

CM-1 – CobraNet™ Module 1



Overview

The CM-1 provides a CobraNet™ compliant interface in the form of a compact, low-power module. Simultaneously providing 32 channels each of distributed digital audio input and output, the CM-1 is designed to be easily integrated into professional audio products such as signal processors, mixers, amplifiers and self-powered loudspeakers.

Features

100BASE-TX Ethernet Interface - 100Mbps, full-duplex Ethernet interface, fully compliant with the IEEE 802.3 standard.

Secondary 100BASE-TX Ethernet Interface – provides a backup Ethernet interface that can be connected to a redundant network for fault tolerance.

Quad Synchronous Serial Output Ports – capable of supplying up to 32 total audio channels at a 48kHz sample rate with 16, 20 or 24 bit resolution.

Quad Synchronous Serial Input Ports – capable of receiving up to 32 audio channels at a 48kHz sample rate with 16, 20 or 24 bit resolution.

Studio Grade, Low-Jitter Clock Source – with programmable rate and less than 1ns of jitter.

High Speed Host Port Interface – interfaces to an optional external control processor.

SNMP Agent – provides Ethernet-based control, monitoring and management.

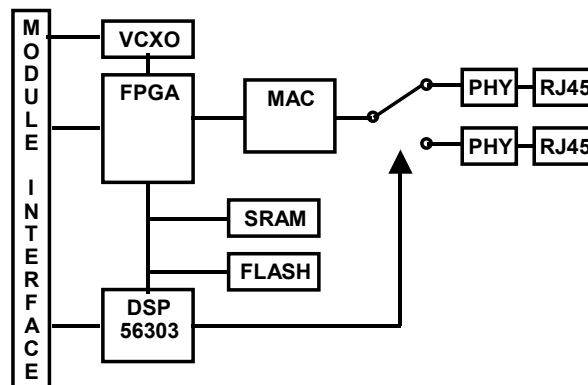
TFTP Support – supports software updates over the network.

Low Latency – guaranteed constant 5.33ms in through out.

Optional Remote Power Through RJ-45 Connection – for powering via the Cat-5 Ethernet connection.

Asynchronous Serial I/O Port – used to bridge serial control data over Ethernet.

Status LEDs – show Link, Activity, Fault and CobraNet™ Conductor status for each Ethernet jack.



Module Block Diagram

Synchronous Serial (Audio) Ports

| Signal | Direction | Description |
|-----------|-----------|---|
| SCLK | In/Out | Serial bit clock |
| DOUT[3-0] | Out | Output serial audio data |
| DIN[3-0] | In | Input serial audio data |
| FS1 | In/Out | Sample clock |
| FS512IN | In | External 512FS clock input for systems containing multiple CobraNet™ interfaces |
| FS512OUT | Out | Master 512FS clock output |
| REFCLK | In | Auxiliary reference clock input for synchronizing network to an external clock source |

Asynchronous Serial

| Signal | Direction | Description |
|--------|-----------|-----------------------------------|
| RXD | In | Serial data receive |
| TXD | Out | Serial data transmit |
| SCLK | In/Out | Serial data clock/transmit enable |

Miscellaneous

| Signal | Direction | Description |
|------------|-----------|---|
| Reset# | In | System reset (active low) |
| WatchDog | Out | Watch dog output: Toggles to indicate proper operation |
| Mute# | Out | Asserts (active low) during initialization and when fault detected or connection to network is lost |
| AuxRJ4 - 8 | In/Out | Aux RJ-45 pins |

Electrical Specifications

Host Port

| Signal | Direction | Description |
|-----------|-----------|------------------------------|
| Data[7-0] | In/Out | Host port data |
| Addr[2-0] | In | Host port address |
| R/W# | In | Host port transfer direction |
| HREQ# | Out | Host port DMA request |
| HACK# | Out | Host port interrupt request |
| HDS# | In | Host port select |

Electrical Specification (cont.)

Power

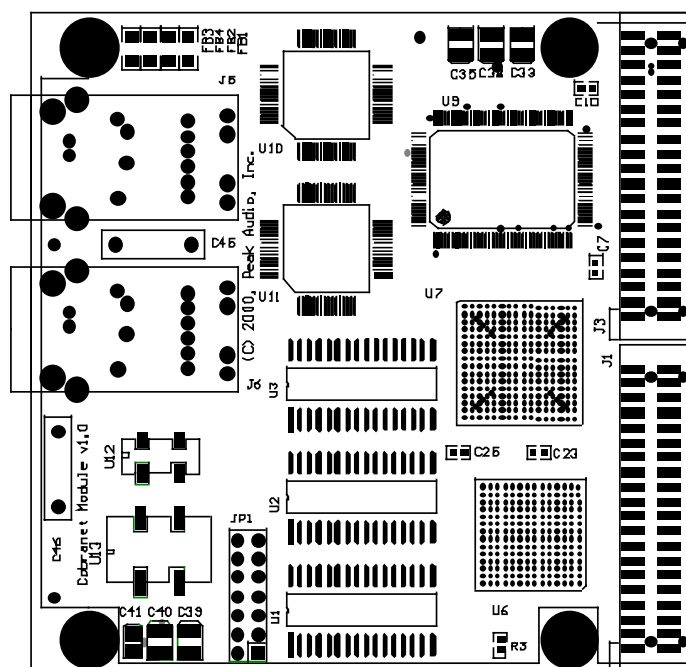
| | |
|--------|------------------------------------|
| VCC_+3 | System +3.3V, +/- 0.25 volts, 1.2A |
| VCC_+5 | System +5.0V, +/- 0.25 volts, 0.1A |
| GND | System ground |

Ethernet Electrical Specifications

Ethernet Primary Connector – RJ-45 jack. Standard Ethernet pinout. Transformer isolated, complies with IEEE 802.3 standard.

Ethernet Secondary Connector – RJ-45 jack. Standard Ethernet pinout. Transformer isolated, complies with IEEE 802.3 standard.

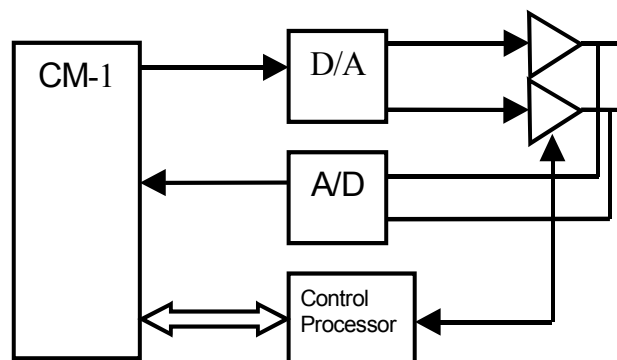
Ethernet uses 2 of the 4 twisted wire pairs available on a Cat-5 cable. The unused pairs are available at the module interface connector for DC power (if supplied).



Actual Size

Physical Specifications

The module consists of square circuit board, 3.5 inches on a side. Two Ethernet connectors and a bracket are included for chassis mounting. Four mounting holes are provided. By choosing from a number of connector options, the module may be mounted in a variety of ways. This allows for maximum flexibility in space-limited systems. The possible configurations include *components up*, *components down*, *end to end*, *right angle* and *ribbon cable connected*. In the *components up and down* configuration, the module is mounted as a mezzanine card, parallel to the host PCB. The *components up or down* options allow for a tradeoff of connector space for assembly height. The *end to end* configuration is useful for very height-limited systems. *Right angle* is used for card cages or multi-module systems. A *ribbon cable* option is available for systems that require maximum flexibility.



Simplified Monitored Power Amplifier Example

Applications

The CobraNet™ CM-1 module is designed to be easily integrated into a wide variety of professional audio products. Above is an example of a CM-1 used in a stereo amplifier. In this example, the CM-1 provides a digital audio interface to the network, a means for remotely monitoring the amplifier outputs, and transmission and reception of amplifier control and status information. Other applications include:

- Signal Processors
- Standalone A/D and D/A Converters
- AES-3 Digital Interfaces
- Mixing Consoles
- Audio Snakes
- Paging Stations
- Large Facility Audio Distribution
- Self-Powered Loudspeakers

CobraNet™

Peak Audio began CobraNet™ development in 1995 in response to an industry need for a high quality digital audio distribution network. Since then, it has become the accepted standard for multi-vendor networked audio. CobraNet™ leverages the rapid developments in the computer networking industry to provide an increasingly cost effective solution for audio professionals worldwide.

Contact

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