



$\text{cond}(A,B)$ 

|     |      |                                   |                  |        |   |    |            |
|-----|------|-----------------------------------|------------------|--------|---|----|------------|
| 300 | CAI  |                                   | if cond(AC,E):   | Skip   | 0 | —  | never      |
| 310 | CAM  |                                   | if cond(AC,(E)): | Skip   | 1 | L  | $A < B$    |
| 320 | JUMP |                                   | if cond(AC,0):   | lump E | 2 | E  | $A = B$    |
| 330 | SKIP | $(E) \rightarrow AC_{\#0}$        | if cond((E),0):  | Skip   | 3 | LE | $A \leq B$ |
| 340 | AOI  | $AC+1 \rightarrow AC$             | if cond(AC,0):   | lump E | 4 | A  | always     |
| 350 | AOS  | $(E)+1 \rightarrow (E), AC_{\#0}$ | if cond((E),0):  | Skip   | 5 | GE | $A \geq B$ |
| 360 | SOI  | $AC-1 \rightarrow AC$             | if cond(AC,0):   | lump E | 6 | N  | $A \neq B$ |
| 370 | SOS  | $(E)-1 \rightarrow (E), AC_{\#0}$ | if cond((E),0):  | Skip   | 7 | G  | $A > B$    |

|     |         |                                              |                      |     |       |     |       |
|-----|---------|----------------------------------------------|----------------------|-----|-------|-----|-------|
| 400 | boolean | $\text{bool}((AC,M) \rightarrow \text{DST})$ |                      | 000 | SETZ  | 040 | ANDCB |
|     |         |                                              |                      | 004 | AND   | 044 | EQV   |
|     |         | m                                            | a $\text{bool}(a,m)$ | 010 | ANDCA | 050 | SETCA |
|     |         | 0                                            | 0 $\text{op}_3$      | 014 | SETM  | 054 | ORCA  |
|     |         | 0                                            | 1 $\text{op}_4$      | 020 | ANDCM | 060 | SETCM |
|     |         | 1                                            | 0 $\text{op}_5$      | 024 | SETA  | 064 | ORCM  |
|     |         | 1                                            | 1 $\text{op}_6$      | 030 | XOR   | 070 | ORCB  |
|     |         |                                              |                      | 034 | IO    | 074 | SETO  |

NB: Mode S writes full word to AC<sub>40</sub>

|     |     |                           |    |   |                                        |
|-----|-----|---------------------------|----|---|----------------------------------------|
| 500 | HLL | $SRC_L \rightarrow DST_L$ | 00 | — |                                        |
| 504 | HRL | $SRC_R \rightarrow DST_L$ | 10 | Z | $0 \rightarrow DST_0$                  |
| 510 | HRR | $SRC_R \rightarrow DST_R$ | 20 | O | $777777 \rightarrow DST_0$             |
| 514 | HLR | $SRC_L \rightarrow DST_R$ | 30 | E | $Sign \times 777777 \rightarrow DST_0$ |

## on

|     |   |    |   |             |                                               |    |   |                                        |
|-----|---|----|---|-------------|-----------------------------------------------|----|---|----------------------------------------|
| 600 | T | 00 | R | $M: 0, E$   | if $\text{cond}(AC \wedge M, 0): \text{Skip}$ | 00 | N |                                        |
|     |   | 01 | L | $M: [E, 0]$ | (only $\neg, E, A, N$ )                       | 20 | Z | $AC \wedge \sim M \rightarrow AC$      |
|     |   | 10 | D | $M: (E)$    |                                               | 40 | C | $AC \underline{\vee} M \rightarrow AC$ |
|     |   | 11 | S | $M: (E)_s$  |                                               | 60 | O | $AC \vee M \rightarrow AC$             |

| 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 |       |                                               |  |  |  |  |  |  |  |    |  |   |   |  |  |  |   |  |  |    |       |                         |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------------------------------------------------------------------------------|-------|-----------------------------------------------|--|--|--|--|--|--|--|----|--|---|---|--|--|--|---|--|--|----|-------|-------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|
| dev                                                                                             |       |                                               |  |  |  |  |  |  |  | op |  | i | x |  |  |  | y |  |  |    |       |                         |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 00                                                                                              | BLKI  | (E) + [1,1] → (E). DATA → ((E) <sub>R</sub> ) |  |  |  |  |  |  |  |    |  |   |   |  |  |  |   |  |  | 20 | CONO  | E → COMMAND             |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 04                                                                                              | DATAI | DATA → (E)                                    |  |  |  |  |  |  |  |    |  |   |   |  |  |  |   |  |  | 24 | CONI  | STATUS → (E)            |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10                                                                                              | BLKO  | (E) + [1,1] → (E). ((E) <sub>R</sub> ) → DATA |  |  |  |  |  |  |  |    |  |   |   |  |  |  |   |  |  | 30 | CONSZ | if STATUS ∧ E = 0: Skip |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14                                                                                              | DATAO | (E) → DATA                                    |  |  |  |  |  |  |  |    |  |   |   |  |  |  |   |  |  | 34 | CONSO | if STATUS ∧ E ≠ 0: Skip |  |  |  |  |  |  |  |  |  |  |  |  |  |

| Mode 1 | M | DST   | DST <sub>2</sub> | Mode 2 | DST | Mode 3          | SRC | DST |       |                      |
|--------|---|-------|------------------|--------|-----|-----------------|-----|-----|-------|----------------------|
| 0      | — | (E)   | AC               | 0      | —   | AC              | 0   | —   | (E)   | AC                   |
| 1      | I | [0,E] | AC               | 1      | L   | AC <sub>2</sub> | 1   | I   | [0,E] | AC                   |
| 2      | M | (E)   | (E)              | 2      | M   | (E)             | 2   | M   | AC    | (E)                  |
| 3      | B | (E)   | (E),AC           | 3      | B   | (E),AC          | 3   | S   | (E)   | (E),AC <sub>#0</sub> |