

Exercise 7 – Due Thursday 11/7 before noon

In the Quanto paper we covered at the last seminar the authors mention that a DMA enabled radio driver is much faster than one without. In this week's exercise you are to familiarize yourself with the DMA controller on the MSP430 and use it to copy one buffer into another. For this exercise use the **cDMASkeleton** application in the cs450 directory as your starting point.

- A) In the **MSP430F1611 User Guide**, read the following pages well enough to complete the rest of the exercise:

8-1 to 8-17

8-18 to 12-23 (cursorily)

- B) In the skeleton code you can initiate a regular buffer copy with the 'c' key, print out the first 256 bytes with the 'p' key, and erase the destination buffer with the 'e' key.

Fill out the missing part in the main()-function and implement the DMA ISR (**DACDMA_VECTOR**), so that the 'd' key will initiate a block-burst transfer, to/from the same buffers used in the example code above and with the same length.

- C) What is the time difference between the two methods?
- D) Repeat the measurements with the timer running at the same time (use the '1' key and the 's' key).
- E) Notice how the timer, DCO, and UART code have been moved to individual modules. What do the **extern** and **static** keywords mean in this context?
- F) Upload your C file to Blackboard with all the above implemented together with your answers in a text file.