**Microprograms**

**Fetch instructions**

1. **Pcout, Marin, Pcin, Rd**

**Decode**

1. **MDRout1, IRin**

**1-Double operand instructions**

* **ADC**

**ADC Ri, Rj**

1. **RsrcEN, DstEns, xin, F=x, ALUout1, Yin**
2. **RsrcEN, xin, ENALU, ALUout2, RDstEN**

**ADC (Ri)+, Rj**

**3. RsrcEN, xin, F=X,ALUOUT1,YIN,MARIN,RD**

**4.INC2,ALUOUT2,RDSTEN,SRCEND**

**5.MDROUT1,MDROUT2,YIN,RSRCEN,DSTENS,XIN, ENALU,ALUOUT2,RDSTEN**

**//-------------------------------------------------------------------------------------**

**3. RsrcEN, xin, F=x, ALUout1, MARin, RD**

**4. INC, ALUout2, RDstEn, SRCEnD**

**5. RSrcEN, DstENs, xin, WMFC**

**6. MDRout1, MDRout2, Yin, ENALU, ALUOUT2, RDSTEN**

**ADC -(Ri), Rj**

**3. RsrcEN, xin**

**4. DEC2, ALUout1,MARin, RD,RDSTEN, ALUOUT2, SRCEND**

**5. RSrcEN, DstENs, xin, WMFC**

**6. MDRout1, MDRout2, Yin, ENALU, ALUOUT2, RDSTEN**

**ADC X(Ri), Rj**

**3. PCOUT, PCIN, MDROUT2,MDROUT1, MUXSHIFT,YIN,RSRCEN,XIN, ADD, ALUOUT1, MARIN //INCREMENT PC(ADD MEANS ADD CODE)//ANA HENA ESTAGHALET EL X ELLY GEBTAHA**

**4. RD (3SHAN YESTANA ELMEMORY)**

**5. MDROUT1,MDROUT2,RSRCEN,DSTENS,XIN,YIN,ENALU , ALUOUT2, RDSTEN, END**

**ADC X(Ri), X(Rj) //SAME AS ABOVE TILL 4**

1. **MDROUT1,MDROUT2,RSRCEN,DSTENS,XIN,YIN,ALUOUT2,TEMPIN**
2. **PCOUT,PCIN,MARIN,RD**
3. **RD**
4. **MDROUT1,MDROUT2,MUXCLEAR,YIN,RSRCEN,DSTENSRC,XIN,ALUOUT2,MARIN,ADD,RD**
5. **RD**
6. **MDROUT1,MDROUT2,TEMPOUT,XIN,YIN, ENALU, ALUOUT2,MDRIN,MUXMEMORY,WR**
7. **WR,END**

**ADC X(Ri), (Rj)+ //SAME AS ABOVE TILL 5**

**6. RSRCEN,DSTENS,XIN,ALUOUT1,YIN,MARIN,RD**

**7.INC2,ALUOUT2,RDSTEN**

**8.MDROUT1,MDROUT2,YIN,TEMPOUT,XIN, ENALU,ALUOUT2,MDRIN,MUXMEMORY,WR**

**9. WR,END**

**ADD X(Ri), -(Rj)**

**6- RSRCEN, DSTENS, XIN, DEC2**