

NEWS

HP takes mystique out of micro-based product design

Hewlett-Packard's latest logic development system, code named Pisces, aims to cut through much of the mystique associated with microprocessor-based product design. For the first time, H-P claims, an entire development team can work in total harmony on target projects using friendly interfacing pioneered on H-P's business computer systems. Syntax errors are virtually eliminated with directed syntax and 'soft' keys labelled by the cathode-ray tube.

Unlike most other microprocessor development systems, H-P's new 64000 logic development system is based on powerful workstations sharing a hard-disc store. With storage capacities from 20 to 120 Mbytes, this approach provides easy and fast access to a very-high-performance operating system (occupying some 200 000 bytes) plus virtually unlimited storage for program development.

Up to six team members can use the development system at the same time, without interfering with one another, to develop hardware and software, as well as to solve interactive problems. Writing code, emulating hardware and logic analysis can all be done from the same workstation.

The system architecture allows broad support of currently available microprocessors and anticipates new trends in the market, such as 16 and 32 bit devices. Four popular microprocessors (Intel 8080 and 8085, Motorola 6800 and Zilog Z80) are fully supported with relocating macro assemblers, and real-time emulation at full processor speed and real-time transparent analysis. Emulators for other microprocessors are under development and will become available shortly.

Systems can be configured to match a customer's present needs and expanded without difficulty to meet growing demands. The most

basic system comprises an H-P hard disc, workstation and printer. Up to five additional workstations can be added to a basic system at any time without interrupting on-going development programs.

Each workstation has its own 16 bit n.m.o.s. host processor, 64k bytes of random-access memory, 16k bytes of read-only memory, input/output control and comprehensive display facilities. Software options include the designer's choice of assemblers and compilers, and all the necessary software to support various hardware options like emulators and analysis modules.

Ten card slots are provided on each basic workstation to accommodate specific hardware options. At present, these include: real-time emulators with independent processor and bus (to prevent contention problems); up to 128k bytes of 200 ns emulation memory; tape cartridge transport for software entry and file back-up; integral p.r.o.m. programmer; real-time, transparent logic-analysis module; and an RS-232-C (V24) interface. A Pascal compiler is among options at an advanced stage of development.

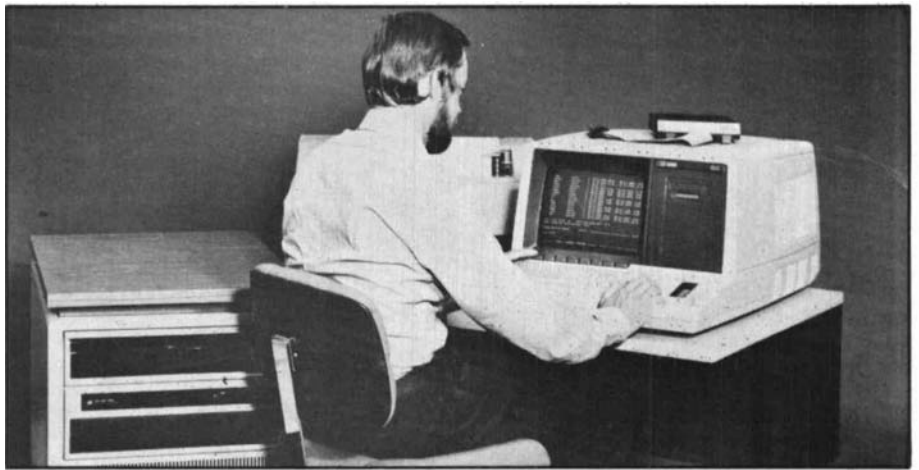
Sophisticated self-diagnostics have been incorporated to verify operation of the innermost hardware kernels, r.o.m., r.a.m., display, keyboard and input/output functions. Com-

plementing the self-diagnostics, signature analysis used with service documentation and troubleshooting trees enable the user to maintain the logic development station at the component level.

Roger Thornburn, H-P's instrument marketing manager, says that separating the emulation system from the station's host processor ensures that there are no contention problems, nor any artificial speed restrictions. He claims that 'for all practical purposes, the 64000 system is completely transparent to the target microprocessor system'. It gives a very accurate picture of a microcomputer's capabilities early in the design phase and allows system development to proceed in an orderly manner. 'And if radical design changes are needed, it won't cost the earth', Thornburn adds.

Deliveries are scheduled to begin before the turn of the year. Prices range from £17 000 for a basic software-development system to about £50 000 for a 6-station logic-development system complete with 20 Mbyte store, line-printer and various options needed to support a major microprocessor development program. Livingstone Hire has placed the first two orders for the 64000.

Encircle 71



Triple attack by Philips

Philips Test & Measuring Division has made a three-pronged attack on the worldwide test and measuring equipment market with developments in three major areas in a drive to maintain and improve its market position.

The most significant announcement made at a recent international Press conference at Enschede, Netherlands, was the introduction later this year of a universal microcomputer development system. This follows the launch a few months ago of two major products in the digital test equipment field: the PM3500 100 MHz logic analyser and the PM3540 logic oscilloscope.

In addition, Philips has just opened the 6000m² first phase of its new oscilloscope factory at Enschede with the aim when phase two is complete next year to bring all Netherlands oscilloscope production onto one site. And in November this year, a new oscilloscope

production facility will come on line at Mahwah, New Jersey, USA, to supply the North American market.

Over the next 4 years, Henk Bodt, deputy director of Philips Scientific & Industry Division, says that the worldwide traditional test equipment market should grow by 8.9% per annum from about \$2.5 billion in 1979 to \$3.5 billion in 1983. That is why Philips is investing heavily in its oscilloscope programme. But more impressive is the expected 25% per annum growth in the world market for the newer digital test equipment and microprocessor development areas. For microprocessor development systems, the market is expected to grow to \$350 million by 1983.

Although by no means first in the field, Philips hopes that its new universal microprocessor development system (u.m.d.s.) will provide the basis for expansion in this area. The u.m.d.s. is a completely integrated unit for hardware, software and system development, and for debugging as well as p.r.o.m. loading. It is based on the Philips PM 4400 computer system which uses a 16-bit P851 minicomputer. Initially the u.m.d.s. will support the Intel

8085, Zilog Z80 and the Rockwell 6500 family of microprocessors, but facilities will be available next year for the Intel 8086, Motorola 6800, Signetics 2650 and Intel/Signetics 8048. A Pascal high-level language option will also be made available to ensure portability of software.

The system features real-time emulation and is designed to support up to four microprocessors allowing simultaneous emulation of a mixture of architectures. Basic price in Europe starts at about £14 000.

System hardware is built round a 16-bit c.p.u. with a 64 kbyte memory. Mass storage is provided by two 320 kbyte floppy-disc drives, expendable to four. User interfacing is provided by a video display unit and a free-standing 128-character ASCII keyboard. Peripheral options include a 180 character/s line printer and a p.r.o.m. programmer.

The system can be used as a stand-alone microcomputer with a range of software for other applications, including engineering design and analysis. An optional interface allows operation as an IEC instrument bus controller. **Encircle 72**