

# RANA PUSHES HYBRID COMPUTING

*Devices put two computers in one box*

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Reporter

**F**or those people who would like to run software written for other computers on their Apple or IBM machines, several hybrid products are now on the market. The hybrid concept is not new; several companies, using different approaches, have tried it and have had varying success. Rana Systems of Chatsworth, California, offers to turn your Apple IIe into an IBM PC with its Rana box. Quadram of Norcross, Georgia, claims to be able to turn an IBM and some IBM compatibles into imitation Apples with its Quadlink peripheral board. The recently released Dimension 68000 Professional Personal Computer from Micro Craft of Dallas, Texas, uses a coprocessor to enable it to behave like several different machines.

Rana suggests that you dispense with the Apple's disk drives and instead plug in the Rana 8086/2, which was released this month. The box contains an IBM-compatible coprocessor and dual-disk-drive system with a ROM (read-only memory) basic input/output system (BIOS) that emulates that of the IBM PC. The Rana box supports MS-DOS and PC-DOS. Version 2.0, has 256K RAM (random-access memory), expandable to 512K, and provides 360K of storage per double-sided drive. Rana claims that an Apple with box



The Apple IIe microcomputer with Rana's dual-disk-drive add-on box

that they're working on the keyboard problem and might be able to resolve it in the future. Rana research director Don Burtis says programs that tie their copy-protection scheme to IBM's disk-control

of the two machines. Rana is quick to point out that with one modification, its box can run an IBM version of Lotus 1-2-3 (the other common compatibility test). With its unit, Rana provides software that includes a new program designed to support the graphics that 1-2-3 requires.

Problems that arise from differences in keyboards also necessitate a change if you want to run the IBM version of WordStar on Rana's Apple-turned-IBM machine, but instructions provided with the Rana tell you how to make the one-time change. Apple's variable-speed disk drive is not a problem, however, because the Rana drive can switch back and forth between IBM and Apple operation.

Rana says that it has had Apple's active support and cooperation in developing the product. The company also offers a list of 13 major software developers that certify that you can use the Rana system with their products. Among them are Ashton-Tate, Microsoft, Perfect Software, Shugart, Lotus and MicroPro.

Rana designed the Rana 8086/2 for the Apple IIe, according to Burtis. Rana representatives hint, but refuse to con-

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**The recently released Dimension 68000 Professional Personal Computer uses a coprocessor to enable it to behave like several different machines.**

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is 30% faster than the IBM computer that it imitates.

The hitch is that the \$1,795 drive cannot automatically run all IBM-compatible software. Programs that expect to work with IBM's keyboard configuration won't find it, and any programs that have been written specifically for the IBM PC and that ignore the BIOS programming won't work. Company representatives say

ler chip, which is a different style from Apple's, might have trouble functioning on the Rana.

The IBM-compatible Apple computer that Rana's box produces won't run Flight Simulator (one of the common "test programs" for true compatibility). Flight Simulator cannot work with the Rana-assisted screen because of slightly different timing values used in the graphics code

firm, that their system can also work on the unveiled portable Apple IIc. Apple owners can use the Rana drive even when it is running in the Apple mode. "We attempted to make it look like it belongs with an Apple system," he said of the beige 12½ × 7¼ × 8¾-inch box. Rana sells a package that includes a monitor, Rana box and Apple IIc for less than \$3,000.

A product that has an opposite function to that of the Rana box is the Quadlink, a peripheral card that plugs into the IBM PC to let it run Apple software. You can also use the Quadlink on the Columbia and Compaq computers if you use a different cable. Problems with the Quadlink after its initial appearance last year restricted it to running only programs not under the "half-track" protection afforded by Apple's disk drives. It is also restricted to using 40-character lines and uppercase text only. Quadram says that the half-track conflict still exists because of the way IBM builds its drives, but it offers several enhancements in the version it released in November of 1983. The new model has an IBM serial port that you can configure in the Apple mode for parity, stop bit and baud rate; a parallel port with new control cards to help format information; and a new software utility called Quadcopy to allow information exchange between IBM and Apple disks. The Quadlink offers a 6502 CPU; 64K RAM; Applesoft ROM; Apple DOS 3.3; and Quadlink software, version 1.12 (1.0 in the first release) for a list price of \$680.

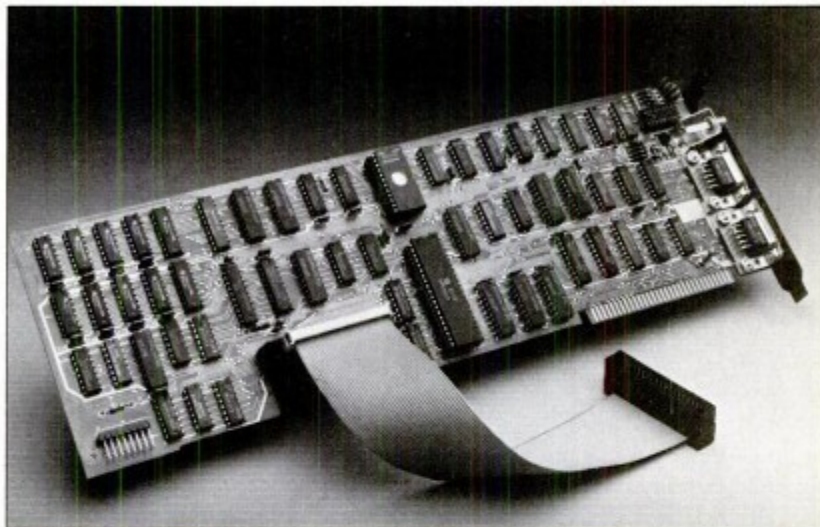
For potential customers who prefer a computer that combines the characteristics of both the IBM and the Apple machines — as well as a few others — Micro Craft offers its Dimension 68000 Professional Personal Computer. The firm claims that the unit can run software written for Apples, the IBM PC and TRS-80 as well as Unix- and CP/M-based computers. The machine normally runs the CP/M-68K operating system and comes with a version of CP/M 2.0 adapted to the 68000 microprocessor. The computer includes two double-sided, double-density, 40-track 5¼-inch disk drives, each with either 409K or 817K capacity. It sports 128K RAM, six expansion slots, a parallel printer port, a serial port and an 83-key IBM-style keyboard that has function keys and a numeric keypad.

The basic Dimension 68000 system — which can't yet imitate the IBM or Apple computers — retails for \$3,995. Each board that lets the Dimension imitate another system (Apple II Plus, TRS-80, Kaypro, Osborne and IBM compatibles) costs \$495. You must also increase the machine's memory to 256K in order to imitate any of those machines. A system package consisting of the basic machine

and all emulation boards costs \$6,230.

The company says Dimension's IBM emulator runs both Flight Simulator and Lotus 1-2-3 without problems. "We can't say it will run every program because we haven't tested every program," says

Scientific Machines, and he called on former engineers from the companies whose products he emulates to help build the multiprocessor product. Only about 500 machines have been released through 80 dealers throughout the country. Ac-



The Quadlink peripheral card allows the IBM PC to run Apple software.

Barbara Henry-Arnold, director of corporate communications. "But we have people who spend all their time testing software on the different systems." Micro Craft publishes a list of software that is compatible with the various emulations, and acknowledges any that don't run — then starts working on correcting the problem in its own software. She says the company keeps an eye on the top-selling programs to be sure that the Dimension can handle the most popular software. "It's fun watching somebody come in with a stack of disks and wanting to try them all."

The year-old company released the Dimension in late 1983 after unveiling it at Comdex. The Dimension's originator is Mike Carpenter, a former president of

cording to Henry-Arnold, "response has been overwhelming." Early insert advertising brought 50,000 inquiries, she says, reinforcing the company's basic contention that a hybrid machine is wanted. "We're having to apologize to the public for not being able to get information out promptly to everybody who has requested it."

A potential rival to the Dimension is under development in Coos Bay, Oregon. The fledgling Eltronix company is producing a dual CP/M and Z80-processor desktop microcomputer. For a price of \$1,995, it will include one 5¼-inch, single-sided double-density disk drive, 128K (expandable) RAM and numerous expansion slots and ports. Only demonstration models are currently available.

## NEW PRODUCTS

**Apple work-alike for under \$900:** Microsci's transportable HAVAC (home/academic very affordable computer) is designed around the firm's own 5¼-inch, 164K disk drive. Although it isn't totally compatible with the Apple II family, the machine can run "several hundred" Apple games, according to the maker, as well as VisiCorp's VisiCalc, accounting software from BPI and Software Publishing's PFS: family of programs. It can also run The Home Accountant by Continental Software and Micro Illustrator with the KoalaPad by Koala Technologies. The

HAVAC can accept Apple assembler programs off the shelf.

The machine comes bundled with Microsci home, business and recreational software, including HAVAC DOS, Microsci's disk-operating system that converts Apple and Apple-compatible software to menu command for ease of use. Utilities software is also included for modem hookup.

The HAVAC package consists of 64K RAM (random-access memory), 8K ROM (read-only memory), 164K floppy-disk drive, 62-key detached keyboard, high-resolution color-graphics capabilities, a printer port, serial port, game port and video hookup. The supplied software