

**DUAL3006 Dual Codec Daughtercard  
for the  
Texas Instruments  
TMS320C6X11/6713/6416T/5510  
Digital Signal Processing (DSP) Starter Kits**

**Educational DSP, LLC  
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## Hardware

The DUAL3006 daughtercard is designed to operate on the Texas Instruments TMS320C6211, TMS320C6711, TMS320C6713, TMS320C6416T, and TMS320C5510 DSP Starter Kits (DSK). It attaches to the DSK using the Peripheral Interface connector, J3. If desired, a ½" stand-off can be used to affix it to the DSK. When populated with only a single codec, that codec will be operated from McBSP1.

Operation with dual codecs not possible on TMS320C6211 DSKs. Operation on TMS320C6211 DSKs requires that jumper JP1 be installed on the DSK in order to make McBSP0 available on J3.

### **General Precautions**

Proper electrostatic discharge (ESD) precautions should be used at all times when handling the DUAL3006 daughtercard. Failure to do so may result in damage to the circuitry.

### **Audio Connections**

The audio connectors on the PCM3006 daughtercard are design to accept standard 3.5mm (1/8") stereo mini-plugs carrying line level signals. When inserting plugs into the audio connectors, use your finger to maintain pressure on the rear of the connector housing. Failure to do so may result in damage to the connector or circuit board. The PCM3006 maximum input range is +/- 1V.

### **Clock Operation**

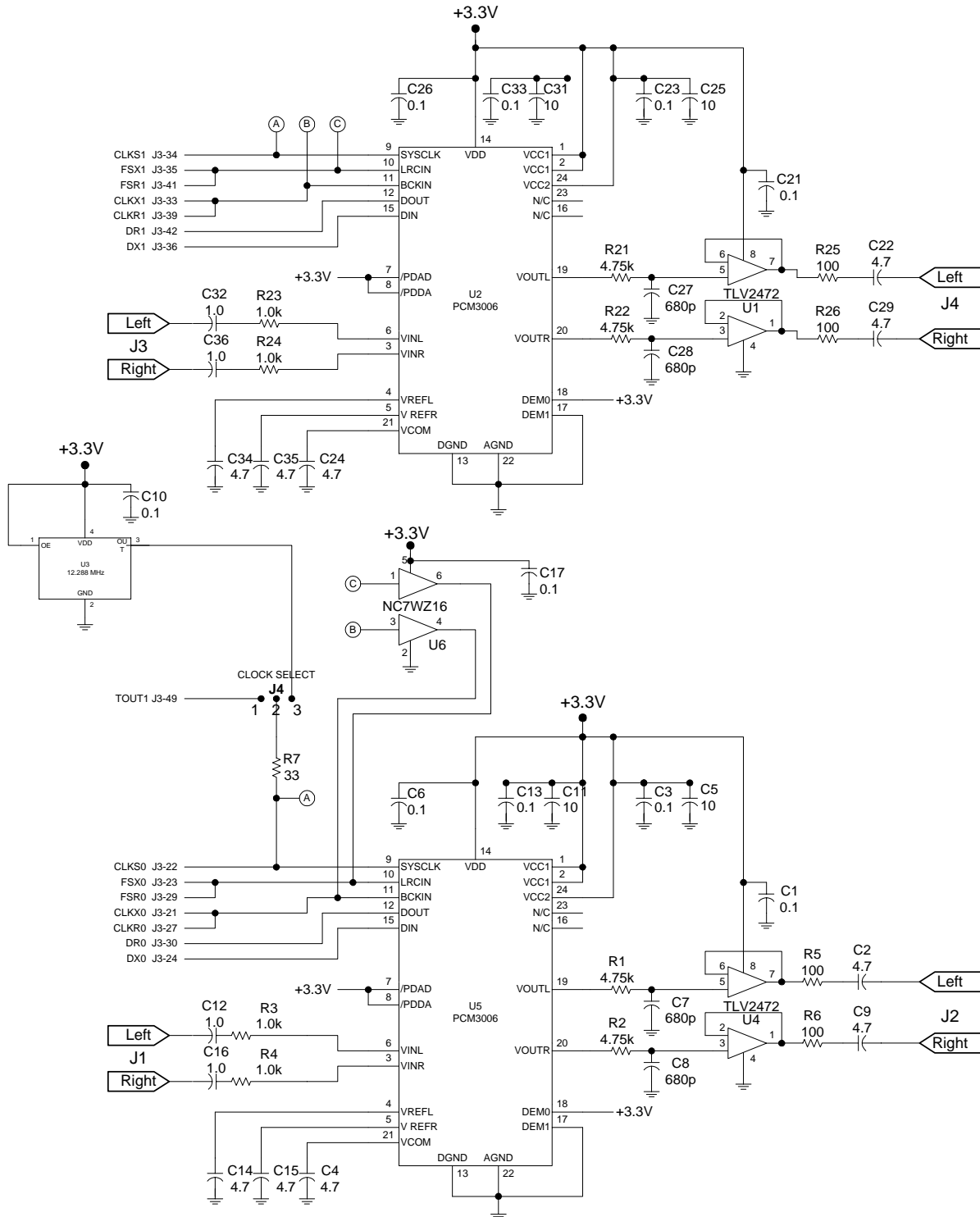
Both PCM3006 codecs operate as a slave devices, with the DSP serial port McBSP1 providing all required serial communications signals to both codecs and McBSP0. The DSP serial port McBSP1 does this by using its Sample Rate Generator (SRG) hardware with a master clock input from the daughtercard. As shipped, the DUAL3006 daughtercard is configured to operate using its 12.288MHz onboard oscillator, resulting in a fixed 48KHz sample rate. To use variable sample rates, the DSP's TIMER1 can be used to supply the master clock for the daughtercard. To use TIMER1, the jumper block J5 (not supplied) must be installed as follows;

- Cut the trace on the underside of the board between J5-2 and J5-3.
- Solder a standard 0.050" spacing 3-position header strip to J5.
- Install a shunt between J5-1 and J5-2. This will connect the DSK's TIMER1 output as the PCM3006 master clock.
- To return to a fixed 48 KHz sampling rate, place the shunt between J5-2 and J5-3.

The range of sample rates over which the PCM3006 will operate is discussed in the PCM3006 datasheet available from Texas Instruments.

Schematic Diagram

Dual PCM3006 Daughtercard  
DUAL-3006 (5/18/2004)



### Single Codec Configuration

When only a single codec is installed, U1, U2, and U6 (and supporting passive components) are not installed.

### Component Layout

