

# AUDIO CRYSTAL-MM-HP



## SOUNDBLASTER AUDIO WITH BUILT-IN STEREO AMPLIFIER

### SPECIFICATIONS

Mono microphone input 100KW max	10mV to 125mV p-p 30KW min,
Stereo CD input	0V to 4V p-p 30KW min, 100KW max
Stereo line input	0V to 4V p-p 30KW min, 100KW max
Stereo line output	0V to 3.5V p-p 30KW typical
PC speaker input	TTL input from CPU

### STEREO SPEAKER OUTPUT

CMM-HP-5	0.5W per channel into 8Ω
CMM-HP-12	1.5W per channel into 8Ω
CMM-HP-EX	Up to 5W per channel into 8Ω (depends on input voltage)

### POWER OPTIONS

CMM-HP-12	+5VDC and +12VDC from PC/104 bus
CMM-HP-5	+5VDC from PC/104 bus
CMM-HP-EX	+5VDC from PC/104 bus 6-28VDC from external source

### GENERAL

Dimensions	3.550" x 3.775"
PC/104 Bus	16-bit configuration
Operating temp.	-20 to +70°C operating

### MAIN I/O HEADER

SPEAKER L	1	2	AGND
SPEAKER R	3	4	AGND
CD L	5	6	CD R
MIC IN	7	8	AGND
LINE IN L	9	10	AUX L
LINE IN R	11	12	AUX R
LINE OUT L	13	14	AGND
LINE OUT R	15	16	AGND
DGND	17	18	MUTE
VOLUME UP	19	20	VOLUME DOWN

### SPEAKERS

LEFT OUT	1	2	LEFT IN
AGND	3	4	RIGHT OUT
RIGHT IN	5	6	AGND
SPEAKER L	7	8	AGND
SPEAKER R	9	10	AGND

### PC SPEAKER

PC SPKR OUT	1
MONO OUT	2
MONO IN	3
AGND	4
PS SPKR IN	5
DGND	6

### 3.5 MM JACK NO. 1\*

SPKR OUT L/LINE OUT L	TIP
SPKR OUT R/LINE OUT R	RING
AGND	SHIELD

### 3.5 MM JACK NO. 2\*

LINE IN L / MIC IN	TIP
LINE IN R / NC	RING
AGND	SHIELD

The Crystal-MM-HP audio module offers full-duplex performance, plug and play capability, and multiple output power options. It is fully compatible with the SoundBlaster Pro™ and Windows Sound System™ standards.

Full-duplex capability enables the board to perform simultaneous recording and playback on separate channels. Sample rates of up to 44.1KHz are supported for both record and playback. An extensive selection of audio inputs and outputs on multiple I/O connectors make Crystal-MM-HP easily adaptable to any application's configuration. Both pin headers and stereo mini-jacks are provided to enable easy connections to custom wiring as well as industry-standard connectors.

Crystal-MM-HP includes a 6-channel mixer with stereo inputs for line, CD, auxiliary, and MIDI, and mono input for microphone. Outputs include speaker, line, and MIDI. An optional mono I/O channel can be provided with a semicustom configuration.

Plug and play configuration provides 4 DMA and 6 interrupt selections for increased flexibility and ease of installation. Additional features include a PC-compatible dual game port and connections for hardware volume and mute controls, so that volume can be controlled both in software and through front-panel controls. Software drivers for Windows 3.1, Windows 95, and Windows NT are included.

Crystal-MM-HP is available in several input/output power configurations. The standard +12-powered board provides 1.5W per channel into 8 ohms. A low-power +5V-supply version provides 0.5W per channel for +5V-only systems. A high-power version can output up to 5W per channel with external 24VDC input.

### I/O Connections

Crystal-MM-HP includes multiple I/O connectors to handle the wide range of audio signals. Many signals are present on more than one header for increased flexibility in I/O connections. The two stereo mini-jacks are configurable with jumpers for input and output source. The speaker outputs are available on a mini-jack, a dedicated pin header with external volume control input, and a combination I/O main header. Only one speaker connection should be used at a time.

### ORDERING GUIDE

<b>CMM-HP-5</b>	5V in, 0.5Wx2 output
<b>CMM-HP-12</b>	12V in, 1.5Wx2 output
<b>CMM-HP-EX</b>	12-28V in, 5Wx2 output

For cables and accessories, see pages 46-47.



CMM-HP-5



CMM-HP-12



CMM-HP-EX

- ◆ 16-bit stereo audio recording and playback
- ◆ SoundBlaster Pro and Windows Sound System compatibility
- ◆ 3 models to choose from
  - 5V in, 2x1.2W output
  - 12V in, 2x1.5W output
  - 28Vin, 2 x 5W output
- ◆ Stereo line in, CD in
- ◆ Mono mic in, PC speaker in
- ◆ Stereo line out, speaker out
- ◆ Hardware and software volume controls
- ◆ ESS Technology drivers included
- ◆ -20 to +70° operation

\*The signal assignments on these jacks are jumper configured.

