SFNM → Special Fully Nested Mode

SFNM = 1 → " " " " " } Values of D_4

SFNM = 0 → Not special fully nested mode

Operat^n Command Words

OCW$_1$

A_0	D_7	D_6	D_5	D_4	D_3	D_2	D_1	D_0
1	M_7	M_6	M_5	M_4	M_3	M_2	M_1	M_0

$M_0 - M_7$ → Mask bits. If we want to disable any interrupt, set the corresponding mask bit(s) to 1.

These bits can also be used to disable unwanted interrupts.

31 | 10 | 19

OCW$_2$

A_0	D_7	D_6	D_5	D_4	D_3	D_2	D_1	D_0
1	R	SL	EOI	0	0	L_2	L_1	L_0

	R	SL	EOI	
EOI	0	0	0	Non-specific EOI command
	0	0	1	Specific EOI command
Automatic Rotat^n	0	1	0	Rotate on Non specific EOI command
	0	1	1	Rotate in AEOI (set)
	1	0	0	Rotate in AEOI (clear)
Specific Rotat^n	1	0	1	Rotate on specific EOI command
	1	1	0	Set priority command
	1	1	1	No operat^n

$L_2 L_1 L_0$ → Level of interrupt

0 0 0 → IR_0 (Highest priority)

0 0 1 → IR_1

. . .

. . .

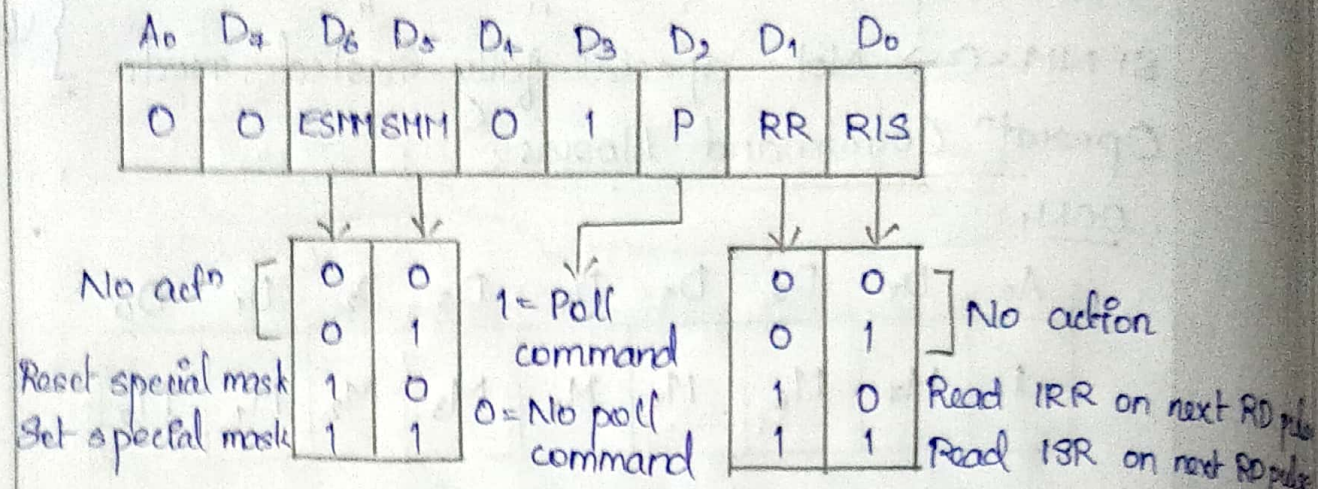
1 1 1 → IR_7 (Lowest priority)

SL → Select Level

R → Rotate

EOI → End of interrupt

OCW3



SMM → Special Mask Mode

ESMM → Enable SMM

Operating Modes of 8259

(i) Fully Nested Mode
(ii) EOI
(iii) Automatic Rotation
(iv) Automatic EOI Mode
(v) Specific Rotation
(vi) Special Mask Mode
(vii) Reading 8259 Status
(viii) Poll Command
(ix) Special Fully Nested Mode
(x) Buffered Mode
(xi) Cascade Mode

Fully Nested Mode

- Default mode.
- Service only highest priority interrupt.
- Set the IR bit of corresponding interrupt

EOI

- Reset ISR bit
- Specific EOI → Reset the ISR bit of a specific interrupt.
- Non-specific EOI → Reset the ISR bit of highest priority interrupt

Automatic Rotat^n

- If Equal priority devices make interrupt requests simultaneously, the device that made the request last will have highest priority.
- The device that requested 1st has lowest priority

Automatic EOI Mode

- Set AEOI to 1

Specific Rotat^n

- Select one of the low priority interrupts to service

Special Mask Mode

- To mask all interrupts in a particular level.
- Set SMM=1 & ESMM=1