附录2：全部微程序编码

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 操作码 | 微操作 | 微地址 | µIR23~µIR16 | µIR15µIR14 | µIR13µIR12 | µIR11~µIR9 | µIR8 | µIR7 | µIR6 | µIR5µIR4 | µIR3 | µIR2~µIR0 | 十六进制代码 | | |
| JP目标地址 | B选择 | A选择 | 输出分配 | C0 |  | PWD | RD WR | 停机 | 转移方式 | ROM#3 | ROM#2 | ROM#1 |
| 取指 | PC->MAR | 00 | 00H | 00 | 11 | 110 | 0 | 0 | 0 | 00 | 0 | 000 | 00 | 3C | 00 |
| PC+1->PC | 01 | 00H | 00 | 11 | 111 | 1 | 0 | 0 | 00 | 0 | 000 | 00 | 3F | 00 |
| RAM->MDR | 02 | 00H | 00 | 00 | 101 | 0 | 0 | 0 | 10 | 0 | 000 | 00 | 0A | 20 |
| MDR->IR | 03 | 00H | 10 | 00 | 100 | 0 | 0 | 0 | 00 | 0 | 000 | 00 | 88 | 00 |
| QJP | 04 | 00H | 00 | 00 | 001 | 0 | 0 | 0 | 00 | 0 | 001 | 00 | 02 | 01 |
| LD | PC->MAR | 10 | 00H | 00 | 11 | 110 | 0 | 0 | 0 | 00 | 0 | 000 | 00 | 3C | 00 |
| PC+1->PC | 11 | 00H | 00 | 11 | 111 | 1 | 0 | 0 | 00 | 0 | 000 | 00 | 3F | 00 |
| RAM->MDR | 12 | 00H | 00 | 00 | 101 | 0 | 0 | 0 | 10 | 0 | 000 | 00 | 0A | 20 |
| MDR->MAR | 13 | 00H | 10 | 00 | 110 | 0 | 0 | 0 | 00 | 0 | 000 | 00 | 8C | 00 |
| RAM->MDR | 14 | 00H | 00 | 00 | 101 | 0 | 0 | 0 | 10 | 0 | 000 | 00 | 0A | 20 |
| MDR->Ri | 15 | 00H | 10 | 00 | 000 | 0 | 0 | 0 | 00 | 0 | 000 | 00 | 80 | 00 |
| JP | 16 | 00H | 00 | 00 | 001 | 0 | 0 | 0 | 00 | 0 | 010 | 00 | 02 | 02 |
| ST | PC->MAR | 20 | 00H | 00 | 11 | 110 | 0 | 0 | 0 | 00 | 0 | 000 | 00 | 3C | 00 |
| PC+1->PC | 21 | 00H | 00 | 11 | 111 | 1 | 0 | 0 | 00 | 0 | 000 | 00 | 3F | 00 |
| RAM->MDR | 22 | 00H | 00 | 00 | 101 | 0 | 0 | 0 | 10 | 0 | 000 | 00 | 0A | 20 |
| MDR->MAR | 23 | 00H | 10 | 00 | 110 | 0 | 0 | 0 | 00 | 0 | 000 | 00 | 8C | 00 |
| Ri->MDR | 24 | 00H | 00 | 01 | 101 | 0 | 0 | 0 | 00 | 0 | 000 | 00 | 1A | 00 |
| MDR->RAM | 25 | 00H | 10 | 00 | 001 | 0 | 0 | 0 | 01 | 0 | 000 | 00 | 82 | 10 |
| JP | 26 | 00H | 00 | 00 | 001 | 0 | 0 | 0 | 00 | 0 | 010 | 00 | 02 | 02 |
| HALT | HALT | 30 | 00H | 00 | 00 | 001 | 0 | 0 | 0 | 00 | 1 | 000 | 00 | 02 | 08 |
| JX | PC->MAR | 40 | 00H | 00 | 11 | 110 | 0 | 0 | 0 | 00 | 0 | 000 | 00 | 3C | 00 |
| RAM->MDR | 41 | 00H | 00 | 00 | 101 | 0 | 0 | 0 | 10 | 0 | 000 | 00 | 0A | 20 |
| XJP+PC->PC | 42 | 00H | 11 | 11 | 111 | 0 | 0 | 0 | 00 | 0 | 000 | 00 | FE | 00 |
| QJP | 43 | 00H | 00 | 00 | 001 | 0 | 0 | 0 | 00 | 0 | 010 | 00 | 02 | 02 |
| ADD | Ri+Rj->Rj | 50 | 00H | 01 | 01 | 000 | 0 | 0 | 1 | 00 | 0 | 000 | 00 | 50 | 40 |
| JP | 51 | 00H | 00 | 00 | 001 | 0 | 0 | 0 | 00 | 0 | 010 | 00 | 02 | 02 |
| JMP | PC->MAR | 60 | 00H | 00 | 11 | 110 | 0 | 0 | 0 | 00 | 0 | 000 | 00 | 3C | 00 |
| RAM->MDR | 61 | 00H | 00 | 00 | 101 | 0 | 0 | 0 | 10 | 0 | 000 | 00 | 0A | 20 |
| MDR+PC->PC | 62 | 00H | 10 | 11 | 111 | 0 | 0 | 0 | 00 | 0 | 000 | 00 | BE | 00 |
| JP | 63 | 00H | 00 | 00 | 001 | 0 | 0 | 0 | 00 | 0 | 010 | 00 | 02 | 02 |
| INC | Ri+1->Ri | 70 | 00H | 00 | 01 | 000 | 1 | 0 | 0 | 00 | 0 | 000 | 00 | 11 | 00 |
| JP | 71 | 00H | 00 | 00 | 001 | 0 | 0 | 0 | 00 | 0 | 010 | 00 | 02 | 02 |
| INC+ | Ri+1->Ri+ | A0 | 00H | 00 | 01 | 000 | 1 | 0 | 1 | 00 | 0 | 000 | 00 | 11 | 40 |
| JP | A1 | 00H | 00 | 00 | 001 | 0 | 0 | 0 | 00 | 0 | 010 | 00 | 02 | 02 |