

## **FPGA Spectrum Analyzer Checkoff**

### Baseline

- Convert PDM data from ADMP421 to PCM data
- Use PWM to drive LEDs to different brightness
- Convert discrete time signal to frequency components using FFT module

### Expected

- Show an audio spectrum on LED bank
- Show an audio spectrum on VGA display
- Show SPL (sound pressure level) on color LEDs

### Stretch

- Show time domain signal on VGA display (similar to an oscilloscope trace)
- Ability to modify the number of frequency bins
- Ability to modify the maximum frequency