

# Low-cost 1-board computer includes printer, display and keyboard

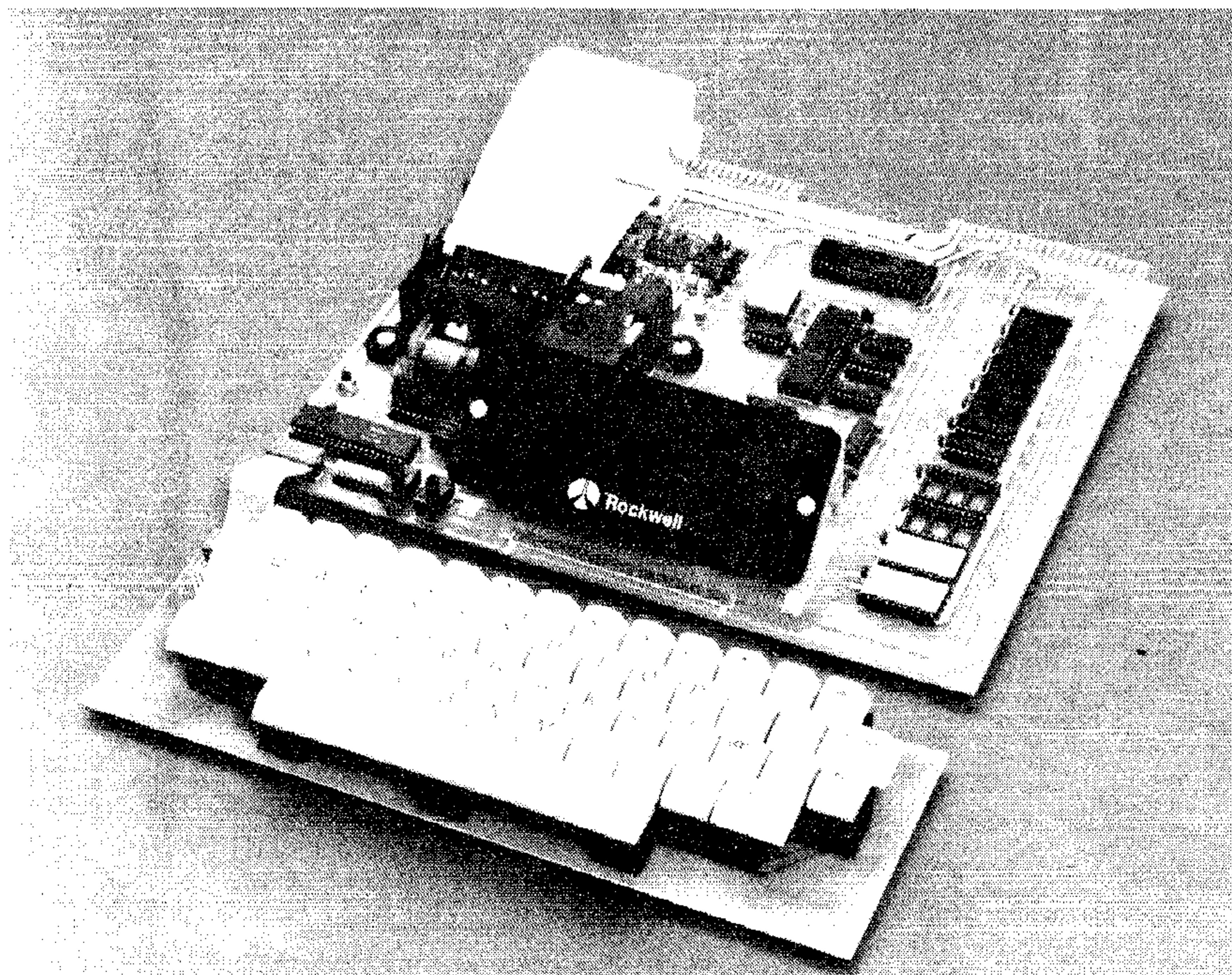
Developing software for microprocessor systems based on the 6500 series of 8-bit devices will cost a lot less with the AIM 65 development system from Rockwell International's Electronic Devices Division (Anaheim, CA). The price tag is just \$375—one-tenth the cost of current systems with similar features. What's more, it covers a keyboard, hard-copy output, and a one-line display, which enable the AIM 65 to serve as a low-cost training aid or even as a hobby computer.

Meanwhile, Rockwell, an alternate source for the 6500 microprocessor from MOS Technology (Norristown, PA), has been busy introducing a single-board system development tool, the XPO-1, for its PPS-4/1 one-chip microcomputer. And later this year, Rockwell will bring out a motherboard to connect the AIM, which is compatible with MOS Technology's 6502-based KIM-1 board, to both Rockwell's System-65 and Motorola's Exorcisor development system accessory boards.

To function as a development system, AIM requires an optional assembler that is housed in a 4-k ROM and goes for about \$100, and three power supplies: 5 V at 3 A, 12 V at 100 mA, and 24 V at 2 A. But once it's hooked up, the AIM can provide hard-copy records from its own 20-column thermal printer, which operates at up to 90 lines per minute and generates 64 ASCII alphanumeric characters in a 5 × 7 dot-matrix format. In addition, its one-line display handles 20 characters, and can generate the same 64 characters in a 16-segment format.

The AIM's keyboard has 54 keys to provide 26 letters, 10 numbers, 22 special characters, eight control functions, and three user-defined functions. To make use of the last three keys, the AIM debug/monitor has three Go To User Function commands.

The central processor, a 6502, operates at 1 MHz and can address up to 65 kbytes of random-access memory in



Alphanumeric printer, display and terminal-style keyboard are all housed with a 6502 central processor in Rockwell's AIM 65 single-board computer.

13 addressing modes. The AIM comes in versions that offer 1 kbyte or 4 kbytes of 2114 static RAM, for \$375 and \$450. Sockets on both versions provide for more RAM.

Program memory is stored in 4 kbytes of 2332 static ROM. But with sockets able to accept additional 2332 ROMs or 2716 EPROMs, on-board program memory, including the assembler and an 8-kbyte Basic interpreter option (about \$100), can be expanded to 16 kbytes.

For expansion, the AIM card's edge has two 44-pin connectors: an application connector for peripheral add-ons, and an expansion connector that includes the system bus. And since the AIM 65's interface is compatible with MOS Technology's KIM-1, it can use motherboards, memory-expansion cards and other accessories designed for the KIM-1.

The XPO-1 single-board system de-

velopment tool also shares some features with the KIM-1. For \$495, the XPO-1 has a 20-key keypad and five 7-segment displays, like the KIM-1. But it also includes utility, debug and monitor programs that, with the appropriate development circuit, help with developing software for the PPS-4/1 one-chip microcomputer, and with real-time software testing. The development board can also produce a ROM-mask tape of the final software.

Another Rockwell motherboard, expected by October, will be like the one in its System 65 development system, and will accept the AIM interface as well as System 65 boards. The System 65 motherboard is already compatible with the bus structure of the Exorcisor development system from Motorola Semiconductor Products Inc. (Phoenix, AZ). One advantage is that many accessories, including analog I/O cards, are available for the Exorcisor. ■■

