

*Design Guideline*

August 2010

## TMS320DM36x Voice Codec Design Recommendation

The TMS320DM365 (DM365) is a highly integrated System on a Chip (SoC). The Voice Codec is one of the features included in the DM365 to reduce system cost and simplify design effort. While the Voice Codec functions well without other circuitry the line output function achieves better performance if an external low pass filter is included in the design.

Section 4.3 of the [TMS320DM36x DMSoC Voice Codec User's Guide](#) details a recommend second order low pass filter for the line output. This filter has been tested on the DM365 Evaluation Module and IP Security Camera Reference Design. Measurements in these systems show an improvement in signal-to-noise ratio (SNR) of 20dB with the filter in place.

A block diagram of the recommended filter is included below for reference. It is recommended that film capacitors be used in this filter. If ceramic capacitors are needed, CH or COG grade capacitors should be used. High voltage coefficient material capacitors such as X7R should not be used as they can introduce distortion.

