Number of Cycles for Each Operation:

- **Any 2-OP Except [(MOV – CMP)->Subtract One instruction]**
1. Direct src – Direct Dest: 4   **+2(fetch decode) + 1(save result)**
2. Direct src – Ind Reg Dest: 5   **+2(fetch decode) + 1(save result)**
3. Auto Inc src – Auto Inc Dest / Direct src – Auto Inc Dest: 6(Dir) / 7(Indir)
   +2(fetch decode) + 1(save result)
4. Auto Dec Dest - Direct src / Direct src – Auto Dec Dest : 6(Dir) / 7(Indir)
   +2(fetch decode) + 1(save result)
5. Index Dest - Direct src / Direct src – Index Dest: 8(Dir) / 9(Indir)
      +2(fetch decode) + 1(save result)

1. Ind Reg src -Ind Reg Dest : 6   **+2(fetch decode) + 1(save result)**
2. Auto Inc src -Ind Reg Dest / Ind Reg src -Auto Inc Dest : 7(Dir) / 8(Indir)
      +2(fetch decode) + 1(save result)
3. Auto Dec src -Ind Reg Dest / Ind Reg src -Auto Dec Dest : 7(Dir) / 8(Indir)
      +2(fetch decode) + 1(save result)
4. Index src -Ind Reg Dest / Ind Reg src -Index Dest : 9(Dir) / 10(Indir)
      +2(fetch decode) + 1(save result)

1. Auto Inc src -Auto Inc Dest : 10(Indir)/10(Indir) 9(Dir)/10(Indir) 10(Indir)/9(dir)
      +2(fetch decode) + 1(save result)
2. Auto dec src -Auto Inc Dest / Auto Inc src -Auto dec Dest: 10(Indir)/10(Indir)
   9(Dir)/10(Indir) 10(Indir)/9(dir)   **+2(fetch decode) + 1(save result)**
3. Index src -Auto Inc Dest /Auto Inc src -Index Dest : 12(Indir)/12(Indir)
   11(Dir)/12(Indir) 12(Indir)/11(dir)   **+2(fetch decode) + 1(save result)**

1. Index src– Auto Dec Dest/Auto Dec src– Index Dest: 12(Indir)/12(Indir) 11(Dir)/
   12(Indir) 12(Indir)/11(dir)   **+2(fetch decode) + 1(save result)**
2. Auto Dec src– Auto Dec src : 10(Indir)/10(Indir) 9(Dir)/10(Indir) 10(Indir)/9(dir)
      +2(fetch decode) + 1(save result)

1. Index src– Index Dest : 14(Indir)/14(Indir) 13(Dir)/14(Indir) 14(Indir)/13(dir)
      +2(fetch decode) + 1(save result)

- **Any 1-OP**
1. Direct : 3   **+2(fetch decode) + 1(save result)**
2. Indir : 4   **+2(fetch decode) + 1(save result)**
3. Auto Inc: 4(Dir)/5(Indir)   **+2(fetch decode) + 1(save result)**

4. Auto Dec : 4(Dir)/5(Indir)   **+2(fetch decode) + 1(save result)**
5. Index : 7(Dir)/8(Indir)   **+2(fetch decode) + 1(save result)**

- **branch instruction**   **+2(fetch decode)**
  3

Number of Fetches Excluding/Including Fetching Instruction:

1. Direct : 0   **+1(fetch decode)**
2. Indir : 1   **+1(fetch decode)**
3. Auto Inc: 1(Dir)/2(Indir)   **+1(fetch decode)**
4. Auto Dec : 1(Dir)/2(Indir)   **+1(fetch decode)**
5. Index : 2(Dir)/3(Indir)   **+1(fetch decode)**

CPI : 10.2 ≃ 11