**Programmable Interval Timer (PIT)**

**MDA-8086 Kit Application**

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The Programmable Interval Timer (PIT) has sex modes of operation :

*Mode 0 (000): Interrupt on Terminal Count.*

*Mode 1 (001): Hardware-Triggered One Shot.*

*Mode 2 (x10): Rate Generator.*

*Mode 3 (x11): Square Wave Generator.*

*Mode 4 (100): Software Triggered Strobe.*

*Mode 5 (101): Hardware Triggered Strobe.*

*Each counter in the PIT is individually programmed by writing a control word followed by an initial count. The control word structure allows the programmer to select the counter mode of operation and type of operation (read /write). The control word also selects either a binary or BCD count.*

*In this experiment, we will introduce the 8253/4 Programmable Interval Timer (PIT) devices on the MDA 8086 kit. We will learn how to initialize each of PIT, PPI and PIC devices using assembly language. In addition, we will find out how the main three I/O devices (PIT, PPI and PIC) connected on the MDA 8086 kit from the schematics figure.*

*In this mode, the device acts as a divide-by-n counter, which is commonly used to generate a real-time clock interrupt. Like other modes, counting*

*This mode is similar to mode 2. However, the duration of the high and low clock pulses of the output will be different.*

*Suppose n is the number loaded into the counter (the COUNT message), the output will be:*

*High for count/2, and low for count/2, if n is even.*

*High for count+1/2, and low for count-1/2, if n is odd.*

*After Control Word and COUNT are loaded, the output will remain high until the counter reaches zero. The counter will then generate a low pulse for 1 clock cycle (a strobe) - after that the output will become high again.*

*This mode is similar to mode 4. However, the counting process is triggered by the GATE input. After receiving the Control Word and COUNT, the output will be set high. Once the device detects a rising edge on the GATE input, it will start counting. When the counter reaches 0, the output will go low  
for one clock cycle - after that it will become high again, to repeat the cycle on the next rising edge of GATE.*