Date 02/12/22

(Unit 05)

(Application of microprocessor)

The Major Application of microprocessor are categorith into two Ban

1. Control Base Application.
2. Majorment Base Application.

(1) Control Base Applications It Imployed when you use microprocessor for the Controling purpose

Exp: Washing machine, Coffi maker, traffic light System etc.

(2) Majorment Application:- then are used for Controling the temporature the main use of Majorment use of Application are in Madical field. Different machine and Implinent are used work on the Above principal.

+5V
Gnd
Q1
Q2
Reset
NMI
INR

6800 Up is a
Bus it was
Most technology
the pin discri
D7→0 → data Bus
A15→0 → Address B
DBE → Data Bus
our going
BA → Bus Availa
Place th
VMA → Value
in th
Address
R/W → Read wr

TSC → Tra
to
6800 mic
Halt → the
Power Supply
GND → Po
Q1, Q2 → th

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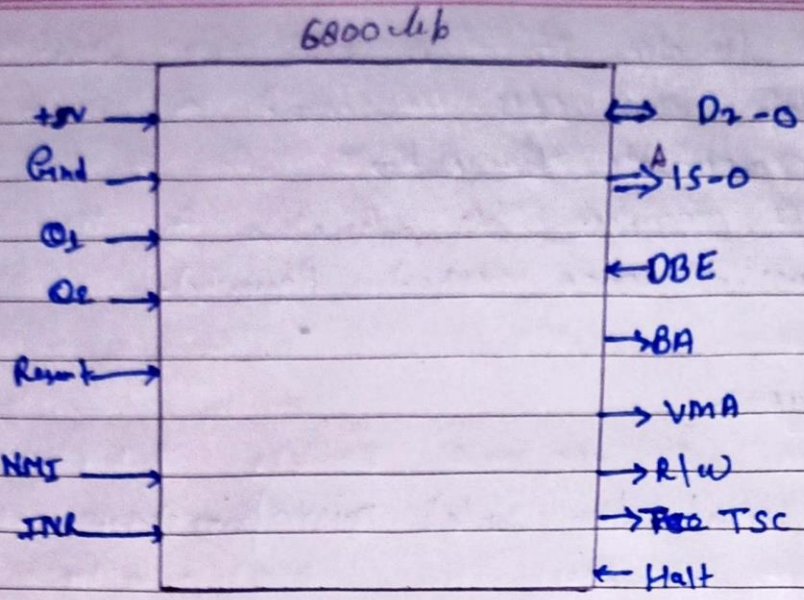

6800 µp is a consist of 8 Bit data Bus and 16 Bit Addr. Bus it was manufacture by Motorola Based on on Mos technology.

the pin discription 6800 microprocessor are as following

D7→0 → data Bus which consist of 8 Bit

A15→0 → Address Bus which consist of 16 Bit

DBE → Data Bus Enable. It indicate data in either coming or going on the Microprocessor.

BA → Bus Available. this pin describe the Buses Available to Place the content.

VMA → Value Memory Address the pin indicate next there is a specific value allocated to the Memory Address

R/W → Read write it is use to determine read and write operation

TSC → Translate control the function of this pin is to control the changes which Occur in the 6800 microprocessor.

Halt → this Enable the halting command in microprocessor

Power Supply + 5V → Power Q.

GND → Ground

Q1, Q2 → this determined double clock with to different phases.

Reset → the function is finished to Reset the 6800 chip when the command is given.

NMI → Non maskable Interrupts

IRQs → Interrupt request the function is used for Enable the which are used Recieved.

Disadvantages →

(1) Expensive

(2) Less compactival than Intel microprocessor

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8086: 8086 is a 16 Bit Microprocessor. It consist of 20 Add. Line and 16 data line.

Architecture of 8086:- 8086 Contain into Independent function unit

(1) BIU ⇒ Bus Interface unit
(2) EU ⇒ Execution Unit

(1) BIU:- Bus Interface unit handels Interfacing or tranfer of data b/w the processor and memory or I/O devices. It fatches the instruction which have to be executed.

(2) EU: Execution Unit:- Consist of general purpose regi. Stack pointer, Base pointer, ALU, these register are also associate of Segmentation unit of BIU.

the Bus Interface unit fatching Interaction from the memory and stored then in the Queue by EU (Execution unit) Decoder the instruction or execute the instruction

Bus Interface unit

the Bus Interface unit and Execution unit But Independently.

By Execution unit execute Instruction and BIU fatches Instruction this type of over lapping of the function unit in microprocessor is called Pipe lining

Register of microprocessor 8086:-

(1) General purpose Register
(2) pointer and Index Reg.
(3) segmante Reg.
(4) Instruction Reg.
(5) static flag.

(1) General purpose register :- Here are 16 Bit for general purpose register

[AH, AL, BH, BL, CH, CL]

are for then devide into 8 Bit Reg

AH, AL, BH, BL, CH, CL, DH, DL.

Accumulator Reg which fuction store the various operation performing Accumulator.

BH, BL → Base Register which is used for computing memory Addresses.

CH → Counter Regi. It is used for the counting purpose.

DH → Data Register. It is used to store the data transfer b/w I/o port and memory.

Pointer and Index Register :- pointer and Index Register Here are four pointer and Index.

(1) Stack pointer (SP)
(2) Base pointer (BP)
(3) Source Index Register (SI)
(4) Destination Index register (DI)

(1) Stack pointer :- Stack pointer is used to push and pop operation execution.

(2) Base operation : are used in memory computation.

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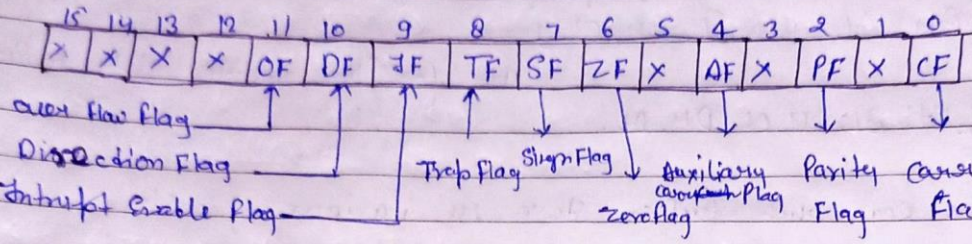
Segmentation :-



In 16 Bit 8086 microprocessor there a total Nine (9) Flag there are six (6) condition flag and three control flag six condition flag a, carry, Auxiliary Carry, Zero Sign, Parity and, overflow flag.

He there control flag a trap flag, direction flag and Interrupt flag.

Trap flag:- It is set to one when the program can run in Single step mode.

Interrupt flag:- It is set to one when interrupt request (INTR) is enabled. and zero when INTR is Disable.

Direction flag:- It is set to when string operation is a set to 1 otherwise zero.

Addressing Mode of 8086:- The way by which an operand is specified for an instruction is called Addressing mode.

8086 consist of following Addressing mode.

(1) Direct Addressing mode
(2) Indirect Addressing mode
(3) Immidiate Addressing mode
(4) Index Addressing mode

Reset operation:- In a computer any data transformation
Reset in any pending error or event
that Reset system to normal condition or a
Initial State
wait state:- it is a delay experience in a comp.
wait what that is store the content.
Halt ~~Halt~~ state:- it a Assembly lang. that CPU.
External Interrupt is generated
~~Halt is a base~~
HOLD:- It indicate another device is requesting your the
Addressing data Bus.
~~Interrupt is a Interrupt~~ event include the alert to cpu in
which the execute.

~~a~~-lock operation:- ~~the~~ lock instruction execution when
lock operation has to be perform.

String Instruction:- String is a group of byte or
word and stay memory is
always allocated in a sequence order

Replicate:- to Repeat word return a string
that have been replicated desire No
of time.
Segmente override:- if use want to use same other
segmente request it can be simply
done by maintain a before the addr location.
Lock prefixes:- It is use to perform read and write
operation on a memory location.

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Important

minimum and maximum modes 8086 ~~obtain~~ operation two mode

① minimum modes when 8086 works in a singal processor maximum mode is device when it work more than two or coprocessor in ~~the system~~ the system.

Q8- Assume the content of a segment register is 111SH and the effect register 5554H. Calculate the physical address.

the segmante offset of Register a 16 Bit and a physical Add. 20 Bit in order to generate 20 Bit Add. 16 Bit Segmant Add. Sifted left By four (4) Bit then And offset Add

```
0001 0001 0001 0101 0000
     0101 0101 0101 0100
-----------------------------
0001 0110 0110 1010 0100
-----------------------------
 1    6    6    A    4
                [A]
```

Completed

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