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CPE 329-01

**Assignment 2**

**1. Create a memory map for Code and Peripheral address spaces of the MSP432P401R.**

**2. How many internal oscillators does the MSP432 have?**

The MSP432 has 45oscillators: the VLO, the DCO, the REFO, the MODOSC, and the SYSOSC.

**3. How many timers does the MSP432P401R have? What size are the timers?**

The MSP432 has four 16 bit timers: TA0, TA1, TA2, and TA3. It also had a dual 32 bit timer: Timer32.

**4. What is the maximum sampling rate of the analog to digital converter on the MSP432P401R?**

The ADC14 analog to digital conversion chip on the MSP432 supports a 1 Msps sampling rate.

**5. What is the equation for determining the digital output of the analog to digital converter when operating in single-ended mode on the MSP432?**

The equation for the digital output in single-ended mode is as follows:



**6. Which register is the primary mechanism for changing power modes on the MSP432?**

The PCMCTL0 register changes power modes.

**7. When the temperature goes up, does the general I/O output current from the MSP432 go up or down?**

As temperature goes up, IO current decreases because of increased thermal resistance.

**8. The high drive I/O on the MSP432P401R produces more current by a factor of X. Estimate X according to the datasheet.**

High drive IO produces approximately 5 times the current of normal drive IO.