

Handout - Lecture - February 20th, 2024

Suppose we have an A/D with the following characteristics:

- 6 bit A/D
- Covers a temperature range from -10 C to 20 C

The following information is also known:

- The system has a 4 channel A/D (Channels 0-3).
- ADC0DATA is at memory address 0x0A42 and contains the data as read from the A/D in bits 5 through 0. Bits 6 and 7 are unused and are undefined.
- ADCSTATUS is at memory address 0x0A41 and Bit 0 is set to a 1 if the A/D conversion is complete for channel 0.
- ADCREQ is at memory address 0x0A40 and writing a 1 to Bit 0 causes the A/D Channel 0 to do a conversion. Upon writing Bit 0, the corresponding bit in ADCSTATUS is set to a zero and until it is set, the value in ADC0DATA is invalid.

Describe the key characteristics for the A/D: Offset, Max, Range, Resolution, Step Size.

Write a function in C that initiates and extracts a single temperature reading.