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0: mar := pc; rd; { main loop }
1: pc := 1 + pc; rd; { increment pc }
2: ir := mbr; if n then goto 28; { save, decode mbr }
3: tir := lshift(ir + ir); if n then goto 19;
4: tir := lshift(tir); if n then goto 11; { 000x or 001x? }
5: alu := tir; if n then goto 9; { 0000 or 0001? }
6: mar := ir; rd; { 0000 = LODD }
7: rd;
8: ac := mbr; goto 0;
9: mar := ir; mbr := ac; wr; { 0001 = STOD }
10: wr; goto 0;
11: alu := tir; if n then goto 15; { 0010 or 0011? }
12: mar := ir; rd; { 0010 = ADDD }
13: rd;
14: ac := ac + mbr; goto 0;
15: mar := ir; rd; { 0011 = SUBD }
16: ac := 1 + ac; rd; { Note: x - y = x + 1 + not y }
17: a := inv(mbr);
18: ac := a + ac; goto 0;
19: tir := lshift(tir); if n then goto 25; { 010x or 011x? }
20: alu := tir; if n then goto 23; { 0100 or 0101? }
21: alu := ac; if n then goto 0; { 0100 = JPOS }
22: pc := band(ir, amask); goto 0; { perform the jump }
23: alu := ac; if z then goto 22; { 0101 = JZER }
24: goto 0; { jump failed }
25: alu := tir; if n then goto 27; { 0110 or 0111? }
26: pc := band(ir, amask); goto 0; { 0110 = JUMP }
27: ac := band(ir, amask); goto 0; { 0111 = LOCO }
28: tir := lshift(ir + ir); if n then goto 40; { 10xx or 11xx? }
29: tir := lshift(tir); if n then goto 35; { 100x or 101x? }
30: alu := tir; if n then goto 33; { 1000 or 1001? }
31: a := sp + ir; { 1000 = LODL }
32: mar := a; rd; goto 7;
33: a := sp + ir; { 1001 = STOL }
34: mar := a; mbr := ac; wr; goto 10;
35: alu := tir; if n then goto 38; { 1010 or 1011? }
36: a := sp + ir; { 1010 = ADDL }
37: mar := a; rd; goto 13;
38: a := sp + ir; { 1011 = SUBL }
39: mar := a; rd; goto 16;
40: tir := lshift(tir); if n then goto 46; { 110x or 111x? }
41: alu := tir; if n then goto 44; { 1100 or 1101? }
42: alu := ac; if n then goto 22; { 1100 = JNEG }
43: goto 0;
44: alu := ac; if z then goto 0; { 1101 = JNZE }
45: pc := band(ir, amask); goto 0;
46: tir := lshift(tir); if n then goto 50;
47: sp := sp + (-1); { 1110 = CALL }
48: mar := sp; mbr := pc; wr;
49: pc := band(ir, amask); wr; goto 0;
50: tir := lshift(tir); if n then goto 65; { 1111, examine addr }
51: tir := lshift(tir); if n then goto 59;
52: alu := tir; if n then goto 56;
53: mar := ac; rd; { 1111000 = PSHI }
54: sp := sp + (-1); rd;
55: mar := sp; wr; goto 10;
56: mar := sp; sp := sp + 1; rd; { 1111001 = POPI }
57: rd;
58: mar := ac; wr; goto 10;
59: alu := tir; if n then goto 62;
60: sp := sp + (-1); { 1111010 = PUSH }
61: mar := sp; mbr := ac; wr; goto 10;
62: mar := sp; sp := sp + 1; rd; { 1111011 = POP }
63: rd;

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64: ac := mbr; goto 0;
65: tir := lshi ft(tir); if n then goto 73;
66: alu := tir; if n then goto 70;
67: mar := sp; sp := sp + 1; rd;           { 1111100 = RETN }
68: rd;
69: pc := mbr; goto 0;
70: a := ac;                               { 1111101 = SWAP }
71: ac := sp;
72: sp := a; goto 0;
73: alu := tir; if n then goto 76;
74: a := band(ir, smask);                   { 1111110 = INSP }
75: sp := sp + a; goto 0;
76: tir := tir + tir; if n then goto 80;
77: a := band(ir, smask);                   { 11111110 = DESP }
78: a := inv(a);
79: a := a + 1; goto 75;
80: rd; wr;                                 { 11111111 = HALT }
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