## DAC Hah! Gotteem…

To generate audio signals for a radio to transmit, the digital to analog converter built into the F446RE will be used. This onboard DAC has a 12-bit resolution and a peak output voltage of 3.3V. This means that if the DAC is given an input value of 4095, it will output peak voltage, with a linear input-output relation.

This DAC operates off an internal clock that is pre-scaled down from 90 MHz to 1MHz while also set to count up to 10. This set the DAC input clock to pulse at a frequency of 100kHz. Next, two arrays are created to store the values of a sine wave, the size of the array will vary to achieve two distinct period lengths. The values are created using the sin function from the C math library. This sine function amplitude will be varied to achieve the necessary output for a radio. Needed Sample Count = (Input Clock Frequency)/(Output Frequency), producing 84 samples for the lower frequency and 46 for the higher frequency.