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Introduction To Digital Electronics – Lesson 9: Design A 4-Bit Counter

PARTS

The following information is meant to go with the online lesson found here:
http://www.pyroelectro.com/edu/digital/binary_counter/

THE PARTS OF A 4-BIT RIPPLE COUNTER

In this lesson we built a 4-bit binary counter using d flip-flops. This counter was limited in how high it could count but it worked none-the-less. The list below will show you some additional details on the parts used in the experiment and where you can find the datasheets.

Picture	Type	Description
	Thru Hole 555 Timer 8 Pin DIP	The clock signal to drive the shift register was derived from this 555 timer. We set it to two modes, one at 0.5 Hz and one a little faster at around 10 Hz. Datasheet Link
	74HC74 Dual D Flip-Flop	To form the shift register we used two 74HC74 ICs which equaled 4 D Flip-Flops. We connected LEDs to the output to 'see' the shifting in action. Datasheet Link
	Crystal Oscillator 4 Pin DIP	For the curious, you can use the crystal oscillator instead of the 555 timer to drive the clock on the d flip-flops. Datasheet Link

ADDITIONAL INFORMATION

To ask questions about anything found in this information please head on over to the forums located at:
http://www.pyroelectro.com/forums/viewforum.php?f=21