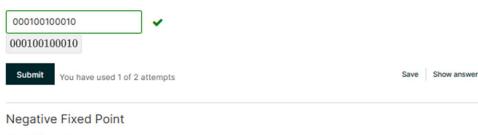
Problem Set 6:

Problem Set due Jul 31, 2023 20:06 PDT Completed

Fixed Point

1/1 point (graded)

Write 9.0625 as a Q7.5 fixed-point number. Be sure your answer is 12 bits long including leading 0s. Do not include a binary point.



1/1 point (graded)

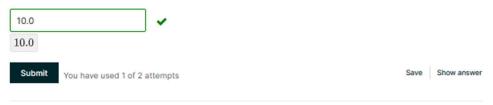
Write -9.0625 as a Q7.5 fixed-point number. Be sure your answer is 12 bits long including leading 0s. Do not include a binary point.



Floating Point to Decimal

1/1 point (graded)

Write the decimal value of the IEEE single-precision floating-point number 0×41200000.



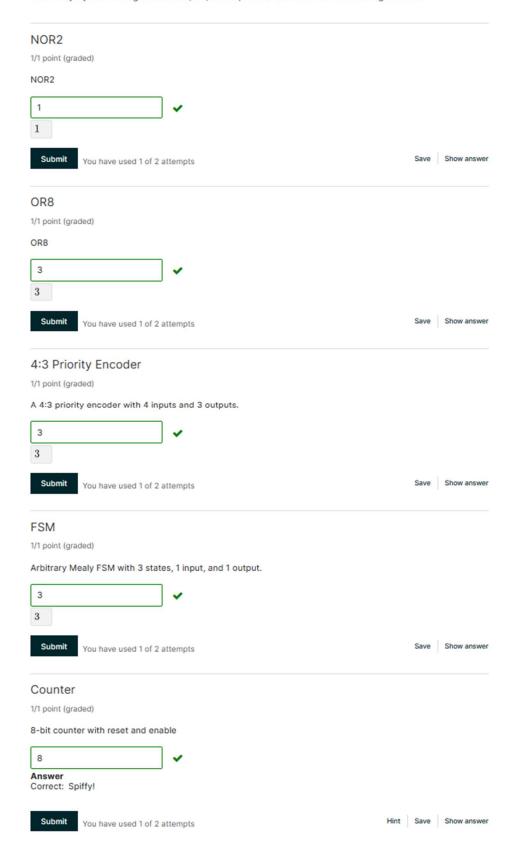
Floating Point Addition

1/1 point (graded)

Compute the sum of the following two IEEE single-precision floating-point numbers by hand: 41200000 + 40D80000. Express your answer as another floating-point number using 8 hexadecimal digits and no leading



How many Cyclone IV Logic Elements (LEs) are required to build each of the following functions?

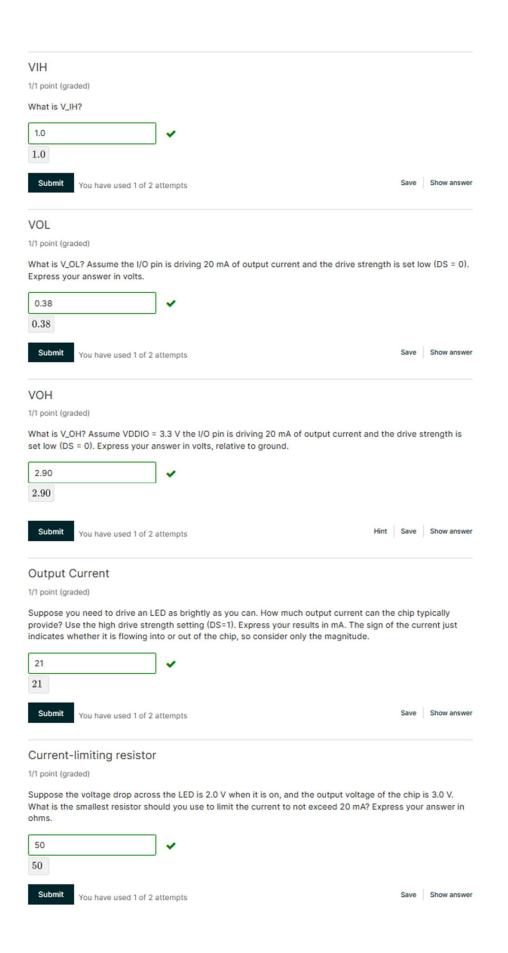


Problem Set due Jul 31, 2023 20:06 PDT Completed

You will be building embedded systems with the SparkFun RED-V Thing Plus development board containing a Freedom E310 RISC-V microcontroller. Refer to the processor data sheet and user manual below as you answer questions to get to know the microcontroller.

Freedom E310 Datasheet

Power Supplies 1/1 point (graded) What power supply voltages does this E310 chip require? ○ 1.8 V only 2.5 V only 3.3 V only O 5 V only 1.8 V to run the core and phase locked loop, and 3.3 V to run the input/output pins and always-on logic Save Show answer You have used 1 of 2 attempts Power Supply Current 1/1 point (graded) What is the typical power supply current on the 1.8V supply when the processor operates at 16 MHz? Express your answer in mA. 8 8 Save Show answer You have used 1 of 2 attempts **Power Supply Current** 1/1 point (graded) What is the typical power supply current on the 1.8V supply when the processor operates at 250 MHz? Express your answer in mA. 150 150 Save Show answer Submit You have used 1 of 2 attempts VIL 1/1 point (graded) What is V_IL? 0.8 0.8 Submit Save Show answer You have used 1 of 2 attempts



Input Leakage

1/1 point (graded)

What is the maximum input leakage current the chip may draw on an input pin? Express your answer in pA.



Pullup Resistor

1/1 point (graded)

Suppose you connect an input pin to a SPST switch. The switch is connected between the pin and ground. A pullup resistor is connected betwen the pin and IVDD (3.3 V). What is the largest resistor that could be used while insuring a legal logic level, accounting for input leakage. Express your answer in ohms.



Max Clock Frequency

1/1 point (graded)

What is typically the maximum operating frequency of the FE310? Express your answer in MHz.

