literature review

Hardware

Bilbault, M
'Microprocessors: from characterization to production' *Microelect. Jour.* Vol 10 No 3 (October 1979) pp 11–15
A global approach to microprocessor testing is presented, where the tester simulates the processor's natural environment, testing functions rather than physical properties. A technique of 'response learning' is used where the microprocessor response to test vectors is stored and interpreted by a monitor program in high level language, which makes corrections and controls I/O pins of the tester.

Ciarcia, S
'Add nonvolatile memory to your computer' *Byte* Vol 4 No 12 (December 1979) pp 36–53
A discussion of EAROMs. Two devices are described in detail with circuit examples, coverage of operational modes, power requirements etc.

Gundling, W E and Schade, P A
'Programmable devices: their advantages and disadvantages and equipment to program them – Part 2' *Digital Des.* Vol 9 No 10 (October 1979) pp 76–79
This second article focuses on types of commercially available PROM programmers. Their use in field service, manufacturing and development is described, with purchasing considerations such as ease of interfacing, remote control capabilities, editing commands etc. A buying guide is provided, listing some available models and their manufacturers.

Hartman, B
'16-bit 68000 microprocessor camps on 32-bit frontier' *Electronics* Vol 52 No 21 (11 October 1979) pp 118–125
A description of the MC68000. Features include handling of 32-bit words, asynchronous bus lines, and high level language support instructions.

Hemenway, J
'Use a systematic procedure to evaluate new μPs' *EDN* Vol 24 No 21 (20 November 1979) pp 185–193
Part of a series, 'Exploring 16-bit μCs', this article evaluates the Z8000. Following a given checklist of features, the general characteristics and use of the device are outlined. A table covering the instruction set is given, and a warning about bugs that were found in early versions offers some solutions and corrective circuits.

Lauffer, D
'A smart dynamic memory needs only four pins' *Electronics* Vol 52 No 21 (11 October 1979) pp 144–150
This article explains how incorporation of intelligence in a memory device could fill the cost-performance gap between disc and RAM chip, while reducing the pin count to four with only a small increase in chip area. There is an analysis of cost and space savings that could result from the use of such chips, and a description of the block-oriented design to achieve this.

Otis, A B
'Interface processor has two minds to transfer data faster' *Electronics* Vol 52 No 23 (8 November 1979) pp 144–148
A custom-designed control processor is described which was developed to interface a computer with asynchronous mass storage. It has most of the logic elements of two complete processors that execute two independent routines at the same time but share a single ALU, macroinstruction sequencer and working storage. Eight million instructions may be executed each second.

Smolin , M
'Microprocessor trends' *Microelect.* Vol 10 No 3 (October 1979) pp 5–7
The article gives an overview of the present state of microprocessor development, with discussion of 16-bit devices, memories etc. Projections for the future are also made.

Software

Allen, C H
'Stack it up' *Byte* Vol 4 No 11 (November 1979) pp 140–148
The use of a microprocessor's stack is described for conversion of Polish notation to algebraic. A parsing process takes an entered algebraic expression and converts to Polish, making use of the notation's computational efficiency. Listings are given, written in an informal ALGOL.

Pyle, I C
'Input/output in high level programming languages' *Software Pract. Exper.* Vol 9 No 11 (November 1979) pp 907–914
The fundamental requirements of input/output programming are identified, and how various high level languages cater for them. CORAL 66 has no I/O facilities at all, and most other languages are quite limited in this respect. MODULA and ADA offer some improvements, and their solutions are discussed.

Shrivastava, S K
'Concurrent PASCAL with backward error recovery: Language features and examples/implementation' *Software Pract. Exper.* Vol 9 No 12 (December 1979) pp 1001–1020/1021–1033
Concurrent PASCAL has been extended, and now facilitates the writing of fault-tolerant software. The additional language features, which use backward-error-recovery technique, are described in the first of these two papers with working examples. The second (implementation) deals with an actual recovery system, part of a concurrent PASCAL interpreter.

Applications

Dally, W J
'Faster audio processing with a microprocessor' *Byte* Vol 4 No 12 (December 1979) pp 54–76
An approach to processing audio signals in the range 20 Hz – 20 kHz. The design combines software manipulation with sufficient hardware to reduce time demands on the processor. There are facilities described for linear transformations, time-delay functions (phasing and phlanging), and gain control (reverberation, vibrato).

Forth, L and Kidd, P A
'Peripheral interfacing using frontend microprocessors' *Radio and Elect. Eng.* Vol 49 No 10 (October 1979) pp 515–520
The design of a microprocessor-controlled interface is presented, for use with minicomputers. The concept permits standard software to run without modification and remote working.