Experiment Details

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| Department Name | Electrical engineering |
| Class | TY BTech |
| Semester | V |
| Subject Name | Microprocessor and Microcontroller |
| Experiment No. | 1 |
| Experiment Name | Block transfer& block exchange operation using 8051. |

Version History

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| --- | --- | --- | --- | --- |
| Sr. No. | Version Number | Created By | Approved By | Date |
| 1 | v1.0 | Yuvraj Bhalekar | Mrs. Sushmita Amit Sarkar | 11/10/2020 |
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AIM:

To perform block transfer& block exchange operation using 8051.

THEORY:

### To transfer block of 05 data bytes from internal memory location30H to internal memory location 40H.

### Algorithm

1. ORG //directive is used to indicate the beginning of the addresses of program or data memory.
2. mov r0,#immediate data //moves immediate data 30H which is here the source address directly to a register in the register banks.
3. mov r1,# immediate data //moves immediate data 40H which is the destination address directly to a register in the register banks.
4. mov r7,# immediate data //moves immediate data which is the counter value for the number of data bytes to be transferred directly to a register in the register banks.
5. mov a,@r0 // Uses data stored in R0 register as an address and the moves data at that location to the accumulator
6. mov @r1,a// Moves data from the accumulator to an address which is stored in the register r1.
7. inc r0 // increment the register r0 by 1 in order to point towards the next source location.
8. inc r1 // increment the register r1 by 1 in order to point towards the next destination location.
9. djnz r7, label // decrement the content of r7 jump to the label if it is not zero
10. end// directive is the last line of an 8051 program

### Flowchart

To copy immediate data which is the 1st location directly to register r0.

To copy immediate data which is the 2nd location address directly to register r1

Initialize r7 register with the counter value for the number of data bytes to be exchanged between 1st location and 2nd location.

To use data stored in r0 register as an address and then moves the data at the location 1to the accumulator

To store the location 1 data present at accumulator into r4 register.

To use data stored in r1 register as an address and then moves the data at the location 2 to the accumulator.

To store the location 2 data present in accumulator into the location 1 whose address is given by r0.

To store the location 1 data present at r4 register into accumulator.

To store the location 1 data present in accumulator into the location 2 whose address is given by r1.

To increment the register r0 by 1 in order to point towards the next location 1.

To increment the register r1 by 1 in order to point towards the next destination location.

decrement the content of r7 jump to the label if it is not zero otherwise end

## PRE-TEST:

* + - 1. Internal RAM memory provided to 8051 microprocessors is:
         1. 32 bytes
         2. 64 bytes
         3. **128 bytes**
         4. 256 bytes
      2. Number of 16-bit counter/timers in 8051
         1. 7
         2. 3
         3. **2**
         4. 1
      3. MOV A is not data transfer instruction
         1. True
         2. **False**
      4. Address space of the 8051 is divided among following…
         1. internal data
         2. external data
         3. internal code
         4. **all of the above**

PROCEDURE:

* + - 1. go to simulator window.
      2. click on next button to go through each instruction.
      3. click on run when all instructions are done.
      4. fill the inputs whenever is asked.

POST TEST:

1. which of the following is an addressing mode?
   1. Direct addressing mode
   2. Register Indirect addressing mode
   3. Immediate data addressing mode
   4. **All of the above**
2. Which of the following is an example of register indirect addressing mode?
   1. **MOV A, @R0**;
   2. MOVR2, 45H;
   3. MOVA, R5
   4. None of the above
3. Which of the following is not example of register addressing mode?
   1. MOVA, R5;
   2. MOVR2, #45H;
   3. MOVR0, A
   4. **None of the above**
4. Which of the following is instruction group of 8051 instructions?
   1. Data Transfer Group
   2. Arithmetic Group
   3. Logical Group
   4. All of the above

REFERENCES:

Write names of text books and reference books for experiment.