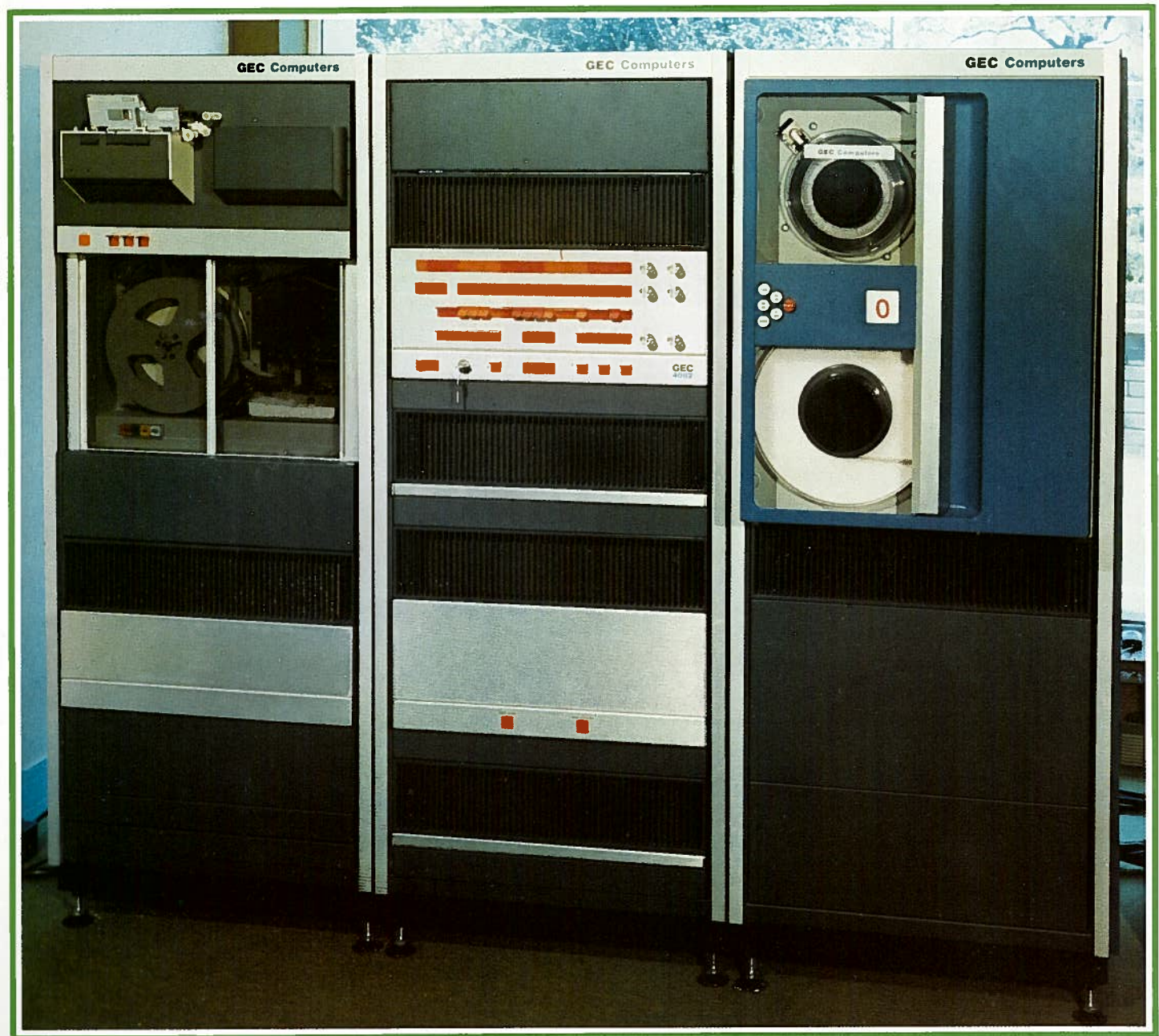


GEC 4000

GEC 4000 Series computers are much larger machines. The range is currently composed of the GEC 4082, the GEC 4080 and the GEC 4070.



These are designed for the control of real-time multi-programming systems for industrial control and scientific research. The many years of experience that GEC has in this application area has shown that advantage should be taken of the availability of low cost medium and large scale integration in building into the central processor, hardware relating to the overall real-time system function. Thus, the GEC 4000 Series provides a sophisticated hardware/software system incorporating the extensive security and protection required in the real-time multi-programming environment. The GEC 4000 Series is in quantity production, and over 125* systems have either been delivered or are on order.

The instruction set of the GEC 4000 Series provides a wide repertoire of operations on a large number of types of data. Operations on single bytes, variable

length strings of bytes, integers of 16 and 32 bits, and single bits within a 16 bit word may all be performed with single instructions. The floating point hardware provides operations on floating point operands of 32 and 64 bits.

The hardware supports the multi-programming of up to 256 independently scheduled processes; a set of hardware base and range registers (the Segment Registers) provide a true virtual store environment and protect the store occupied by any one of the processes from unauthorised access by another process, whilst allowing the sharing of code and data between processes in a flexible and controlled manner.

The central executive of the operating system, *Nucleus*, is not implemented in software, but by hardware microprogram. This enables the GEC 4000 Series to support extensive operating system facilities



which would otherwise be ruled out because of unacceptably high overheads. *Nucleus* provides facilities for managing the store protection system, provides facilities for communication between processes and between processes and the input/output sub-system, and performs the short-term scheduling of processes in the system.

