



I.C.T 1900 SERIES

I.C.T 1900 AS AN ATLAS SATELLITE

USES OF A SATELLITE COMPUTER

Although the I.C.T Atlas Computing System has been designed to operate without an on-site satellite, there are situations where large quantities of data and programs are produced at a distance from the Atlas installation. The uses of a satellite in such circumstances are:

- 1 To transfer data and programs from paper tape, cards or on-line devices to magnetic tape, ready for use on Atlas; and to print or plot results from Atlas-produced magnetic tapes. This compact storage of large quantities of data reduces transport problems and costs and provides faster input to, and output from the main computer.
- 2 To test and develop programs intended for running on the distant Atlas. The ready access of the local machine can reduce considerably the overall time required to develop the program. The work which can be carried out by the satellite ranges from simple format checking of both program and data, to the complete development of program routines, leaving only the production runs for Atlas.

For these purposes at least two means of contact are needed between the computer systems. Firstly, they must have compatible magnetic tape systems and secondly, at least one common programming language. The I.C.T 1900 series provides both these facilities.

Common peripherals Magnetic tape

Both Atlas I and Atlas II have a half-inch tape channel which uses the same tape format as the 1900 series. Thus tapes produced by the 1900 can be input to Atlas, and Atlas can write tapes which the 1900 will read. Both computer systems use a six-bit character, enabling an easy transfer of information in character form.

Slow peripherals

Although communication between the I.C.T 1900 and Atlas would normally be by means of magnetic tape, it may sometimes be useful to read paper tape or cards on either machine. Both these facilities are provided.

With paper tape, although the 1900 uses eight-track tape as standard, it is capable of reading the seven-track paper tape used by Atlas. Software is provided to translate seven-track input into standard I.C.T 1900 internal code. Alternatively eight-track tape readers are available for Atlas.

In addition, both computers use standard 80-column cards and can read cards intended for, or produced by the other.

Common languages

FORTRAN, MERCURY AUTOCODE (MAC), and ALGOL are all available both on the I.C.T 1900 and on Atlas. In each case the 1900 language provides a subset of the language used on Atlas, making it possible to write programs which will run on either machine.

By using the common subset only, therefore, it is possible to carry out all or part of the development of a program before transferring to Atlas.

Multi-programming

The 1900 series program which transfers information from cards or paper tape to magnetic tape, in preparation for use by Atlas, is very small and uses an almost negligible percentage of central processor time. There are thus excellent opportunities for time-sharing with other programs and a number of local jobs, unconnected with Atlas, could be usefully carried out simultaneously, without seriously increasing their total running time.

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On Atlas, programs and data documents from the satellite would enter the system in the same way as locally produced programs and data. They would produce no loss of Atlas operating efficiency and the programmer could dictate the form of output. This could be either on magnetic tape for use by the satellite or, if preferred on paper tape, cards, or the line printer.

Conclusion

For the conversion of data for input to Atlas and the development and testing of Atlas programs at a site distant from the Atlas installation, the I.C.T 1900 computer provides the ideal satellite system. In addition, owing to its multi-program facilities it can provide a fast, efficient, on-site computer, capable of processing local jobs at the same time as carrying out its satellite role.

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