- 各控制信号的逻辑表达式：

$$MA = W_1T_2 + W_2T_3(MOV1 + MOV2 + MOV3)$$

$$RA = W_2ADD \bullet T_1$$

$$PB = W_1(T_1 + T_3) + W_2(T_1 + T_2)(MOV1 + MOV2 + MOV3)$$

$$RB = W_2(ADD \bullet T_1 + MOV3 \bullet T_4)$$

$$CPR_0 = W_2 \bullet MOV1 \bullet T_3 \bullet P$$

$$CPR_1 = W_2(ADD \bullet T_1 + MOV2 \bullet T_3)P$$

$$CPPC = (W_1T_3 + W_2T_2(MOV1 + MOV2 + MOV3))P$$

$$CPIR = W_1T_2P$$

$$CPMAR = (W_1T_1 + W_2(MOV1 \bullet T_1 + MOV2 \bullet T_1 + MOV3 \bullet (T_1 + T_3)))P$$

$$\overline{RD} = \overline{W_1T_2 + W_2T_3(MOV1 + MOV2 + MOV3)}$$

$$\overline{WR} = \overline{W_2 MOV3 \bullet T_4}$$

$$\overline{C} = \overline{W_2 MOV3 \bullet T_4}$$

$$M = W_1(T_1 + T_2 + \overline{T_3}) + W_2 \bullet MOV1 \bullet (T_1 + \overline{T_2} + T_3) + W_2 \bullet MOV2 \bullet (T_1 + \overline{T_2} + T_3)$$
$$+ W_2 \bullet ADD \bullet \overline{T_1} + W_2 \bullet MOV3 \bullet (T_1 + \overline{T_2} + T_3 + T_4)$$
$$= W_1 \overline{T_3} + W_2 \bullet MOV1 \bullet \overline{T_2} + W_2 \bullet MOV2 \bullet \overline{T_2} + W_2 \bullet ADD \bullet \overline{T_1} + W_2 \bullet MOV3 \bullet \overline{T_2}$$

$$S_3 = 1$$

$$S_2 = W_1(\overline{T_1 + T_3} + T_2) + W_2 \bullet MOV1 \bullet (\overline{T_1 + T_2} + T_3) + W_2 \bullet MOV2 \bullet (\overline{T_1 + T_2} + T_3)$$
$$+ W_2 \bullet ADD \bullet \overline{T_1} + W_2 \bullet MOV3 \bullet (\overline{T_1 + T_2 + T_4} + T_3)$$
$$= W_1 \overline{T_1}\,\overline{T_3} + W_2 \bullet MOV1 \bullet \overline{T_1}\,\overline{T_2} + W_2 \bullet MOV2 \bullet \overline{T_1}\,\overline{T_2} + W_2 \bullet ADD \bullet \overline{T_1} + W_2 \bullet MOV3 \bullet \overline{T_1}\,\overline{T_2}\,\overline{T_4}$$

$$S_1 = W_1(T_1 + T_2 + \overline{T_3}) + W_2 \bullet MOV1 \bullet (T_1 + \overline{T_2} + T_3) + W_2 \bullet MOV2 \bullet (T_1 + \overline{T_2} + T_3)$$
$$+ W_2 \bullet ADD \bullet \overline{T_1} + W_2 \bullet MOV3 \bullet (T_1 + \overline{T_2} + T_3 + T_4)$$
$$= W_1 \overline{T_3} + W_2 \bullet MOV1 \bullet \overline{T_2} + W_2 \bullet MOV2 \bullet \overline{T_2} + W_2 \bullet ADD \bullet \overline{T_1} + W_2 \bullet MOV3 \bullet \overline{T_2}$$

$$S_0 = W_1(\overline{T_1} + T_2 + T_3) + W_2 \bullet MOV1 \bullet (T_1 + \overline{T_2} + T_3) + W_2 \bullet MOV2 \bullet (T_1 + \overline{T_2} + T_3)$$
$$+ W_2 \bullet ADD \bullet T_1 + W_2 \bullet MOV3 \bullet (\overline{T_1 + T_4} + T_2 + T_3)$$
$$= W_1\overline{T_1} + W_2 \bullet MOV1 \bullet \overline{T_2} + W_2 \bullet MOV2 \bullet \overline{T_2} + W_2 \bullet ADD \bullet T_1 + W_2 \bullet MOV3 \bullet \overline{T_1} \bullet \overline{T_4}$$

$$CN = W_1\overline{T_3} + W_2 \bullet MOV1 \bullet \overline{T_2} + W_2 \bullet MOV2 \bullet \overline{T_2} + W_2 \bullet ADD \bullet T_1 + W_2 \bullet MOV3 \bullet \overline{T_2}$$