



'Myriad' Digital Computer

Type S 3304

MYRIAD is the first of a third generation of computers to be produced by The Marconi Company and is the first machine of this type to be commercially available anywhere in the world. It uses micro-miniature techniques and epitaxial planar silicon semi-conductors to achieve higher reliability than was possible using conventional transistor techniques. Myriad operates at ultra-high speed, is exceptionally small and is suitable for all applications that may be performed in real time.

Features

High reliability with silicon micro logic modules and diode transistor logic.

Ultra high speed – add 2.5 μ s, multiply 11 μ s.

True multilevel priority interrupts.

Expandable storage to 16,384 words.

Small physical size – versions for commercial, military and mobile applications.

Engineered to stringent military specification (DEF133).

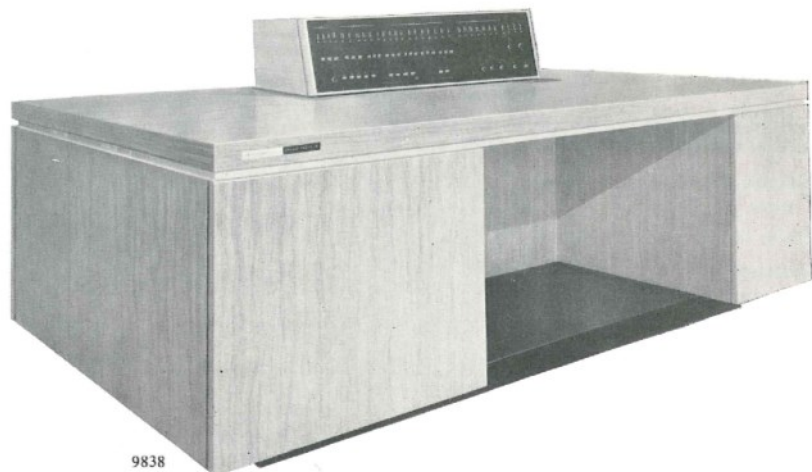
Sophisticated programming aids.

EQUIPMENT

The basic element of the computer consists of a micromodule containing a number of semiconductor devices and silicon resistors integrated in a TO-5 can. Diode transistor logic circuits are of well-established design and are conservatively rated. An advanced form of engineering is used so that the intrinsic high speed of the elements (8 nanoseconds stage delay) may be used to the full.

The computer consists of units associated with logic, storage and peripherals. The logic unit contains the arithmetic unit and control circuits. Two working registers are provided, these may be used independently or as a single register for double-length working. The storage capacity is expandable from 4096 24-bit words up to 16,384 words. Additional bulk storage may be provided by means of drums or magnetic tape. The peripherals module contains certain optional logical functions, such as interrupt generators, 'watchdog' timers, etc., which are associated with the highway.

The design of the computer facilitates very high data transfer rates into and out of



the machine. A multilevel priority interrupt system allows individual peripheral items to request the computer's attention, data being transferred to and from all peripheral units along input or output highways. The highway system permits a wide range of units including special units for radar and air traffic control to be connected to the computer.

The engineering form, based on a main-board/sub-board assembly, is such that a considerable part of the computer is produced by automatic processes. These techniques ensure that the reliability is considerably better than for computers manufactured using conventional transistor techniques. In the event of a fault, diagnostic programmes enable the staff rapidly to locate and replace the relevant main board.

For programming the Myriad computer, the sophisticated symbolic assembler with associated programme trace and diagnostic facilities will be provided. A real time programme language derived from ALGOL is under development.

Data Summary

Type: Parallel binary fixed-point.

Word length: 24 binary digits.

Store: 4096-word ferrite-core store.

Expandable, in blocks of 4096 up to 16,384 words. Cycle time 1.2 μ s. Access time, 0.4 μ s.

Input/output: Common highways, 100 channels maximum.

Priority interrupt: 8 levels of external interrupt (each level may have a number of interrupts).

Order speeds: Add, fetch, etc., 2.5 μ s.
Multiply, 11 μ s.

Instruction format: Stop 1 digit.

Modifier 2 digits.

Order 6 digits.

Address 14 digits.

Power supplies: 200–250 V or 100–125 V, 45–65 c/s.

Environment: Normal: +10 to +45°C, with air conditioning attachment: –10 to +70°C.

Dimensions:

Height 2 ft 6 in. (76 cm)

Width 3 ft (91 cm)

Length 6 ft (183 cm)

A version is also available for mobile applications.

Marconi

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