Film-Tech

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SONY

Digital Cinema Processor System

Digital Film Processor
DCP-1000
PEC Interface Module
DCP-A101
Analog Input Interface Module
DCP-A102
Analog Output Interface Module
DCP-A103

OPERATION & MAINTENANCE MANUAL

1st Edition
Serial No. 10001 and Higher (DCP-1000)

MADE IN USA

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Table of Contents

Section 1
Overview

1.1. Principal Features

1.1.1. General

The Sony DCP-1000 is a digital cinema processor that utilizes Digital Signal Processing (DSP) techniques to perform matrix decode, analog noise reduction (conforming to the Sony Cinema Stereo format), and room equalization. This unit has a wide range of functions and capabilities designed to meet the rigorous standards of film sound post-production and the exhibition cinema. The Sony DCP-1000 is designed to be configured in a number of variations for maximum flexibility in installation. This flexibility is made possible through the use of optional interface modules (DCP-A101, DCP-A102, etc.).

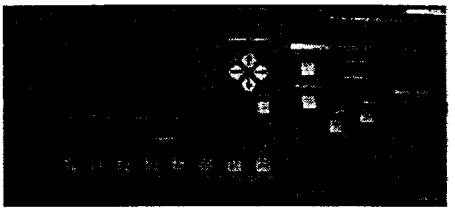


Figure 1-1. DCP-1000 Front Panel

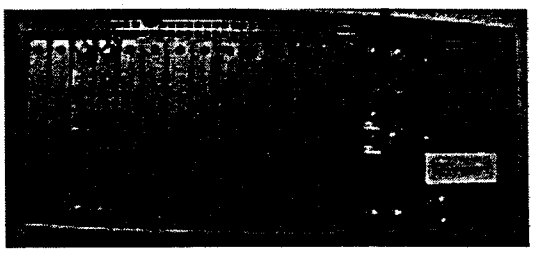


Figure 1-2. DCP-1000 Rear Panel

1.1.2. Features

Fully Digital Audio Signal Path:
The DCP-1000 performs all audio signal processes in the digital domain. All analog input signals are first converted to 16 bit PCM data, then processed. Therefore, adjustments that have been historically performed in the analog domain (i.e., slit loss EQ, matrix decode, NR decode, room EQ, etc.), can now be adjusted digitally. This ensures a more stable room equalization and projector/audio input alignment.

High Quality A/D and D/A Converters:
High quality stereo 16-bit A/D and 18-bit D/A converters are used to ensure the optimum resolution of the input and output signals. These converters are operated at a sampling frequency (Fs) of 44.1kHz (44,100 samples per second).

Common 16 slot Modular Frame:
A *common pin configuration modular frame* is implemented on the DCP-1000 allowing flexibility of configuration. This allows the user to insert option boards into any slot. Also future option applications are numerous.

Full Function LCD Status Display:
The DCP-1000 provides the user and the service engineer with complete details on system status through the use of a 3"x5" back-lit LCD screen. All set-up and system status information can be accessed through this interface.

Extensive Self-Diagnostics at Power-Up:
The Sony DCP-1000 performs an extensive self-diagnostics routine at every power-up cycle. Any sub-system found to be faulty is clearly indicated on the LCD display.

Automatic Recognition of Option Modules:
During the power-up cycle, the Sony DCP-1000 scans for installed option modules. This allows "plug & play" hardware configurations for the DCP-1000.

RS-232C Interface for Computer Alignment:
All adjustments to the DCP-1000 system are supported through the RS-232C computer interface I/O connector located on the CPU board.

High Quality & Low Cost Interconnection:
Interconnection to the Sony DCP-1000 is made simple through the use of high quality multi conductor connections such as Phoenix and d-sub miniature connectors.

Universal Switching Regulator Power Supply:
Through the use of the switching regulator power supply, the Sony DCP-1000 is able to be used in any location world-wide.

Fail-safe Back-up Feature:
The Sony DCP-1000 is equipped with a fail-safe back-up feature. This back-up system operates on a separate external 12VDC power supply (supplied by the dealer) and in the unlikely event that the DCP-1000 DSP system fails, the fail-safe back automatically switches in to ensure that the presentation sound continues until repairs can be made. This module is also equipped with a manual over-ride switch.

1.2. System Configuration Examples

DCP-1000 Only System Basic Diagram:
Interconnection of the Sony DCP-1000 into a standard analog only system is quite simple. For this type of application, there are inputs from the projector(s), the non-sync source(s) and outputs to the amplifier system[1].

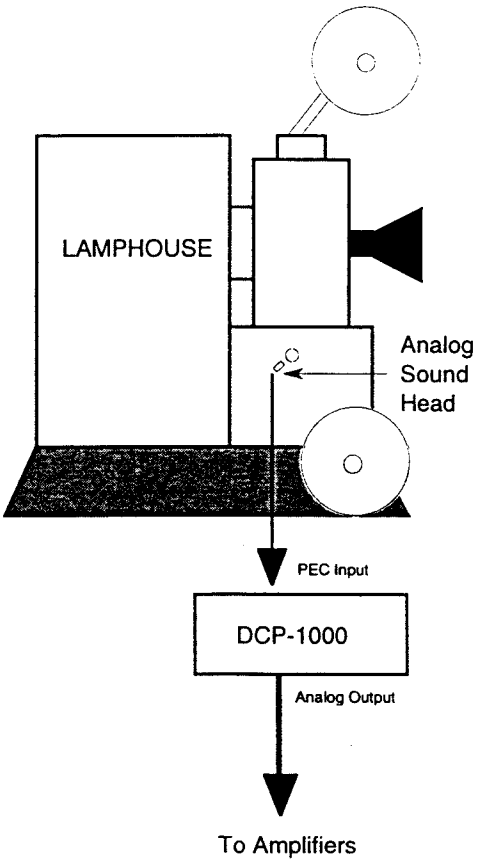


Figure 1-3. DCP-1000 Only

DCP-1000 & SDDS System Basic Diagram:
Interconnection of the Sony DCP-1000 into a theater sound system equipped with Sony SDDS is quite simple. For this type of application, there are inputs from the projector(s), the non-sync source(s) and outputs to the SDDS decoder unit (Sony DFP-D2000)[2].

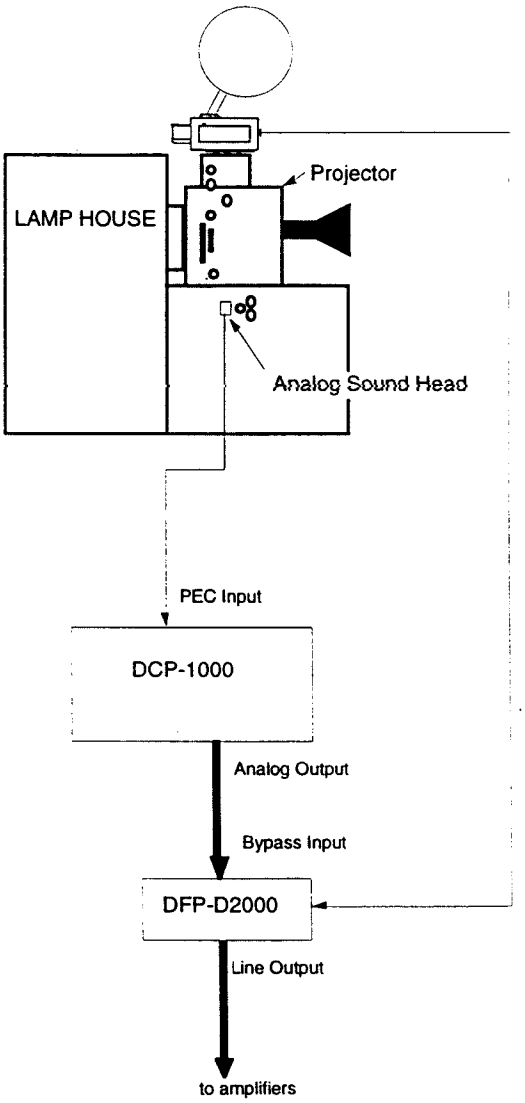


Figure 1-4. DCP-1000 & SDDS

[1] For brevity of this topic, the connection to cross-over networks, bi-amplification, etc. are omitted. For detailed instructions on the connection to these types of systems, refer to Section 4 "Installation" of this document.

[2]The DCP-1000 analog output is connected to the "BYPASS INPUT" connector(s) of the Sony DFP-D2000. The outputs of the DFP-D2000 are then connected to the amplifier system.

DCP-1000 & Dolby® SR•D System Basic Diagram:

Interconnection of the Sony DCP-1000 into a theater sound system equipped with a Dolby® SR•D system requires the installation of an optional DCP-A102 Analog Input Module. For this type of application, there are inputs from the projector(s), the non-sync source(s), the SR•D unit and outputs to the amplifier system)[3].

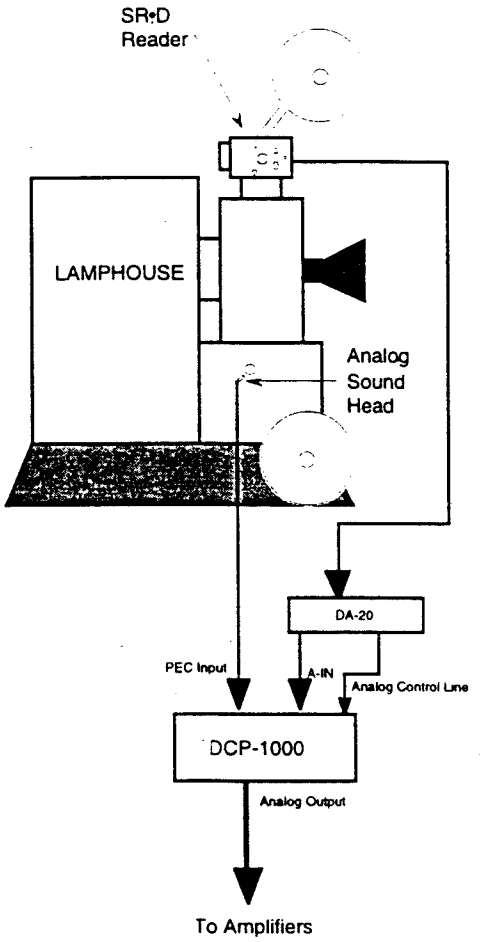


Figure 1-5. DCP-1000 & SR•D

DCP-1000 & DTS® System Basic Diagram:

Interconnection of the Sony DCP-1000 into a theater sound system equipped with a DTS system requires the installation of an optional DCP-A102 Analog Input Module. For this type of application, there are inputs from the projector(s), the non-sync source(s), the DTS unit and outputs to the amplifier system)[4].

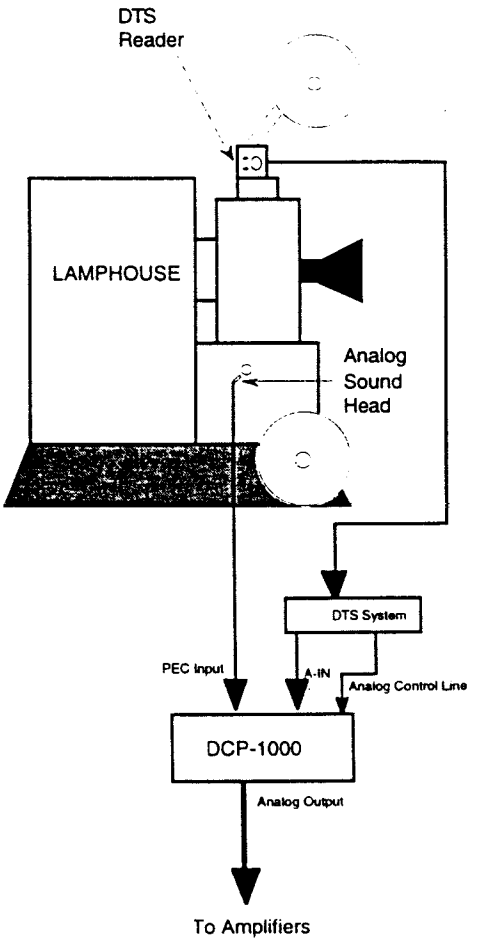


Figure 1-6. DCP-1000 & DTS

[3]For brevity of this topic, the connection to cross-over networks, bi-amplification, etc. are omitted. For detailed instructions on the connection to these types of systems, refer to Section 4 "Installation" of this document.

[4]For brevity of this topic, the connection to cross-over networks, bi-amplification, etc. are omitted. For detailed instructions on the connection to these types of systems, refer to Section 4 "Installation" of this document.

1.3. Recommended Equipment and Optional Accessories

DCP-A101 PEC Input Module
Single projector and single stereo "non-sync" input card. This option module is used to interface either a single projector input *or* a single stereo non-sync input to the Sony DCP-1000. Up to 8 of these cards can be installed simultaneously. Multiple modules are identified by a unique "ID" number set on each module with an 8 position rotary switch. Each of the modules installed must have a unique "ID" number for proper operation.

DCP-A102 Analog Input Module (8-Channel)
The Sony DCP-A102 is an 8-Channel Analog Input card. This option module is used for input of multi channel analog sources (i.e., DTS, SR•D, etc.).

DCP-A103 Analog Output Module (8-Channel)
8-Channel Analog Output card.

1.4. Specifications

DCP-1000 Digital Audio Signals

Number of Channels	: 8
Channel Assignments	: Channel 1: Left Channel 2: Left Center Channel 3: Center Channel 4: Right Center Channel 5: Right Channel 6: Sub-Woofer Channel 7: Surround Left Channel 8: Surround Right
Sampling Frequency	: 44.1kHz
Frequency Response	: 20Hz to 20kHz
Dynamic Range	: 85dB min.
Distortion	: 0.07% max. at nominal input
Crosstalk	: -70dB max.
Output Level Low	: -10dB balanced (factory setting)
High	: +4dB balanced
Head Room Input	: 17db min.

DCP-1000 General Specifications

Power Requirements	: 100 ~ 240VAC 50/60Hz
Power Consumption	: 55W
Operating Temperature	: +5°C to +40°C (+41°F to +104°F)
Operating Humidity	: 10% to 90% (relative)
Mass	: Approx. 14.06 kg (31 lbs)
Dimensions (w/h/d; excluding projections)	: 424mm x 189.4mm x 387.1mm

Input/Output Characteristics

Input Connectors	: RCA Jacks; L, R Unbalanced Nominal Level = -10dBu Maximum Level = +7dBu Impedance 10kΩ min. : Projector Inputs; L, R Balanced, 5 pin Phoenix Photo-electric Cell Compatible
System Output Connectors	: L, LC, C, RC, R, SW, SL, SR • D-sub 25 pin male • Nominal level +4dBu/-10dBu • Impedance 50Ω max.
RS-232C Connector	: D-sub 9 pin, female (2)
Automation I/O Connector	: D-sub 15 pin, male (1)

Supplied Accessories

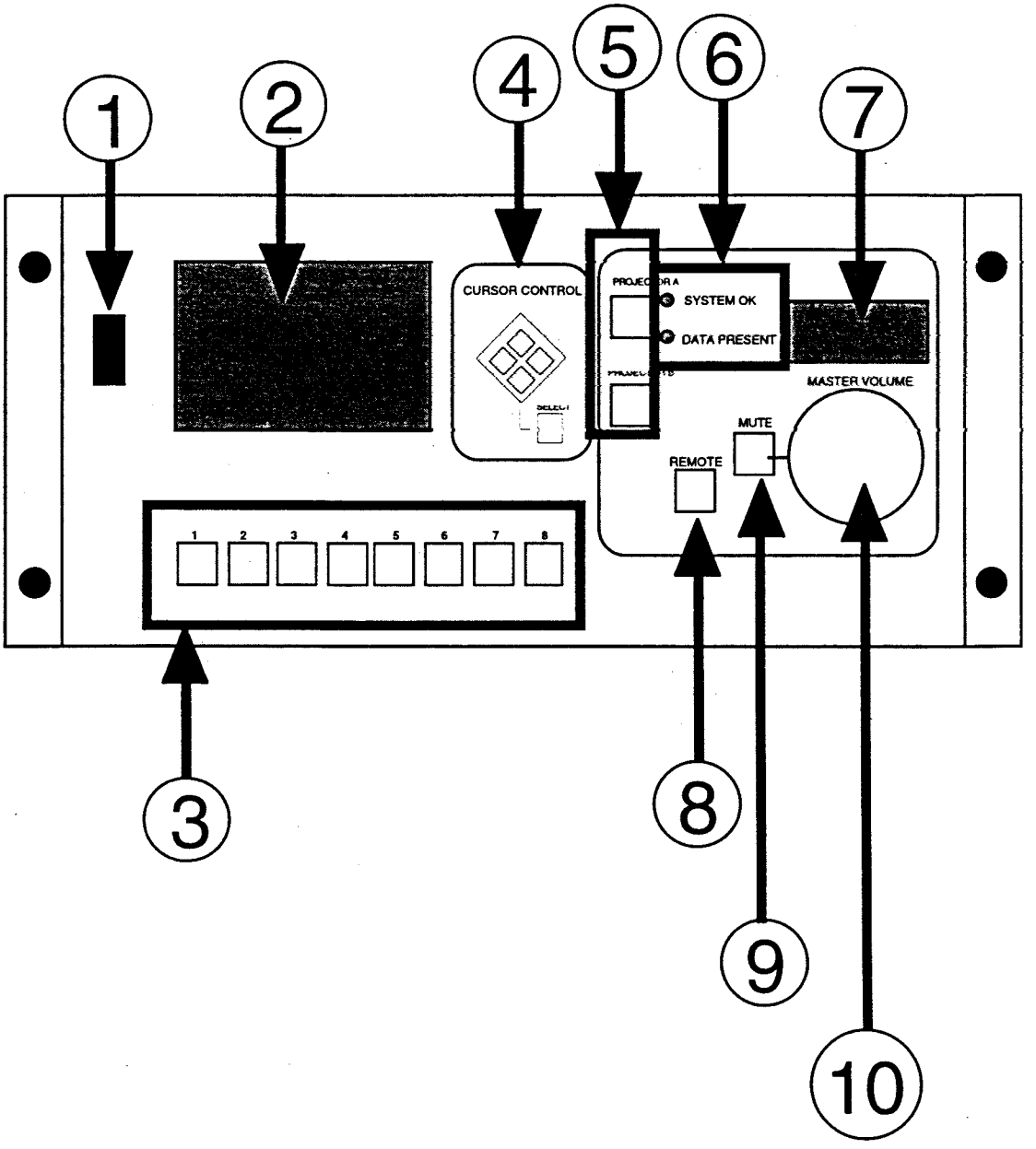
Operation & Maintenance Manual	:	x1
Contrast Control Tool	:	x1
Rack Mount Bracket (with screws)	:	x2
3 pin Power Cord (US/Canada)	:	x1
EK Type Power Cord (Europe)	:	x1
J Type Power Cord (Japan Only)	:	x1
25 pin D-sub Connector (male)	:	x1
25 pin D-sub Connector (female)	:	x1
15 pin D-sub Connector (female)	:	x1
5 pin Phoenix Connector (male)	:	x2

Optional Accessories

DCP-A101 PEC Input Module
DCP-A102 Analog Input Module
DCP-A103 Analog Output Module

Section 2
Location and Function of Controls

2.1 Front Panel



1. **Power Switch**
This switch is used to turn on the power to the DCP-1000.

ON = up
OFF = down

2. **LCD Panel**
This LCD panel is used as the user interface to the DCP-1000 system. All system status is indicated on this panel.

3. **PRESET Select Key Switches**
These eight select switches are used to select any one of eight pre-programmed presets for the DCP-1000. When selecting, it is necessary to press the key switch twice for preset activation. This is a safety feature to ensure the proper selection of presets.

4. **Cursor Control Panel**
These keys are used to manipulate the movement of the cursor on the LCD panel.

5. **Projector Selection Keys**
These two switches are used to select the appropriate projector for sound playback. When the projector is selected, the key will illuminate.

6. **System Status LEDs**
The system status LEDs are provided to give the operator instantaneous rudimentary indication of the general status of the DCP-1000 and the audio playback system. The proper condition of these LEDs are as follows:

SYSTEM OK : ON during normal operation. Any other condition indicates a fault and a Sony service representative should be alerted to this condition.

DATA PRESENT : ON during audio playback. OFF during idle condition.

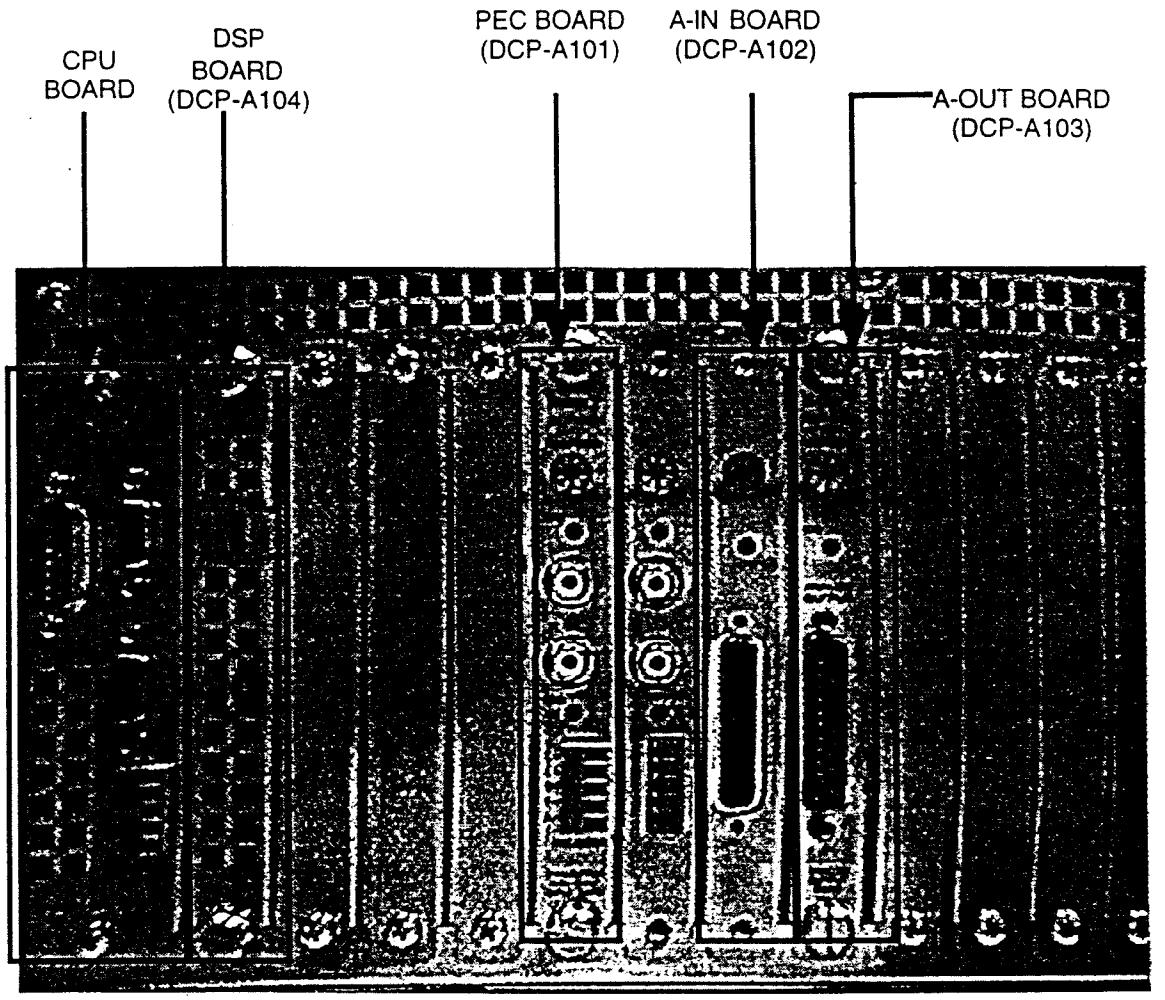
7. **Volume Level 7-Segment Display**
This panel is a seven segment display indicating the master volume level control position. Calibrated position should be set to 0.0 dB.

8. **Remote Key Switch**
This switch is used to enable the remote control interface. When this key is illuminated, the DCP-1000 will accept control signals from the rear panel interface.

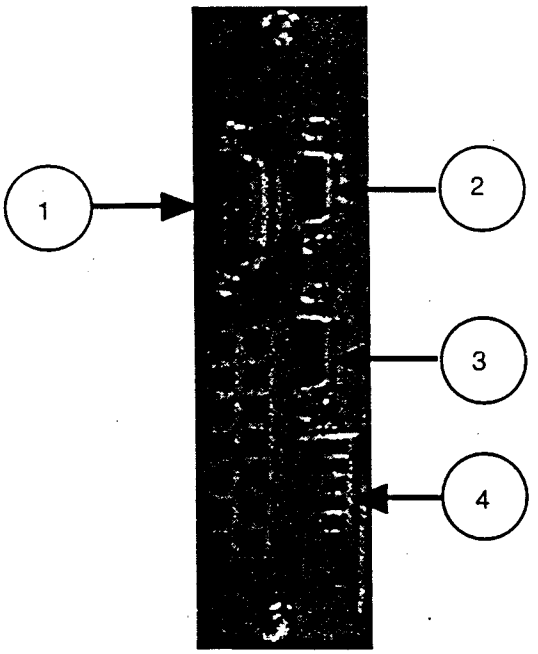
9. **Analog System MUTE Switch**
This switch controls the muting of the analog sound track playback signals (L_T and R_T). When this switch is illuminated, the analog audio signals are muted.

10. **Master Volume Control**
The master volume control is a rotary encoder which is used to directly control the master volume level of all channel outputs from the Sony DCP-1000 in a "ganged" fashion. Rotation of this control knob in the clockwise (CW) direction will cause an increase of the output signal level. Conversely, rotation of this control knob in the counter-clockwise (CCW) direction will cause a decrease in the output signal level. This volume control allows the user to set the master volume level between +10dB and -99dB.

2.2 Rear Panel



2.2.1 CPU Board Rear Panel



1 AUX AUTOMATION IN

Automation input for selection of PRESETS 5 ~ 8, Change Over control and MUTE Refer to Section 4 of this manual for details on these pin connections.

The automation inputs are activated by a low signal (0VDC). Although the front panel key switches require two (2) strokes to activate the PRESET, these automation inputs react instantaneously to a single low signal input.

2 SET-UP PORT

This 9-pin D-sub-miniature connector is provided to connect an RS-232C connection to a computer. The communication speed is set at 38.4K baud, and this port is used ONLY to update firmware inside the Sony DCP-1000. This port is to be used by certified Sony representatives ONLY.

3 SDDS LINK

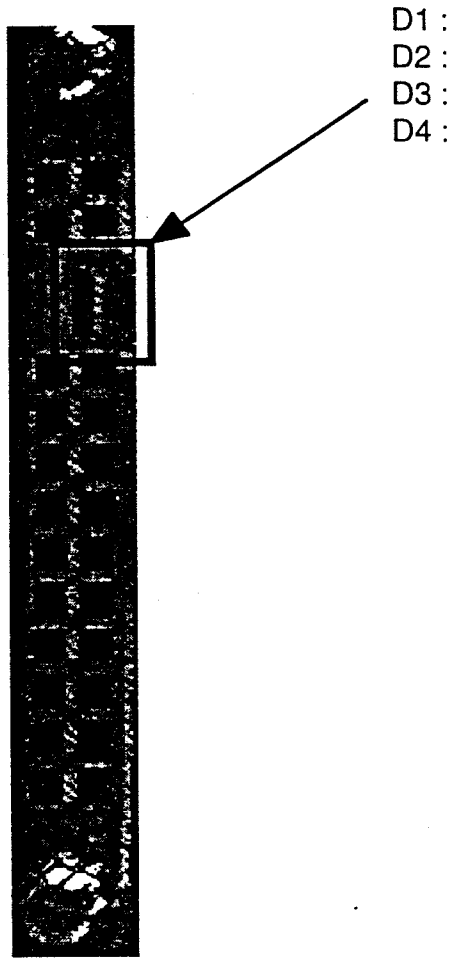
This 9-pin D-sub-miniature connector is provided to connect an RS-232C connection to a computer. The communication speed is set at 9.6K baud, and this port is used to adjust the Sony DCP-1000. Room EQ and filters, as well as the individual channel level. This port is to be used by certified Sony representatives ONLY.

4 AUTO INPUT

Automation input for selection of PRESETS 1 ~ 4, Change Over control and MUTE Refer to Section 4 of this manual for details on these pin connections.

The automation inputs are activated by a low signal (0VDC). Although the front panel key switches require two (2) strokes to activate the PRESET, these automation inputs react instantaneously to a single low signal input.

2.2.2 DSP Board Rear Panel

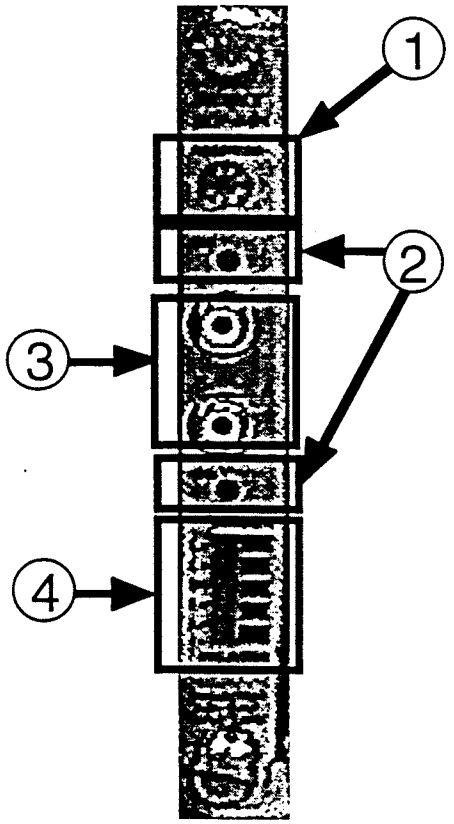


D1 ~ D4 DSP Status Indicators

These four (4) LEDs indicate the DSP circuit condition. The meaning of each LED is as follows:

D1 (top) : FUTURE (not used)
D2 : TDM Bus Active (flashing = normal condition)
D3 : DSP-1 Status (flashing = normal condition)
D4 : DSP-2 Status (flashing = normal condition)

2.2.3 PEC Board Rear Panel



1 PEC ID Selector Switch

This eight (8) position rotary selector switch is used to set the PEC identification in the DCP-1000 system. The ID numbers should be set in sequence (i.e., 0, 1, 2, 3, etc.). In the set-up procedure for the front panel, the ID number of the PEC module indicated on the screen corresponds to this switch setting.

2 Non-Sync/Projector Input Active LEDs

These LEDs illuminate to indicate which input is selected. For the PEC module there are two inputs. The first being the non-sync input, and the second being the projector input. When the non-sync input is selected, the upper LED is illuminated. When the projector input is selected, the lower LED is illuminated. These selections are made through the set-up of the presets via the front panel.

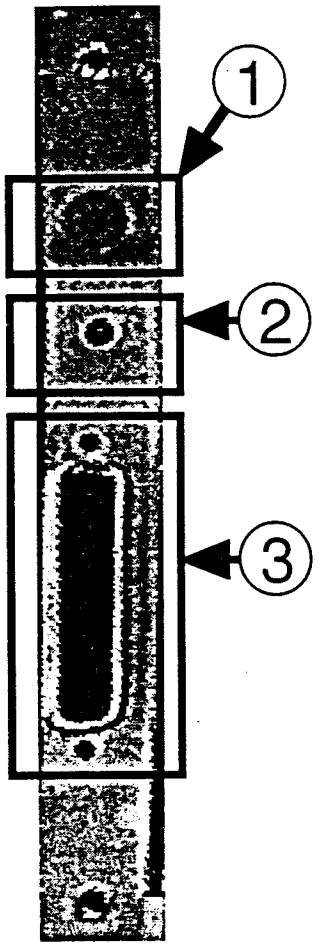
3 Non-Sync Audio Input Connectors

Two unbalanced female phono jack connectors are provided for the input of stereo non-sync audio sources (i.e., cassette deck, CD player, etc.). This input is calibrated for a -10dB reference level.

4 Projector Audio Input Connector

One female Phoenix connector is provided for the input of projector audio sources. This input is calibrated through the front panel set-up screens. This input allows differential input for both the Left and Right channels of the projector sound head.

2.2.4 A-IN Board Rear Panel



1 A-IN ID Selector Switch

This eight (8) position rotary selector switch is used to set the Analog Input (A-IN) identification in the DCP-1000 system. The ID numbers should be set in sequence (i.e., 0, 1, 2, 3, etc.). In the set-up procedure for the front panel, the ID number of the A-IN module indicated on the screen corresponds to this switch setting.

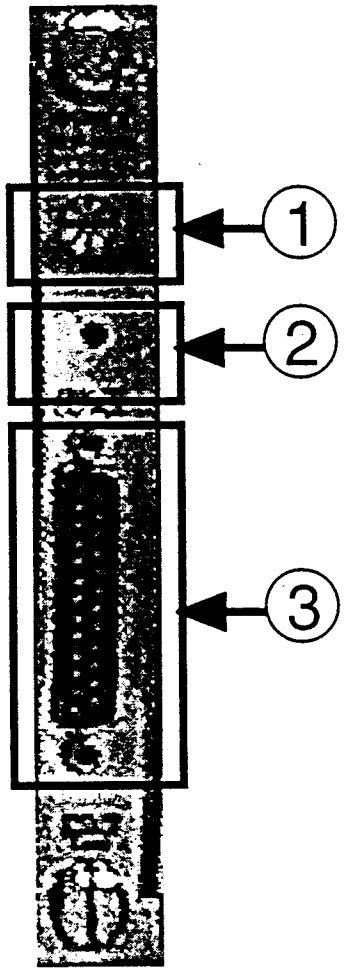
2 Analog Input Active LED

This LED illuminates to indicate the input to the unit is active.

3 8-Channel Analog Input Connector

Balanced 8-channel analog input connector. This connector can be used to interface digital playback systems from other manufacturers to the DCP-1000.

2.2.5 A-OUT Board Rear Panel



1 A-OUT ID Selector Switch

This eight (8) position rotary selector switch is used to set the Analog Output (A-OUT) identification in the DCP-1000 system. The ID numbers should be set in sequence (i.e., 0, 1, 2, 3, etc.). In the set-up procedure for the front panel, the ID number of the A-OUT module indicated on the screen corresponds to this switch setting.

2 Analog Output Active LED

This LED illuminates to indicate the output to the unit is active.

3 8-Channel Analog Output Connector

Balanced 8-channel analog output connector. This connection is used to connect to the amplifier system of the theater "B-Chain".

Section 3
Preparations

3. Precautions

3.1 Use and Storage

Do not subject the unit to severe shocks; otherwise, the internal structure of the unit may be damaged, or the outer body distorted.

Use and Storage Locations

Store in a level, vetelated location. Avoid using or storing the unit in the following places:

- Where it is subject to temperature extremes.
- Very damp places.
- Places subject to severe vibration.
- Near strong magnetic fields.
- In direct sunlight for extended periods, or close to heating apparatus.

Replacement of the Lithium Battery

The lithium battery used in the Sony DCP-1000 require replacement at regular intervals. Consult Section 7 of this document for specific instructions, or consult your Sony Cinema Products service representative.

Notes on Transportation

When transporting the unit on a cart or in a vehicle, ensure that the LCD panel is well protected. Impact from a hard object can severely damage the LCD panel.

3.2 Precautions on Installation and Connections

- Before making any connections, be sure that the power to all equipment is off.
- For details on connection and operation of each piece of equipment connected in the system, refer to the appropriate manual provided by the manufacturer of the specific equipment.

3.3 Power Supply Connection

Appropriate power cords are supplied with the Sony DCP-1000 in the packing carton. There are three specific power cords provided for use in various areas of the world. Consult the notice on the inside front cover of this document or consult your authorized Sony service representative regarding the correct cord to be used in your country.

3.4 Power Supply Voltages

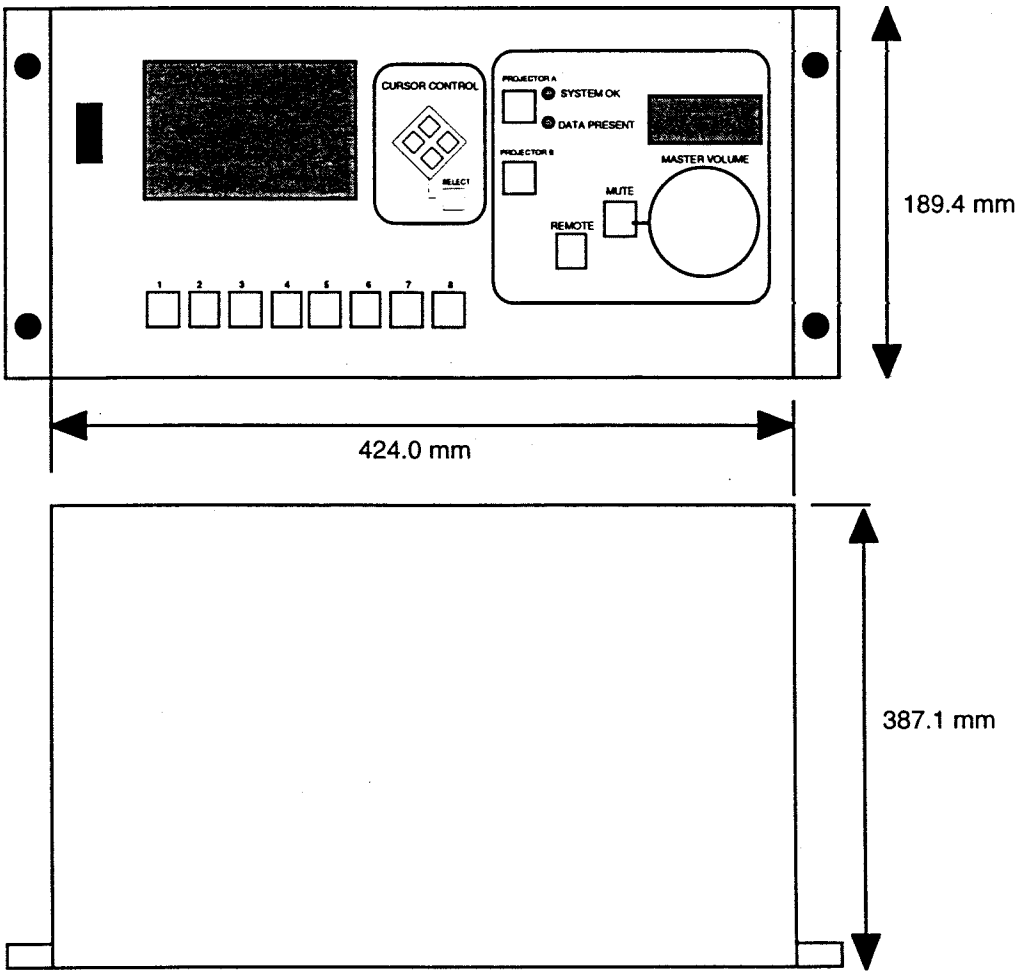
The switching regulator power supply used in the Sony DCP-1000 will accept input voltages between 100 volts and 240 volts. This power supply **should not** be connected to any input voltage outside of this operating range. Failure to comply with this directive can result in severe damage to the equipment.

4. Installation

4.1 Installation Conditions

Operating Temperature	:	5°C to 40°C
Operating Humidity	:	10% to 90% (relative humidity)
Storage Temperature	:	-20°C to +60°C
Mass (Weight)	:	14kg (30.93 lbs)

4.2 Dimensions



4.3 Locations to Avoid

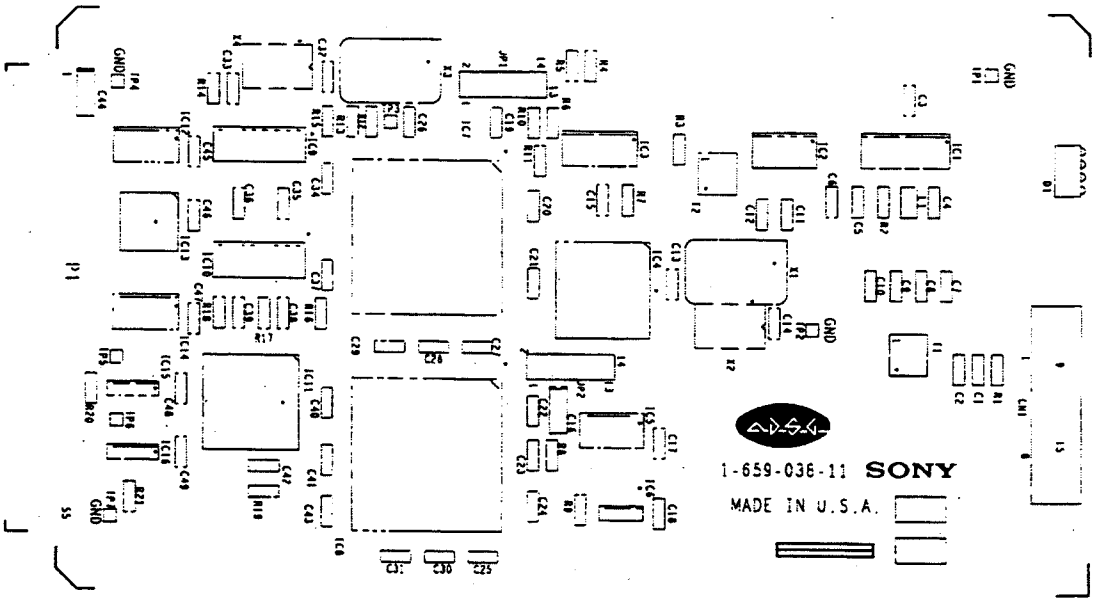
- Areas where the unit will be exposed to direct sunlight or any other strong lighting.
- Dusty areas or areas where the unit is subject to vibration.
- Areas with strong electric or magnetic fields.
- Areas near heat sources.
- Areas where the unit is subjected to electrical noise (noise "spikes" on the AC power).
- Areas where the unit is subjected to static discharge.

4.4 Function and Setting of Switches, LEDs, Jumpers and RVs on PC Boards

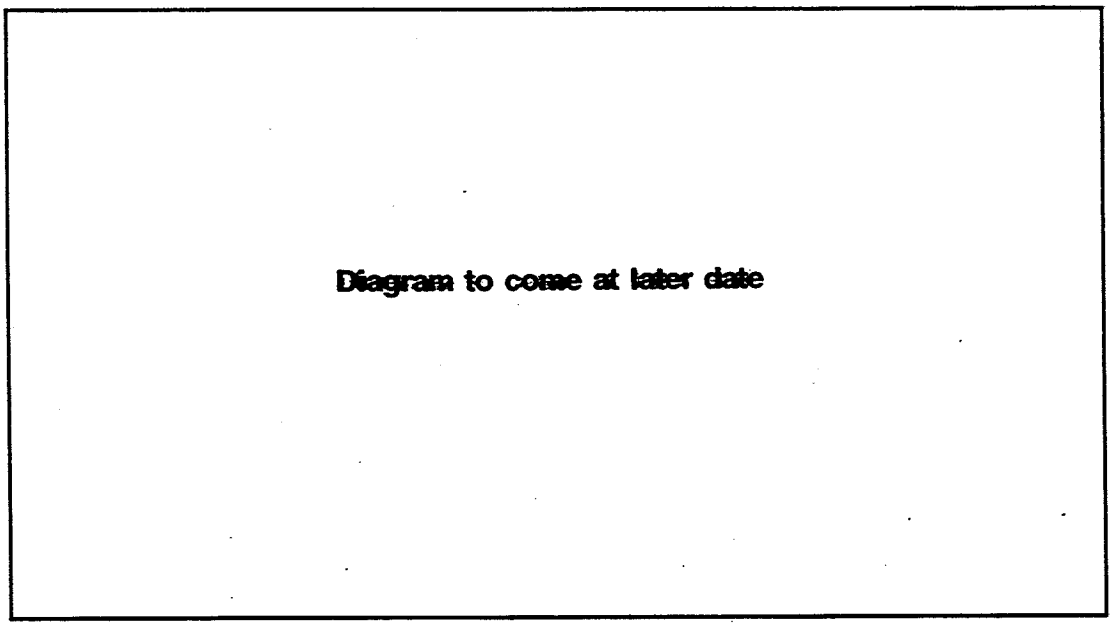
CPU Board

Diagram to come at later date

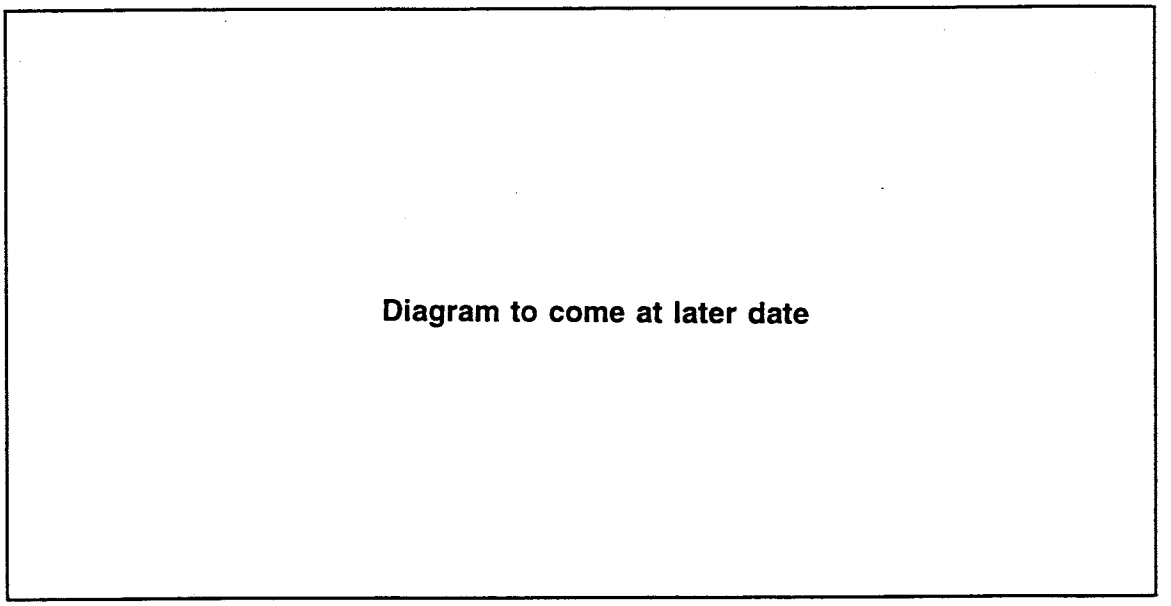
DSP Board (DCP-A104)



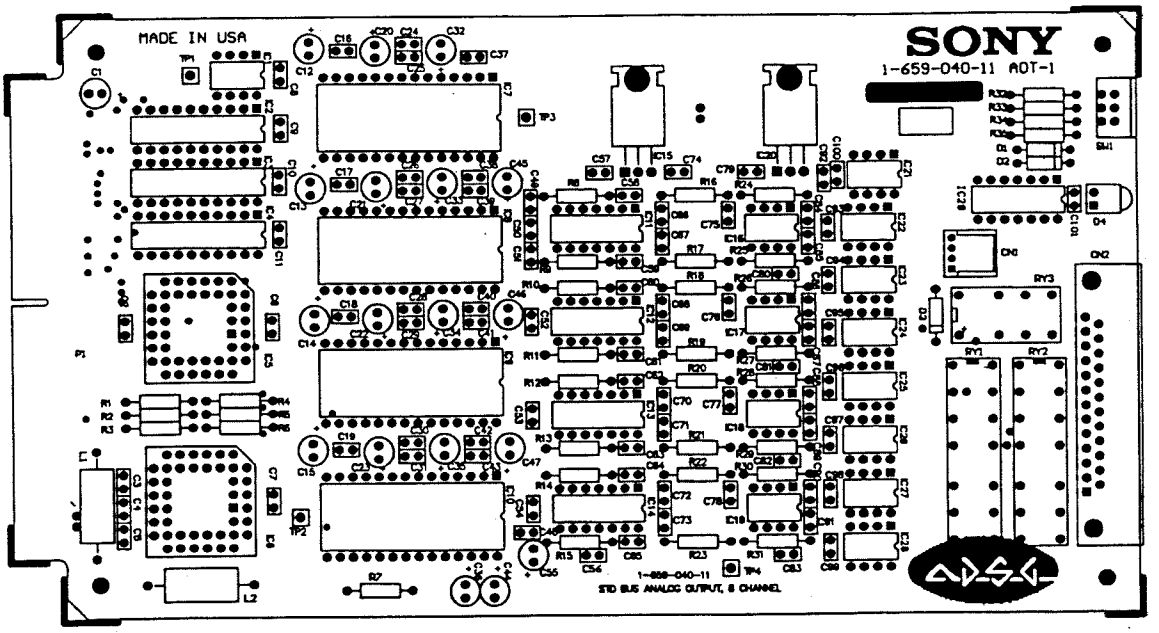
PEC Board (DCP-A101)



A-IN Board (DCP-A102)

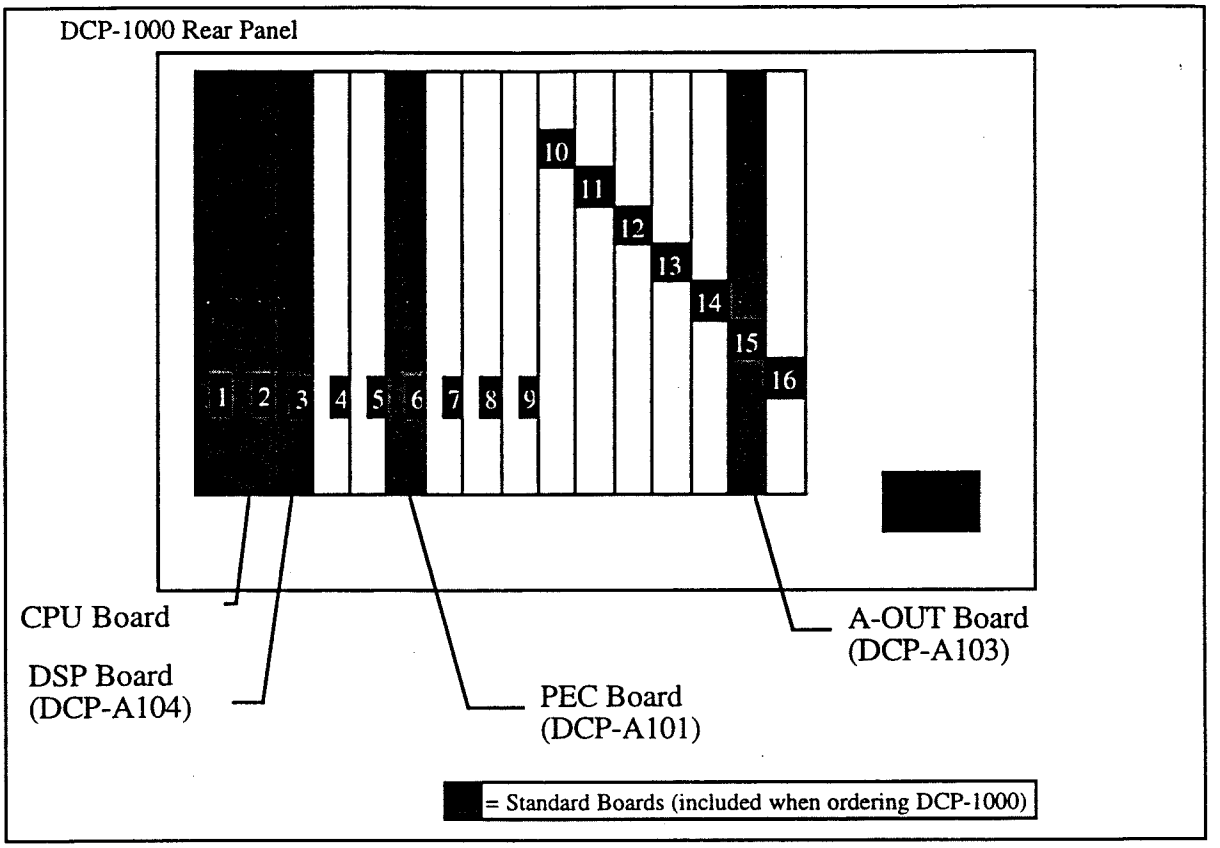


A-OUT Board (DCP-A103)



4.5 Slot Location of PC Boards

The DCP-1000 Digital Cinema Processor is designed to permit PC board slot configuration flexibility. The slot locations illustrated below indicate the standard configuration from the factory.

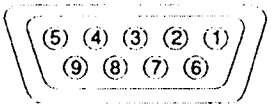


4.6 Connector Input and Output Signals

Name	Input/Output	Signal Level	Signal Format	Impedance	Connector Type
Set-Up	I/O	RS-232C	Asynchronous serial I/F 38400 Baud, 8-bit, even parity (1), Stop bit (1)	-	D-sub 9P, female
Link	I/O	RS-232C	Asynchronous serial I/F 9600 Baud, 8-bit, even parity (1), Stop bit (1)	-	D-sub 9P, female
Automation IN	I	TTL Level Input	Low Enable	-	Phoenix 5P, male
AUX Automation	I	TTL Level Input	Low Enable	-	D-sub 15P male
Analog Input	I	Max 24dBu (Balanced input)	-	10kΩ or more	D-sub 25P, female
Analog Output	O	Max 24dBu (Balanced output)	-	Less than 100Ω	D-sub 25P, male

SET-UP CONNECTOR (CPU Board) (38.4K Baud) (9P D-sub FEMALE)

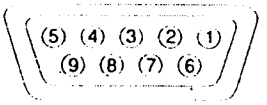
- OUTSIDE VIEW -



Pin No.	Input/Output	Signal Name	Signal Level	Description
1	—	NC	RS-232C	Not connection
2	I	RXD	RS-232C	Receive Data
3	O	TXD	RS-232C	Transmit Data
4	O	DTR	RS-232C	Data Terminal Ready
5	—	GND	RS-232C	Ground
6	—	NC	RS-232C	Not connection
7	0	RTS	RS-232C	Request to Send
8	I	CTS	RS-232C	Clear to Send
9	—	NC	RS-232C	Not connection

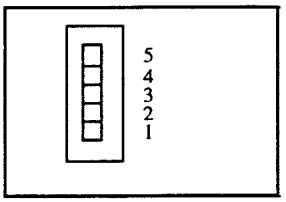
SDDS LINK CONNECTOR (CPU Board) (9.6K Baud) (9P D-sub FEMALE)

- OUTSIDE VIEW -



Pin No.	Input/Output	Signal Name	Signal Level	Description
1	—	NC	RS-232C	Not connection
2	I	RXD	RS-232C	Receive Data
3	O	TXD	RS-232C	Transmit Data
4	O	DTR	RS-232C	Data Terminal Ready
5	—	GND	RS-232C	Ground
6	—	NC	RS-232C	Not connection
7	0	RTS	RS-232C	Request to Send
8	I	CTS	RS-232C	Clear to Send
9	—	NC	RS-232C	Not connection

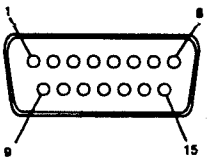
AUTOMATION CONNECTOR (CPU Board) (Phoenix Type)



Pin 1
PRESET 1
Pin 2
PRESET 2
Pin 3
PRESET 3
Pin 4
PRESET 4
Pin 5
GND

* These inputs are all low enable. a short between the command line and the GND terminal (pin 5) will produce the preset selection.

AUX AUTOMATION CONNECTOR (CPU Board)

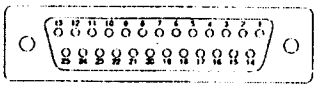


Pin	I/O	Signal
1	IN (low enable)	PRESET 5
2	IN (low enable)	PRESET 6
3	IN (low enable)	PRESET 7
4	IN (low enable)	PRESET 8
5	future	-
6	IN (low enable)	Change Over Select
7	future	-
8	IN (pulse)	MUTE
9	-	GND
10	-	GND
11	-	GND
12	-	GND
13	-	GND
14	-	GND
15	-	GND

NOTE: These automation input pins are provided to allow remote selection of one of 8 presets. To select a preset, simply connect one of the preset input pins to the GND reference (i.e., for Preset 8 selection, short between pin 4 and pin 12 (GND).

ANALOG INPUT CONNECTOR (for DCP-A102)

- OUTSIDE VIEW -



Pin No.	Input/Output	Description
1	I	Left Shld
2	I	Left Hi
3	I	Left Center Low
4	I	Center Shld
5	I	Center Hi
6	I	Right Center Low
7	I	Right Shld
8	I	Right Hi
9	I	Left Surround Shld
10	I	Left Surround Low
11	I	Surround Right Low
12	I	Sub Woofer Low
13	I	Sub Woofer Shld
14	I	Left Low
15	I	Left Center Shld
16	I	Left Center Hi
17	I	Center Low
18	I	Right Center Shld
19	I	Right Center Hi
20	I	Right Low
21	—	NC (Not connection)
22	I	Surround Right Shld
23	I	Left Surround Hi
24	I	Surround Right Hi
25	I	Sub Woofer Hi

ANALOG OUTPUT CONNECTOR (for DCP-A103)

- OUTSIDE VIEW -

Pin No.	Input/Output	Description
1	O	Left Shld
2	O	Left Hi
3	O	Left Center Low
4	O	Center Shld
5	O	Center Hi
6	O	Right Center Low
7	O	Right Shld
8	O	Right Hi
9	O	Left Surround Shld
10	O	Left Surround Low
11	O	Surround Right Low
12	O	Sub Woofer Low
13	O	Sub Woofer Shld
14	O	Left Low
15	O	Left Center Shld
16	O	Left Center Hi
17	O	Center Low
18	O	Right Center Shld
19	O	Right Center Hi
20	O	Right Low
21	—	NC (Not connection)
22	O	Surround Right Shld
23	O	Left Surround Hi
24	O	Surround Right Hi
25	O	Sub Woofer Hi

4.7 Connector Type and Cable

DCP-1000 Side Connector		Mating Connector/Cable Assembly	
Panel Label	**Type**	**Type**	**Sony Part Number**
ANALOG INPUT	D-sub 25P, FEMALE	D-sub 25P, MALE	1-564-747-11 (D-sub 25P, MALE with shield)
ANALOG OUTPUT	D-sub 25P, MALE	D-sub 25P, FEMALE	1-506-510-11 (D-sub 25P, FEMALE with shield)
PROJECTOR INPUT	Pheonix 5P, MALE	Pheonix 5P, FEMALE	1-774-954-11
NON-SYNC INPUT	Phono 2P, FEMALE	Phono 2P, MALE	
RS-232C	D-sub 9P, FEMALE	D-sub 9P, MALE	1-560-651-00 (Connector) 1-561-749-00 (Shell)
SDDS LINK	D-sub 9P, FEMALE	D-sub 9P, MALE	1-560-651-00 (Connector) 1-561-749-00 (Shell)
AUTO INPUT	Pheonix 5P, MALE	Pheonix 5P, FEMALE	
AUX AUTO	D-sub 15p, MALE	D-sub 15P FEMALE	

4.8 Typical Interconnections

Diagram to come at later date

4.9 Installation Procedure

STEP 1 Place your DCP-1000 Digital Cinema Processor in your equipment rack where the front panel controls are easy to operate, in any '4 unit' tall space (7 inches) with the supplied rack mounting hardware.

STEP 2 Connect your supplied power cord to the AC input found at the lower right rear of the DCP-1000 and to your power source. The DCP-1000 is equipped with a switching regulator power supply that automatically senses the input AC line voltage. Therefore, the DCP-1000 can accept input AC voltages of 100 ~ 240 VAC.

STEP 3 Connect your solar cell 5 pin Phoenix connector to the PEC Board (DCP-A101). Make sure that this plug is inserted fully and fits snugly against the board. This mating connector is supplied in the accessories bag of the DCP-1000 packaging.

STEP 4 Connect your D-sub 25P female to (your choice) male connectors to the A-OUT Board (DCP-A103) and to your sound system (amplifiers, electronic crossovers, or booth monitor).

STEP 5 Power up the DCP-1000 with the power switch located on the left side of the front panel.

STEP 6 Power up the other elements of your system.

STEP 7 Look to the front Full Function LCD Status Display Screen of the DCP-1000 and wait for 'Self Test OK' on the lower left corner of the display. Refer to Figure 4-1.

STEP 8 Move the 'highlight' with the cursor arrows on the front panel, paging down to the word 'VERSION', then page across right to the word 'CONFIG', then press the SELECT key to advance to System Setup features. Refer to Figure 4-2, 4-3, & 4-4.

STEP 9 Enter 'CONFIGURATION PASSWORD' using the UP / DOWN Cursor Keys to enter a number for the highlighted cursor position and 'SELECT' to enter configuration mode. If you are using this system for the first time, the password will be '0 0 0 0 0'. Refer to Figure 4-5.

STEP 10 If you wish to change the password, you must connect to the DCP with a null modem cable to the lower serial port on the CPU board (standard configuration from the factory is slot 3) and your computer configured with Microsoft Windows 3.11, and version 1.67b or later of the DCP System Setup Software. After you have connected to the DCP, select 'DCP CONFIGURATION' from the 'DCP' option in the 'CONFIG' pull down menu and choose any five number password.

The 'SYSTEM CONFIGURATION' menu wakes-up in the 'EXIT' ready mode. Using the cursor arrows, page across to the 'PRESETS' menu, then press 'SELECT'. Refer to Figure 4-6 & 4-7.

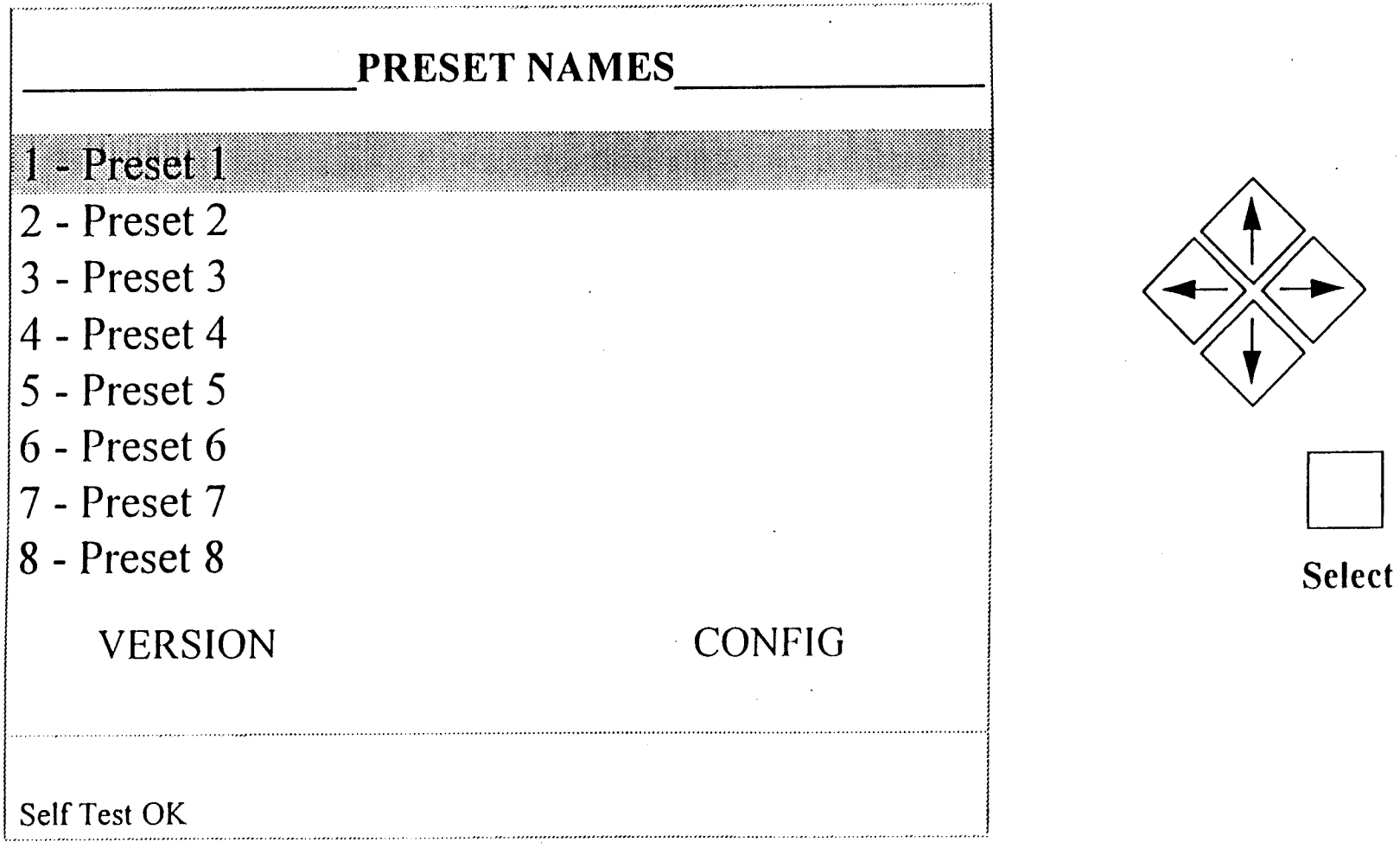
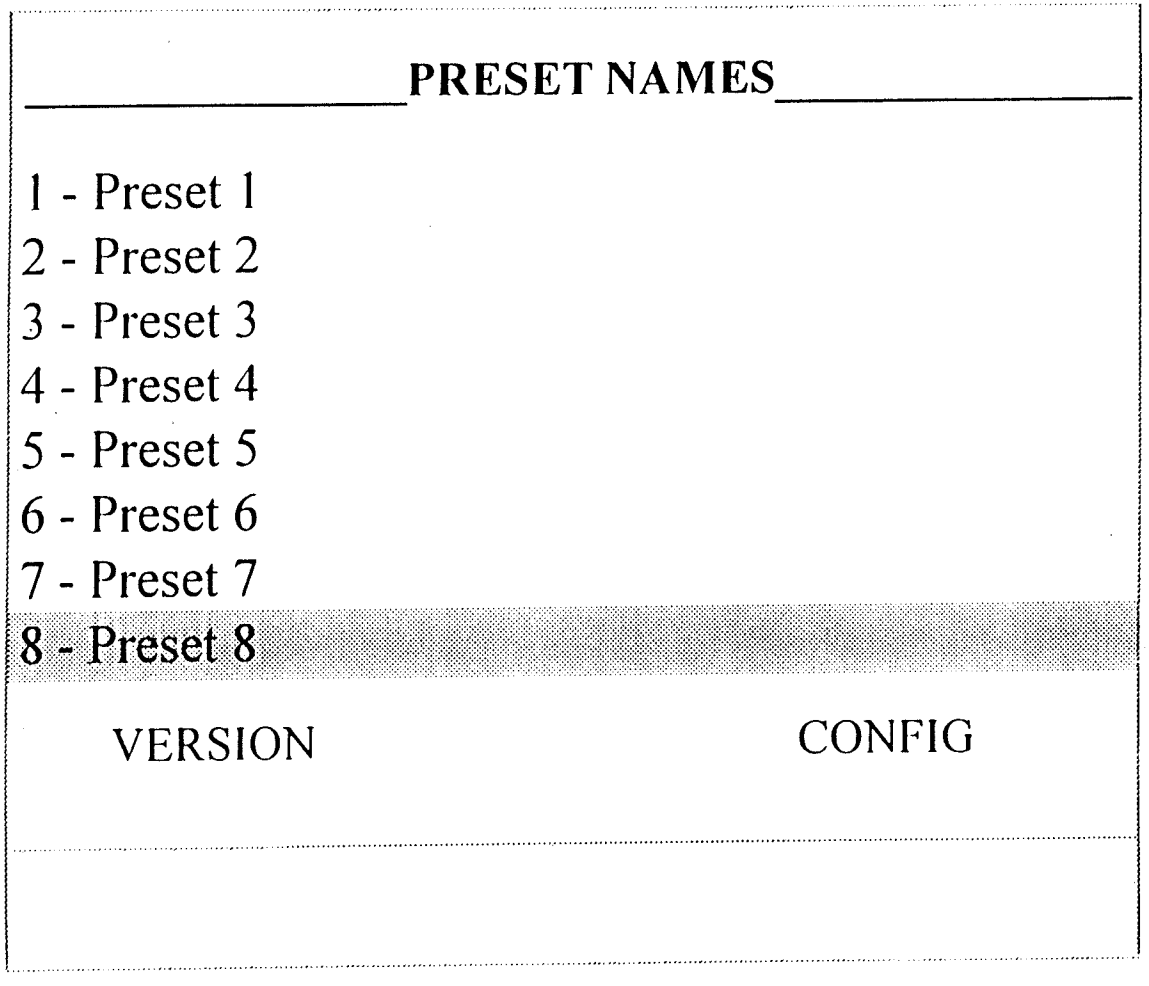
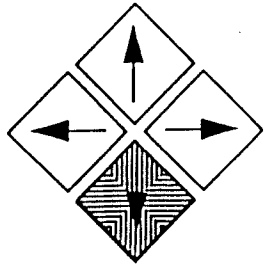
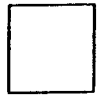


Figure 4-1. Self Test OK Home Screen

- **Self Test Results are provided on the main screen after power up sequence**



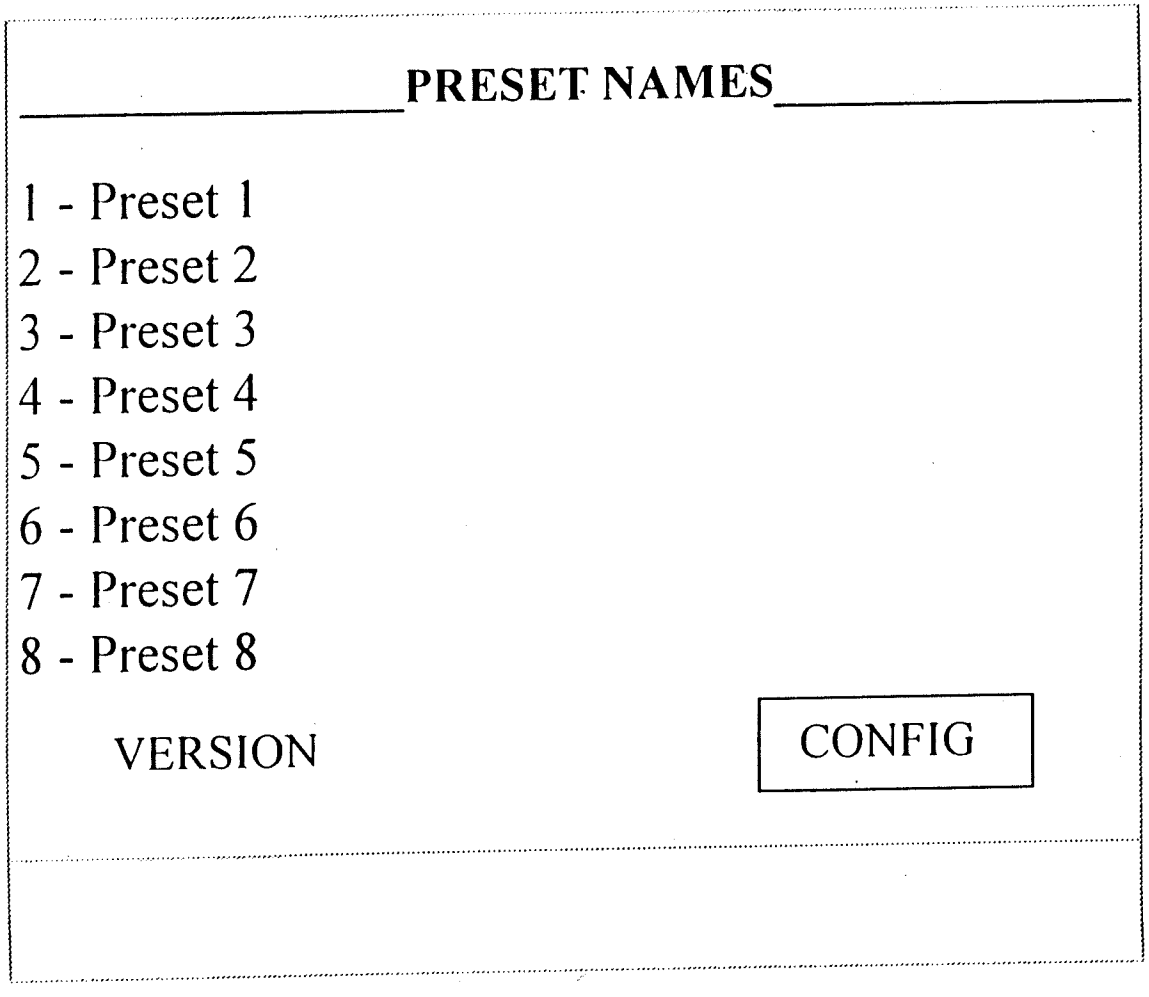


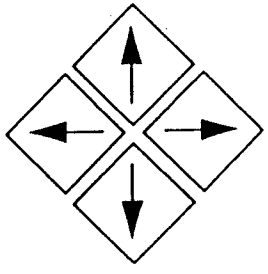


Select

Figure 4-2. Cursor Downward Movement

Figure 4-3. Cursor Right Movement to CONFIG Menu Select





Select

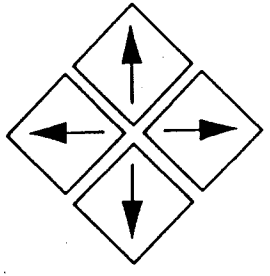
Figure 4-4. CONFIG Menu Activation

- **Press Select to advance to System Setup features**

PASS WORD ENTRY

Enter configuration password and select to enter configuration mode.

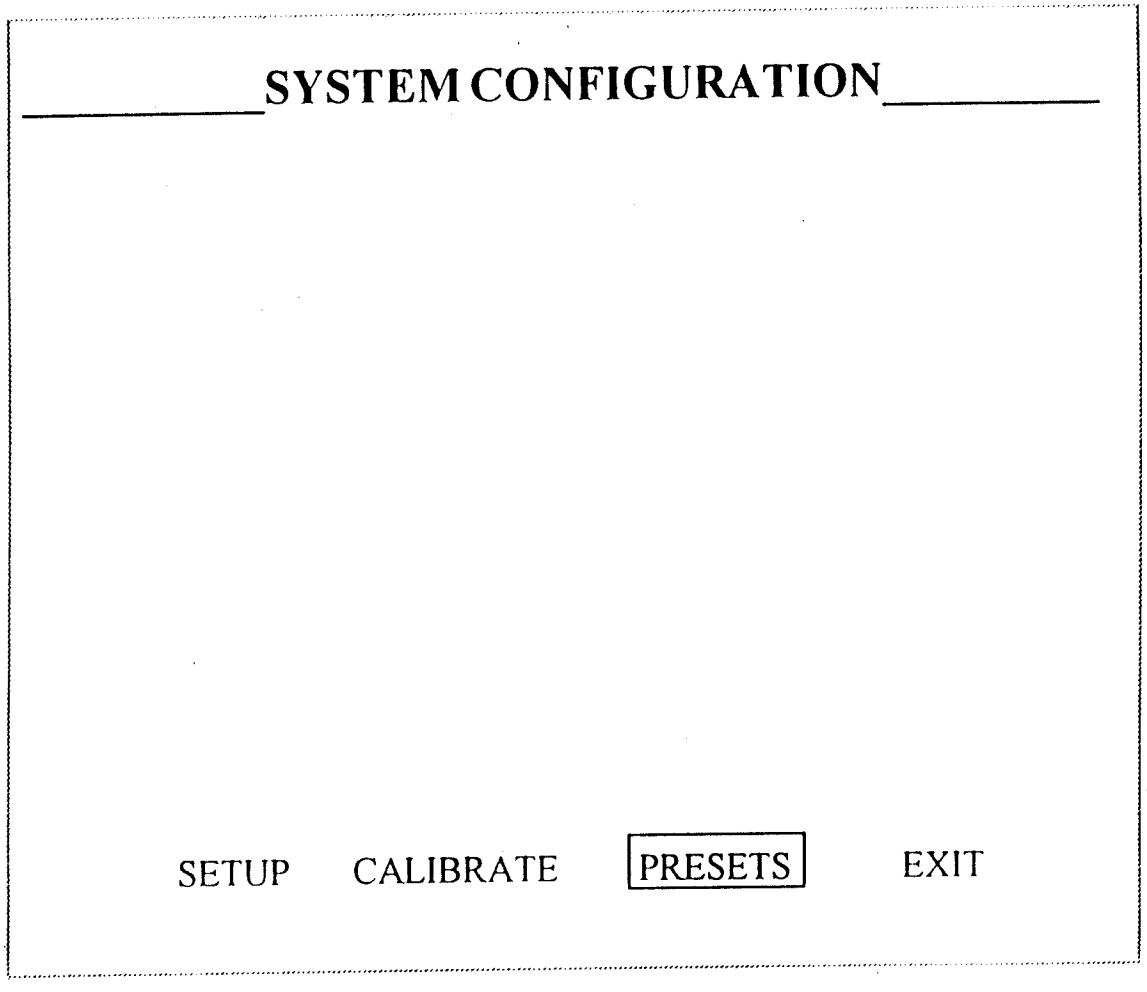
0 0 0 0 0

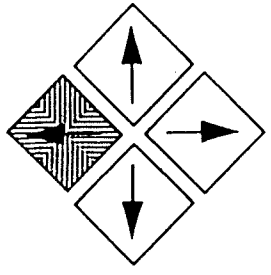


Select

Figure 4-5. CONFIG Password Entry Screen

- **Use the Up/Down keys to enter a number for the highlighted cursor postion**





Select

Figure 4-6. System Configuration Home Screen

- **Pressing Select presents the user with the Preset Definition**
- **Pressing the left/right arrow button moves you to the next option**

STEP 11 The 'PRESET Definition' Menu is now displayed. Using the cursor arrows, page up to the 'PRESET #' entry screen. Using the Left / Right cursor arrows, you may change the Number of the preset you wish to address.

Now page down to the 'PRESET NAME' entry screen and press 'SELECT' This will display the 'PRESET NAME ENTRY' screen. Use the cursor arrows as a 'keypad' to personalize the name of your selected preset. The up / down arrows change letters or numbers, the left / right arrows change the position of the cursor. You have 18 spaces to create a unique description for your preset. After you have completed your entry, press 'SELECT' to return to the previous screen.

Now scroll down to 'MODULE'. This setting will determine which output mode your preset could be configured. You have the following selections to choose from:

MODULE MODE NAME	INPUT	OUTPUT TYPE / CHANNEL (#)
MONO	LEFT & RIGHT INPUTS	MONOPHONIC / CENTER (3)
ACADEMY MONO	LEFT & RIGHT INPUTS	MONOPHONIC with ACADEMMONO CURVE / CENTER (3)
STEREO WIDE	LEFT & RIGHT INPUTS	STEREO / LEFT (1), RIGHT (5) & SUB-WOOFER (6)
STEREO NARROW	LEFT & RIGHT INPUTS	STEREO / LEFT CENTER (2), RIGHT CENTER (4) & SUB--WOOFER (6)
SURROUND WIDE	LEFT & RIGHT INPUTS	SURROUND / LEFT (1), CENTER (3), RIGHT (5), SUB-WOOFER (6), SURROUND LEFT (7) & SURROUND RIGHT (8)
SURROUND NARROW	LEFT & RIGHT INPUTS	SURROUND / LEFT CENTER (2), CENTER (3), RIGHT CENTER (4), SUB-WOOFER (6), SURROUND LEFT (7) & SURROUND RIGHT (8)
MONO NR-1	LEFT & RIGHT INPUTS	MONOPHONIC with NR-1 / CENTER (3)
STEREO WIDE NR-1	LEFT & RIGHT INPUTS	STEREO with NR-1 / LEFT (1), RIGHT (5) & SUB-WOOFER (6)
STEREO NARROW NR-1	LEFT & RIGHT INPUTS	STEREO with NR-1 / LEFT CENTER (2), RIGHT CENTER (4) & SUB--WOOFER (6)
SURROUND WIDE NR-1	LEFT & RIGHT INPUTS	SURROUND with NR-1 / LEFT (1), CENTER (3), RIGHT (5), SUB-WOOFER (6), SURROUND LEFT (7) & SURROUND RIGHT (8)
SURROUND NARROW NR-1	LEFT & RIGHT INPUTS	SURROUND with NR-1 / LEFT CENTER (2), CENTER (3), RIGHT CENTER (4), SUB-WOOFER (6), SURROUND LEFT (7) & SURROUND RIGHT (8)
MONO NR-2	LEFT & RIGHT INPUTS	MONOPHONIC with NR-2 / CENTER (3)
STEREO WIDE NR-2	LEFT & RIGHT INPUTS	STEREO with NR-2 / LEFT (1), RIGHT (5) & SUB-WOOFER (6)
STEREO NARROW NR-2	LEFT & RIGHT INPUTS	STEREO with NR-2 / LEFT CENTER (2), RIGHT CENTER (4) & SUB--WOOFER (6)
SURROUND WIDE NR-2	LEFT & RIGHT INPUTS	SURROUND with NR-2 / LEFT (1), CENTER (3), RIGHT (5), SUB-WOOFER (6), SURROUND LEFT (7) & SURROUND RIGHT (8)
SURROUND NARROW NR-2	LEFT & RIGHT INPUTS	SURROUND with NR-2 / LEFT CENTER (2), CENTER (3), RIGHT CENTER (4), SUB-WOOFER (6), SURROUND LEFT (7) & SURROUND RIGHT (8)

From the factory, the DCP-1000 contains preloaded presets. These presets are the most common in the field and they are configured as shown in table below. These presets can be redefined by the installer if so desired.

FACTORY PRESET NAMES

1 - Non-Sync
2 - Academy Mono
3 - SONY Srnd NR I
4 - SONY Srnd NR II
5 - SONY Srnd
6 - Non-Sync NR I
7 - Non-Sync NR II
8 - Mic

Each of the various preset possibilities selects a particular configuration for audio signal output. These outputs are listed in the table on the following page.

DCP-1000 AOUT MATRIX

SPEAKER	L	LC	C	RC	R	SW	SL	SR
SRND NARROW SR		O	O	O		O	O	O
SRND WIDE SR	O		O		O	O	O	O
STEREO NARROW SR		O		O				
STEREO WIDE SR	O				O			
MONO SR			O					
SRND NARROW A		O	O	O		O	O	O
SRND WIDE A	O		O		O	O	O	O
STEREO NARROW A		O		O				
STEREO WIDE A	O				O			
MONO A			O					
SRND NARROW		O	O	O		O	O	O
SRND WIDE	O		O		O	O	O	O
STEREO NARROW		O		O				
STEREO WIDE	O				O			
MONO			O					

Table 4-1. DCP-1000 Analog Output Matrix Chart

STEP 12 8 presets have been pre-loaded onto your front panel, or you may define them to suit your presentation /automation needs. You should now 'CALIBRATE' your Photo Electric Cell input board (PEC Board -DCP-A101). If you are to be using the DCP-1000 in a change-over configuration, you must assign Projector Inputs on PEC boards "0" & "1" to enable the change-over circuit condition.

STEP 13 Move the 'highlight' with the cursor arrows on the front panel, paging down to the word 'VERSION', then page across right to the word 'CONFIG', then press the SELECT key to advance to System Setup features.

STEP 14 Enter 'CONFIGURATION PASSWORD' using the UP / DOWN Cursor Keys to enter a number for the highlighted cursor position and 'SELECT' to enter configuration mode. If you are using this system for the first time, the password will be '0 0 0 0 0'.

STEP 15 The 'SYSTEM CONFIGURATION' menu wakes-up in the 'EXIT' ready mode. Using the cursor arrows, page across to the 'CALIBRATE' menu, then press 'SELECT'. Refer to Figure 4-8.

Figure 4-8. CALIBRATE Mode Selction

STEP 16 Wait as 'LOADING DSP' will be displayed on the upper left front Full Function LCD Status Display Screen of the DCP-1000.

The next screen allows you to choose between the 'A-IN' (8 channel Analogue In) or the 'PEC' (Photo Electric Cell) boards. For calibrating a D.T.S., Dolby Digital, or other multi channel digital or analogue 'Dummy', choose "A-IN'. If you are connecting to a solar cell on a projector, choose 'PEC'.

STEP 17 When you choose 'PEC' - The 'PEC BOARD CALIBRATION' Menu is displayed. Using the cursor arrows, page up to the 'PEC #' Menu and select which PEC Board you are to be using. The standard default for a single projector system will be '0'. If you are in a multiple projector configuration, you must choose a unique configuration number on each 'PEC' board. Refer to Figure 4-9.

STEP 18 Page down now to the 'PEC SOURCE' selection and choose which input selection you are to calibrate. Your choices are:

'NON SYNC'
'PROJ MED GAIN'
'PROJ LOW GAIN'
'PROJ HIGH GAIN'

To calibrate your projector input, start by choosing the highest setting, 'PROJ HIGH GAIN'.

STEP 19 Page down to the 'LF SCALING' entry screen. Using the Left / Right cursor arrows, you may change the increment/decrement of the input signal by ONE dB you wish to address (LF=Left, RT=Right). For adjustments by +/- 1/10th of a dB, use the Master Volume Knob control on the front panel.

STEP 20 In your projector soundhead, thread up a loop of 50% modulation tone test film and start your projector. Please make sure your exciter supply has been turned on the DC mode and voltage has been set to approximately 75% of the rated value for your exciter lamp.

STEP 21 Now adjust the 'LF SCALING' entry with your left/right cursor arrows until your 'LEFT LEVEL' value at the bottom left of your display reads '-17'. The asterisks on the level display to the right of the 'LF SCALING' value should change to a solid line when stabilized with the nominal input gain for proper noise reduction calibration.

STEP 22 Now adjust the 'RT SCALING' entry with your left/right cursor arrows until your 'RIGHT LEVEL' value at the bottom left of your display reads '-17'. The asterisks on the level display to the right of the 'RT SCALING' value should change to a solid line when stabilized with the nominal input gain for proper noise reduction calibration.

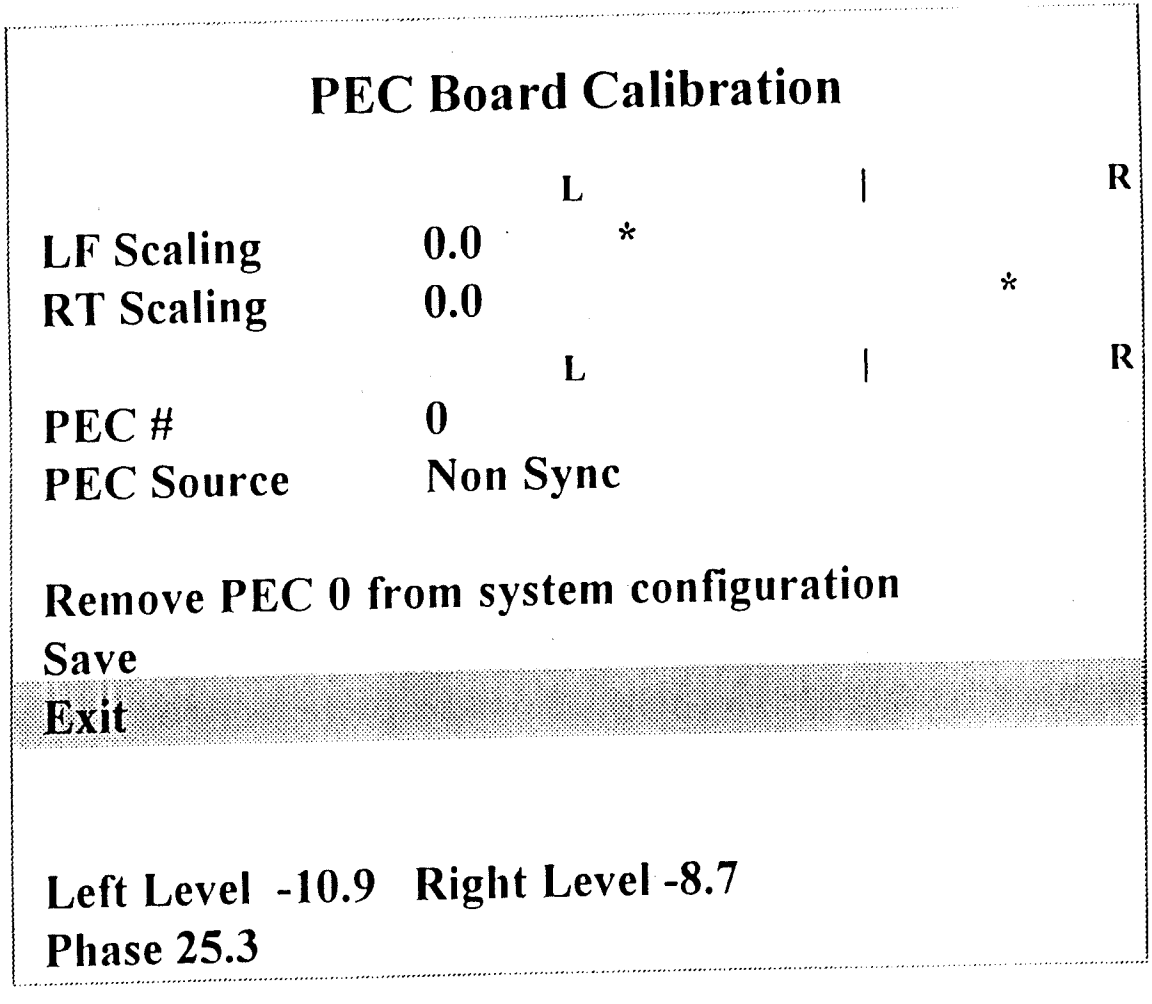
STEP 23 If you are not able to achieve these desired levels for calibration , or if you are receiving an OVERLOAD message, Page up to the 'PEC SOURCE' screen and select 'PROJ MED GAIN' and attempt for the correct levels. If you still have too much signal, try 'PROJ LOW GAIN'.

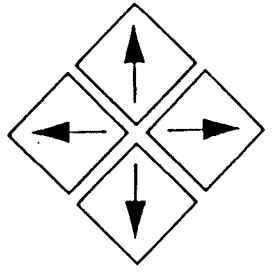
STEP 24 Look now at the 'PHASE' indicator at bottom left of the front Full Function LCD Status Display Screen and with either the 'LF' or 'RT' scaling , adjust the phase for a minimum value[2].

STEP 25 If you are not able to achieve these desired levels for calibration, Page up to the 'PEC SOURCE' screen and select 'PROJ MED GAIN' and attempt for the correct levels.

---

[2] This adjustment is a mechanical adjustment of the projector analog optical pick-up.





Select

Figure 4-9. PEC Board Calibration Screen

- The Calibration screen is presented to the user once the DSP code has loaded and the system is ready.
- Pressing Select returns the user to the main screen

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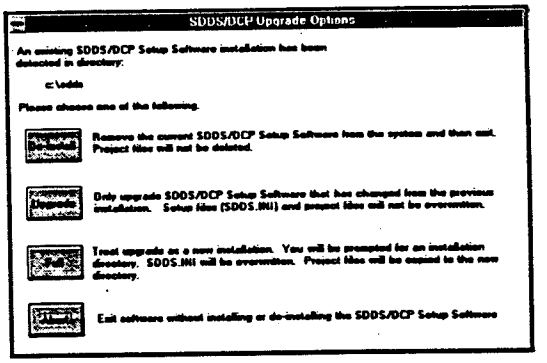
Section 5
Set-Up Software Operation

5.1 Introduction

The DCP Setup Software is used to adjust the settings of the DCP-1000 Digital Cinema Processor. DCP settings are adjusted through a Windows based interface using either mouse or keyboard input. This section covers the operation of the DCP Setup Software.

NOTE: The DCP-1000 Set-Up Software (used to adjust the settings of the Sony DCP-1000 Digital Cinema Processor Unit) is bundled with the SDDS Set-Up Software (used to adjust the settings of the Sony DFP-D2000 SDDS Decoder Unit). The version of this software is v1.70 and higher. Throughout this document, the bundled software will be referred to as the **DCP Set-Up Software**. For details on the specific use of the SDDS Set-Up Software, refer to the SDDS Set-Up Software User's Manual.



5.2 Requirements

To ensure the proper operation of the DCP Setup Software, the PC or PC laptop must have the following minimum configuration.

1. 486/66 MHz or higher processor
2. A minimum of 8 Mbytes of RAM
3. At least 20 Mbytes of available hard disk space
4. Windows 3.1, Windows for Workgroups 3.11 or Windows 95
5. One serial interface port
6. Null Modem cable for connection between the PC and the DCP
7. (Optional) A mouse or trackball pointing device (if using a laptop)
8. (Optional) A 9600 baud modem. Contact your SDDS representative for details regarding modem communications with the DCP-1000 processor.

5.3 Installation

To ensure proper operation of the DCP Setup Software, install the software using the following procedure.

1. Turn the PC on and allow Windows to start. If Windows doesn't automatically start when the PC is powered on, enter WIN at the MS-DOS prompt to start Windows. For additional details on starting Windows, see your Windows documentation.
2. Insert the 3.5" DCP Setup Software installation disk into drive A or B.
3. In the Windows Program Manager, choose the Run command from the File menu. In the Command Line box, type **a:\install** if you inserted the installation disk in drive A or **b:\install** if you inserted the installation disk in drive B.
4. If a previous version of the DCP Setup Software is already installed, the installation software will display the following list of options.

De-install - removes the currently installed version of the DCP Setup Software from the system. **The DCP file directory and existing project files are not removed.**

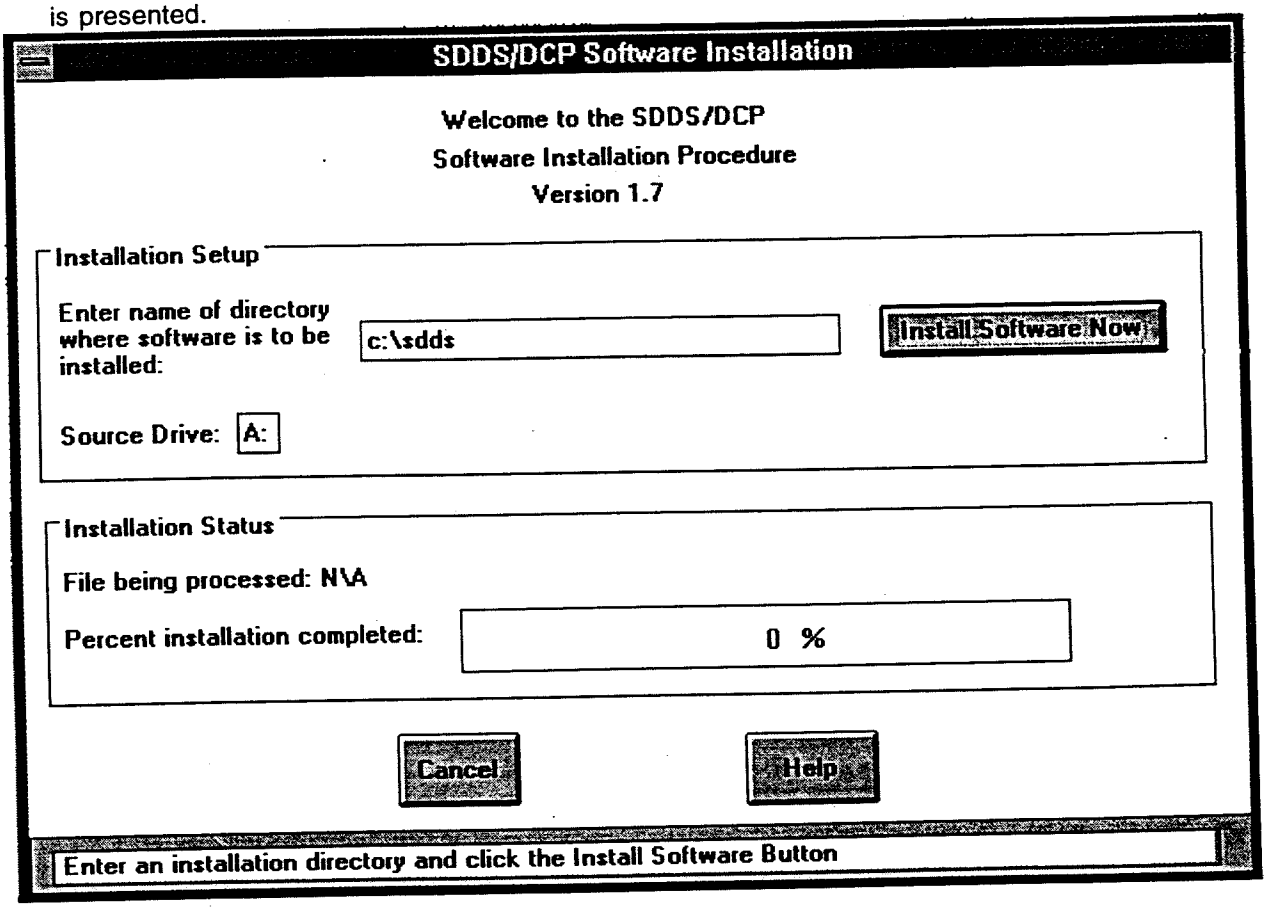
Upgrade - only replaces the DCP program files that have changed since the last installation of the software. The existing

SDDS.INI file and project files are not overwritten or removed.

Full - a full installation is performed. (see step 5). Any project files found in the current DCP installation directory will be copied to the new file directory.

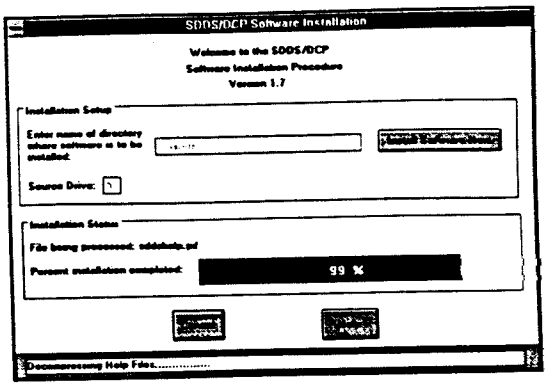
Choose the appropriate option. If **de-install** or **upgrade** is chosen, the specified action is performed and the installation software will terminate. Once terminated, a new DCP program group will be installed in the Windows Program Manager (if the **upgrade** option is chosen). See Getting Started below for details on how to start the software.

5. If this is the first time the DCP Setup Software is being installed on the system or if the **Full** option is chosen in step 4, the following installation display is presented.



Enter the pathname where the software should be installed (default is c:\sdds) and if the source drive is incorrect, enter the disk drive designation where the installation disk resides (default is A:) If using the keyboard, TAB to the respective fields and enter the data. To start the software installation, click the Install Software Now button (or if using the keyboard, TAB to the button and then press the ENTER key). The installation software will then copy the DCP program files from the installation disk to the specified directory. The installation procedure should take about 2 minutes. The DCP Setup Software requires about 2.5 M bytes of hard disk space during installation, and approximately 1.6 M bytes of disk space after installation. Once the installation is complete, a DCP program group will be active in the Windows Program Manager.

5.4 De-Installation



Use the following procedure to remove the DCP Setup Software from the PC.

1. In the DCP program group, double click the mouse on the DCP Install icon.

2. The installation software will display the following list of options.

De-install - removes the currently installed version of the DCP Setup Software from the system. **The DCP file directory and existing project files are not removed.**

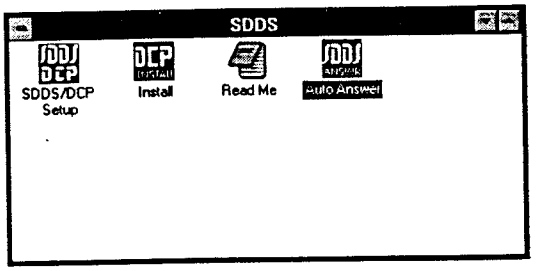
Upgrade - only replaces the DCP program files that have changed since that last installation of the software. The existing SDDS.INI file and project files are not overwritten or removed.

Full - a full installation is performed. (see step 5). Any project files found in the current DCP installation directory will be copied to the new file directory.

Choose the **de-install** option. The DCP program files will be removed. In addition, the DCP program group icon in the Windows Program Manager will also be removed. The installation software will then terminate.

5.5 Getting Started

Once installed (see Installation), the software is started by selecting the DCP program group in the Windows Program Manager. The DCP program group includes the DCP Setup application icon. If you want the DCP Setup Software to automatically start every time Windows is started, copy the DCP Setup icon to the Startup program group in the Program Manager. For more information regarding the Startup program group, see your Windows documentation.

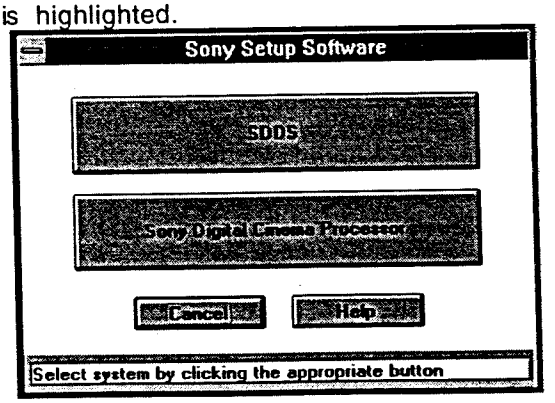


SDDS/DCP
Setup

Starting DCP Setup Software using the mouse Using the mouse or trackball pointing device, double click the DCP program group. Place the mouse or trackball over the DCP Setup icon and double click the left mouse button.

Starting DCP Setup Software using the keyboard Hold down the CTRL key and press TAB until the program group's title bar is highlighted. Press the ENTER key. Hold down the CTRL key and press TAB until the DCP Setup icon is highlighted. Press the ENTER key.

Once the DCP Setup Software icon has been selected, the following hardware dialog box will be displayed.



To start the DCP Setup Software, click the **Sony Digital Cinema Processor** button. If using the keyboard, TAB to the **Sony Digital Cinema Processor** button and then press the ENTER button.
Once the DCP Setup Software has been selected, the main DCP Setup screen will be displayed

5.5.1 Operational Overview

The DCP is adjusted (or tuned) by first connecting to the DCP processor, starting the test signal generator and then setting the appropriate operational parameters using the adjustment controls located in the DCP Setup Software display. In addition, non-channel adjustments (i.e., DCP board calibrations and Preset configurations) are made using pull-down menus located in the main menu bar (top of the screen). Once the adjustments have been made, disconnect from the DCP (using the **Config** pull-down menu) and then exit the software using the **File** pull-down menu.

Briefly, the SDDS Setup Software display is divided into four components; the main menu bar (top of the screen), mute channels, channel adjustments and the status bar (bottom of the screen).
The main menu bar contains pull-down menus for project file management (**File**), configuration management (**Config**), adjustment utilities (**Tools**), master control adjustments (**Master**), test signal generation (**Test**), and a pull-down Help menu containing on-line help.

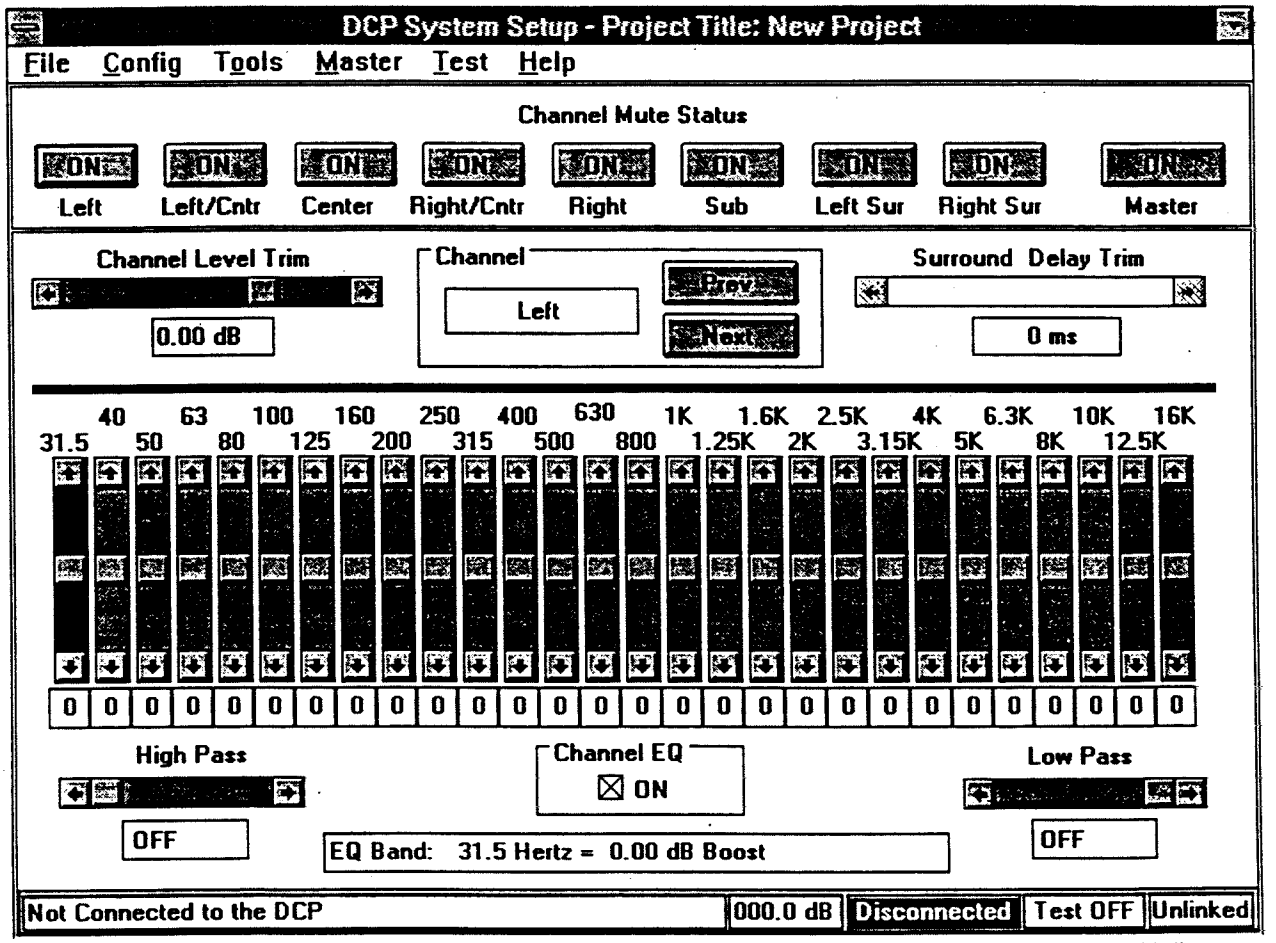
The **mute** channel buttons are used to toggle on and off the mute status of individual channels. In addition a **master mute** button is provided to mute all channels at once. The master mute button mirrors the operation of the MUTE button located on the front panel of the DCP-1000 processor.

For each channel (except the subwoofer), the trim delay, EQ Band settings, and the high and low pass filter settings can be set using the adjustment controls located on the main display. Each time an adjustment is made, the software sends the new setting to the DCP (if connected). For the subwoofer, only the trim delay and the high and low pass filter settings can be set. In addition, for the left and right surround, the delay trim can also be set.

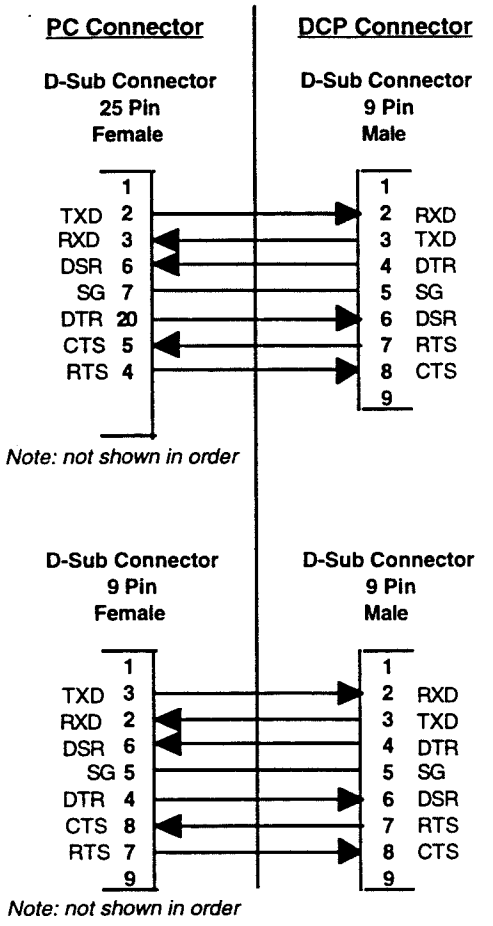
The status bar is used to display information messages regarding the status of the software and the DCP hardware. By default, warnings are displayed on a yellow background and errors are displayed on a red background. These background colors can be changed using the **Config** pull-down menu in the main menu bar.

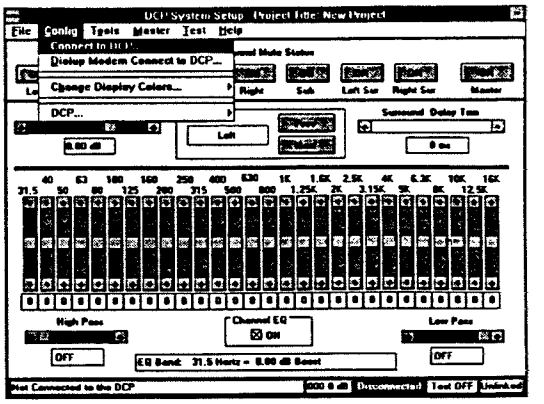
5.5.2 Connecting to the DCP-1000

Communications with the DCP are established using a RS-232c serial interface protocol. A Null Modem cable is connected between the serial port of the PC and the RS-232c port (labeled SDDS Link) on the back of the DCP processor. The following is the specification for the RS-232c Null Modem cable.



PC to DCP Direct Connect Cable Configurations

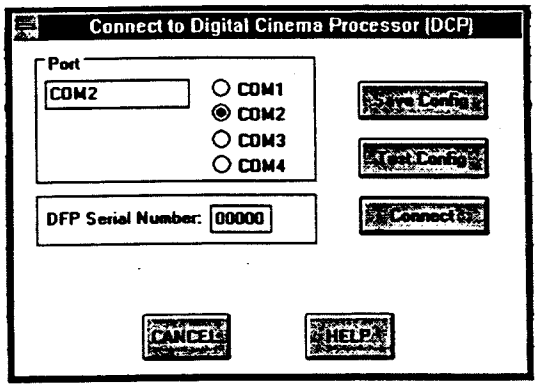




Once the DCP Setup Software is running and a Null Modem cable is connected between the PC and the DCP, establish communications with the DCP using the following steps.

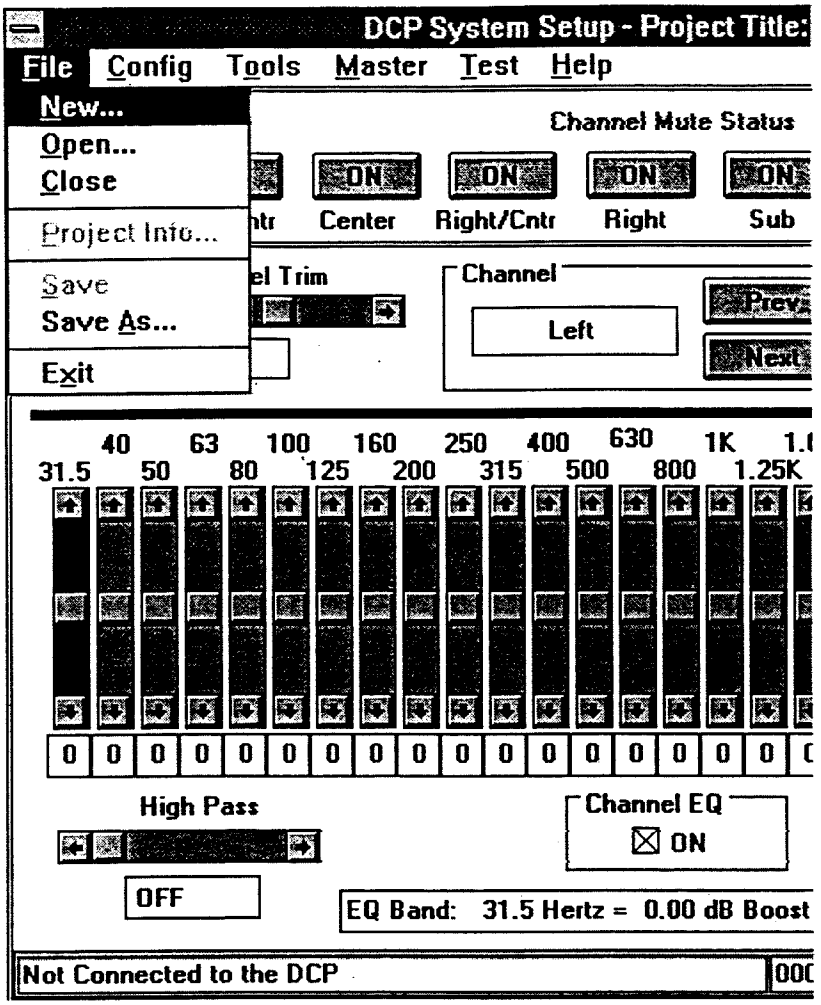
1. In the DCP Setup Software display use the mouse to select **Config** (or ALT - C if using the keyboard) from the main menu bar at the top of the display. A menu of options will be displayed. Use the mouse to select the **Connect to DCP** menu option (or if using the keyboard, press the C key).
2. A port connection screen will display connection options. The factory default settings will be COM1 & Serial Number 00000.
3. If COM1 is not the correct serial port, select the appropriate port by placing the cursor over the desired port and pressing the left mouse button. If keyboard input is used, TAB to the currently selected port and use the UP and DOWN cursor (arrow) keys to select the desired port.
4. The proper DCP serial number must be used to ensure that communications with the DCP processor can be established. If the current DCP serial number is incorrect, place the mouse cursor into the DCP Serial Number input field (or TAB to the field), enter the correct number and press ENTER.
5. If settings were changed, use the **Save Config** button to save the new configuration. This will be helpful in the future when connections are made to the DCP. If the keyboard is used, TAB to the **Save Config** button and press ENTER.
6. The **Test** button is used to test the existence of the specified port. If you are unsure that the port selected is valid, use the **Test** button. The software will display a message indicating the availability of the selected port.

7. To establish connections with the DCP, use the DCP front panel controls to place the DCP hardware into Setup Mode. Using the cursor keys on the DCP front panel, place the cursor box over the **Config** menu selection and then press the **Select** button. A DCP password display will appear. Enter the DCP password (default is 00000) using the front panel cursor keys. After the DCP password has been entered, press the **Select** key. A configuration menu will appear. Use the front panel cursor keys to position the cursor box over the **Setup** menu selection and press the **Select** button to display the Setup menu. Use the front panel cursor keys to position the cursor box over the **Setup** menu option and press the **Select** button. A **Com Port Open** message will appear at the bottom of the display.



8. Once the **Com Port Open** message appears on the DCP front panel display (see step 7 above), use the **Connect** button in the DCP Setup Connection Boxto connect to the DCP. If using the keyboard, TAB to the **Connect** button and press ENTER. The software will then establish communications with the DCP. Connection status information will be displayed in the status bar at the bottom of the main DCP Setup display.

Once communications with the DCP have been established, the software checks to see if a project is currently opened (see below). If a project is not open, the software polls the DCP to determine the current DCP operating environment and then updates the display to reflect the current settings. If a project is currently opened, a message box will be displayed. You will be given the option to allow the software to poll the DCP and overwrite the current project settings in the software or you can have the software reset the DCP to reflect the current project settings.



5.5.3 File Management

Installation specific DCP adjustments and settings can be saved in project files. These project files contain data and theater or studio information that can be used to reset a DCP to a prior operating condition. Project files are particularly useful for resetting DCPs that have been reconfigured due to a firmware or hardware upgrade. Associated with each project file is a text file containing installation specific information (i.e., theater location, technician name, etc.) and general comments.

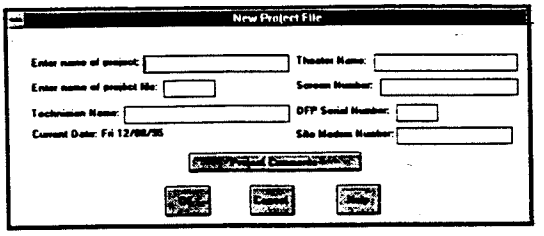
File management is handled by the **File** pull-down menu located on the main menu bar at the top of the DCP Setup Display. Use the mouse to access this pull-down menu or if using keyboard input, simultaneously press the ALT and F keys. The following project file options are available (if using keyboard input, press the underlined key to access the specified option).

New - Use this option to create a new project. The following display will be presented.

Enter information in each field. You must enter a project file name. All other fields are optional. If using keyboard input, TAB to each field, enter the information, and press the ENTER key. The current date is based on the PC clock and is not modifiable. Comments regarding installation setup, firmware upgrades, observations and general comments can be added to the project file. To add comments, use the **Project Comments** button to gain access to the Windows Notepad editor (if using keyboard input, TAB to the button and press ENTER). Once in the editor, enter project related information and then use the editor's File pull-down menu to exit the application. Windows will automatically return control back to the new project display.

When finished entering information, use the OK button to save the information to the project file. Once created, the project name (or the project file if the project name was not entered) will be displayed in the title bar at the top of the DCP Setup Software display. If you use the CANCEL button, the information entered will not be saved and no project file will be created. If using the keyboard, TAB to OK or CANCEL button and press ENTER.

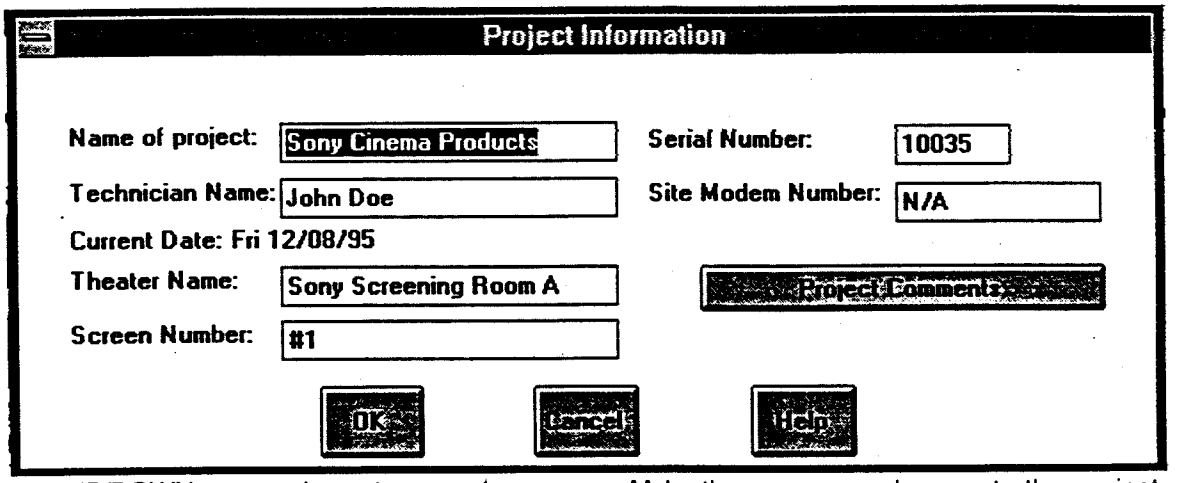
Open - Open an existing project. The following display will appear listing the projects in the current working directory.

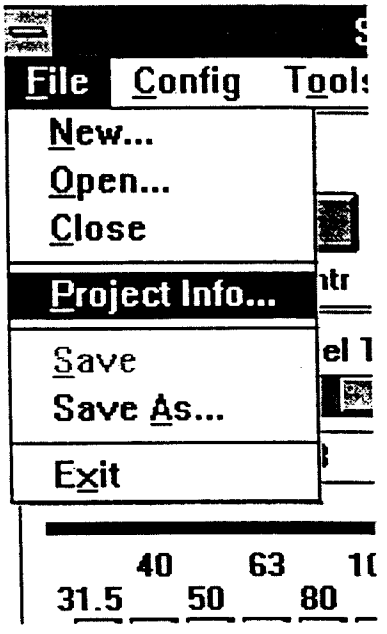


Either select the desired project from this list or select a different directory for additional project files (for keyboard input, use the TAB and UP/DOWN cursor keys to maneuver through the dialog box and the ENTER key to make a selection). The default file extension for project files is **.dcp**. If an existing project is currently opened or if connected to the DCP, you will be prompted to determine if the current DCP settings should be overwritten. Selecting YES will result in the display being updated to reflect the new settings and, if connected to the DCP, the new settings will be sent to the DCP. If you select NO, the project will be opened, however, the current DCP settings will remain and the next **Save** or **Close** operation will cause the settings in the project to be overwritten with current DCP settings. **NOTE:** SDDS project files (default file extension is **.sds**) can also be opened. When using a SDDS project file, only channel specific settings are read from the project file.

Close - Close the currently opened project. The current DCP settings will be saved to the project file. Note: the software still retains in memory the DCP settings even after the project is closed.

Project Info: - Update project information. This option is only available if a project is currently opened. The following project information display will be presented.





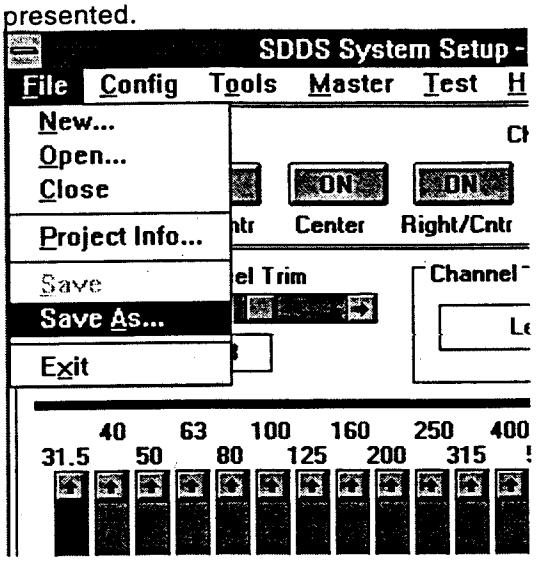
Make the necessary changes to the project information (for keyboard input, TAB to the desired field, make the changes and press ENTER).

To update project comments, use the **Project Comments** button. The software will open the appropriate project text file and place you in the Windows Notepad editor. Enter comments and then exit the Notepad editor. Windows will return control back to the Project Information display.

When finished entering information, use the OK button to save the information to the project file. If the project name was updated, the new project name will be displayed in the title bar at the top of the DCP Setup display. If you use the CANCEL button, the information entered will not be saved. If using the keyboard, TAB to OK or CANCEL button and press ENTER.

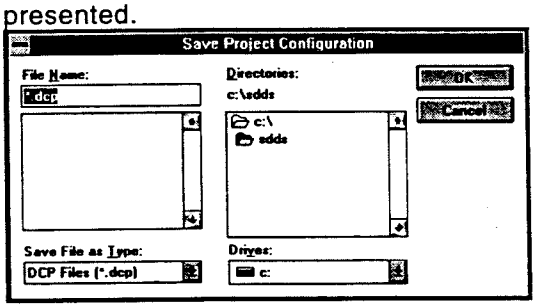
Save - Save the DCP settings to the currently opened project file. When making adjustments to the DCP, periodically save the DCP settings to the project file.

SaveAs - Save the current DCP settings to a new or existing project file. To select a project file, the following display will be presented.



Enter a new project name or select the desired project from this list or select a different directory for additional project files (for keyboard input, use the TAB and UP/DOWN cursor keys to maneuver through the dialog box and the ENTER key to make a selection). The default file extension for project files is **.dcp**.

If the specified file is new, the current settings are automatically saved. In addition, the following project information display will presented.



See **Project Information** (above) for information on how to use this display.

If the specified file already exists you will be prompted to confirm that you want to overwrite the existing file. If you enter NO, you will be returned to the **SaveAs** file display so you can make another selection. If you elect to overwrite the selected project file and if a project is currently opened while using the **SaveAs** option, several options are available. You can either save the current DCP settings and the project (theater) specific information (i.e., project name, technician name, theater, etc.,) to the specified file or you can just save the current DCP settings. If you elect to save only the DCP settings, a project information display (see **Project Information**) will be presented. Enter the appropriate project related information.

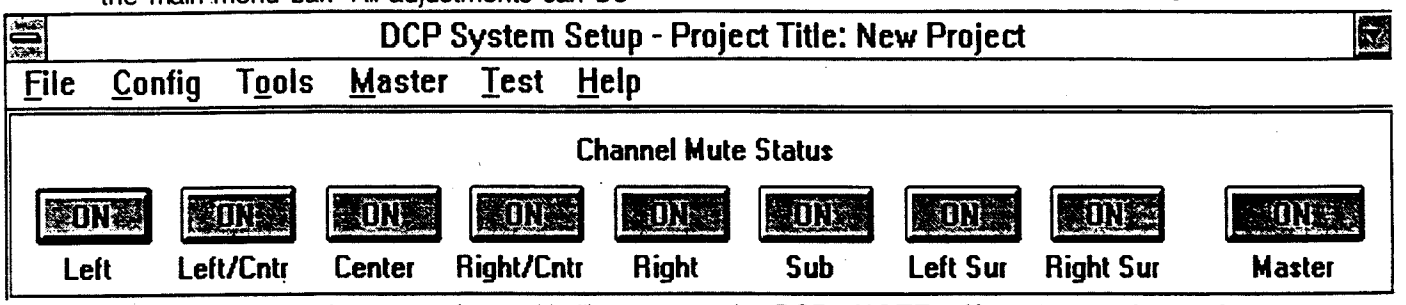
Exit - Exit the software. If changes have been made to the DCP settings since the last **Save** or **SaveAs** operation, you will be prompted to save the data to a project file. Once the information has been saved (or if you elect not to save the data), the software will terminate. If you were connected to the DCP, the software will disconnect from the DCP prior to software termination. When disconnecting from the DCP, the software verifies (and sets if necessary) that the mute status of all channels is off and that test signal generation is off.

(see **Project Information**) will be presented. Enter the appropriate project related information.

Exit - Exit the software. If changes have been made to the DFP settings since the last **Save** or **SaveAs** operation, you will be prompted to save the data to a project file. Once the information has been saved (or if you elect not to save the data), the software will terminate. If you were connected to the DFP, the software will disconnect from the DFP prior to software termination. When disconnecting from the DFP, the software verifies (and sets if necessary) that the mute status of all channels is off and that test signal generation is off.

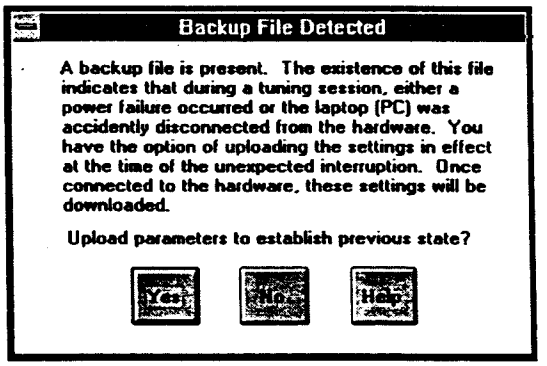
5.6 DCP-1000 Adjustments

Once connected to the DCP (see above), adjustments to DCP parameters are sent by the software to the DCP. Adjustments are made by moving scrollbar controls and clicking buttons on and off. In addition, non-channel related settings (i.e., DCP board calibrations, preset configurations, etc.) are adjusted using pull-down menus located in the main menu bar. All adjustments can be made using either the mouse (or trackball) or the keyboard. Note: if the software is not connected to the DCP, adjustments can still be made to the software, however, settings and adjustments are not sent to the DCP (i.e., for use in training, etc.).



5.6.1 Back Up File

While connected to the DCP, adjustments made to the DCP are periodically saved to a temporary backup file on disk. This backup feature ensures that an up-to-date backup of the DCP setup parameters is available in the event the DCP and PC hardware fail (i.e., power outage, etc.) during a setup session. If a failure should occur, the DCP Setup software will automatically detect the backup file when started the next time after the hardware failure. You will be given the option to reconfigure the DCP with the information stored in the backup file to place the DCP into the setup state prior to the hardware failure.

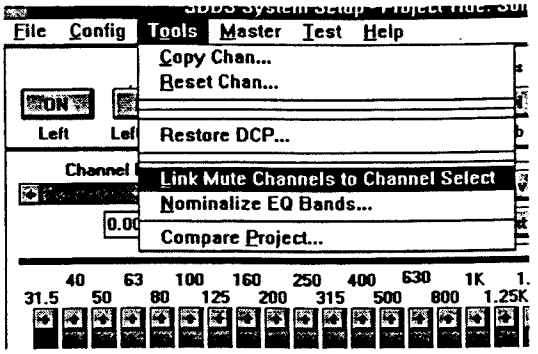


5.6.2 MUTE Functions

By default, the mute buttons (one for each channel) are off. However, during test signal generation (see below), one or more channels can be muted (i.e., no test signal is generated for that channel). To guard against leaving channels in a mute state after making DCP adjustments, the software automatically sets the mute status of all channels to off prior to disconnecting from the DCP. **NOTE: if connected to the DCP and the PC should crash or the cable between the PC and the DCP is disconnected, muted channels will not be reset to the off position. This will effect sound quality while the DCP is processing audio data.**

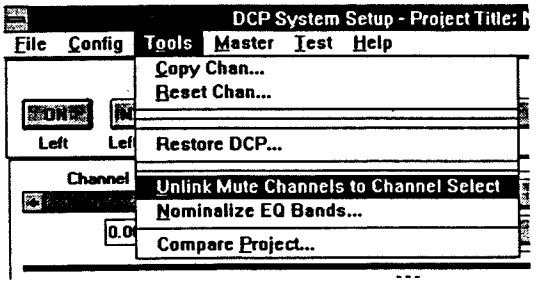
To toggle the mute status of a channel on and off, use the mouse to click the button associated with the desired channel. For keyboard input, the F1 through F8 function keys are mapped to the eight channels. Press the corresponding function key to toggle the mute status of the desired channel on and off.

Mute All Keys At Once To toggle on the mute status of all channels, use the F10 function key. This functionality mutes each channel individually. This differs from the Master Mute functionality (see below) where the DCP stops sending a signal to all channels as a group. Using F10 is a convenient way to mute all channels and then selectively turn on (i.e., turn mute status off) each channel individually.



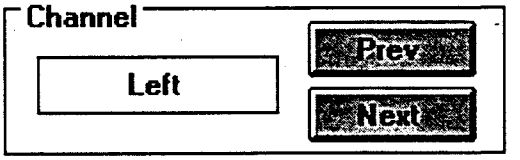
Linked Mute Channel Mode To aid in tuning a theater or studio, a channel link option is available in the **Tools** pull-down menu (see **Tools** below). This feature causes the software to automatically mute all channels except for the currently selected channel. In linked mute channel mode, every time a channel is selected (either by clicking one of the channel mute buttons or by clicking the Next or Prev buttons in the DCP Setup Software display), the mute status of the remaining channels are toggled on.

To toggle off the mute status of additional channels while in linked mute channel mode, position the cursor over the desired mute channel button and press the **right mouse button** (if using the keyboard, simultaneously press ALT and the function key mapped to the desired channel - for example ALT -F1 to toggle off the mute status of the left channel).



Master Mute

By default, the **master mute** is off. Choose this option to mute all channels. This feature is particularly useful if all channels should be muted quickly. For example, when generating pink noise (-20 dB) during testing, if all channels are on (i.e., not muted), there is a high probability that theater equipment and/or human hearing will be damaged (Note: the DCP Setup Software makes every attempt to avoid this situation). Using the **master mute** can quickly turn off the test generation to all channels Click the **master mute** button to toggle on and off the master mute. For keyboard input, press the F9 function key to toggle the master mute on and off. Note: once the master mute is on, you cannot toggle on and off the mute status of individual channels. If you want to individually mute all channels at once, use the F10 function key (see **Mute Buttons** above for details).

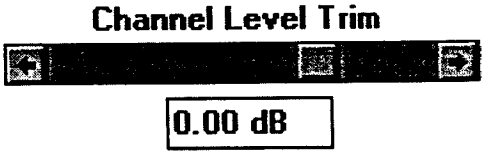


5.6.3 Channel Selection

If **linked mute channel mode** is off (see **Mute Buttons** above), then the current channel is selected using the **Next** and **Prev** buttons on the display. When a new channel is selected, the display is updated to reflect the current DCP settings for that particular channel. In **linked mute channel mode**, toggling the mute button for a particular channel will automatically cause the software to make the selected channel the current channel and the display will be updated accordingly. For keyboard input, use the Page Up or Page Down keys to select the next or previous channel.

5.6.4 Channel Level Trim

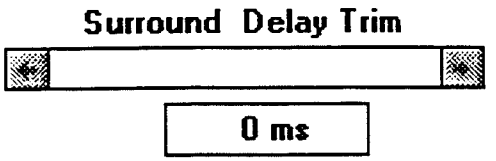
This control allows adjustment of the output level of the current channel. The adjustment is independent of the **Master Level Control** (see **Master Settings** below). This adjustment is relative to the nominal output level selected on the DCP.



To make level trim adjustments, position the mouse cursor on the scrollbar and move the thumb to the desired setting. For keyboard input, press a **lowercase l** and then use the UP and DOWN arrow (cursor) keys to make the adjustments.

5.6.5 Surround Delay Trim

This control is only active when the current channel is one of the two surround channels. It provides access to the digital surround delay available on the DCP.

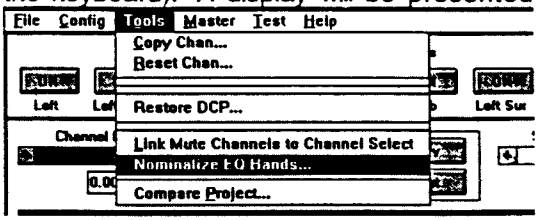


To adjust the delay trim, position the mouse cursor on the scrollbar and move the thumb to the desired setting. For keyboard input, press a **lowercase d** and then use the UP and DOWN cursor (arrow) keys to make the adjustments.

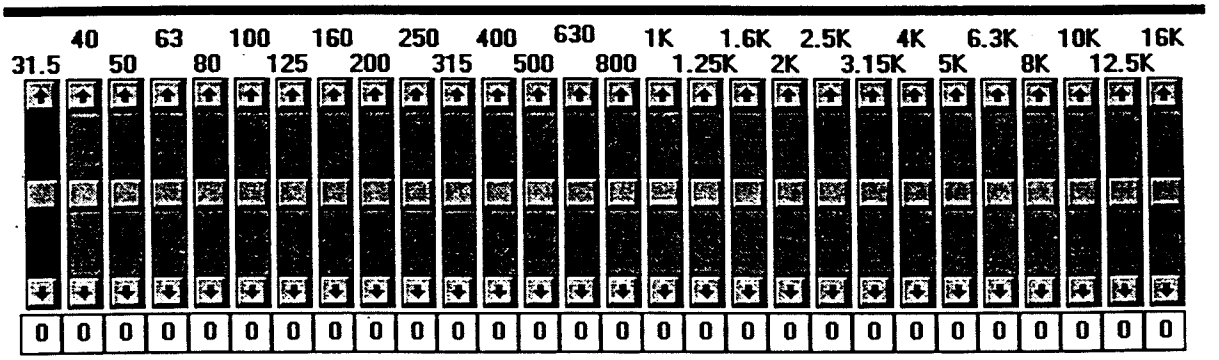
input, use the right or left cursor keys to position the cursor over the desired band (the band will be highlighted in red - the default highlight color). Use the UP and DOWN cursor (arrow) keys to set the control to the desired setting.

5.6.7 Nominalize EQ Band Settings

Adjustments to all 28 octave bands (for the currently selected channel) can be made. In the **Tools** pull-down menu (see below), select the Nominal EQ Band Settings option (or simultaneously press ALT and n if using the keyboard). A display will be presented



allowing you to specify the adjustment to add to all EQ bands for the currently selected channel. The software has a built in upper and lower bounds to prevent you from specifying an adjustment that will cause one or more EQ band settings to exceed the -10 dB to 10 dB window.



5.6.6 EQ Band Settings

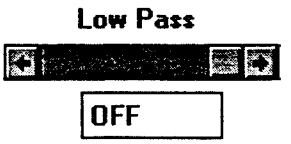
Adjustments to the 28 octave bands (31.5 Hz to 16 kHz in 1/3 octave steps) can be made for each channel except the sub-woofer. Adjustments between -10 dB and 10 dB can be made on a band by band basis. To adjust a band level, position the cursor over the desired band and use the left mouse button to position the scrollbar thumb to the desired setting. For keyboard

5.6.8 High Pass Filter

For each channel (except the sub-woofer), the high pass filter frequency can be set. For the currently selected channel, position the cursor over the high pass filter scrollbar and move the scrollbar thumb to the desired filter setting. For keyboard input, use the right or left cursor (arrow) keys to position the cursor on the high pass filter scrollbar (it will be highlighted). Use the UP and DOWN arrow keys to adjust the filter setting.

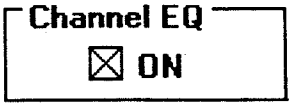
5.6.9 Low Pass Filter

The low pass filter frequency can be adjusted for each channel. For the currently selected channel, position the cursor over the low pass filter scrollbar and move the scrollbar thumb to the desired filter setting. For keyboard input, use the right or left cursor (arrow) keys to position the cursor on the low pass filter scrollbar (it will be highlighted). Use the UP and DOWN arrow keys to adjust the filter setting. The default low pass filter setting for the sub-woofer is 330 Hz. When generating test signals, the DCP Setup Software will automatically set the low pass filter setting for the sub-woofer to 330 Hz (see **Test Signal Generation** below).



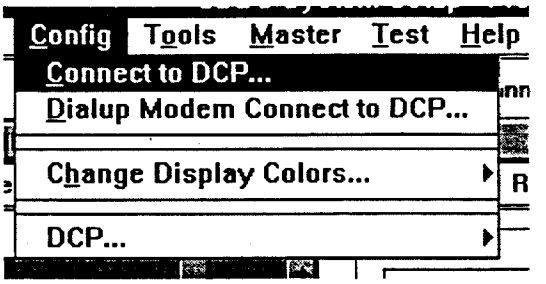
5.6.10 EQ ON/OFF

Adjustments to the EQ bands for the currently selected channel are stored in the memory of the DCP. However, for the settings to take effect, the EQ ON/OFF checkbox must be checked (on). To toggle the EQ ON/OFF box, position the cursor key over the checkbox and use the left mouse to toggle the box. For keyboard input, use the F12 function key.



5.7 Config Pull-Down Menu

The following is a description of the menu options found in the Config pull-down menu.

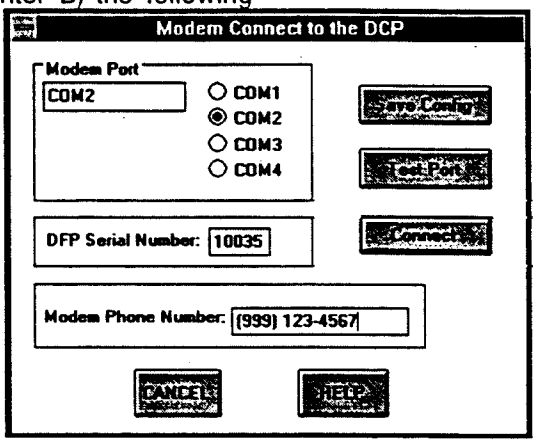


5.7.1 Connect to DCP/Disconnect from DCP

See **Connect to DCP** (above) for details on connecting to the DCP. Once connected to the DCP, the Connect to DCP menu option is replaced with the **Disconnect from DCP**. To disconnect from the DCP, click this option (if using the keyboard, press D). A message will be displayed to confirm that you want to disconnect from the DCP. If you elect not to disconnect, the software returns control to the main DCP Setup Software display. If you elect to disconnect, the DCP Setup Software verifies that the mute status of all channels are off, the master mute is off, and that there is no test signal being generated. If any of these settings is incorrect, the software sends the appropriate commands to the DCP to ensure these conditions are met. Once disconnected, the software replaces Disconnect from DCP with Connect to DCP in the Config pull-down menu.

5.7.2 Dial-Up Modem Connect to the DCP

Connection to the DCP can be established through a dial-up modem. Contact your Sony Cinema Products representative to determine if you have the correct DCP firmware version to support modem connections. When choosing this option (if using the keyboard, enter D) the following display is presented.



By default, COM1 is the serial port where the modem is connected and 00000 is the DCP serial number. If COM1 is not the correct serial port, position the mouse cursor over the desired serial port and press the left mouse button. If using the keyboard, TAB to the currently selected port and then use the UP and DOWN cursor (arrow) keys to select the desired serial port. Enter the correct DCP serial number (if using the keyboard, TAB to the serial number field, enter the serial number and press ENTER). To dial the modem connected to the DCP, enter the phone number in the Modem Phone Number input field. To save the information for future use, use the **Save Config** button. The **Test** button is used to verify that the selected serial port exists. If an invalid port is selected, a message will be displayed indicating the error. Choose another port and try testing again. To connect to the DCP, use the **Connect** button. **Note:** in order to connect to a remove DCP, the remote DCP must be placed in Setup Mode (see Connect to DCP - step 7) above for detail.

When connecting to the DCP, the software initializes the PC modem (i.e., modem connected to the serial port on the PC) and then sends a dial-up command containing the modem phone number supplied by the user. During the initialization process, you will experience some delay before the actual dialing takes place. This delay is a built-in factor that ensures that the software will communicate with most Hayes compatible modems. Monitor the status bar at the bottom of the screen for messages indicating the status of the initialization process. Once initialized, dialing will start and the following message box is displayed.

The software has a sixty second time envelop in which an attempt is made to establish connection with the DCP. If a connection is not made within the sixty second time slice, the software will abort the process and return control back to the Connect to the DCP using Modem Dial-up display.

If a modem connection is established with the DCP and no project is currently opened (**File Management** above), the software polls the DCP to determine the current operating environment. During this polling process, a display is presented indicating the polling status. Once the DCP operating environment has been determined, you are now ready to make adjustments to the DCP settings.

If a modem connection is established with the DCP and a project is currently opened (**File Management** above), you will be given two options. You can either update the DCP to reflect the settings of the currently opened project or you can poll the DCP and overwrite the settings of the currently opened project. In either case, some delay will be experienced as communications between the PC and the DCP take place.

Once connected to the DCP, the software replaces the **Dial-up Modem Connect to the DCP** entry in the Config pull-down menu with **Disconnect from the DCP**. To disconnect from a modem connection, choose **Disconnect from the DCP** from the Config pull-down menu (or press D if using the keyboard). A message will be displayed to confirm that you want to disconnect from the DCP. If you elect not to

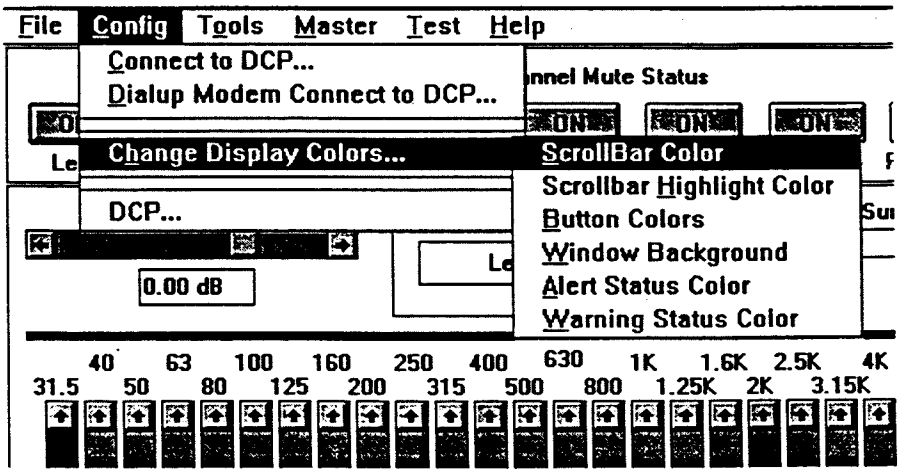
disconnect, the software returns control to the main DCP Setup Software display. If you elect to disconnect, the DCP Setup Software verifies that the mute status of all channels are off, the master mute is off, and that there is no test signal being generated. If any of these settings is incorrect, the software sends the appropriate commands to the DCP to ensure these conditions are met. After verification, the software disconnects from the DCP and then sends a hang-up command to the local modem. There will be a time delay as the modem hang-up operation is performed. Once disconnected, the software replaces Disconnect from the DCP with Dial-up Modem Connect to the DCP in the Config pull-down menu.

5.7.3 Change Display Colors

The following are the default colors (as shipped from the factory) for the DCP Setup Software.

white background color of the displays
green background color of the scrollbars
red scrollbar highlight, background of error and alert messages
yellow background of warning messages
gray background of buttons

Use **Change Display Colors** in the **Config** pull-down menu to change the default colors (if using the keyboard, simultaneously press the ALT and C keys to gain access to the Config pull-down menu and then press h). A pop-up menu will be displayed with the following entries.



Scrollbar Color: changes the default scroll bar color

Scrollbar Highlight Color: changes the default scrollbar highlight color

Button Color: changes the default button background color

Window Background: changes the default window color

Alert Status Color: changes the default error and alert background color

Warning Status Color: changes the default warning background color

After selecting one of the above entries (if using the keyboard, press the underlined key and then press ENTER), the following display will be presented.

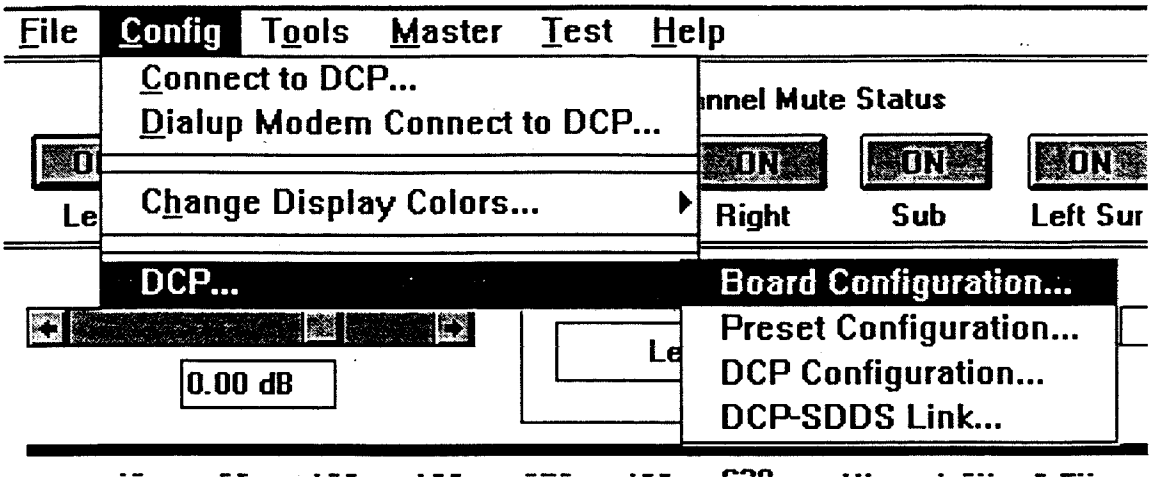
Select the desired color and click the OK button (if using the keyboard, TAB to the desired color and press ENTER). The selected color will become the default color for the particular control.

5.8 DCP Menu

In addition to setting channel EQ levels, the DCP Setup Software is also used to calibrate DCP boards, configure presets, and configure the DCP-SDDS link.

5.8.1 DCP Board Configuration

Selecting this menu option will produce the following display

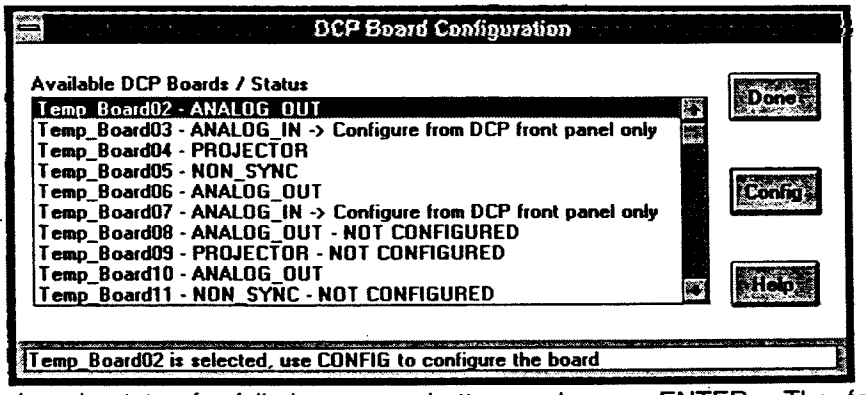


If connected to the DCP, a list of the currently available boards in the DCP will be presented.

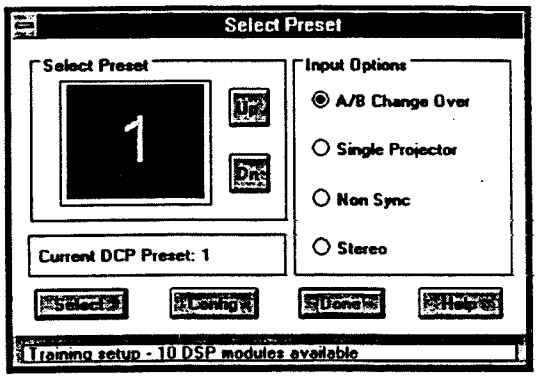
If not connected to the DCP, twenty simulated boards are presented. These simulated boards are provided for training purposes and are not intended to represent specific boards. In addition to listing the boards, the type of board (analog input, analog output, PEC projector or PEC non-sync) as well as the current state of each board is displayed. **Note**: if the board is in a normal operational state, no status for that board is displayed - only status for failed or missing boards is provided and for boards that have not yet been calibrated.

Note: currently, analog input boards can only be calibrated via the front panel of the DCP hardware.

To configure and calibrate a board, use the mouse to position the cursor over the desired board (if the board is not present, scroll through the list using the scroll bar control located to the left of the list of boards) and double click the left mouse button. If using the keyboard, TAB to the list of boards and use the UP and DOWN cursor keys to highlight the desired board. Once the board is highlighted, TAB to the **Config** button and press ENTER. The following dialog box will be displayed.



The above display is for a analog output board. If a PEC board (either Projector or Non-sync) is chosen, the following display is presented.



To change the board name, enter the new name (not to exceed 17 characters) in the **Board Name** edit field. If using the keyboard, TAB to the **Board Name** edit field and enter the new board name.

The meters at the top of the display are used to display the current output levels for the channels. To calibrate a channel, set the appropriate level using the scroll bars at the bottom of the display. After making an adjustment, wait a few seconds to let the DCP hardware settle down and allow the meters to reflect the new output level resulting from the new calibration setting. If using the keyboard, TAB to the desired channel scrollbar and use the UP and DOWN cursor keys to set the channel to the desired setting. **If not connected to the DCP, a random number generated is used for the meter levels to simulate channel outputs (i.e., for use in training).**

To further aid in the calibration process, the phase difference between two different channels can also be monitored. To monitor the phase difference, click the **Phase** button (or if using the keyboard, TAB to the **Phase** button and press ENTER), the following dialog box will be displayed.

To monitor the phase between two channels, select a channel from the X column and a channel from the Y column. If using the keyboard, TAB to the appropriate column and use the cursor keys to select the desired channel. **If not connected to the DCP, a random number generator is used to simulate the phase difference between two channels (i.e., for training purposes).**

For Projector boards, the slit loss EQ can also be set. To set the slit loss EQ, click the **Slit-Loss** button (or if using the keyboard, TAB to the **Slit-Loss** button and press ENTER).

Use the scrollbar to set the slit-loss. If using the keyboard, TAB to the scroll bar and use the cursor keys to set the desired slit-loss EQ level. The Slit-Loss EQ can be set in increments of .05 mils.

5.8.2 DCP Preset Configuration

Select this menu option to configure the eight available presets. After selecting this menu option, the following display will appear.

Eight different presets can be configured using this display. Using the **Up** and **Dn** buttons, select the desired preset. Presets can be configured to handle one of four input options; A/B Change Over, Single Projector, Non-Sync input and Stereo. Select the desired input option and the click the **Config** button. If using the keyboard, TAB to the Input Options box and use the cursor keys to select the desired input option and then TAB to the **Config** button and press ENTER. If the A/B Change Over option is selected, the following display is presented.

If the A/B Change Over option is not selected, the following display is presented.

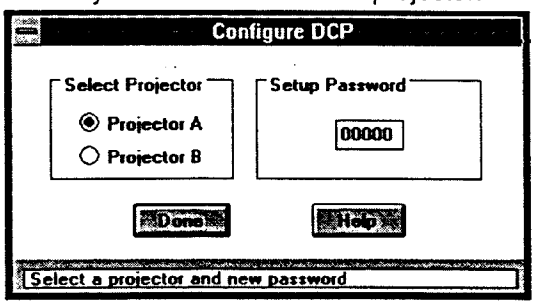
Each preset can have a unique name. To change the name of the current preset, use the mouse to place the cursor in the **Preset Name** edit control and enter the desired name (no more than 17 characters). If using the keyboard, TAB to the **Preset Name** edit control and enter the preset name.

If the A/B Change Over input option is elected, select a source for Projector A and for Projector B from the list of boards. The software will not allow you to select the same board for both projector inputs. To select a board, use the mouse to place the cursor over the desired board and double click the left mouse button. If using the keyboard, TAB to the appropriate board list and use the cursor keys to select the desired board.
In addition to selecting the input sources, select the appropriate DSP module. To select a DSP module, use the mouse to place the cursor over the desired module name and double click the left mouse button. If using the keyboard, TAB to the DSP module list and use the cursor keys to highlight the desired DSP module.
Note: If not connected to the DCP, simulated board and module names are created. These names are for training purposes only and should not be used to configure an actual DCP.

5.8.3 DCP Configuration

This menu option allows you to set either Projector A or Projector B as the default input projector for the DCP. In addition, this option allows the DCP password (5 digit number) to be changed. When selecting this option, the following display is presented.

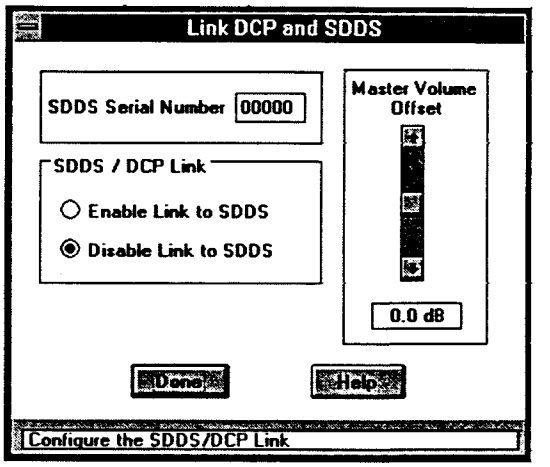
By default, projector A is the default projector input. However, projector B can be set. To select either projector A or B, use the mouse to position the cursor over the desired projector input and click the left mouse button. If using the keyboard, TAB to the Select Projector box and use the cursor keys to select the desired projector.



To set the DCP Setup password, place the cursor in the **Setup Password** edit field and enter the new 5 digit password. Only use digits between 0 and 9 for the setup password. If using the keyboard, TAB to the **Setup Password** edit control and enter the 5 digit number.

5.8.4 DCP SDDS-LINK

The DCP can be linked to a SDDS DFP-D2000 Digital Film Processor so that master volume gains set in the DFP-D2000 can automatically be set in the DCP. A RS-232C NULL Modem cable is connected between the DCP (port labeled SDDS Link on the back panel of the DCP) and the DFP-D2000. After selecting this menu option, the display shown above is presented.



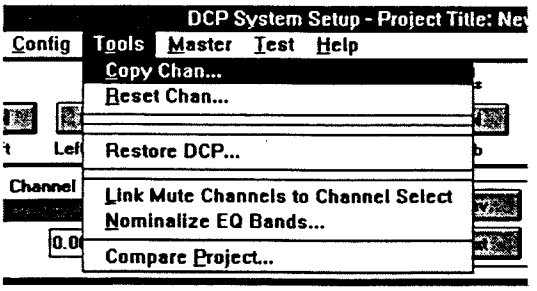
To perform the SDDS-DCP linkage, the SDDS Serial Number must be provided. Place the cursor in the **SDDS Serial Number** edit control and enter the 5 digit number of the DFP-D2000 processor that may be connected to the DCP. If using the keyboard, TAB to the **SDDS Serial Number** edit control and enter the 5 digit DFP-D2000 serial number.

To accommodate the calibration difference between the DCP and DFP-D2000 processors, a Master Volume offset is provided. Set the offset by using the **Master Volume Offset** scrollbar. If using the keyboard, TAB to the scrollbar and use the cursor keys to set the desired offset.

To enable linking to the DFP-D2000, click the **Enable Link to SDDS** selection in SDDS/DCP Link Box. When enabled, the DCP connects to the DFP-D2000 using the supplied SDDS serial number and periodically polls the DFP-D2000 for the master volume setting. To disable linking, click the **Disable Link to SDDS** selection.

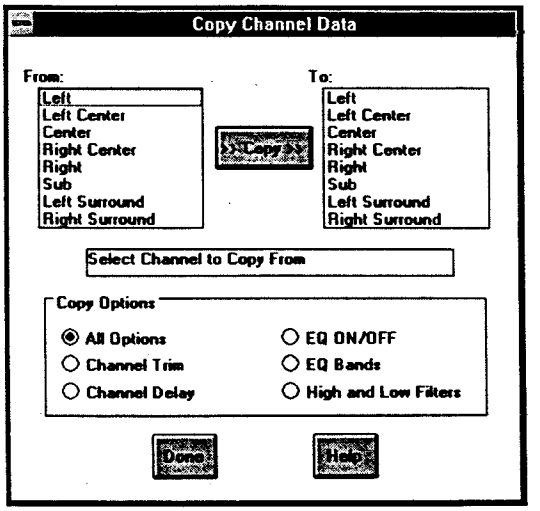
5.9 Tools Pull-Down Menu

The following is a description of the menu options found in the Tools pull-down menu.



5.9.1 Copy Channel

Channel settings (i.e., trim levels, EQ bands, high/low pass filters, etc.) can be copied from one channel to another. To copy channel settings from one channel to another, select **Copy Chan** from the **Tools** pull-down menu. If using the keyboard, simultaneously press the ALT and O keys to gain access to the Tools pull-down menu and then press C). The following display will be presented.



Select the "from" channel from the list on the left side of the display (the selected channel will be highlighted). Select the desired channel (the "to" channel) where the channel settings will be copied from the list on the right side of the display (this selected channel will also be highlighted).

To perform the copy operation, use the **Copy** button. Once the Copy button has been activated, a message box will appear warning you that the DCP settings of the "to" channel will be overwritten. If you elect to cancel the operation, the software will return you to the main DCP Setup display without performing the copy operation. If you elect to carry the operation out, the DCP settings of the "from" channel will be copied to the "to" channel. To copy the DCP settings to additional channels, select another "to" channel from the list on the right of the display and perform the same steps just described.

Copy Options By default, all channel settings are copied from the "from" channel to the "to" channel. However, copy operations where only a subset of the DCP channel settings are to be copied can be performed. To select a subset of the channel settings, position the mouse over the desired setting (at the bottom of the Copy Chan display) and press the left mouse button. Continue selecting setting options until the desired subset is selected. Now use the Copy button to perform the operation.

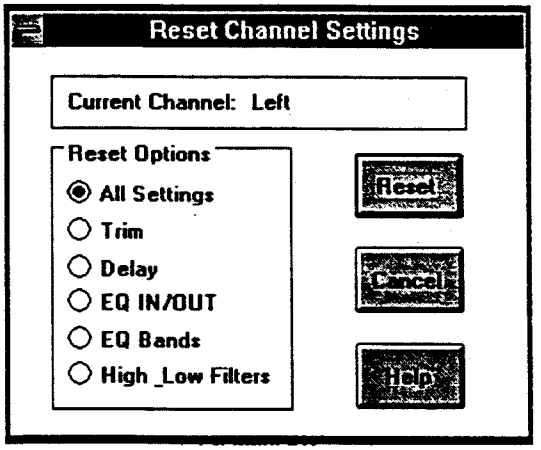
When finished copying settings from one channel to another, use the **Done** button to exit the display.

5.9.2 Reset Channel

Channel settings can be reset to DCP specifications. The following are the default channel settings as shipped.

0 dB	for all EQ bands
OFF	high pass filter setting
OFF	low pass filter setting (330 Hz if sub-woofer)
-10 dB	channel level trim
0 msecs	surround delay trim (for surround channels only)
OFF	EQ switch (if ON EQ bands are adjusted in DFP)

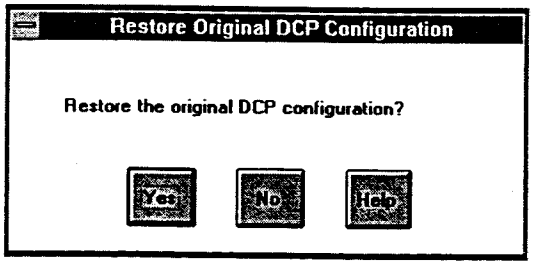
To reset the settings of a channel, select the channel using the **Next** or **Prev** buttons (Channel Selection) and then select **Reset Chan** from the **Tools** pull-down menu. The following display will be presented.



Either all channel settings can be reset or a selected subset can be defined. To reset all channels, position the cursor over the All Settings option and press the left mouse button. If a subset of settings is desired, position the cursor over the desired setting and press the left mouse button. Continue this operation until all desired settings have been selected. To reset the settings, use the **Reset** button. Once the Reset button has been activated, a message will be displayed warning that the selected settings for the current channel will be overwritten. If the user elects to cancel the operation, the software will return you back to the DCP Setup display and the reset operation will be canceled. If the user continues the reset operation, the selected channel settings will be set to the defaults and control will be returned to the main DCP Setup display.

5.9.3 Restore DCP

When a connection is first made with the DCP, the current operating state of the DCP is saved in memory. If during a tuning session you want to restore the DCP to the state that existed prior to connecting to the DCP, use **Restore DCP** in the **Tools** pull-down menu. If using the keyboard, simultaneously press the ALT and O keys to access the Tools pull-down menu and then press E. When selecting Restore DCP, the following display is presented.



Select **yes** if you want to restore the original DCP configuration (if using the keyboard, TAB to the yes button and press ENTER). If you select **no**, the DCP settings are not restored. If you select **yes**, a message is displayed warning you that the current settings in the DCP will be overwritten. If you elect to cancel the operation, the software will not send the stored configuration to the DCP. If you elect to overwrite the current settings of the DCP, the software sends the stored settings to the DCP.

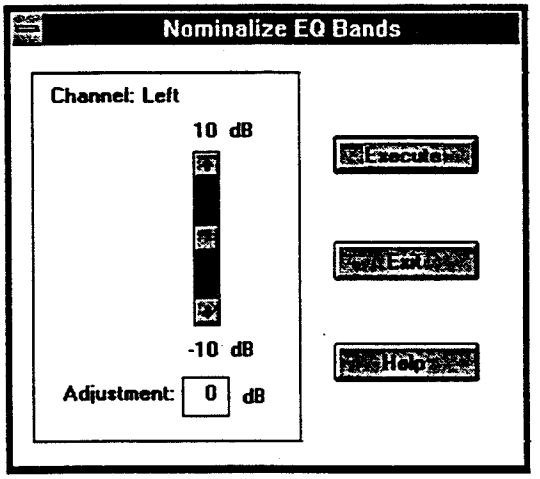
5.9.4 Link MUTE Channels to Channel Select

When generating a test signal (see Test below) and making adjustments to the DCP settings, it is convenient to link the mute button keys to the channel select operator (see Channel Select above). When the mute buttons are linked, the software will automatically mute all channels except for the currently selected channel. When a channel is selected (either by clicking one of the channel mute buttons or by clicking the Next or Prev buttons in the DCP Setup Software display), the mute status of the remaining channels are toggled on. To toggle off the mute status of additional channels while the mute buttons are linked, position the cursor over the desired mute channel button and press the **right mouse button** (if using the keyboard, simultaneously press ALT and the function key mapped to the desired channel - for example ALT -F1 to toggle off the mute status of the left channel).

Unlink Mute Channels to Channel Select When selecting **Link Mute Channels to Channel Select** (if using the keyboard, press L), the software overwrites the menu entry with **Unlink Mute Channels to Channel Select**. To cancel linked mute channels, select Unlink Mute Channels to Channel Select. If using the keyboard, press U.

5.9.5 Nominalize EQ Bands

Instead of individually adjusting each EQ band, a nominal adjustment can be made to all EQ bands at once. To make a nominal adjustment, select **Nominalize EQ Bands** from the **Tools** pull-down menu. If using the keyboard, simultaneously press the ALT and O keys to gain access to the Tools pull-down menu and then press the N key. The following display will be presented.

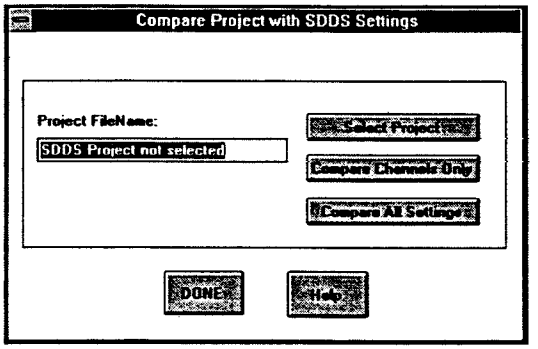


For the currently selected channel (see **Channel Selection**), Use the mouse to position the scroll thumb to the desired nominal value to add to each EQ band. If using the keyboard, TAB to the scrollbar and use the UP and DOWN cursor (arrow) keys to position the scroll thumb. To add the nominal value to the EQ bands, use the **Execute** button (if using the keyboard, TAB to the Execute button and press ENTER). The settings for the EQ bands will automatically be adjusted. To exit the display, use the Exit button (if using the keyboard, TAB to the Exit button and press ENTER).

When Nominalize EQ Bands is selected, the software automatically calculates a range of acceptable nominal values that can be added to the EQ bands. The upper and lower bounds of this calculated range will be displayed at the top and bottom, respectively, of the nominal value scrollbar. These bounds are used to prevent a nominal value from being chosen that when added to a particular EQ band setting, causes the new setting to be set outside the allowable -10 dB to +10 dB range.

5.9.6 Compare Project

Select **Compare Project** from the **Tools** pull-down menu to compare the settings of an existing project with the current DCP settings (if connected to the DCP). If using the keyboard, simultaneously press the ALT and O keys to access the Tools pull-down menu and then press P. This function is particularly useful when you want to verify that the current DCP settings have not changed since the previous tuning session. For example, you may be interested in determining if the settings in a stored project differ from the DCP before opening the project. Since this function compares the settings of an unopened project file with the current settings in the DCP memory, this function can also be used to compare the settings of two projects. To do this, make sure you are not connected to the DCP (see **Disconnect from the DCP**), open a project and then use **Compare Project** to select the other project.
When Compare Project is selected, the following display is presented.



To select a project to compare settings, use the **Select Project** button (if using the keyboard, TAB to Select Project and press ENTER). The following display will be presented.

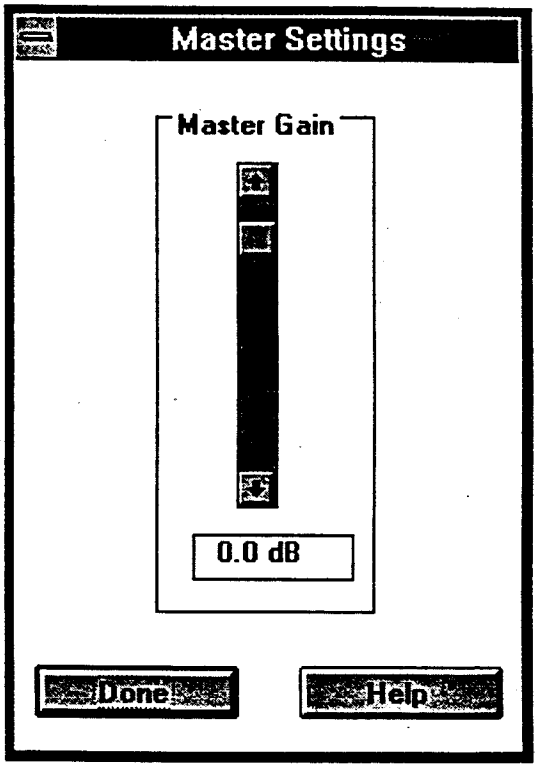
Select the desired project file (or select another directory for additional lists of project files). If using the keyboard, TAB to the desired project filename or directory and press ENTER.

Once a project file has been selected, you can either compare the channel settings or compare all settings. If you choose **Compare Channels Only**, differences in the level trim, surround delay trim, EQ band settings, and the high and low pass filter settings between the selected project and the currently opened project (i.e., the current DCP settings if connected to the DCP) will be displayed. Since there are eight channels of information, several screens of information may be displayed depending on the number of differences found.

If you elect to choose **Compare All Settings**, the aforementioned settings are compared as well as the current projector master gain settings are displayed. As with Compare Channel Settings, several screens of information may be displayed depending on the number of differences found.

5.10 Master Pull-Down Menu

To set the master volume level select the **Master** pull-down menu (if using the keyboard, simultaneously press ALT and the M keys). When **Master** is selected, the following display will be presented.

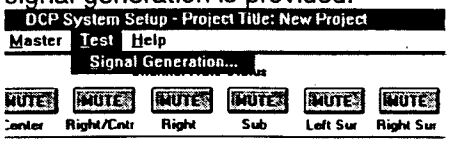


5.10.1 Master Gain

The master level control can be adjusted either from the front panel on the DCP or from the master setup display. To adjust the master gain, position the mouse over the master gain scrollbar and move the scrollbar thumb to the desired value. If using the keyboard, TAB to the master gain scrollbar and use the UP and DOWN cursor (arrow) keys to position the scrollbar thumb to the desired value. It is important to note that this adjustment can be altered by the front panel control or any DCP remote unit at any time. It is good practice to set this control to 0 and then trim the individual channels to produce the nominal level per channel in the auditorium. The master gain is intended as a overall level control for the theater. Note: since the master gain can be adjusted from the front panel of the DCP, the DCP Setup Software periodically polls the DCP to determine the current Master Gain setting.

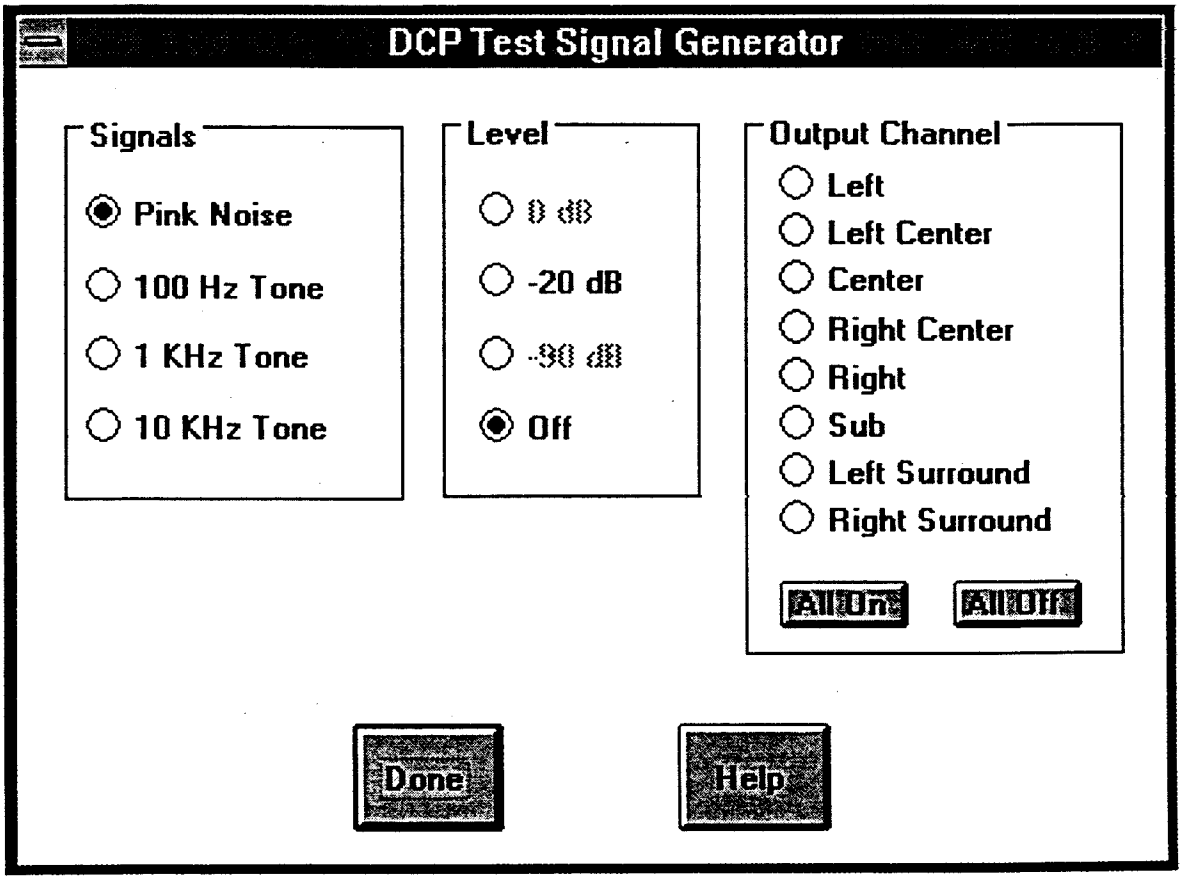
5.11 Test Pull-Down Menu

To facilitate the tuning of a theater, test signal generation is provided.



5.11.1 Test Signal Generator

To generate a test signal, select the **Signal Generator** from the **Test** pull-down menu. The following display will be presented.



Select the desired test signal (pink noise, 100 Hz tone, 1 kHz tone and 10 kHz tone) and level (0 dB, -20 dB, -90 dB and Off) from the options listed in the display. If pink noise is selected, the 0 dB and -90 dB test levels are not available (grayed out). To turn test signal generation off, set the test level to Off. When a test signal is generated, the name of the test signal generated is displayed in the test signal status box at the bottom of the DCP Setup Software display.

As long as a test signal is being generated, the test signal status box will continue to display the name of the signal. When disconnecting from the DCP, the software will make sure test signal generation is off. If a signal is being generated, the software will send the appropriate message to the DCP to turn test signal generation off.

Use the **Done** button to exit the DCP Signal Generation display. If a test level other than Off is selected, the test signal will continue to be generated even though the display is gone.

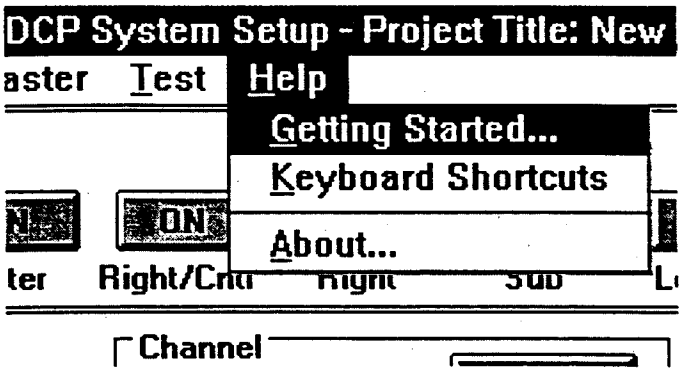
Signal Routing Once a test signal is generated, the channels where the signal is to be routed must be selected. From the list of channels on the right side of the DCP Signal Generation display, select (and de-select) the desired channels to route the

signal. If you want to route to all channels, use the **All On** button. To de-select all channels, use the **All Off** button. The All Off button is convenient to use when you want to route to only one channel and there are currently a number of active channels. Use All Off to de-select the channels and then select the desired channel.

Mute Status and Signal Routing

Although a channel is selected for signal routing, the signal will not be heard if the desired channel is currently in a mute state. Make sure the mute state of the selected channels are off.

5.12 Help



Use help to access the on-line help provided with the DCP Setup Software. When selecting Help (if using the keyboard, simultaneously press ALT and H), a pull-down menu will be displayed.

5.12.1 Getting Started

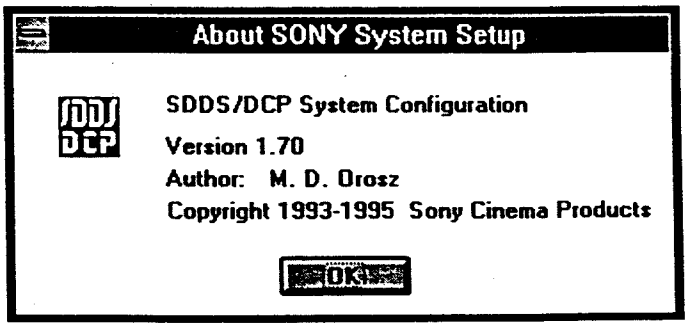
Select this menu entry to access help on how to get started using the DCP Setup Software. In addition, detail help regarding the features available in the software can be accessed using the Contents button of Windows Help. See the Windows documentation for more information on using Windows Help.

5.12.2 Keyboard Shortcuts

Select this menu entry to get a list of the keyboard shortcuts available in the software. Keyboard shortcuts are keyboard key sequences that are used to access pull-down menus, maneuver through displays and make adjustments to DCP settings. These keyboard key sequences are particularly useful for laptop computers where the mouse or trackball device is missing or is inconvenient to use.

5.12.3 About

Use this menu entry to display the following DCP Setup Software information box.



Section 6
Operation

6.1

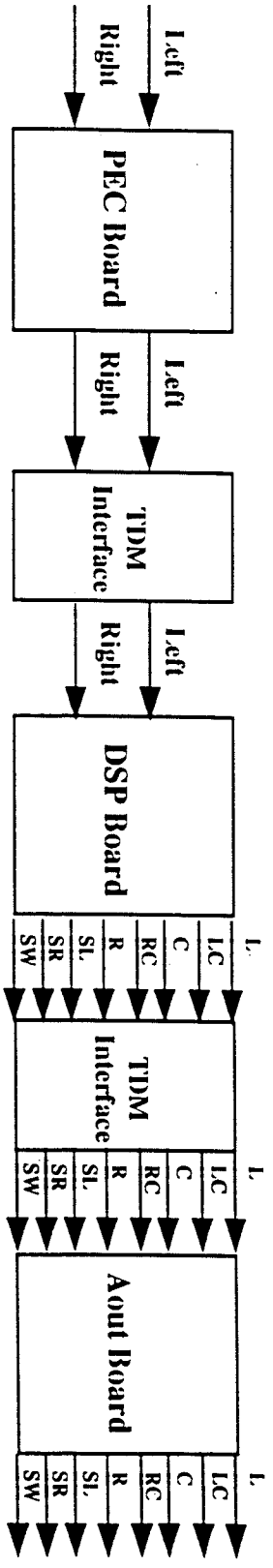
This section to be delivered at a later date.

Section 7
Service Information

This section to be delivered at a later date.

Section 8
Block Diagrams

8.1 DCP-1000 Signal Flow

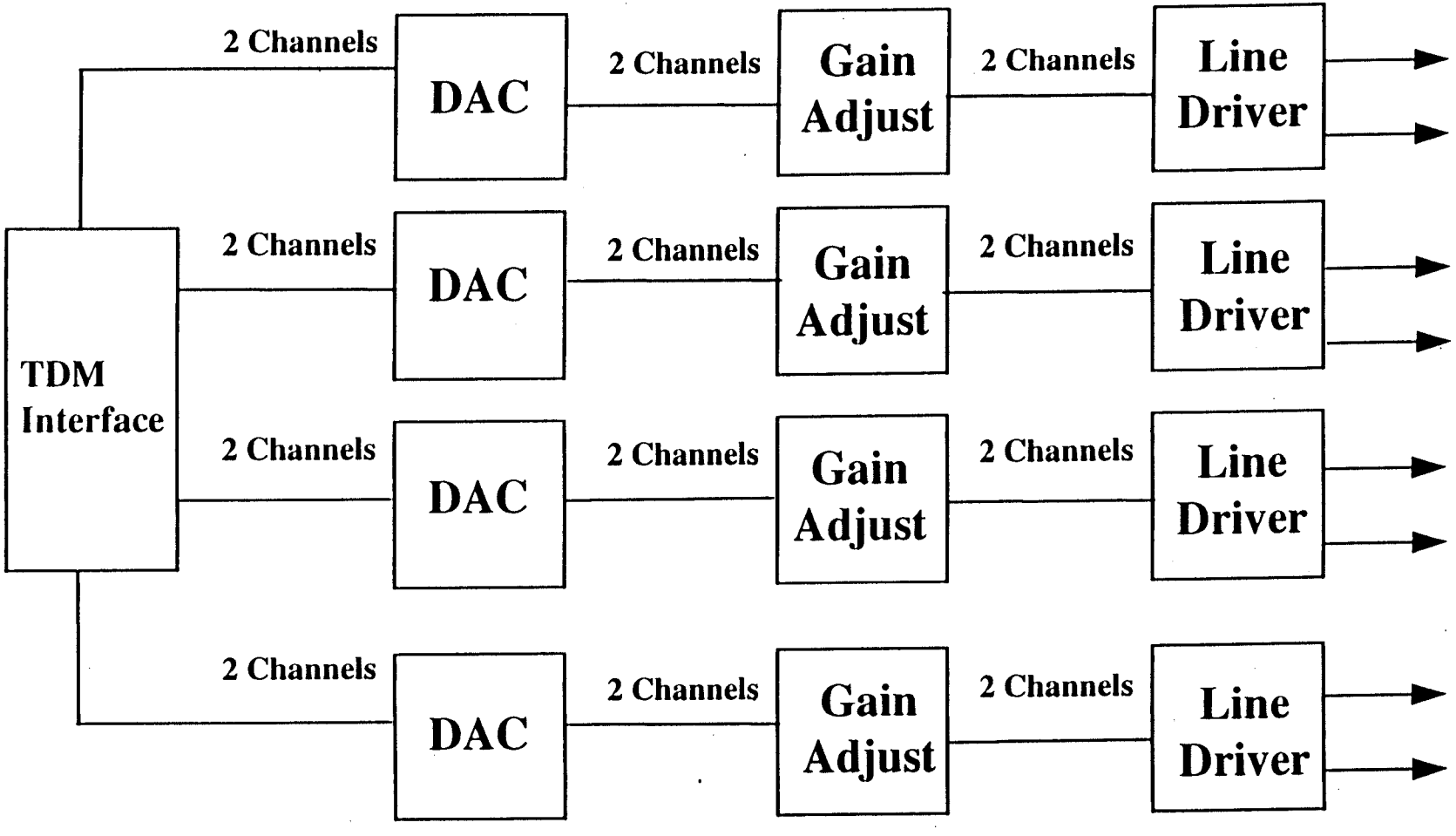


DCP-1000 Signal Path

8.2 A-IN Board

Diagram to come at later date

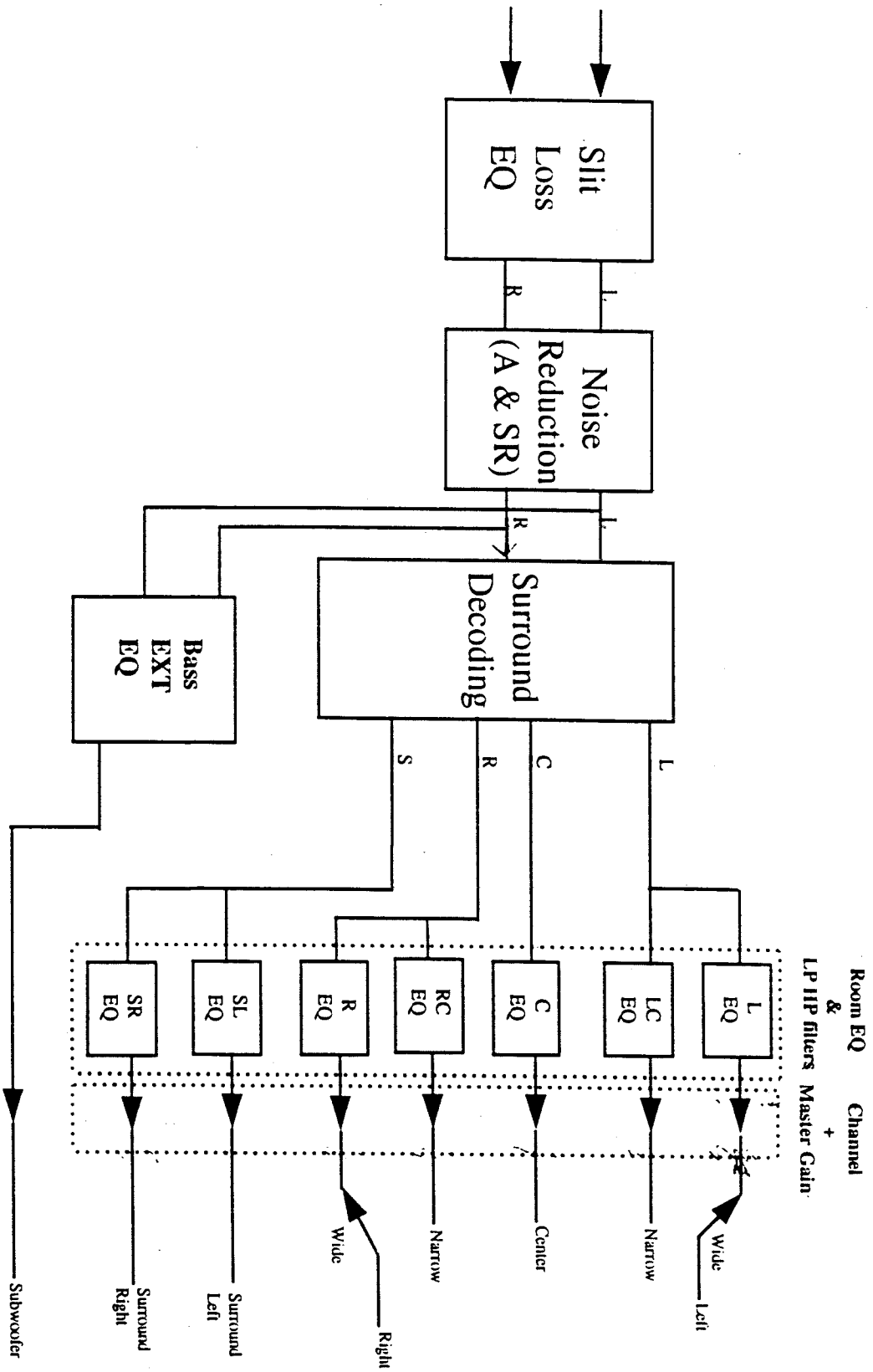
AOut Signal Path



8.4 CPU Board

Diagram to come at later date

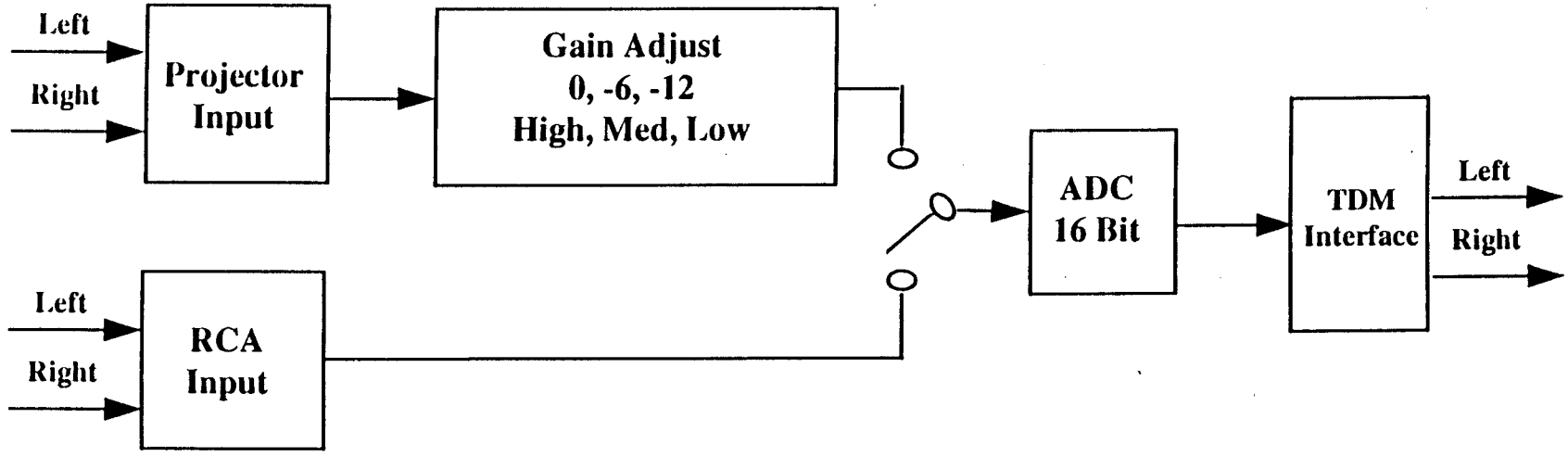
DSP Signal Path



8.6 Front Panel Board

Diagram to come at later date

PEC Signal Path



8.7 PEC Board