

#### **BHARAT ACHARYA EDUCATION**

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# PRIORITY MODES OF 8259

# Fully Nested Mode (FNM)

It is the **default mode** of 8259. It is a **fixed priority** mode. **IR**<sub>0</sub> has the **highest** priority and **IR**<sub>7</sub> has the **lowest** priority. It is preferred for "Single" 8259.

## **Special Fully Nested Mode (SFNM)**

This mode can be used for the Master 8259 in a cascaded configuration. Its priority structure is fixed and is the same as FNM ( $IR_0$  highest and  $IR_7$  lowest). Additionally, in SFNM, the Master would recognize a higher priority interrupt from a slave, whose another interrupt is currently being serviced. This is possible only in SFNM.

## **Rotating Priority Modes**

There are **two** rotating priority modes: Automatic Rotation and Specific Rotation

#### **Automatic Rotation Mode**

This is a rotating priority mode.

It is **preferred** when **several interrupt** sources are of **equal priority**.

In this mode, after a device receives service, it gets the lowest priority.

All other priorities rotate subsequently. Per doubts contact Bharat Sir on 98204 08217

**Eg**: If IR<sub>2</sub> is has just been serviced, it will get the lowest priority.

#### **Specific Rotation Mode**

It is also a rotating priority mode, but here the user can select any IR level for lowest priority, and thus fix all other priorities.

# **Special Mask Mode (SMM)**

**Usually** 8259 **prevents interrupt requests lower or equal** to the interrupt, which is **currently** in service.

In SMM 8259 permits interrupts of all levels (lower or higher) except the one currently in service.

As we are specially masking the current interrupt, it is called Special Mask Mode.

This mode is preferred when we don't want priority

#### 8086 MICROPROCESSOR



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## **Poll Mode**

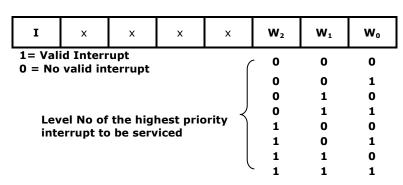
Here the **INT line** of 8259 is **not used** hence 8259 cannot interrupt the  $\mu p$ .

Instead, the  $\mu P$  will give Poll command to 8259 using OCW3.

In return, 8259 provides a Poll Word to the  $\mu P$ .

The Poll Word indicates the highest priority interrupt, which requires service.

#### **Poll Word**



Thereafter the µP services the interrupt. Peor doubts contact Bharat Sir on 98204 08217

**Advantage:** The  $\mu$ P's program is not disturbed. It can be used when the ISR is common for several Interrupts. It can be used to increase the total number of interrupts beyond 64.

**Drawback:** If the polling interval is too large, the interrupts will be serviced after long intervals. If the polling interval is small, lot of time may be wasted in unnecessary polls.

### **Buffered Mode**

In this mode  $\ensuremath{\mathbf{SP}}$  /  $\ensuremath{\mathbf{EN}}$  becomes  $\ensuremath{\mathbf{low}}$  during  $\ensuremath{\mathbf{INTA}}$  cycle.

This signal is used to enable the buffer.

# **EOI - (End Of Interrupt)**

When the  $\mu P$  responds to an interrupt request by sending the first  $\overline{INTA}$  signal, the 8259 sets the corresponding bit in the In Service Register (InSR).

This **begins** the **service** of the interrupt.

When this bit in the In Service Register is cleared, it is called as End of Interrupt (EOI).



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## **EOI Modes:**

## 1) Normal EOI Mode:

Here an EOI Command is necessary. The EOI Command is given by the programmer at the end of the ISR. It causes 8259 to clear the bit from In Service Register. There are two types of EOI Commands:

## **Non Specific EOI Command:**

Here the programmer doesn't specify the Bit number to be cleared. 8259 automatically clears the highest priority bit from In Service Register.

## **Specific EOI Command:**

Here the programmer specifies the Bit number to be cleared from In Service Register.

## 2) Auto EOI Mode (AEOI):

In AEOI mode the EI command is not needed. Instead, 8259 will itself clear the corresponding bit from In Service Register at the end of the  $2^{nd}$  **INTA** pulse.