports subroutines and functions, multidimensioned arrays, extended character string manipulation, structured programming control and file I/O. In addition, the interpreter provides a powerful interactive debugging facility.

Waterloo microAPL is intended to be a complete and faithful implementation of the IBM/ACM standard for APL with respect to the syntax and semantics of APL statements, operators and primitive functions, I/O forms and defined functions. System commands, system variables and system functions are those consistent with a single-user environment. There are no significant design limitations on the rank or shape of arrays or name length. The shared variable processor is omitted. Extensions include system functions supporting files of APL arrays. APL equivalents of BASIC features PEEK, POKE and SYS are also included.

A text editor known as Waterloo micro-

EDITOR, which is suitable for creating and maintaining both program and source data files, is included. It is a traditional line-oriented text editor with powerful text searching and substitution commands, including global change. Full-screen support and special function keys allow text to be altered, inserted and deleted on the screen without entering commands. Facilities for repeating and editing previously issued commands further enhance the usability of the editor.



Commodore's new Micro-Mainframe combines the power and languages available on mainframe systems with the low cost of microcomputers.

Disk-oriented assembler and linker programs, the Waterloo 6809 Assembler and Linker, are included to support development of general-purpose Motorola 6809 machine-language programs. The Assembler supports syntax and directives for Motorola 6809 assembly language and includes powerful macro capabilities. In addition, the Assembler supports pseudo op codes for structured programming control, long names (labels) and the ability to include definitions from separate files. The Assembler produces both listings and relocatable object files.

The Linker allows the combination of an arbitrary number of relocatable object files to produce an absolute loadable and executable program file. Since it is disk-oriented, the Linker is capable of building programs which are larger than the RAM work space available. The Linker supports building of programs in segments or banks for operation in bank-switched RAM memory, as well as building of programs for operating in normal RAM memory.

The Waterloo microSUPERVISOR is an operating system designed for single-user microcomputer environments. It includes a monitor, library and serial line communication support. The Monitor program supports loading of Linker-produced program files into bank-switched RAM memory or normal RAM memory. It also provides facilities which are useful for debugging machine-language programs. There are commands to display

or alter RAM memory and 6809 registers, using full-screen features for ease of use. In addition, another command permits disassembly of 6809 instructions into assembly-language mnemonics.

A library of functions and procedures is supplied for general use by other programs included in the software package. The Library includes support functions for input/output operations to the keyboard, screen and peripheral devices. Other elements of the library provide floating-point arithmetic, fundamental trigonometric functions and several general-purpose utility functions.

A Serial Line Setup program is included which provides selection of programmable characteristics, such as baud rate. The program includes support for establishing communication with a host computer, through a serial line, for accessing the host's files or peripheral devices.

Reference manuals, textbooks and instructor's guides are available for each software component of the system. The system was on display at the NCC show, but deliveries are not scheduled till the end of the year.

New Software

Several new software packages were also announced at NCC. Wordcraft 80 is Commodore's new word processor package for the 80-column systems. It is entirely different from the familiar Word Pro programs, but provides similar results. With Wordcraft you can display text in the exact form that it will be printed. Text can be easily edited and the format immediately verified on the display, without printing the document. In addition, page layouts of up to 117 characters wide by 98 lines deep can be accommodated by the automatic scrolling of text on the screen. Large documents are divided into chapters, with one chapter at a time held in the computer's memory.

During text entry Wordcraft will not break words when the right-hand margin is reached; the entire word is moved to the next line. Text editing is accomplished by a few simple keystrokes. Standard features include character, word and paragraph deletion or insertion plus block movement of text from one area to another. This word processor supports character string search and replacement within a chapter on the first of all occurrences. Wordcraft also handles tabs, decimal tabs, multiple levels of indentation and automatic centering. Tabs and margins can be changed anywhere throughout the text without disturbing the previous settings. Half-line printer movement for subscripts and superscripts is also supported from within the text.

Separate paragraphs or sections of text can be easily merged to form finished documents. Name and address files, or any information, can be merged into a standard form letter and then printed. The entire process is automatic once the

files and form are set up.

Any properly interfaced letter-quality printer can be used with Wordcraft 80, and proportional spacing is supported. Single sheet stationery or continuous forms can be used. You can specify a single page, chapter or whole document for printing. At print time you can also specify underlining or heavy printing for those text areas so defined. With certain printer interfaces, background printing is allowed. This means that you can be working on one document while another is being printed.

Headers and trailers can be placed on each page and changed from chapter to chapter. They can even be specified in book fashion, alternating for left and right-hand pages. Page numbering is automatic and the system keeps track of all pages, even when a new chapter is added or inserted into a document.

Included with Wordcraft 80 is a special link program that lets the user incorporate VisiCalc data into a Wordcraft document. This data can then be edited like a standard document.

Wordcraft 80 is supplied with a comprehensive user's manual, a set of training cards and a pocket reference guide. The program can store about 350 pages of normal text on one standard 8050 disk drive. Alternately, a Commodore 4040

disk can be used. Retail price for Wordcraft 80 is listed at \$395.

Another new software package from Commodore is a Dow Jones Portfolio Management System (PMS). This package provides the serious private or professional investor immediate access to pricing and financial information available through the facilities of the Dow Jones News Retrieval Service and additionally functions as an accounting and control system for security portfolios.

The system allows maintenance of stock portfolios, automatic valuation of positions in the portfolio, retrieval of current and historical quotes and displaying and printing of news stories from the previous 90 days. This data is available for over 6000 stocks and selected news categories in the Dow Jones databases. Media General Financial Services, a price, dividend and fundamental financial database, can also be accessed with this system.

PMS features easy-to-use screen data entry for buys, sells and cash transactions. A complete year-to-date transaction audit trail and portfolio summary report are standard. The system provides a graphics display of historical prices and a printed copy of news stories, historical prices and the graphic displays.

This software package will run on any 32K PET/CBM system (2001, 4032, 8032). A Commodore 4040 or 8050 disk and a modem are also required, while a 4022 printer is supported for optional printing. Retail price for this package is \$149.95.

The last software package announced, Legal Time Accounting, manages the business side of a law firm, thus allowing lawyers to concentrate on their primary task. Specifically, LTA keeps track of client files, matter (case) files and associated log entries, which represent services performed for individual matters. LTA automatically posts log entries to the appropriate matter and prints individualized statements according to nine criteria. A number of options are provided to effectively use this information, once entered into the system. You can easily produce a list of clients or matters.

Client matter inquiry allows viewing all open log entries for a particular matter. A number of statistics and activity reports can be produced, including aging reports by both lawyer and firm. A utility section lets you set up fee and activity codes as well as perform normal house-keeping functions (such as disk backups).

LTA was designed to be easy to use, even for those with little or no computer experience. Additionally, the system closely follows the procedures used in a typical law firm. LTA handles about 500 active clients, 1500 matters and 2500 open log entries. It was designed for firms with up to ten lawyers. The program runs on the CBM 8032 with an 8050 disk, and

will support a 4022 (or similar) printer. Retail price is \$595.

VIGIL

Here's a new and very interesting software package for the PET/CBM from Abacus Software. Once I glanced through the documentation, I just couldn't wait to try it out. VIGIL stands for Video Interactive Game Interpretive Language. It's an easy-to-learn graphics and game language that lets you quickly create interactive applications. The language is patterned after the CHIP-8 game language available on the RCA COSMAC VIP computer, but has much greater capabilities. The VIGIL interpreter executes game programs and performs video graphics at much higher speeds than normally obtainable with BASIC.

VIGIL programs are entered and modified using the standard BASIC text editor built into the PET, the same way as programming in BASIC. If you have a printer, you can even list VIGIL programs just like normal BASIC programs. VIGIL was designed to read the BASIC text editor output stored in memory as its programs, just like PET/CBM BASIC. However, because of this, a little caution must be used in writing VIGIL program statements so BASIC keywords are not accidentally created where you don't want them.

There are more than 60 commands to manipulate graphics on the screen with 80x50 plot positions on a 40-column system. It is very easy to display and move patterns based on screen coordinates. Also, testing for pattern collisions or hits is easy. For most games, you can define standard graphics figures and display them anywhere on the screen with one simple command. Two registers are used to indicate the screen position where the pattern will appear. To move the pattern you simply issue the same command to erase the existing pattern, modify the registers containing the display coordinates, then issue the command again to display the pattern in the new screen position.


VIGIL commands consist of BASIC keywords and single-letter or character operands. One or more operands identify the data or internal registers to be used by the command. There are 26 internal registers, most of which can be used as desired for counters, pointers, etc. Besides graphics support, commands are also included for arithmetic, logical and random functions, accessing PET memory and loading and executing machine-language subroutines.

Two timers are available under program control. Input commands can read the full keyboard or a 4x4 portion of the numeric keyboard. The parallel user port can read joysticks or other attached devices. VIGIL can also create audio tones via the standard user port connection. Pitch and duration of the tone are pro-



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gram-controlled and operate simultaneously with screen action.

The preliminary copy I received was very nicely done with good documentation. The final package will offer cassette versions for the three different ROM sets as well as a diskette version. Also, the final manual is supposed to be a 50-page printed booklet. Included with each package are nine sample programs that really help in illustrating how to use VIGIL for various types of games. VIGIL will sell for \$35 in USA and Canada, \$40 elsewhere.

For more information, write Abacus Software, PO Box 7211, Grand Rapids, MI 49510. This should really be of interest if you enjoy writing game programs or using graphics. You'll probably never want to program another game in BASIC after trying VIGIL.

Kingston KRK-2

In recent months a number of new products for the PET/CBM have been entering the US from Europe and other parts of the globe. One new hardware addition is the KRK-2 module from Kingston Computers Limited in England. The module is really three devices in one: a keyboard reset, full keyboard repeat and a keyboard clicker. Actually, there is even a fourth feature—provisions for sound generation. All features are provided by a single hardware module but operate independently.

Basically, the KRK-2 package consists of a small printed circuit board that connects between the PET main logic board and the keyboard cable. There are no modifications to be made to the PET itself. Instead, a rather unique concept is used where one IC is removed from its socket and then reinserted with a small, flexible, printed circuit pad between the IC and the socket. The other end of the printed pad then connects to the KRK-2 board. This effectively breaks several connections to the IC and routes them through the logic on the KRK-2 board.

Other cables from the module connect to the second cassette port for power and to a small speaker that is mounted inside the PET. All connectors have color-coded stickers to aid in matching the correct cables.

New features added by the small module include the RESET function, which is activated by holding down the RUN/STOP and = keys at the same time. The PET will return to the machine-language monitor and can be returned to BASIC by the X command. The reset function is a BASIC "warm" start as previously documented in various newsletters and articles. It does not destroy your program in memory.

After the reset, you have two options: restart your program from scratch or attempt to continue. To restart, simply enter a CLR command followed by RUN. Details on how to reset the microproces-

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The VP-3301 can be used with a 525-line color or monochrome monitor or a standard TV set through an RF modulator.** It serves a wide variety of industrial, educational, business and individual applications including communication with time sharing and data base networks such as those provided by Dow Jones News/Retrieval Service, CompuServe and Source.

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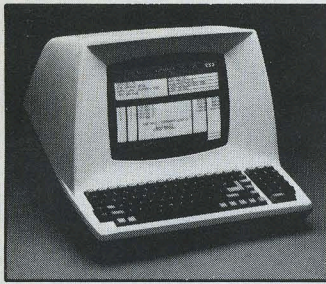
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*Suggested user price. Monitor and modem not included.

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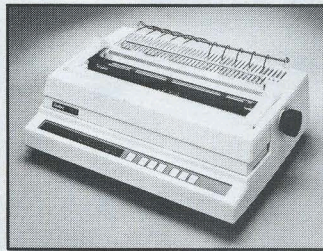
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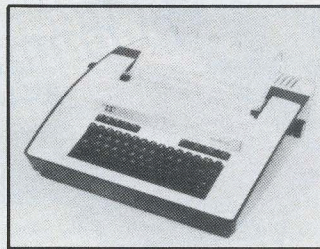
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processor stack and attempt to continue a program are given in the documentation.

The repeat key function is available from the time the PET is first powered on when the KRK-2 module is installed. There is nothing you have to do to enable the function; just hold down any key till it repeats. The hardware even provides two adjustments to tailor the repeat speed and sensitivity to your particular taste. The repeat is set up before delivery at a reasonably gentle pace so you can enjoy the repeat function and yet maintain contact with the cursor.

Bear in mind that you must compromise between something that's ideal for joystick-type games but useless for normal typing and something ideal for typing but boring and slow for games. The time delay between holding down a key and the start of the repeat action is two seconds maximum.

The key click function can only be activated after a POKE 59456,247 is entered. Thereafter, the feature can be enabled by holding down the RUN/STOP and < keys at the same time. It is disabled by holding the RUN/STOP and the space bar. Once enabled, a simple click sound verifies each keystroke for much nicer touch typing.

There are three ways of creating noise and/or music under program control with the KRK-2 module. The simplest is to repeatedly POKE the cassette port at location 59456. This is a far cry from "music," but can prove useful.

The second method is by direct control of the MICE TRO music generator. A listing of a very simple program to accomplish this is included in the documentation. The form of each note created by the music generator is determined by three parameters poked in memory prior to calling the routine via an SYS command. Two of the parameters determine the pitch, while the third determines the length of the note (up to four seconds).

The last method of producing music is by using the complete MICE TRO program that is included with the KRK-2 package. This program provides all the interface and control for the simple machine-language program provided in the manual. It implements an entire language for creating, editing, playing and saving music pieces.

Remember that the methods of generating sound via the KRK-2 module are not compatible with programs with sound written in the US. Most PET owners use the CB2 line on the user port to generate sound with an external speaker and/or amplifier.

As with other products I've seen from Kingston, the documentation is excellent and the product is first class. The complete KRK-2 package is \$119.50 and is available from Microtek, Inc., 9514 Chesapeake Drive, San Diego, CA 92123. If you are only interested in the keyboard repeat, a KRK-1 module is available for \$39.95. □