CM-1 and CM-2 Module Design Guidelines

The CM-1 module is a traditional design based on a discrete DSP processor and ancillary components. The CM-2 module design is more highly integrated by using one of the new CS181xxx family of CobraNet™ chips. Design considerations when using either module are nearly identical but there are differences which should be kept in mind. For those familiar with CM-1 design, please refer to the *CM1 to CM2 Applications Note* for information related to these differences.
Consider the following when designing a host system using either CobraNet™ module:

- Although the module PCB supports a number of connector configurations, Cirrus Logic has selected the configuration with female headers on the bottom side of the board as the standard configuration. The male 40-pin headers for your host system are available from Samtec as part number TW-20-02-S-D-185-SM-A. The standard configuration is shown as the "Example Configuration" in the CM-1 mechanical details. Other connector configurations are available for order.

- The host system needs to provide a reset signal to the module. At minimum, reset should be asserted during power-up and released once power is stable.

- Following power up, initialization of the interface will result in a delay before valid 512fs and 1fs clocks are output. Some audio converters expect to see these signals and will consume huge amounts of power if the clocks are not immediately present. There are workarounds for this, which usually include keeping the converters in reset until valid clocks are provided. Valid audio clocks can be assumed to be present once the module de-asserts its mute signal.

- All module output signals operate at 3.3 volt logic levels. These signals are compatible with 5 volt TTL logic levels, but not 5 volt CMOS logic. Most modern audio AD and DA converters have CMOS logic level inputs. This means that they are not compatible with the CM-1 when powered from 5 volts. Fortunately, most converters can use 3.3 volts to power their digital side which will make them compatible with the CM-1 (and also lowers power consumption and EMI).

- All module input signals are 5v tolerant. Inputs may be driven by TTL or CMOS.

- Remember to place AC signal return path capacitors at the connectors on the host board. Use six 0.1uF caps between +3.3 volts and ground, spread evenly across the connectors. Use another 0.1uF cap between +5 volts and ground, and placed close to the +5 volt supply pins on the module connectors.

- Leave the unused connector pins unconnected.