8253/54 Timer

Figure 13-1. 8253 Pin and Function Diagram
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## Addressing the 8253/54

### Table 13-1: Addressing 8253/54

<table>
<thead>
<tr>
<th>CS</th>
<th>A1</th>
<th>A0</th>
<th>Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Counter 0</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>Counter 1</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
<td>Counter 2</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>1</td>
<td>Control register</td>
</tr>
<tr>
<td>1</td>
<td>x</td>
<td>x</td>
<td>8253/54 is not selected</td>
</tr>
</tbody>
</table>

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### 8253/54 Control Word

![Diagram of 8253/54 Control Word Format](image)

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8253/54 Operating Modes

Mode 0  Interrupt on terminal count
Mode 1  Programmable one shot
Mode 2  Rate Generator
Mode 3  Square wave rate Generator
Mode 4  Software triggered strobe
Mode 5  Hardware triggered strobe

8253/54 Connections in the PC

Figure 13-4. 8253 Chip Connections in the PC
Initializing the 8254 timer chip

```
TMR_CONTROL EQU  43H
TMR_COUNTER0 EQU  40H
TMR_COUNTER1 EQU  41H
TMR_COUNTER2 EQU  42H

*******************************************************************************
;INIT_TMR
; This procedure initializes the 8254 on the motherboard and programs
; counter 0 to generate a pulse every 65,536 clock ticks
;*******************************************************************************
INIT_TMR        PROC FAR

PUSH AX

    MOV  AL, 00110110B  ; control register
    OUT  TMR_CONTROL, AL

    MOV  AL, 00000000B  ; LSB of clock divisor
    OUT  TMR_COUNTER0, AL

    MOV  AL, 00000000B  ; MSB of clock divisor
    OUT  TMR_COUNTER0, AL

    MOV  AL, 01010100B  ; control register
    OUT  TMR_CONTROL, AL

    MOV  AL, 18         ; LSB only clock divisor
    OUT  TMR_COUNTER1, AL

POP  AX
RET

INIT_TMR        ENDP
```