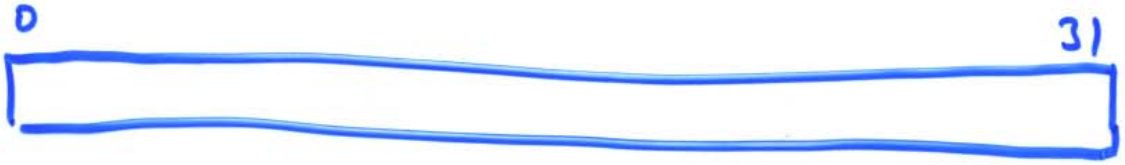


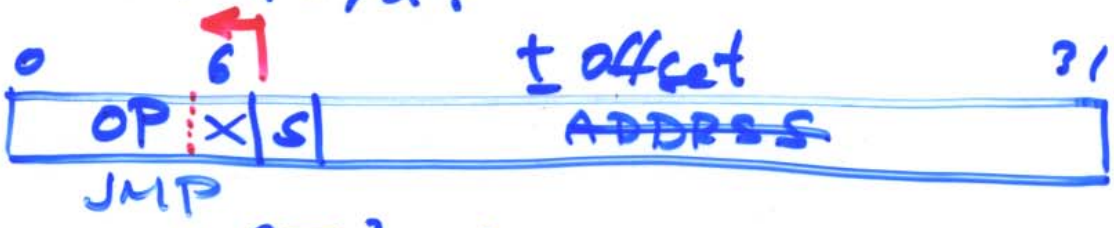
DLX

(a) JMP

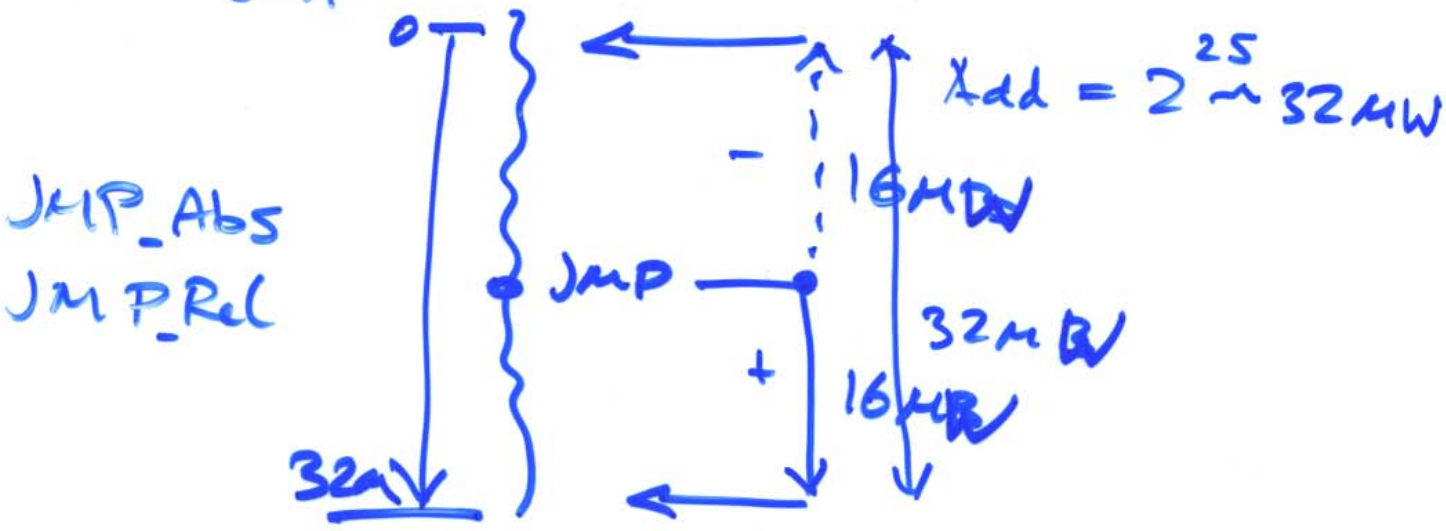
(b) LOG / ARITH

(c) LD / ST / ~~memory~~ data movement)

(d) contr / syst.

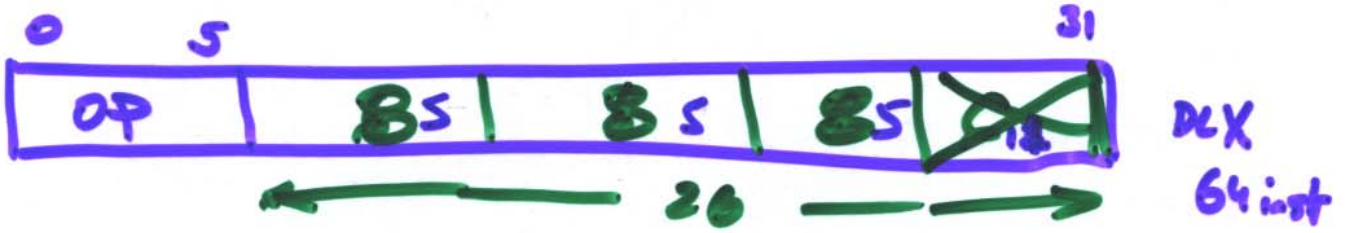


$2^7 = 128$



JMP_Rel Addrs ← PC + Offset (IAR)

(b) Arith / Log Instructions



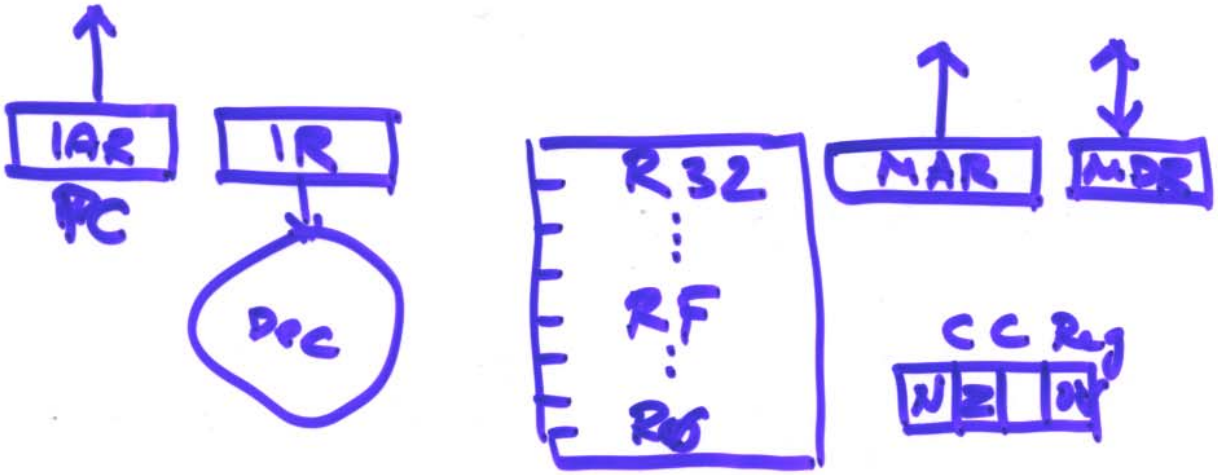
Result {R, M} ← O_{P1} ⊕ O_{P2} {R, M} ⊕ O_{P3} {R, M}
{R, M}

DSP

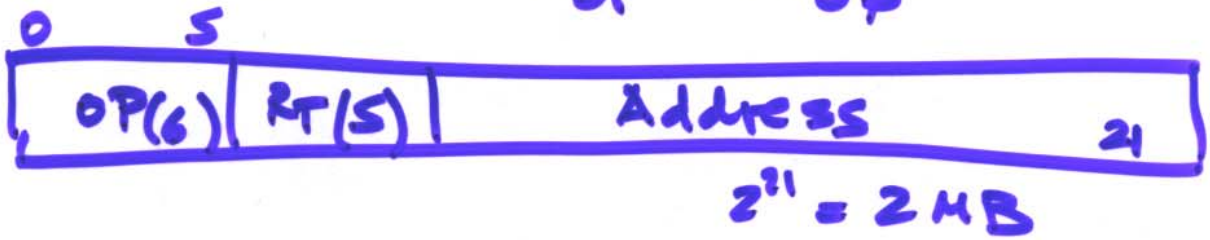
d ← ~~a ⊕ b~~ + c $2^6 = 64$

Data location:

(A) $R_T \leftarrow R_{O1} \oplus R_{O2}$



(B) $R_T \leftarrow R_{O1} + M_{OP}$



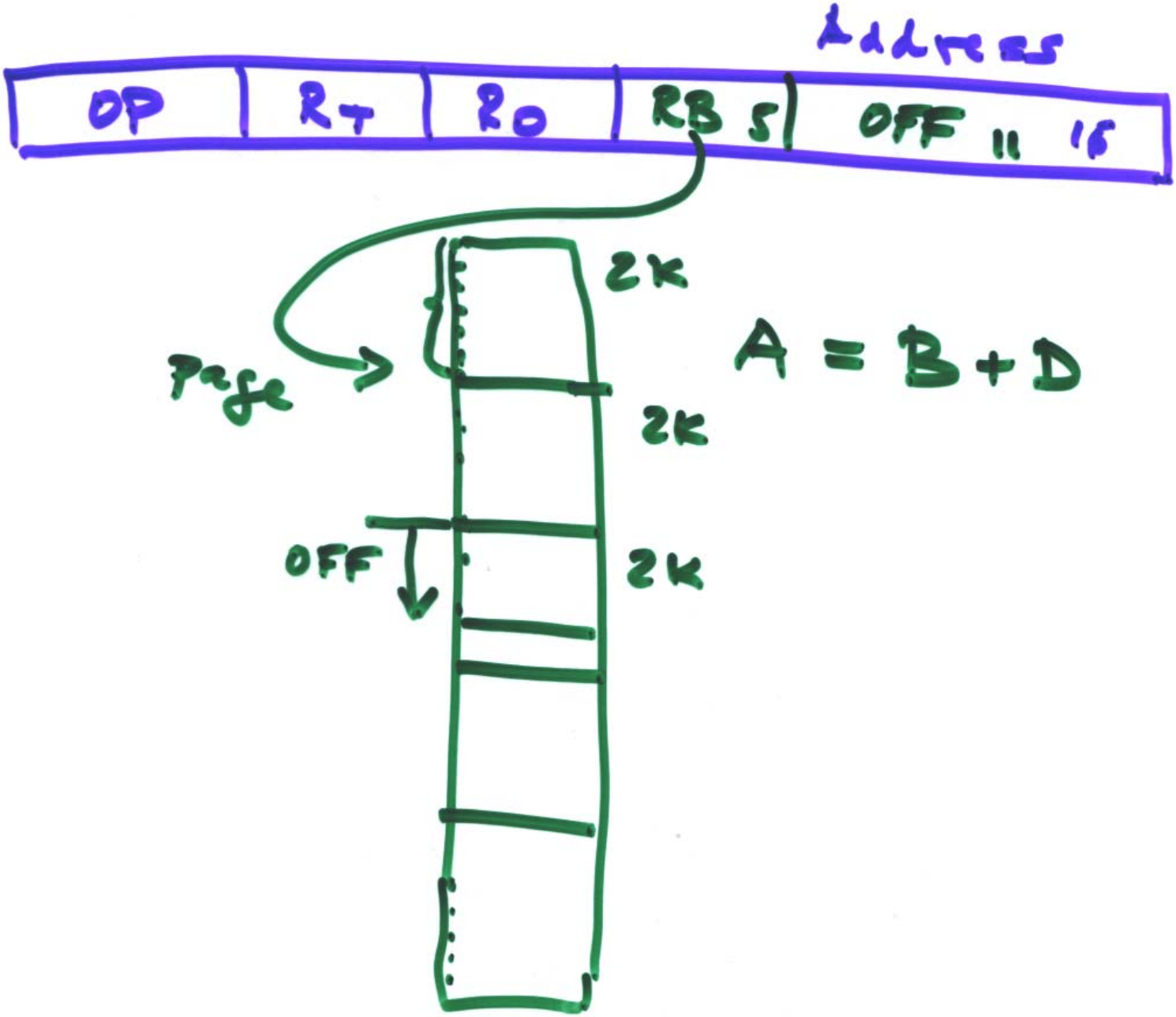
C ← A + B

3 instr:

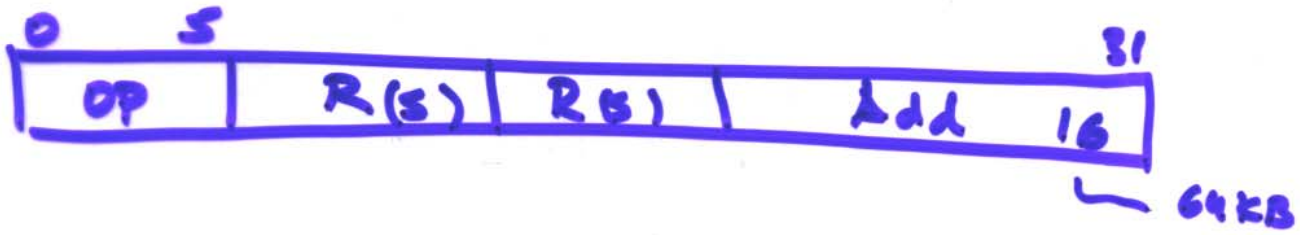
LD R_A, A_M

ADD R_C, R_A, B_M $\quad R \leftarrow R + M$

ST R_C, C_M



(b) Arith / log Instr



(1) $R \leftarrow R \bullet R$ ✓

(2) $R \leftarrow R \bullet M$

(3) $M \leftarrow M \bullet M$

(4) $\begin{cases} R \leftarrow M \bullet M \\ M \leftarrow R \bullet M \end{cases}$

Code Density

CISC vs. RISC

$C \leftarrow A + B$

M-M Arch 1 instr: $C_M \leftarrow A_M + B_M$

R-R Arch: 4 instr.

LD R_A, A_M
LD R_B, B_M
$R_C \leftarrow R_A + R_B$ (ADD R_c, R_A, R_B)
ST R_c, C_M