



Tone Generator and Notch Filter Demonstration

What Does this Demonstration Do?

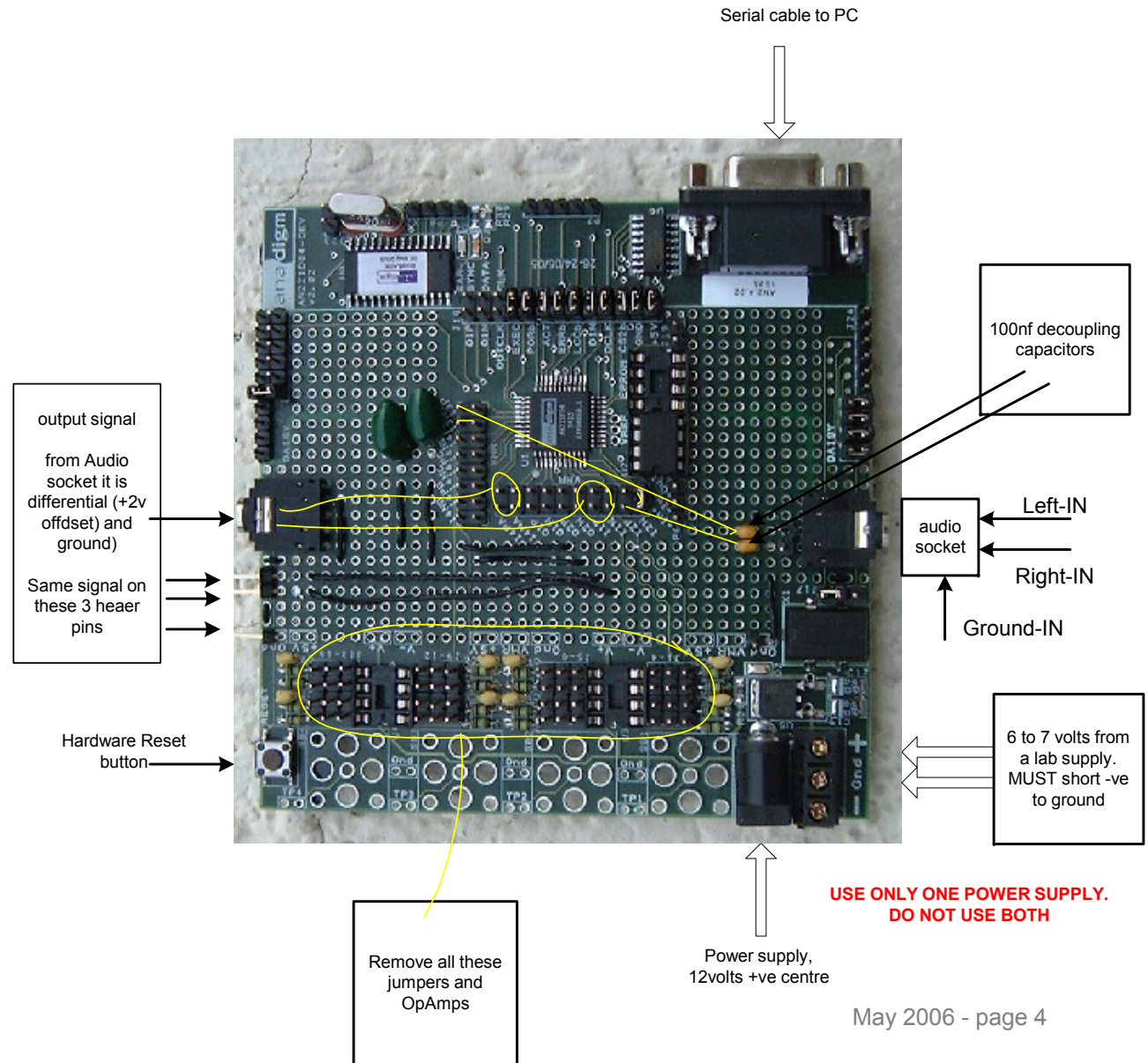
- **Implements an audio circuit that sums an 900Hz tone into one channel of the audio path**
- **Shows how to build a band-stop (notch) filter that removes this 900Hz tone**
- **This demo highlights the ease with which complex analog circuits can be built and implemented using the Anadigm dpASP solution**

Demonstration Hardware Requirements

- **AN221K04-DVLP2 development kit**
- **Standard serial (RS-232) programming cable**
- **Audio source**
 - Portable CD/MD/MP3 player and an audio media/file
 - Using a Laptop with an audio application like Windows Media Player is not recommended because of ground problems.
- **Stereo audio cable**
- **Powered speakers for audio output or headphones**
- **AnadigmDesigner2 Software loaded on your computer**
- **Circuit (.ad2) files loaded on your computer**
 - ToneGeneratorCircuit.ad2
 - ToneGeneratorCircuit2.ad2

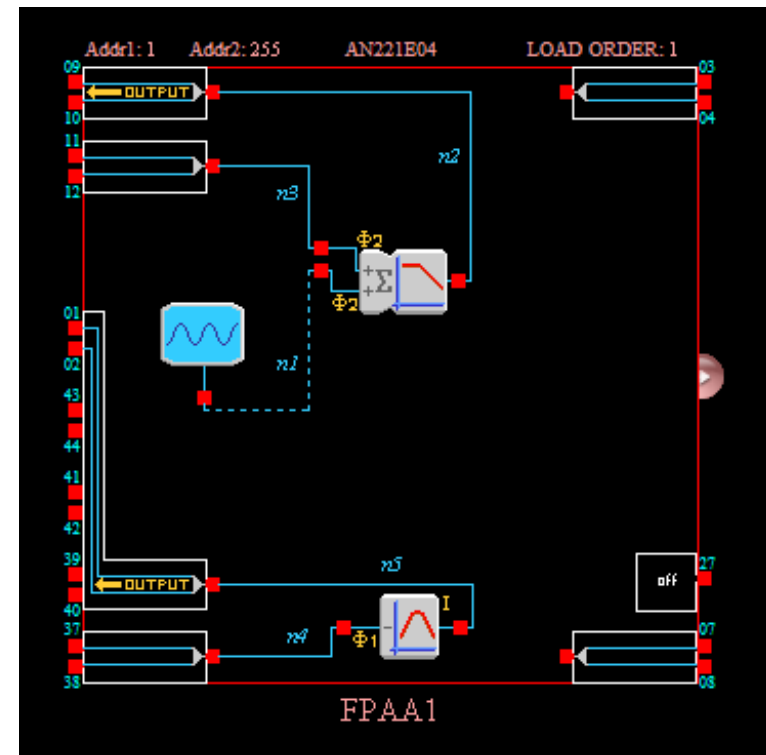
Setting up the Demonstration

- First you need to arrange input and output connections.
- The easiest way to this is to add a capacitor to a.c. couple each input connection.
- The picture here is an example,



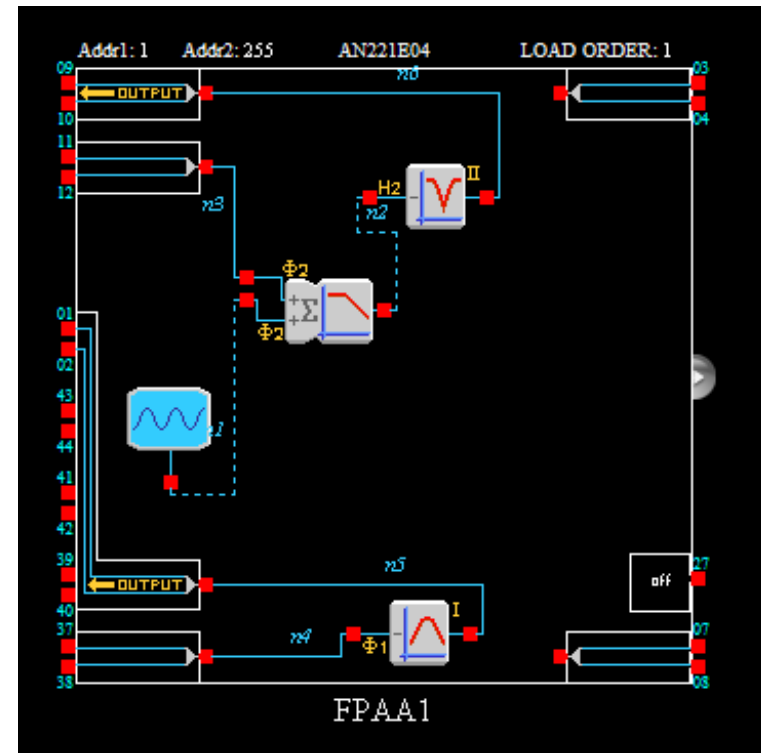
Demonstration – First Circuit

- Open AnadigmDesigner ®2
- Open the circuit shown to the right
 - ToneGeneratorCircuit.ad2
- Download entire configuration file
- Play your favorite music through the Anadigm® evaluation board
- Now connect up the OscillatorSine to the unused SumInvinput
- You will hear your music and the 900Hz tone on the right hand channel



Demonstration – Modified Circuit

- Change the circuit using AnadigmDesigner2 to include a band-stop (notch) filter (use FilterBiquadCAM)
- Choose the following values
 - Clock A (KHz) = 2 (it is set to 50kHz)
 - Corner Frequency = 0.9kHz
 - Quality factor = 5
- Connect this filter between the Sumfilt and OutputCell1
- Download entire configuration file



Demonstration – Modified Circuit

- The band-stop circuit will suppress the 900kHz tone
- Change the tone (OscillatorSinefrequency) from 0.9kHz to 1.0kHz
 - The tone will reappear, showing the selectivity of the filter
 - You can easily modify the filter characteristics to compensate
- Note: This circuit is also pre-built for you
 - ToneGeneratorCircuit2.ad2