Addrening mode:

Addrening mode indiates way of locating data or operands. Acording to flow of instruction exeution, the instruction may be categorized as

i) Sequential control flow

ii) Control transfer instructions.

Sequential control flow: It transfer control to the next instruction

control transfer instructions: It transfer's control to predefined address after their execution.

sequential control flow instructions: 8 instructions

1) Immediate
2) Direct
3) Register
4) Register Indirect
5) Indexed
6) Register relative
7) Based Indexed
8) Relative based Indexed.

Control transfer instructions; 2 instructions.

1) Inter segment

Inter segment direct

Inter segment Indirect

2) Intra segment

Intra segment direct

Intra segment Indirect.

Immediate addrening modes:

The data operand i supplied as part of instruction. The immediate operand can only be a source.

E.g; MOV CH, 3A data transferred immediately to CH.

Direct addresing mode;

In this mode 16-bit Effective Address (EA) taken directly from the displacement of the instructions. Immediate value will be given to the instructions.

E.g: MOV [1234 H], AX.

Register addresing mode;

Both source & destination operands are registers.

E.g; MOV AL, AX

MOV AX, BX

Register Indirect addresing mode;

One of the operands in memory locations, with the offset given by one of the BP, BX, SI or DI register.

E.g: MOV [BX], CL.

Register relative addresing mode:

The Effective Address is the sum of 8 bit or 16 bit displacement and contents of base register or index register.

E.g: MOV AX, 50H [BX]

MOV AL, 32H [BP].

Indexed addresing mode;

In this mode, offset of operand is stored in one of the index register.

E.g: MOV AX, [SI] AX - offset.

Based Index addresing mode;

The EA is sum of base register [(BX) or (BP)] & an index register [(SI) or (DI)] both specified by instruction.

E.g: MOV AX, [BX] [SI]

MOV CL, [BP] [DI]

Relative based indexed addressing mode:

The EA is sum of 8 or 16-bit displacement + base indexed address.

E.g: MOV AX, 50H [BX] [SI]

MOV CL, 85H [BP] [DI]

Intrasegment:

If the distination location in same segment is called intrasegment.

Intrasegment Direct:

The EA is sum of the 8 bit or 16bit displacement of the contents of IP when displacement is 8 bit long, it is referred to as short Jump. It may be used with either conditional (or) unconditional branching.

Eg: JMP 2000H;

Intrasegment Indirect:

The displacement to which control is to transferred, is in same segment in which control transfer instructions lies, but it is passed to instruction indirectly. This mode may be used in unconditional branch instruction.

E.g: JMP [BX]; Jump to effective address stored in BX.

Intersegment:

If location to which control is to be transferred lies in

Intersegment Direct:

The address to which the control is to be transferred is in a different segment. This mode provide a means of branching from one code segment to another code segment.

E-g: JMP 5000H : 2000H ; Jump to effective address 2000H in segment 5000H.

Intersegment Indirect:

The address to which the control is to be transferred lies in a different segment. It is passed to instruction indirectly i.e., contents of memory block containing 4 bytes i.e,, IP (LSB), IP (MSB), CS (LSB), CS (MSB).

Eg: JMP [2000H];