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| **Code:** | **Instruction:** | **Signals:** | **Description:** |
| **Main instructions:** | | | |
| xxxxxxxx | FETCH | 1 CO, MI  2 RDO, II, CE | Fetch-Cycle, gets executed for every instruction. |
| 00000001 | LDA | 3 IO, MI  4 RDO, AI  5 RST | Byte gets copied to A-register. |
| 00000010 | LDB | 3, IO, MI  4 RDO, BI  5 RST | Byte gets copied to B-register. |
| 00000011 | ADD | 3 IO, MI  4 RDO, BI  5 EO, AI, SF  6 RST | Byte from A-register gets added to byte in A-register. |
| 00000100 | SUB | 3 IO, MI  4 RDO, BI  5 SO, AI, SF  6 RST | Byte from A-register gets subtracted to byte in A-register. |
| 00000101 | OUT | 3 AO, OI  4 RST | Byte gets copied from the A-register tot he output-register. |
| 00000110 | JMP | 3 IO, J  4 RST | Jumps to given RAM-adress. |
| 00000111 | JC | 3 IO, J  4 RST | Jumps to given RAM-adress , if carry-flag is set. |
| 00001000 | JZ | 3 IO, J  4 RST | Jumps to given RAM-adress , if zero-flag is set. |
| 00001001 | JE | 3 IO, J  4 RST | Jumps to given RAM-adress , if expansion-flag is set. |
| 00001010 | INA | 3 INPO, AI  4 RSTINP  5 RST | Byte in input-register gets copied into the A-register |
| 00001011 | INR | 3 IO, MI  4 INPO, RDI  5 RSTINP  6 RST | Byte in input-register gets saved in given RAM-adress |
| 00001100 | HLT | 3 HLT | Halts the computer. |
| 00001101 | SVA | 3 IO, MI  4 RDI, AO  5 RST | Byte in A-register gets saved in given RAM-adress. |
| 00001110 | SVB | 3 IO, MI  4 RDI, BO  5 RST | Byte in B-register gets saved in given RAM-adress. |
| **Instructions for the expansion:** | | | |
| 00001111 | RTE0 | 3 IO, MI  4 RDO, E7, E3  5 SF | Byte from RAM gets copied into the expansion. |
| 00010000 | RTE1 | 3 IO, MI  4 RDO, E7, E3, E0  5 SF | Byte from RAM gets copied into the expansion. |
| 00010001 | RTE2 | 3 IO, MI  4 RDO, E7, E3, E1  5 SF | Byte from RAM gets copied into the expansion. |
| 00010010 | RTE3 | 3 IO, MI  4 RDO, E7, E3, E1, E0  5 SF | Byte from RAM gets copied into the expansion. |
| 00010011 | RTE4 | 3 IO, MI  4 RDO, E7, E3, E2  5 SF | Byte from RAM gets copied into the expansion. |
| 00010100 | RTE5 | 3 IO, MI  4 RDO, E7, E3, E2, E0  5 SF | Byte from RAM gets copied into the expansion. |
| 00010101 | RTE6 | 3 IO, MI  4 RDO, E7, E3, E2, E1  5 SF | Byte from RAM gets copied into the expansion. |
| 00010110 | RTE7 | 3 IO, MI  4 RDO, E7, E3, E2, E1, E0  5 SF | Byte from RAM gets copied into the expansion. |
| 00010111 | ETR0 | 3 IO, MI  4 RDI, E7, E4, E3  5 SF | Byte from RAM gets saved in given RAM-adress. |
| 00011000 | ETR1 | 3 IO, MI  4 RDI, E7, E4, E3, E0  5 SF | Byte from RAM gets saved in given RAM-adress. |
| 00011001 | ETR2 | 3 IO, MI  4 RDI, E7, E4, E3, E1  5 SF | Byte from RAM gets saved in given RAM-adress. |
| 00011010 | ETR3 | 3 IO, MI  4 RDI, E7, E4, E3, E1, E0  5 SF | Byte from RAM gets saved in given RAM-adress. |
| 00011011 | ETR4 | 3 IO, MI  4 RDI, E7, E4, E3, E2  5 SF | Byte from RAM gets saved in given RAM-adress. |
| 00011100 | ETR5 | 3 IO, MI  4 RDI, E7, E4, E3, E2, E0  5 SF | Byte from RAM gets saved in given RAM-adress. |
| 00011101 | ETR6 | 3 IO, MI  4 RDI, E7, E4, E3, E2, E1  5 SF | Byte from RAM gets saved in given RAM-adress. |
| 00011110 | ETR7 | 3 IO, MI  4 RDI, E7, E4, E3, E2, E1, E0  5 SF | Byte from RAM gets saved in given RAM-adress. |
| 00011111 | ATE0 | 3 AO, E7  4 SF | Byte from A-register gets copied into the expansion. |
| 00100000 | ATE1 | 3 AO, E7, E0  4 SF | Byte from A-register gets copied into the expansion. |
| 00100001 | ATE2 | 3 AO, E7, E1  4 SF | Byte from A-register gets copied into the expansion. |
| 00100010 | ATE3 | 3 AO, E7, E1, E0  4 SF | Byte from A-register gets copied into the expansion. |
| 00100011 | ATE4 | 3 AO, E7, E2  4 SF | Byte from A-register gets copied into the expansion. |
| 00100100 | ATE5 | 3 AO, E7, E2, E0  4 SF | Byte from A-register gets copied into the expansion.. |
| 00100101 | ATE6 | 3 AO, E7, E2, E1  4 SF | Byte from A-register gets copied into the expansion. |
| 00100110 | ATE7 | 3 AO, E7, E2, E1, E0  4 SF | Byte from A-register gets copied into the expansion. |
| 00100111 | ETA0 | 3 AI, E7, E4  4 SF | Byte from the expansion gets copied into the A-Register. |
| 00101000 | ETA1 | 3 AI, E7, E4, E0  4 SF | Byte from the expansion gets copied into the A-Register. |
| 00101001 | ETA2 | 3 AI, E7, E4, E1  4 SF | Byte from the expansion gets copied into the A-Register. |
| 00101010 | ETA3 | 3 AI, E7, E4, E1, E0  4 SF | Byte from the expansion gets copied into the A-Register. |
| 00101011 | ETA4 | 3 AI, E7, E4, E2  4 SF | Byte from the expansion gets copied into the A-Register. |
| 00101100 | ETA5 | 3 AI, E7, E4, E2, E0  4 SF | Byte from the expansion gets copied into the A-Register. |
| 00101101 | ETA6 | 3 AI, E7, E4, E2, E1  4 SF | Byte from the expansion gets copied into the A-Register. |
| 00101110 | ETA7 | 3 AI, E7, E4, E2, E1, E0  4 SF | Byte from the expansion gets copied into the A-Register. |