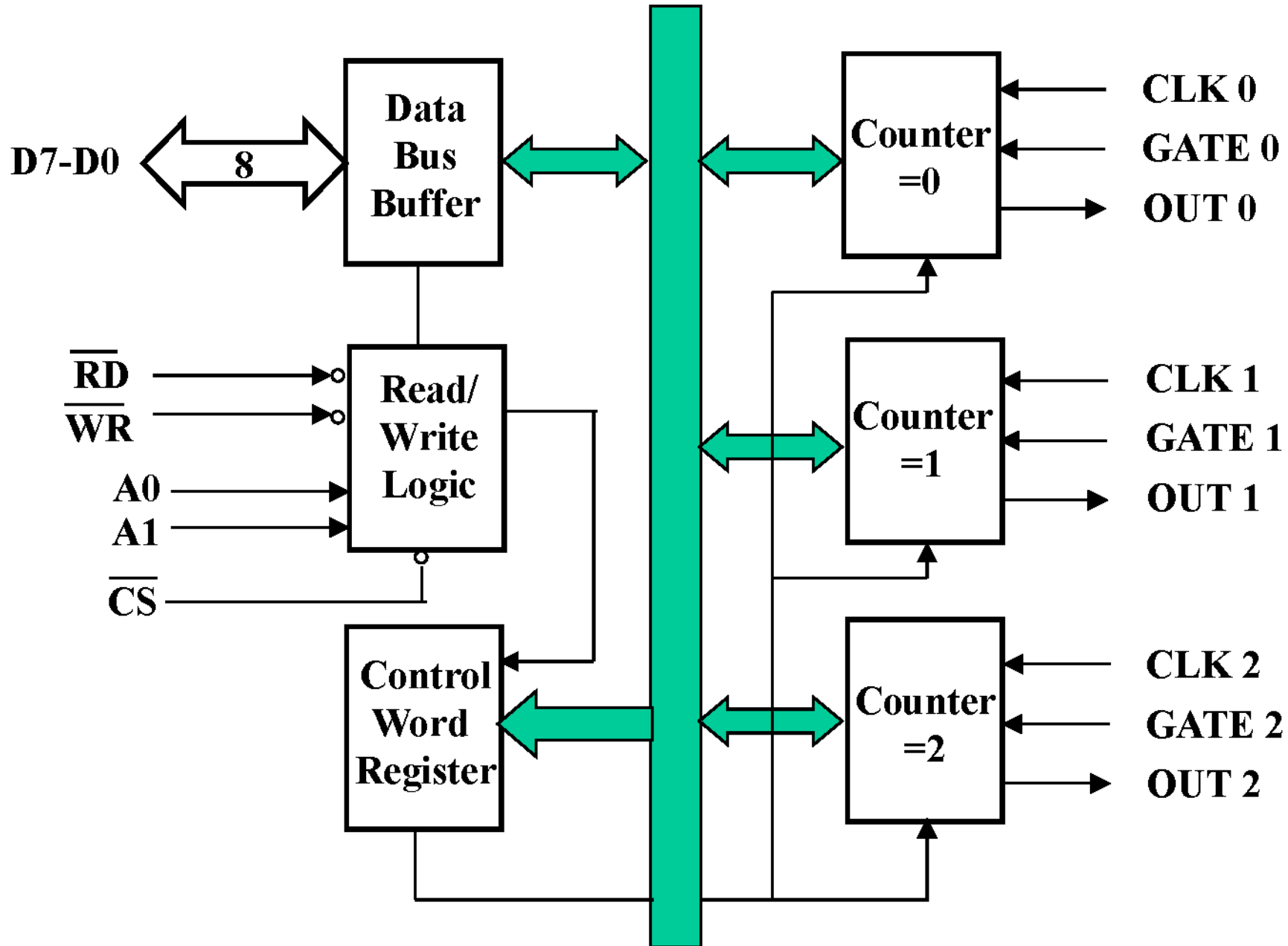


# Programmable Interval Timer

8254

LECTURE 2

# 8254 Internal Architecture

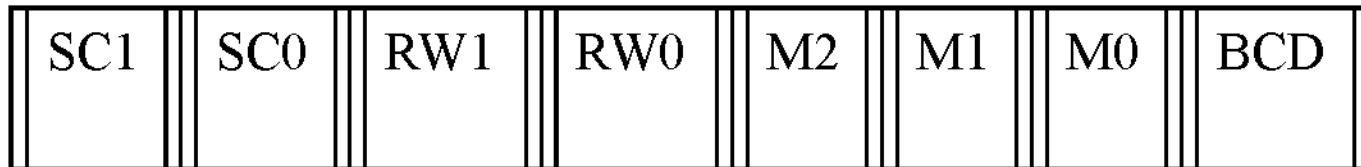


**THE CONTROL WORD REGISTER AND COUNTERS  
ARE SELECTED  
ACCORDING TO THE SIGNALS ON LINE  
A0 and A1 AS SHOWN BELOW**

**A1 A0 Selection**

<b>0</b>	<b>0</b>	<b>Counter 0</b>
<b>0</b>	<b>1</b>	<b>Counter 1</b>
<b>1</b>	<b>0</b>	<b>Counter 2</b>
<b>1</b>	<b>1</b>	<b>Control Register</b>

# 8254 Control Word Format



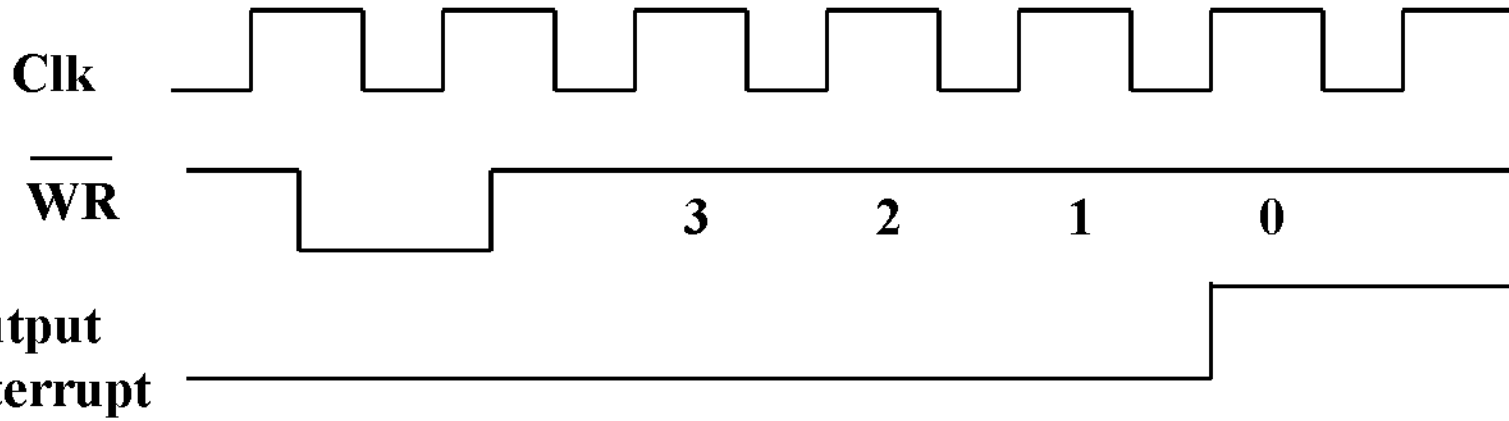
SC1	SC0		RW1	RW0	
0	0	Select counter 0	0	0	Counter Latch Command
0	1	Select counter 1	0	1	Read/Write least significant byte only
1	0	Select Counter 2	1	0	Read/Write most significant byte only
1	1	Read-Back command	1	1	Read/Write least significant byte first, Then the most significant byte.

## **BCD:**

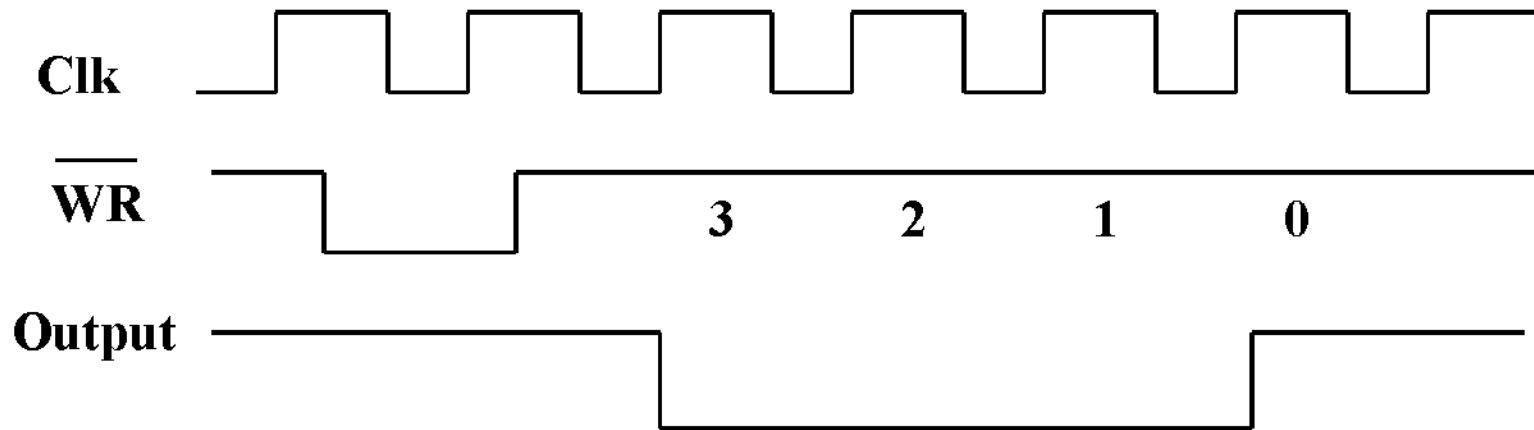
<b>0</b>	<b>Binary Counter 16-bits</b>
<b>1</b>	<b>Binary Coded Decimal (BCD) Counter</b>

<b>M2</b>	<b>M1</b>	<b>M0</b>	
<b>0</b>	<b>0</b>	<b>0</b>	<b>Mode 0</b>
<b>0</b>	<b>0</b>	<b>1</b>	<b>Mode 1</b>
<b>X</b>	<b>1</b>	<b>0</b>	<b>Mode 2</b>
<b>X</b>	<b>1</b>	<b>1</b>	<b>Mode 3</b>
<b>1</b>	<b>0</b>	<b>0</b>	<b>Mode 4</b>
<b>1</b>	<b>0</b>	<b>1</b>	<b>Mode 5</b>

# MODE 0 : Interrupt on terminal count

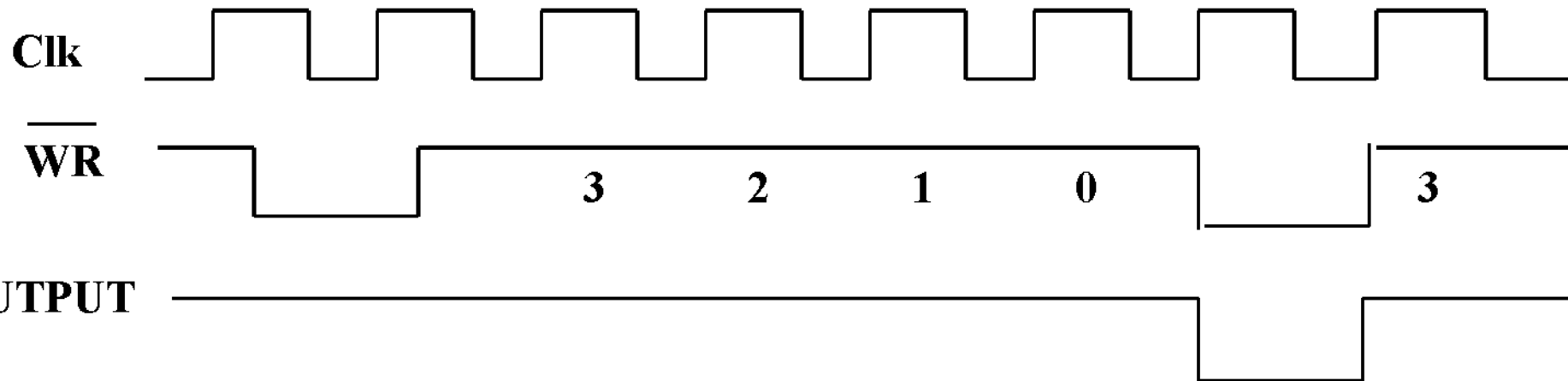


# MODE 1 : HARDWARE-RETRIGGERABLE ONE-SHOT

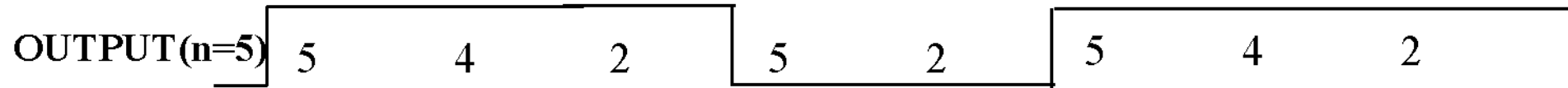
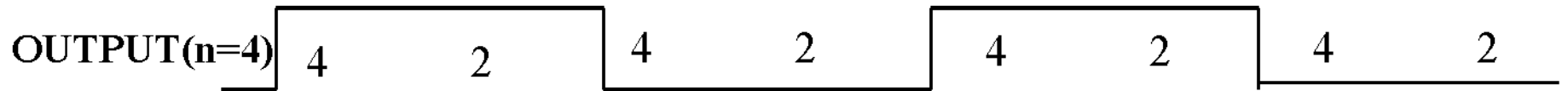




# MODE 2 : RATE GENERATOR CLOCK



## MODE 3 : Square Wave Generator



## **MODE 4 : SOFTWARE TRIGGERED STROBE**

**In this mode OUT is initially high; it goes low for one clock period at the end of the count. The count must be RELOADED -(*UNLIKE MODE 2*) for subsequent outputs.**

## **MODE 5 : HARWARE TRIGGERED STROBE**

- This mode is similar to MODE 4 except that it is triggered by the rising pulse at the gate. Initially, the OUT is low and when the GATE pulse is triggered from low to high , the count begins. At the end of the count the OUT goes low for one clock period.

## READ BACK COMMAND FORMAT:

- *THIS FEATURE AVAILABLE ONLY IN 8254 and not in 8253.*

1	1	COU NT	STAT US	CNT2	CNT1	CNT0	0
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