

## WM8804 to CS8412 Converter Board Technical Details

### 1. Pin Assignment:

Pin Number	Description	Pin Number	Description
1	No Connection	28	No Connection
2	No Connection	27	No Connection
3	No Connection	26	SDATA – Serial Data out
4	No Connection	25	ERF – Error active high
5	No Connection	24	No Connection
6	No Connection	23	No Connection
7	+VD – Digital Supply 5V	22	VA+ - Analogy Supply 5V
8	DGND	21	AGND
9	RXP	20	No Connection
10	RXN	19	MCK – Master clock 256Fs out
11	FSYNC – word clock out	18	No Connection
12	SCK – bit clock out	17	No Connection
13	No Connection	16	No Connection
14	No Connection	15	No Connection

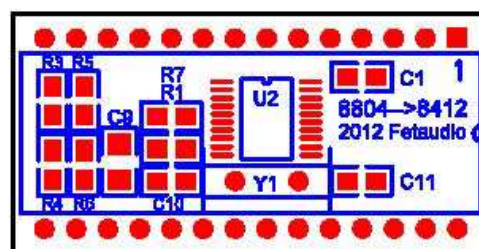
Note: Digital Output voltages in CMOS 3.3V levels.

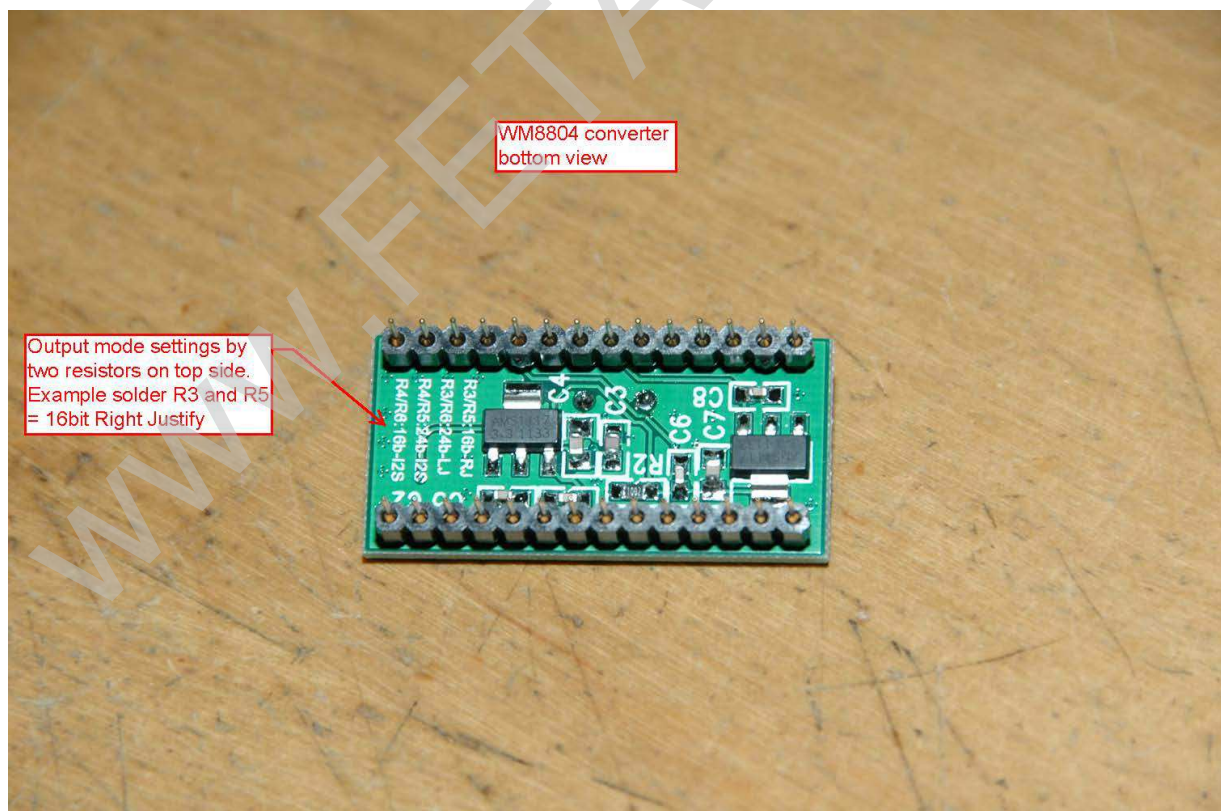
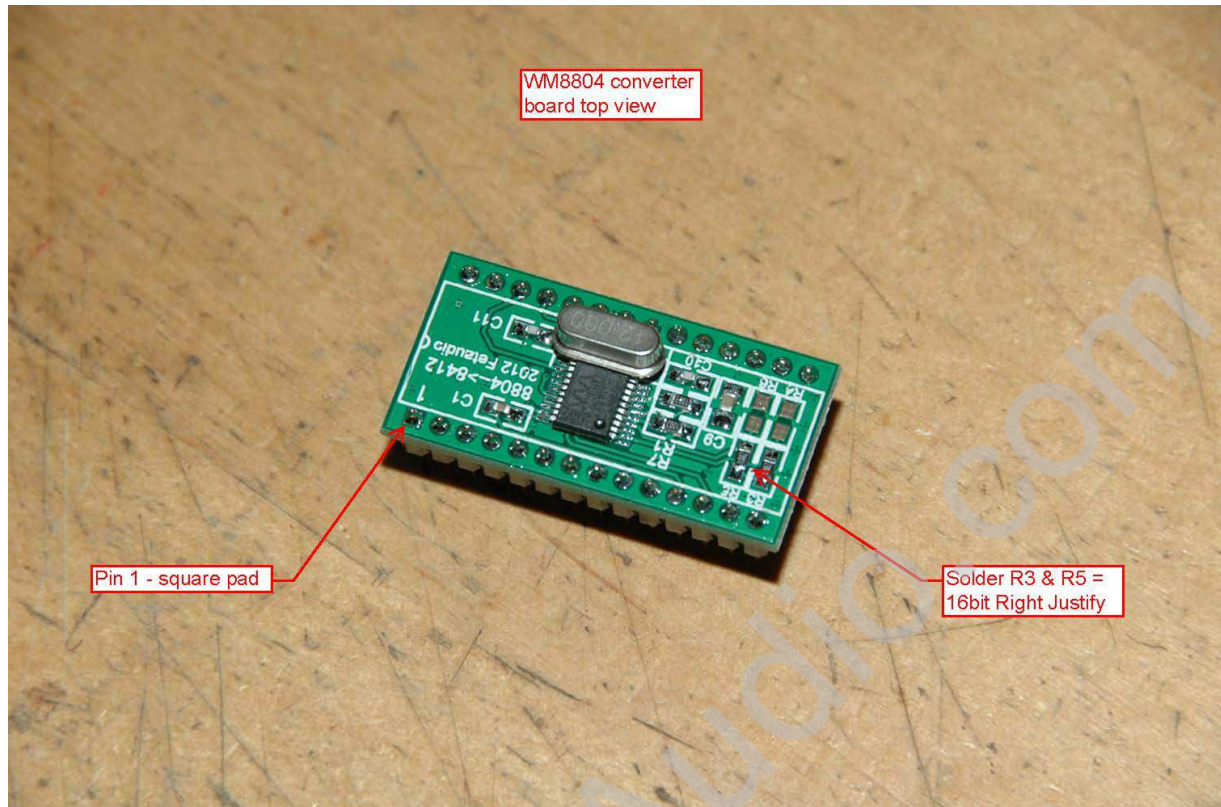
### 2. Output Mode Selection:

Mode	R3	R4	R5	R6	Description
1	Y	NC	Y	NC	16-bit Right-Justified Mode
2	Y	NC	NC	Y	24-bit Left-Justified Mode
3	NC	Y	Y	NC	24-bit I2S
4	NC	Y	NC	Y	16-bit I2S

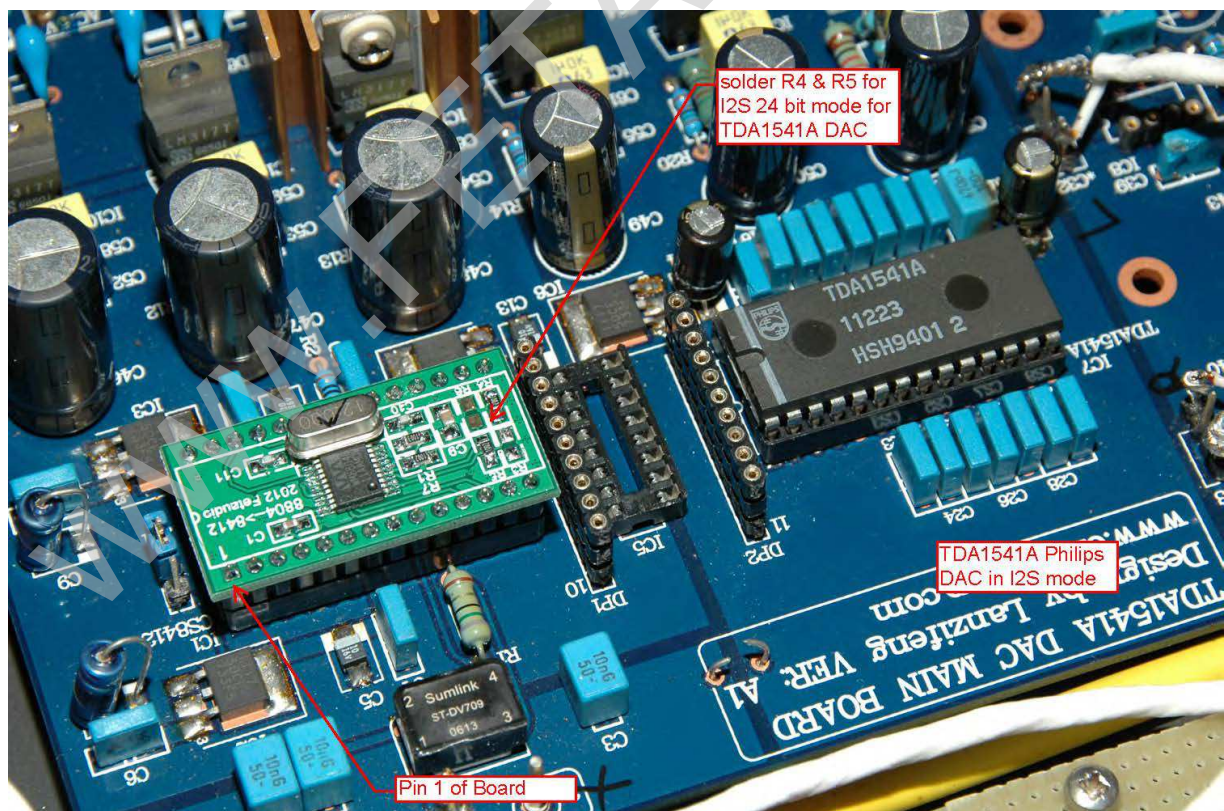
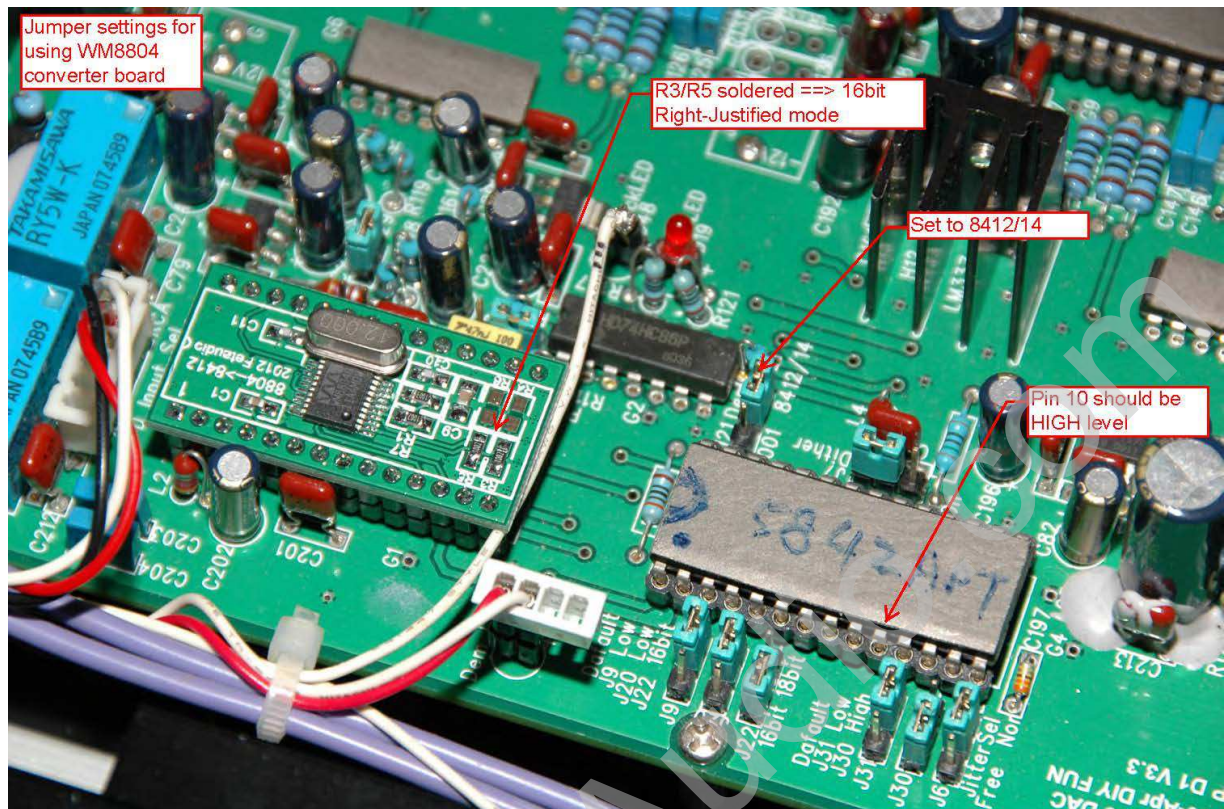
Notes:

- All resistors value is 10k ohm 0805 size.
- Y = soldered.
- NC = No connection.











### 3. Jitter Measurement comparison for WM8804 and DIR9001 converter boards:

Clk	WM8804	DIR9001
MCK	<p>40ps</p>	<p>46ps</p>
Bit Clk	<p>163ps</p>	<p>103ps</p>
Word Clk	<p>120ps</p>	<p>923ps</p>

**\*\* Overall WM8804 jitter is better than DIR9001 in a converter board conditions\*\***

**4. D1V33 Jumper settings:**

Note that the modification for DIR9001 in 24 bit mode should be reverted back to original design. That is the level at pin 10 of SM5842 should be at 5V level (HIGH). The rest of jumpers are set as shown above.

**5. Sound:**

More refined, warmer and smoother relative to DIR9001 due to better jitter performance. Bass is improved deeper than before. Simple upgrade for all D1V3, D1V33 DIY DACs is possible with excellent results and musical sound.

This converter board can also be used in other DAC with CS8412 or CS8414 chip build-in in DIP socket as long as the pin assignment is same as CS8412. The only control that is missing is the de-emphasis output at pin 3 due to lack of this function in WM8804 hardware mode.

**6. Listed Price:**

**HK\$250** (about US\$32) fully assembled/tested with free shipping worldwide and no extra paypal fee. Output mode will be preset per request.

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