

Application Note: Interfacing audio converters to the CM-1 CobraNet module.

Figures 1, 2, 3, and 4 illustrate the interface of a two-channel A/D converter and a two-channel D/A converter to the CM-1.

The A/D converter, a Cirrus Logic CS5396, needs a master clock and since it's configured for slave operation, a bit clock and a sample (frame) clock input. The bit and sample clocks are direct connections from the CM-1 as is the data stream which comes from one of the SSI ports. The CM-1 can be programmed for clocking data from either edge of the bit clock as well as allowing for specifying the polarity of the sample clock. This is important since the CS5396 works with sample pairs and those pairs need to be phase aligned; the polarity of the sample clock specifies this alignment. The SSI ports of the CM-1 have been programmed to send two channels per port. This allows a straightforward connection without any demuxing that would occur in eight-channel mode. The CS5396 cannot accept a 512FS clock for its master clock so additional circuitry is required to derive a 256 FS clock (one that is 256 times the sample rate frequency). This is accomplished by dividing the Cobranet module's 512FS clock by two using a simple flip-flop. The bit and sample clocks have been buffered and then serially terminated to reduce overshoot, overshoot may affect the quality of the audio and EMI emissions. This step is recommended but not necessary and along with termination is dependent on load and layout. It is best to not route the bit clock through any additional circuitry other than the one buffer otherwise significant jitter may be introduced thus affecting audio quality.

The D/A converter, a Cirrus Logic CS4396, has a similar interface except the data is coming from rather than going to an SSI port and the CS4396 will accept a 512FS master clock so no dividing is necessary.

For additional information about using these converters please refer to their respective Cirrus Logic data sheets and application notes which can be found on the Cirrus Logic website: www.cirrus.com.

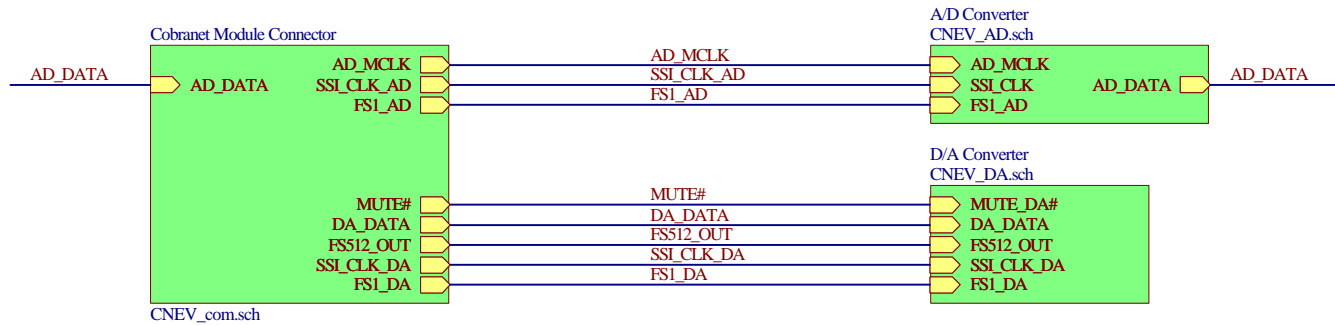



Figure 1. Block diagram, example connection of Cobranet Module to ADC and DAC.



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Title: Cobranet (TM) Module example cata converter interface		
Size: A	Number:	Revision: B
File: D:\Projects\CNMEval\CNMConv.ddb - Documents\CNEV_Main.Sch		
Date: 21-May-2001	Sheet 1 of 4	Engineer: Bill Lowe

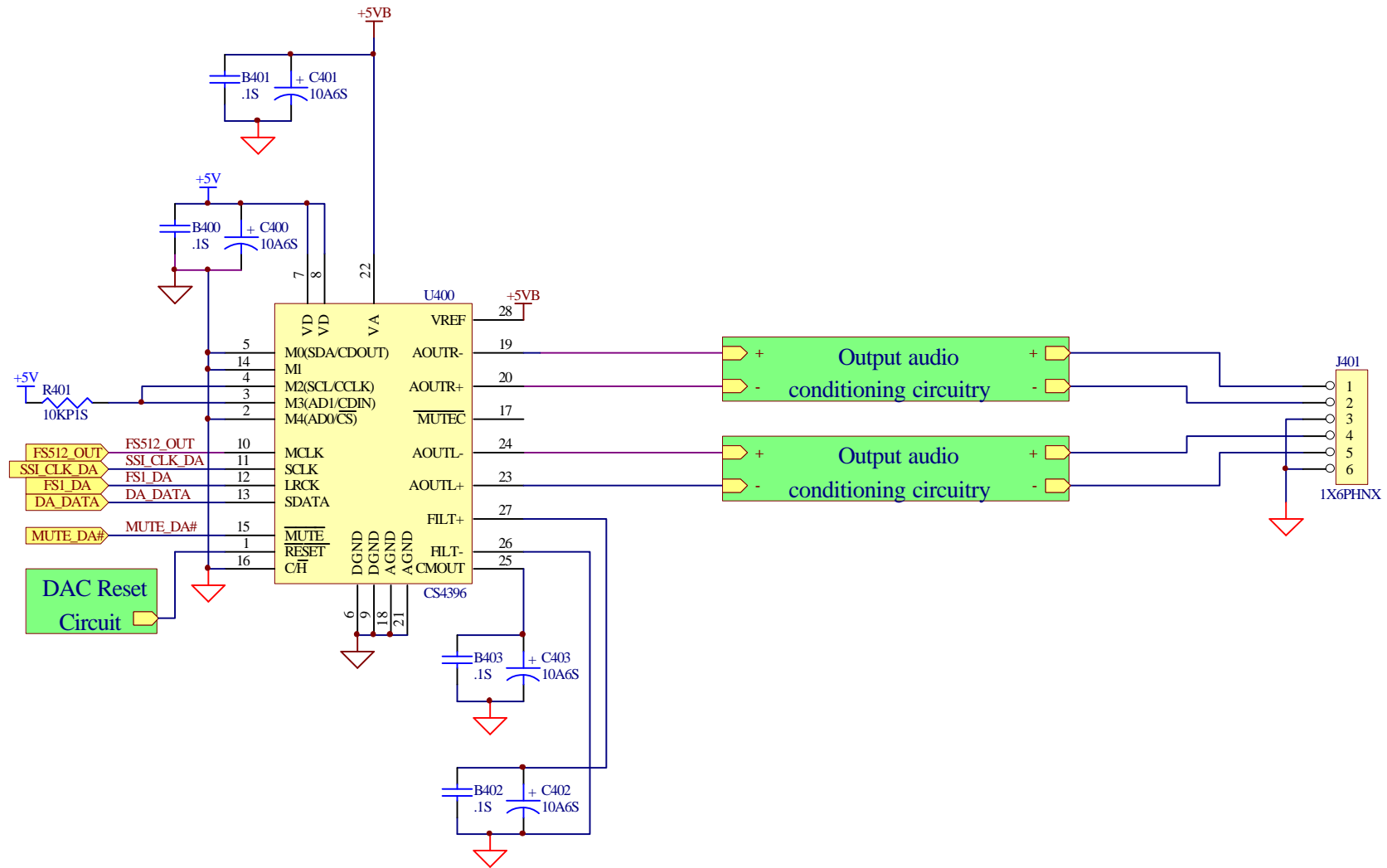



Figure 2. CS4396, DAC connection example*.

* Refer to Cirrus Logic data sheets and application notes for pin description and part usage.

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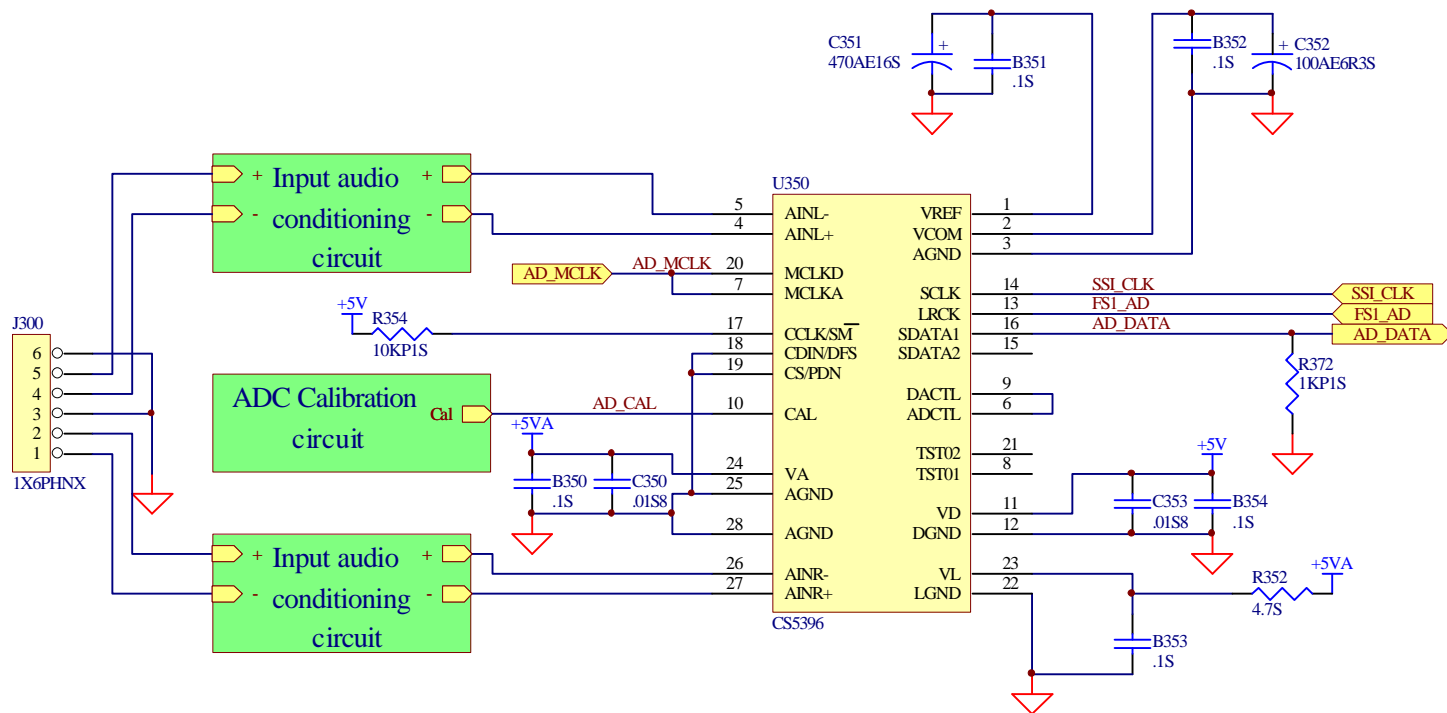



Figure 3. CS5396, ADC connection example*.

* Refer to Cirrus Logic data sheets and application notes for pin description and part usage.

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Cobranet Module Interface Connectors

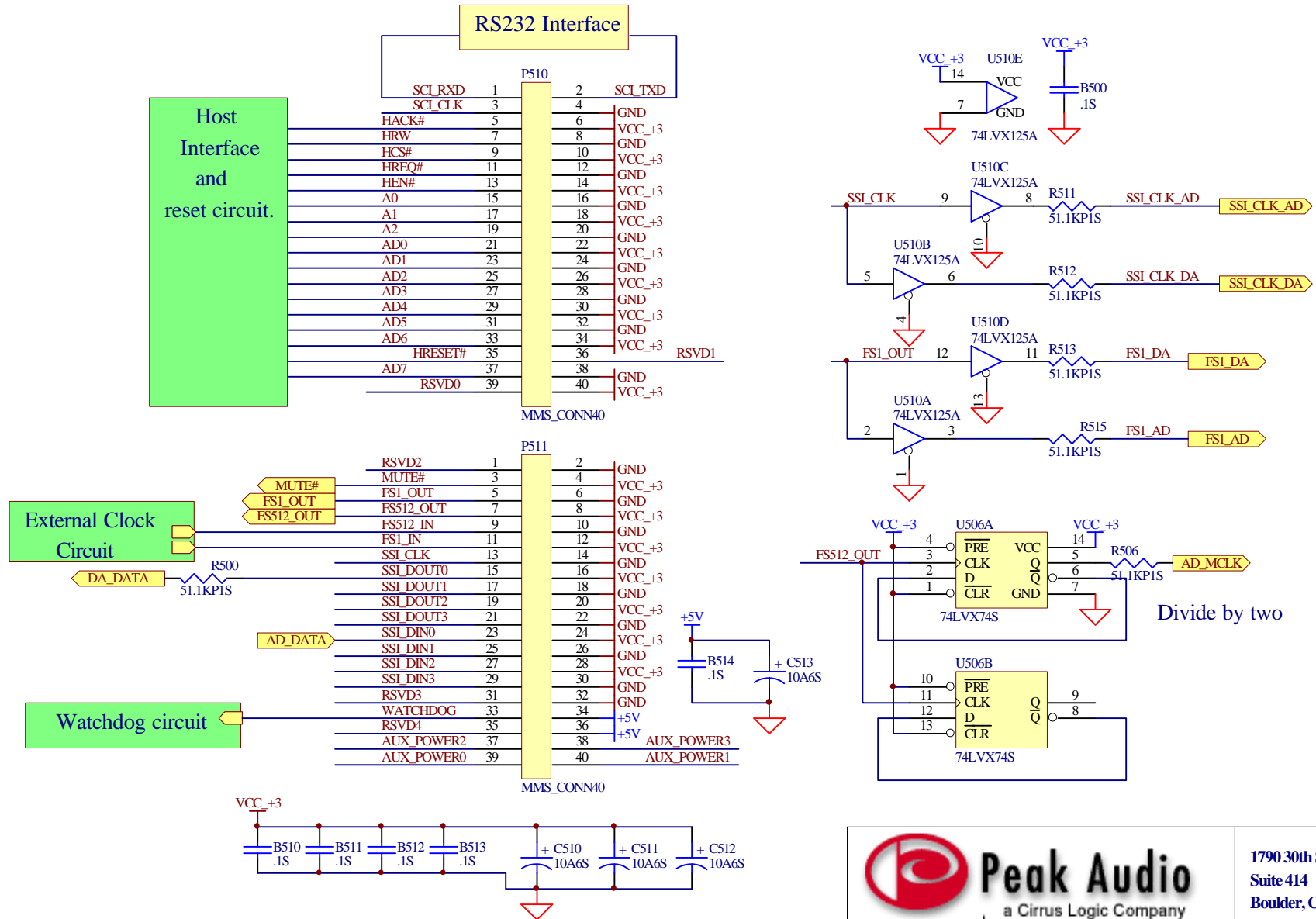


Figure 4. Cobranet Module connectors and clock conditioning circuits.



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Title: Cobranet (TM) Module connector and clock conditioning.

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