

CPE 301: Homework #10

Due on April 19, 2019 at 9:00am

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Problem 1

Description of Purpose:

Homework 10 has us working with VERILOG and VHDL. After loooking at some programming tutorials, we are to evaluate which one is more usefull. Also, we are to look at the brief history of both to further understand the concepts of both.

What is the purpose of an interrupt?

Solution

Interrupt is defined as it's a signal which is generated from devices joined to a pc or from a program inside the PC that requires the working framework to interrupt it and make sense of what to do next.

Problem 2

Describe the flow of events when an interrupt occurs.

Solution

Problem 3

Describe the interrupt features available with the Atmega328P.

Solution

Problem 4

What is interrupt priority? How is it determined?

Solution

beginhomeworkProblem

What steps are required by the system designer to properly configure an interrupt?

Solution

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How is the interrupt system turned "on" and "off"?

Solution

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Write a program to set up timer1 using NORMAL mode so that it generates an interrupt in exactly $1/8$ of a second. Write an interrupt service routine (ISR), triggered by the timer interrupt TOV1 that stops, resets, and restarts the timer and toggles the Arduino Mega LED each time it is called. This will produce a light that blinks 4 times/sec.

Solution

Problem 8

Write a program to set up timer1 using NORMAL mode so that it generates an interrupt in exactly $1/8$ of a second. Write an interrupt service routine (ISR), triggered by the timer interrupt TOV1 that stops, resets, and restarts the timer and toggles the Arduino Mega LED each time it is called. This will produce a light that blinks 4 times/sec.

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