Digital Reverb/Effects Firmware for CDB4811MXR

1.0 INTRODUCTION

A suite of sound effects has been developed for demonstration on the CS4811 DSP + CODEC chip. These sound effects are targeted at audio mixer, karaoke and acoustic amplifier applications. The high level of integration offered by the CS4811 device makes this high quality effects solution attractive, even in lower cost products.

The effects include chorus, reverb and delay.

The CS4811 is also capable of providing combination effects such as chorus + reverb and chorus + delay.

A separate code release, available with the CDB4811GTR, is targeted for use in electric guitar amplifiers.

1.1 Operation

The CDB4811MXR demonstration board shows 8 typical digital reverb/effects presets, which are selectable using the 3 position DIP switch, S1. The presets are numbered from 0 - 7 and are binary encoded. Table 1. shows the preset number, the associated effect and the corresponding binary switch positions. The presets may be changed at any time and do not require power to be removed.

The ratio of processed (wet) signal to original (dry) signal, or wet/dry mix, may be controlled in firmware or in hardware via the potentiometer, VR3. All of the presets here have the firmware wet/dry mix set to 100% wet.

The correct setting of the mix potentiometer VR3, depends on the position of the board in the signal path. For applications where the effects signal path is in parallel with the direct signal path, such as in the effects loop of a mixer, the CDB4811MXR wet/dry mix should be set to 100% wet by turning VR3 to the fully clockwise position. For applications where the effects are in series with the direct signal path, such as the effects loop in a guitar amplifier, the wet/dry mix should be set to less than 100% and is typically set to 10 - 25 %.

Preset	Effect	SW1	SW2	SW3
0	Large Hall	OFF	OFF	OFF
1	Medium Hall	ON	OFF	OFF
2	Large Room	OFF	ON	OFF
3	Vocal Room #1	ON	ON	OFF
4	Vocal Room #2	OFF	OFF	ON
5	Chorus + Reverb	ON	OFF	ON
6	Chorus + Delay	OFF	ON	ON
7	Stairwell	ON	ON	ON

Table 1. Digital Reverb/Effects Preset Reference

APR '00
FW486B1