

2.2 DATA TRANSFER INSTRUCTIONS:

Includes the instructions that moves (copies) data between registers or between memory locations and registers. In all data transfer operations the content of source register is not altered. Hence the data transfer is copying operation.

Opcode	Operand	Description
Copy from source to destination		
MOV	Rd, Rs M, Rs Rd, M	This instruction copies the contents of the source register into the destination register; the contents of the source register are not altered. If one of the operands is a memory location, its location is specified by the contents of the HL registers. Example: MOV B, C or MOV B, M
Move immediate 8-bit		
MVI	Rd, data M, data	The 8-bit data is stored in the destination register or memory. If the operand is a memory location, its location is specified by the contents of the HL registers. Example: MVI B, 57H or MVI M, 57H
Load accumulator		
LDA	16-bit address	The contents of a memory location, specified by a 16-bit address in the operand, are copied to the accumulator. The contents of the source are not altered. Example: LDA 2034H
Load accumulator indirect		
LDAX	B/D Reg. pair	The contents of the designated register pair point to a memory location. This instruction copies the contents of that memory location into the accumulator. The contents of either the register pair or the memory location are not altered. Example: LDAX B
Load register pair immediate		
LXI	Reg. pair, 16-bit data	The instruction loads 16-bit data in the register pair designated in the operand. Example: LXI H, 2034H or LXI H, XYZ
Load H and L registers direct		
LHLD	16-bit address location	The instruction copies the contents of the memory pointed out by the 16-bit address into register L and

copies the contents of the next memory location into register H. The contents of source memory locations are not altered.

Example: LHLD 2040H

Store accumulator direct
STA 16-bit address

The contents of the accumulator are copied into the memory location specified by the operand. This is a 3-byte instruction, the second byte specifies the low-order address and the third byte specifies the high-order address.

Example: STA 4350H

Store accumulator indirect
STAX Reg. pair

The contents of the accumulator are copied into the memory location specified by the contents of the operand (register pair). The contents of the accumulator are not altered.

Example: STAX B

Store H and L registers direct
SHLD 16-bit address

The contents of register L are stored into the memory location specified by the 16-bit address in the operand and the contents of H register are stored into the next memory location by incrementing the operand. The contents of registers HL are not altered. This is a 3-byte instruction, the second byte specifies the low-order address and the third byte specifies the high-order address.

Example: SHLD 2470H

Exchange H and L with D and E
XCHG none

The contents of register H are exchanged with the contents of register D, and the contents of register L are exchanged with the contents of register E.

Example: XCHG

Copy H and L registers to the stack pointer
SPHL none

The instruction loads the contents of the H and L registers into the stack pointer register, the contents of the H register provide the high-order address and the contents of the L

register provide the low-order address. The contents of the H and L registers are not altered.

Example: SPHL

Exchange H and L with top of stack

XTHL none

The contents of the L register are exchanged with the stack location pointed out by the contents of the stack pointer register. The contents of the H register are exchanged with the next stack location (SP+1); however, the contents of the stack pointer register are not altered.

Example: XTHL

Push register pair onto stack

PUSH Reg. pair

The contents of the register pair designated in the operand are copied onto the stack in the following sequence. The stack pointer register is decremented and the contents of the high-order register (B, D, H, A) are copied into that location. The stack pointer register is decremented again and the contents of the low-order register (C, E, L, flags) are copied to that location.

Example: PUSH B or PUSH A

Pop off stack to register pair

POP Reg. pair

The contents of the memory location pointed out by the stack pointer register are copied to the low-order register (C, E, L, status flags) of the operand. The stack pointer is incremented by 1 and the contents of that memory location are copied to the high-order register (B, D, H, A) of the operand. The stack pointer register is again incremented by 1.

Example: POP H or POP A