RC 4000 COMPUTER®

SPECIFICATION

SOFTWARE

UTILITY 3

This specification – which is preliminary and may be subject to change – describes the Editor 3 and Debug 3 programs developed for the extended RC 4000 computer with drum and/or disc as backing store, and the Loader 2 program developed for the small RC 4000 computer without backing store.
The Editor 2 and Debug 2 programs for the small RC 4000 are not described here as they are essentially the same as those for the extended RC 4000.

Editor Program
The editor program produces an edited textstring from an original textstring and a sequence of editing commands.
The editor can be operated either in conversational mode from a typewriter or in batch processing mode, in which editing commands are input from paper tape, punched cards, magnetic tape, drum, or disc. The original textstring can be input to the editor program from paper tape, punched cards, magnetic tape, drum, or disc. The edited textstring can be output on paper tape, punched cards, magnetic tape, drum, or disc.

Paper tape must be one-inch tape with 8 tracks punched in either the RC Flexowriter code or the ISO 7-bit character code. Punched cards must be 12-row, 80-column cards punched in the Hollerith code that is standard for the given installation. Texts on magnetic tape, drum, or disc must be represented in the ISO 7-bit character code with 3 characters per word.
The editor program requires a core store area of 4,000 words. The internal editing speed is about 3,000 characters/second.

Debug Program
The debug program lets the operator insert breakpoints in a program at run time in order to display and change the contents of registers and storage locations on a typewriter.
Data can be printed as integers of 8, 12, and 24 bits, or as real numbers of 48 bits. Instructions are printed in the symbolic form of the assembly language Slang. The identification of storage locations can be absolute or relative to a base address set by the operator.
The debug program occupies about 700 words of the core store. It must be loaded along with the program to be debugged.
Both the editor and the debug program are written in the assembly language Slang 3.

Loader Program
The loader program loads a binary segment from one-inch paper tape with 8 tracks punched as 6-bit characters with odd parity. The segment is terminated by a 7-bit checksum character.
The binary segment is loaded with a start address and a protection key determined by the operator. After loading, the operator can specify a jump to an address within the program.
The loader program is written in the assembly language Slang 2. It is placed in the store by means of the autoload key.

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