CC32xx ADC

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Overview

The ADC peripheral converts a continuous analog voltage to a discrete digital number. The CC3200R device includes ADC modules with four input channels. Each ADC module features 12-bit conversion resolution for the four input channels. It supports Sampling rate of 16 µs per channel.



Application details

The application is a reference to usage of ADC DriverLib functions on CC3200. Developer/User can refer to this simple application and re-use the functions in their applications.

adcdemo: This command allows the user to excercise the ADC funcitonality on CC3200. The command needs one parameter adc_inputpin. - adc_inputpin is the pin to which analog signal is connected, the value can be 58 or 59 or 60.

Setup of signal genearator for generating analog signal:

- Waveform Select any suitable waveform Sine, square, Ramp
- Input Frequency As ADC reaches nyquist rate at 31250 Hz, Input frequency should be between 50 Hz-30 KHz.
- Input Amplitude Low Level should be greater than 5 mV and high level should be less than 1.45 V.
- **Note** If there is a setting in the signal/function generator the change the output termination impedance of signal/Function generator to Infinite/High Z

Output data: 4096 number of 32 bit ADC data is printed. ADC data format is as below

- Bits[13:2] ADC sample
- Bits[31:14] Time stamp of ADC sample.

Source Files briefly explained

• main.c - The main file that contains the core-logic for analog to digital conversion. The functions in the file uses DriverLib calls to perform analog to digital conversion.

Supporting files

- adc_userinput.c The function in the file reads the input from the user, parses the input string and feed the
 core-logic functions in the main.c
- pinmux.c Generated by the PinMUX utility. UART0 pins are brought out in this file.
- startup_ccs.c CCS related functions
- startup_ewarm.c IAR related functions
- uart_if.c Functions to display information on UART

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Usage

1. Setup a serial communication application (HyperTerminal/TeraTerm). For detail info visit Terminal setup On the host PC, open a hyperterminal, with the following settings

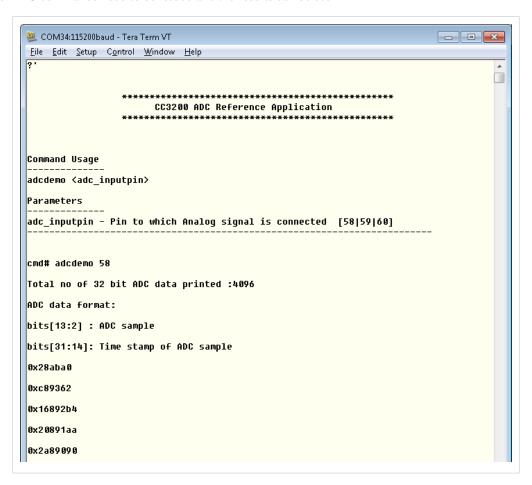
• Port: Enumerated COM port

• Baud rate: 115200

Data: 8 bit Parity: None Stop: 1 bit

• Flow control: None

- 2. Run the reference application (/IAR/CCS).
 - Flash the bin
 - Open the project in IAR/CCS. Build and download the application to the board
- 3. On the Hyperterminal, a prompt appears
 - The ADC commands need to be issued and the results can be seen



Limitations/Known Issues

None.

Article Sources and Contributors

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