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MM-DSP-AES

MM-DSP-CN

MM-DSP

## MediaMatrix® MM-DSP SERIES

### Description

The MediaMatrix® MM-DSP Series DPU (Digital Processing Unit) boards are the heart of the MediaMatrix Mainframe DSP engine. Each DPU contains four Motorola® 56002 DSP chips and is capable of greater than 100 MIPS (Million Instructions Per Second). The MM-DSP Series utilizes Peavey's exclusive V-Stac™ coding which doubles the processing efficiency and resulting capabilities of each DSP chip. Each board also handles 32 input and 32 output audio channels, and performs 24-bit processing. The MM-DSP Series uses double-precision filtering for superior accuracy of audio filtering frequency centers and filter skirts.

There are three models in the MM-DSP Series. The first is the MM-DSP DPU for processing standard audio sources via up to four 8800 Series BoB's (8-channel-in by 8-channel-out A-to-D/D-to-A Break-out Boxes). The second is the MM-DSP-AES for processing 32-channels-in by 32-channels-out of AES/EBU standard digital audio (16 channels each of stereo AES3 signals). This is done via the MediaMatrix 16XT AES/EBU transformer-isolating interface box. The third is the MM-DSP-CN for processing audio ported to or from an Ethernet network. This is done via up

to four CAB™ 8i's (eight-inputs each) and an unlimited number of CAB™ 8o's (eight-outputs each). The CAB units are audio bridges that port audio on and off a standard 10/100BaseT Ethernet network utilizing CobraNet® protocol.

The MM-DSP model has a software-selectable sample-rate that matches it to the sample-rate of the MM-8800 Series BoB to which it is interfaced. Depending on the BoB used, either 32, 44.1, or 48 kHz can be chosen. The MM-DSP-AES also has a software-selectable sample-rate. It supports 32, 44.1, and 48 kHz sampled AES/EBU standard digital audio. The DSP-CN operates only at a 48 kHz sampling rate.

### Features

- 4 Motorola 56002 DSP chips on each DPU board
- 24-bit processing
- 32 digital audio input channels and 32 digital audio output channels
- ISA bus edge connectors enable easy mixing and matching of DPU boards for custom system configurations
- Software-selectable sample-rates for both MM-DSP-AES and MM-DSP DPU boards

- Greater than 100 MIPS (Million Instructions Per Second) calculating speed
- Double-precision DSP filtering for accurate filter characteristics
- Exclusive V-Stac coding doubles processing efficiency

### Applications:

Anywhere MediaMatrix is used, such as:

- Stadiums
- Cruise ships
- Multi-purpose facilities
- Auditoriums
- Large-scale paging systems
- Schools
- Courts of law
- Airports
- University campus buildings
- Theme parks
- Performing arts centers
- Distance learning centers
- Hotel meeting room complexes
- Houses of worship
- Conference centers
- Teleconferencing systems
- Civic centers
- Theaters
- Arenas

## SPECIFICATIONS

### Digital Audio Channel Capacity:

Up to 32 input channels and 32 output channels out per DPU board for all DPU board types

### DSP Compliment:

4 Motorola 56002 DSP chips per DPU

### Processing Resolution:

24-bit processing

### Sampling Rates:

**MM-DSP:** Software-selectable, either 32, 44.1, or 48 kHz

**MM-DSP-AES:** Software-selectable, either 32, 44.1, or 48 kHz for each stereo input source. Output sample rate is selected when view file is compiled.

**MM-DSP-CN:** 48 kHz only

### Speed of Calculations:

**MM-DSP:** 128 MIPS

**MM-DSP-AES:** 136 MIPS

**MM-DSP-CN:** 168 MIPS

### Digital Audio Bussing:

256 inter-board channels (between DPU boards),

256 inter-cell channels (between DSP chips)

### Software Coding:

Exclusive V-Stack coding provides twice the normal code efficiency

### Filtering Algorithms:

Calculated using double-precision mathematics for more accurate audio filter frequency centers and slope-rates

### Connectors:

**MM-DSP:** (2) DB-9 female-pinned connectors on board attachment bracket, (2) DB-9 female-pinned connectors on a separate, ribbon-cabled attachment bracket

**MM-DSP-AES:** (1) DB-37 female-pinned connector on board attachment bracket (1) DB-37 female-pinned connector on a separate, ribbon-cabled attachment bracket

**MM-DSP-CN:** (1) RJ-45 female connector on board attachment bracket

### Net Weight:

Approximately 1 lb. (0.45 kg), all models

### Maximum Power Consumption and Heat Generation:

Not more than 25 Watts, 85 BTU/Hr.

## ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

### MM-DSP:

The MediaMatrix MM-DSP DPU board shall provide digital audio signal processing for the MediaMatrix Mainframes and Miniframes. It shall interface to the 8800 Series Break-out Boxes which provide audio-to-digital and digital-to-audio conversion of sound system signals. It shall employ (4) Motorola 56002 DSP chips for 24-bit processing of 32 digital audio input channels and 32 digital audio output channels. The DPU board shall perform 128 MIPS (Million Instructions Per Second). The MM-DSP DPU board shall operate at either of (3) software-selectable sampling rates: 32 kHz, 44.1 kHz, or 48 kHz. It shall employ double-precision filter calculations for more accurate audio filter frequency centers and slope-rates. V-Stack coding shall be employed in the programming code to double the code's efficiency. During CPU failure, the MM-DSP DPU board shall continue to operate without interruption. DSP processing of lesser capabilities shall not be acceptable. The DPU board shall be the MediaMatrix MM-DSP.

### MM-DSP-AES:

The MediaMatrix MM-DSP-AES DPU board shall provide AES/EBU-standards-compliant digital audio signal processing for the MediaMatrix Mainframes. It shall interface to the 16XT break-out box which provides transformer-isolation and facilitates easy wiring to AES/EBU digital audio devices. It shall employ (4) Motorola 56002 DSP chips for 24-bit processing of 32 digital audio input channels and 32 digital audio output

channels in (16) AES3 digital audio stereo pairs. The DPU board shall perform 136 MIPS (Million Instructions Per Second). The MM-DSP-AES DPU board shall sample stereo audio input sources at either 32, 44.1, or 48 kHz. Its output-sampling rate is selected by compiling the view file at either 32, 44.1, or 48 kHz. It shall employ double-precision filter calculations for more accurate audio filter frequency centers and slope-rates. V-Stack coding shall be employed in the programming code to double the code's efficiency. During CPU failure, the MM-DSP-AES DPU board shall continue to operate without interruption. DSP processing of lesser capabilities shall not be acceptable. The DPU board shall be the MediaMatrix MM-DSP-AES.

### MM-DSP-CN:

The MediaMatrix MM-DSP-CN DPU board shall provide CobraNet® digital audio signal processing for the MediaMatrix Mainframes. It shall interface to the CAB 8i and CAB 8o CobraNet break-out boxes which port real-time audio onto and off of a standard 10/100BaseT Ethernet network. It shall employ (4) Motorola 56002 DSP chips for 24-bit processing of 32 digital audio input channels and 32 digital audio output channels. The DPU board shall perform 168 MIPS (Million Instructions Per Second). The MM-DSP-CN DPU board shall operate at a 48 kHz audio-sampling rate. It shall employ double-precision filter calculations for more accurate audio filter frequency centers and slope-rates. V-Stack coding shall be employed in the programming code to double the code's efficiency. During CPU failure, the MM-DSP-CN DPU board shall continue to operate without interruption. DSP processing of lesser capabilities shall not be acceptable. The DPU board shall be the MediaMatrix MM-DSP-CN.

**Note:** Motorola® is a registered trademark of Motorola, Inc. CobraNet™ is a trademark of Peak Audio, Inc.

**3 + 2 YEAR LIMITED WARRANTY**

**NOTE:** For details, refer to the warranty statement. Copies of this statement may be obtained by contacting Peavey Electronics Corporation  
P.O. Box 2898, Meridian, Mississippi 39301-2898.



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