Software

The operating system for the Orion system which ran equally successfully on Orion 1 and Orion 2 was known as OMP - in full 'ordering and monitoring program'. This program and the Orion logic and hardware had provision for time sharing built into it right from the conceptual stage. The most important factor when time sharing is to lock out any single running program against interference by any other. This was done by allocating variable sized core store partitions to each running program and locking out all other loaded programs. Any attempt by a program to violate the core store partition occupied by any other program results in an interrupt marking an attempted violation and causes the computer to switch to another program. 150 special instructions were provided within the Orion system to deal with such conflicts. OMP had a feature to monitor the list of programs awaiting running and load all programs which were ready to run in normal mode.

The programming language to program virtually all Orion data processing systems was the NEBULA or Natural Electronic Business User Language for Applications. In brief NEBULA was a list processing language with many other features which allowed users to construct complex trees and strings to represent data structures. In many ways it was a predecessor of the later CODASYL database management system standards. Another instruction which was very important was the FREESTORE instruction. NEBULA in turn was constructed on top of a compiler construction language known as COMPUL and there was a low-level assembler known as CIL. So far as is known the last two mentioned development tools were never supplied to customers. NEBULA ran particularly successfully on the four data processing Orion 2 computers delivered to customers due to the higher clock speed of that computer.

The scientific users of Orion 1 (notably AERE Harwell) had an early FORTRAN compiler available for their work.