

Input and Output1053 : Test Binary / Internal

If the next character to be read from the currently selected input stream is a binary character, sets  $ba' = 1$ . If the next character is in internal code,  $ba'$  is unaltered. If there are no characters remaining an exit is made to the monitor routine.

1056 : Read  $ba$  half words / characters from currently selected input to store location  $S$ . Bits 0, 1 of  $S$  are ignored.

Bit 23 of  $ba$  is ignored.

If end of record is not reached,  $ba$  is unaltered on exit except bit 23 which is set = 1.

If end of record is reached  $ba$  is set:

bit 23 = 0

bits 22-0 = number of characters actually read

1066 : Write  $ba$  half words / characters beginning at address  $S$  to the currently selected output.

On entry,  $ba$  contains

bit 23 = 0 if record is to be ended

= 1 if record is not to be ended

bits 22-0 = character count.

1055 :  $ba'$  = no of blocks read

$ba'$  = number of blocks read from selected input stream, dig 23-3.

1072 : Define output stream

~~Define~~ Evaluate output stream on

$ba$  = Destination

$ba*$  = Maximum no. of blocks.

## Branch and Trap

1107 Jump to n if branch B active  
If any branch labelled B is active, set B127 = n. Otherwise leave B127 unaltered.

1133 Read Trap address  
ba' = address of trap vector. If no trap vector has been defined, ba' = #4.

1135 Jump if block label  $\geq$  ba defined  
If any block label  $\geq$  ba is defined by non-equivalence, set B127 = n after executing the block with label ba.

1114 End Trap  
Used following a trap for off line errors such as magnetic tape errors, or computer failure. Permits other trapping of similar errors, and causes monitor, restart, or continuation.

## Miscellaneous

1136 Arithmetic instructions obeyed  
Accumulator = number of instructions obeyed in units of 2048 as fixed point integer, digits 40-3 of M. Exponent zero.

## Store

1163 Reserve band n  
Reserve a band of 6 sectors for use with extensions 1162, 1172 and label it band n. This is included within the store allocation of the program.

1176 Use band n  
Use reservation of band labelled n.

1166 Find defined block labels  
ba' = lowest block label defined in program which is  $\geq$  n.  
If there is no such block, ba' = #4.

2) Extraswords to be deleted

- 1013 : Reverse tape. Temporary deletion pending clarification
- 1114 : Dump on End Program. Replaced by End from trap
- 1141 : Write parameters. Effect achieved by other extraswords
- 1176 : Lose sector S. Replaced by lose band n.

3) Extraswords to be renumbered

- |      |                        |           |      |
|------|------------------------|-----------|------|
| 1055 | Load record            | to become | 1057 |
| 1066 | End record             | "         | 1065 |
| 1065 | Write record           | "         | 1067 |
| 1067 | Break output           | "         | 1071 |
| 1057 | Remove output as input | "         | 1070 |
| 1107 | Estimate B branches    | "         | 1103 |
| 1110 | Set trap               | "         | 1132 |
| 1111 | Trap                   | "         | 1134 |

4) Revised definitions of Extraswords

1115 : Private dump

~~1115~~ : If program monitored, dump on tape B, block n onwards.  
If tape B is not defined, dump normally.

1122 : ba' = local instruction counter.

ba' = remainder of local count set by 1123. This may exceed the overall permitted count set by the job description.

1132 : Set trap mode

~~1132~~ : Define start of trapping vector on store S.

Vector consists of one word items, each item comprising

Digits 47 - 24 : jump address for trap type n

Digits 8 - 2 : B register - since B127 is to be preserved

1134 : Trap

~~1134~~ Preserve B127 in B register specified for trap B, and jump to the jump address specified for trap B, leaving B119 unaltered. Monitor if no trapping vector defined, or if trap B not set (jump address digit 47 = 1).

1140 : Read parameter B to store S

Read to address S onwards the following quantities, depending upon the value of Ba, 0 to 7

ba	Number of Half words filled	Quantity
0	<del>0 to 19</del> 20	Job title in internal code
1	1	Store required at execution, digits 23-13
2	1	Computing time estimate, seconds, digits 23-0
3	1	Execution time " " " "
4	1	Parameter (loaded to B90 before execution)
5	8	Tape labels defined
6	2	Input labels defined
7	2	Output labels defined

The last three quantities are recorded as 1 in one of digits 23-16 of half word  $n$  if label  $16n$  to  $16n+15$  is defined.

#### 1142: End compiling

Define compiler, lose compiler space, jump to  $n$ .

ba	Digit 0 = 0	Do not define compiler
	" = 1	Define compiler. Store locations $ba^*$ onwards contain defining information
	Digit 23 = 1	Do not lose compiler space
	23 = 0	lose blocks with labels $\geq b$ , where $b$ is digit 22-12 of $ba$ .
$n$	Digit 23 = 0	Jump to $n$
	" = 1	End program

The compile switch is reset, store allocation is altered to that contained in the job description (monitor if insufficient) and B90 is set to hold the value of the parameter if any specified in the job description. The actions are carried out in the order specified above.