取指周期

AR ← PC   PCout ARin

DR ← Memory [AR], Mread. ARout DRSin

IR ← DR   DRIout IRin

PC ← PC+1   PCt1

$\boxed{\text{DR}}$ DRI in / DRs in / out / out.

MOV R1, R0

R0 → R1   R1in, R0out

MOV R0, X

AR ← IR   IRout, ARin

ARout / Mread / DRSin

DR ← Memory [AR], Mread.

R0 ← DR   DRI out, R0 in

MOV (R1), R0

AR ← R1   R1out ARin

DR ← R0   R0out DRIin

Memory [AR] ← DR, Mwrite

ARout, DRSout, Mwrite.

ADD R1, R0

Y ← R0.   R0out, Yin

Z ← R1+Y   R1out. Add

R1 ← Z   Zout, R1in.

SUB R0, (X)

AR ← IR.

DR ← Memory [AR], Mread

AR ← DR

DR ← Memory [AR], Mread

被减数是减数. (red note)

Y ← R0   DRIout Yin

Z ← Y−DR   R0out, SUB

R0 ← Z   Zout R0in.

IN R0, P

AR ← IR

DR ← IO[AR], IOread.   ARout / IOread. / DRSin

R0 ← DR

OUT P, R0

AR ← IR

DR ← R0

IO[AR] ← DR, IOwrite

JUMP X

PC ← IR

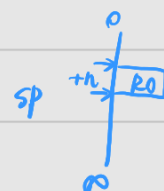**JZ off**

If (ZF=1) then

{   Y ← IR

   Z ← Y+PC.

   PC ← Z

}

PUSH R0

SP ← SP−n

DR ← R0

AR ← SP

Memory [AR] ← DR, Mwrite.

0   SP +n [R0]   ∞

POP R0.

AR ← SP

DR ← Memory [AR], Mread.

R0 ← DR

CALL (X)

$SP \leftarrow SP - n$

$AR \leftarrow SP$

$DR \leftarrow PC$

$Memory[AR] \leftarrow DR, Mwrite$

$AR \leftarrow IR$

$DR \leftarrow Memory[AR], Mread$

$PC \leftarrow DR$

RET

$AR \leftarrow SP$

$DR \leftarrow Memory[AR], Mread$

$SP \leftarrow SP + n$

$PC \leftarrow DR$