



Jaguar Audio

PESA Switching Systems
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Document No. 81-9059-0373-0 Rev. D

Manual Updates:

03/15/96	Manual released for initial printing.
4/30/96	Updated manual to incorporate ECO changes.
8/15/96	Updated manual to incorporate ECO changes.
3/15/97	Updated manual to incorporate ECO changes.
3/19/98	Updated manual to incorporate ECO changes.
02-28-01	Rev. B: Not released - Agile conversion. GLT
02-28-01	Rev. C: Synchronized revision level with Agile per ECO CE00126. GLT
03-05-01	Rev. D: Deleted Printing Specification per ECO CE00113. GLT

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- A "Declaration of Conformity" in accordance with the above standards has been made and is on file at PESA Switching Systems, Inc., Huntsville, Alabama.

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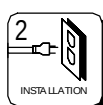
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1.1 Manual Overview

This manual provides detailed instructions for installing and operating the PESA Jaguar Audio Routing Switchers. This manual is divided into seven sections as shown. Sections 3 and 4 contain operational and functional descriptions of the Jaguar Audio Routing Switchers and their associated circuit cards.



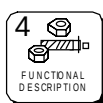
Section 1, **INTRODUCTION**, summarizes the manual, describes the product, presents a list of terms, and provides the panel specifications.



Section 2, **INSTALLATION**, provides installation and setup instructions.



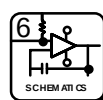
Section 3, **OPERATION**, describes system operation procedures.



Section 4, **FUNCTIONAL DESCRIPTIONS**, presents an in-depth description of each component.



Section 5, **MAINTENANCE**, explains procedures for maintenance.



Section 6, **SCHEMATICS**, gives a complete package of technical documents such as schematics, and assembly drawings.



Section 7, **PARTS LIST**, provides a detailed list of system parts and components.



1.2 General Description

The PESA Jaguar Audio Routing Switchers offer reliable low cost answers to your audio routing needs while providing two levels of audio switching utilizing dual 64X64 switching matrixes within a single frame. The Jaguar Audio Routing Switcher can be configured as a dual 64X64 switcher or as a mono 128X64 switcher when output combiner cards are utilized. Jaguar Analog Audio and Digital Audio Routing Switchers are housed in 5RU frames providing a small profile for space efficient installations. Jaguar Audio Frames can also be equipped with redundant power supplies for maximum reliability and fail safe operation.

The Jaguar Analog Audio and Digital Audio Routing Switchers are designed with mid-range size routing matrix applications in mind. These cost efficient routers are expandable up to and beyond a 128X128 size matrix. Jaguar Audio Frames utilize plug-in circuit cards for ease of maintenance and component replacement. The Jaguar Audio Routing Switchers can be serviced hot, allowing circuit card changes without powering down the matrix.

The Jaguar Analog Audio and Digital Audio Routing Switchers both feature easily visible LED indicators for quick view of critical voltage and circuit conditions. Jaguar Audio Frames come equipped with a control port and external alarm connectors for audible monitoring the operation of the internal power and controller circuits.

The Jaguar Analog and Digital Audio Matrix Cards provide electronically balanced inputs and outputs for improved slew rate and lower distortion over comparable transformer coupled circuits. Both the Jaguar Analog and Digital Audio Matrix Cards feature short circuit protection; which protects the analog and digital matrix cards by automatically protecting and recovering if a sustained short circuit to a signal or chassis ground occurs.

1.2 General Description Continued:

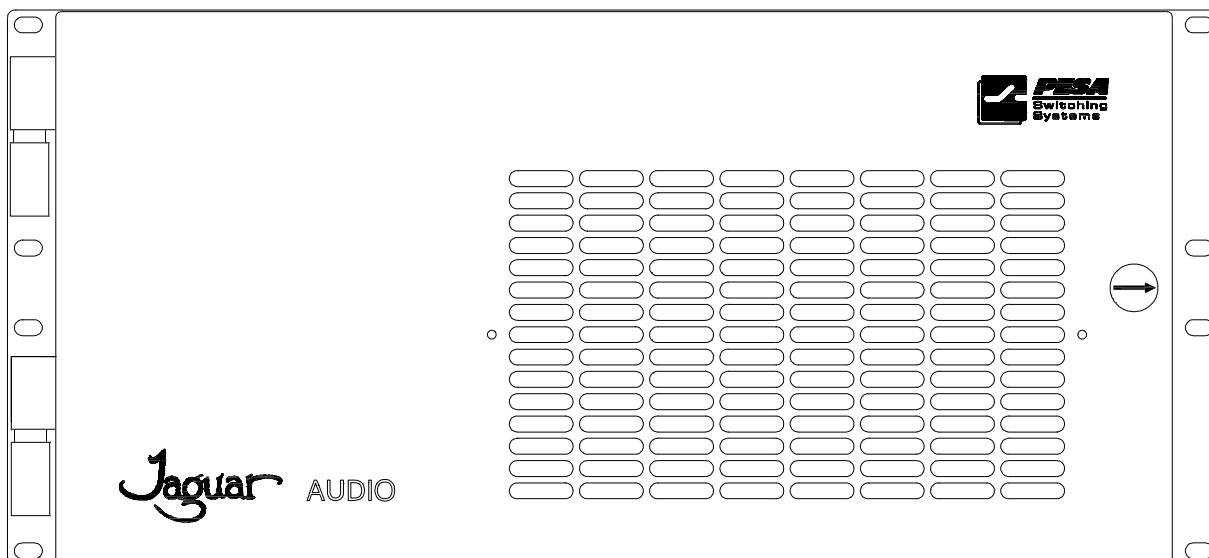


Figure 1-1 Jaguar Audio Routing Switcher Front View

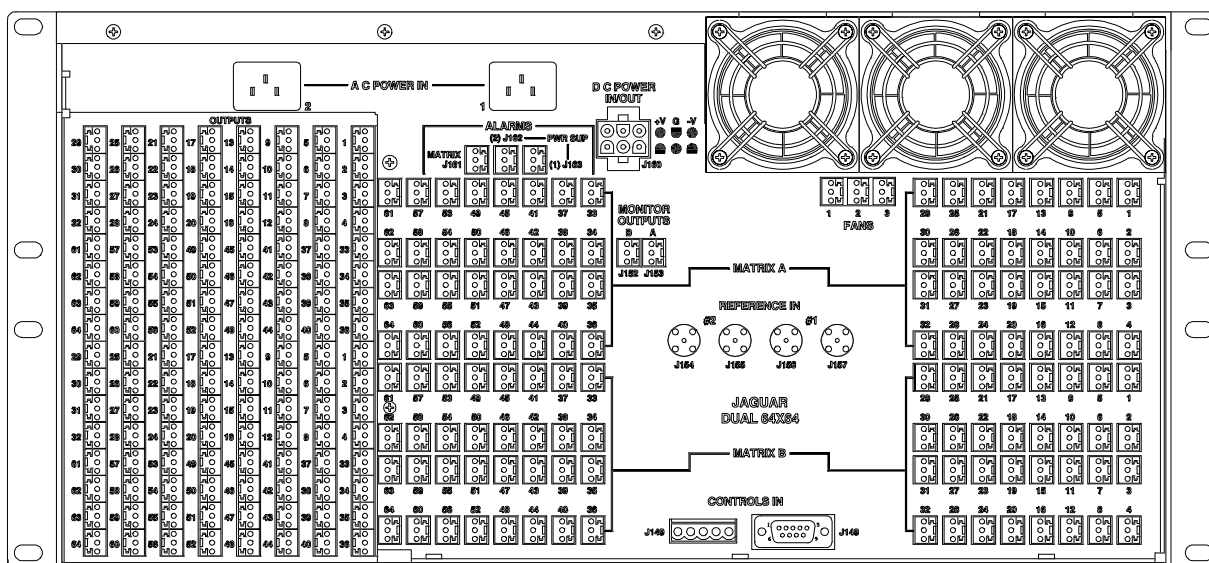


Figure 1-2 Jaguar Audio Routing Switcher Rear View (64X64)

1.3 Analog Audio Switcher Specifications

INPUT CHARACTERISTICS

Level	+28dBm Max
Impedance	$\geq 60K$ Ohms
Type	Electronically Balanced
Coupling	Direct (DC)
Common Mode Rejection Ratio	-80dB (50Hz to 60Hz)
Connector Type	3-Pin, 2-Part, Detachable Plug

OUTPUT CHARACTERISTICS

Level	+28dBm into 600 Ohms
Level Variation Between Inputs	± 0.1 dB
Impedance	≤ 67 Ohms
Type	Electronically Balanced
Number	Single on System
Coupling	Direct (DC)
DC on Outputs	± 20 mV
Minimum Load @ 28dBm	600 Ohms
Connector Type	3-Pin, 2-Part, Detachable Plug
Short Circuit Protection	Automatic

GAIN CHARACTERISTICS

Gain	Settable to ± 0.1 dB
Gain Stability	± 0.05 dB
Adjustment Range	Approx. ± 0.9 dB

FREQUENCY CHARACTERISTICS (REF. 1KHZ)

Sine Wave Response	$< \pm 0.1$ dB, 20Hz to 20KHz < -3.0 dB to 200KHz
Square Wave Response (Overshoot and Ringing)	$< \pm 5\%$, 3KHz 100uS Rise Time (20V P-P) $< \pm 10\%$, 100KHz 1uS Rise Time (5V P-P)

DISTORTION CHARACTERISTICS

Total Harmonic Distortion (THD)	$< 0.05\%$ @ 24dBm, 20Hz to 20KHz with 30KHz Filter
Intermodulation Distortion (IMD)	$< 0.01\%$ @ 24dBm, 20Hz to 20KHz

CROSSTALK CHARACTERISTICS

20Hz to 20KHz	< -92 dB (All Inputs and Outputs Hostile)
---------------	---

1.3 Analog Audio Switcher Specifications Continued:

HUM AND NOISE CHARACTERISTICS

Wideband 10Hz to 300KHz	<-73dBm
80KHz Low Pass Filter	<-78dBm
30KHz Low Pass Filter	<-86dBm
15KHz Low Pass Filter	<-89dBm
"A" Weighted	<-90dBm

SWITCHING CHARACTERISTICS

DC Offset	<10mV, Peak
Switching Transients (30KHz Low Pass Filter)	<20mV, Peak

1.4 Digital Audio Switcher Specifications

110 Ohm Twisted Pair

INPUT CHARACTERISTICS

Type	3-Pin, 2-Part, Detachable Plug
Impedance	110 Ohms, $\pm 20\%$ from 0.1MHz to 6MHz, Terminated
Signal Amplitude	0.3V - 7V P-P

OUTPUT CHARACTERISTICS

Type	3-Pin, 2-Part, Detachable Plug
Impedance	110 Ohms, $\pm 20\%$ from 0.1MHz to 6MHz
Signal Amplitude	2V - 7V P-P (Terminated into 110 Ohms)
Number	Single on System
Common Mode	Any common mode signal present at output terminals is ≥ 30 dB below output signal from DC to 6MHz.
Rise/Fall Times	5nS to 30nS Measured from 10% to 90% Amplitude Points
Jitter	$< \pm 20$ nS from Ideal Jitter Free Clock, When Output Signal is Measured at 50% Voltage Point
Standard	AES3-1993
Data Rate	DC to 20Mbit/s

1.5 Audio Frame Specifications

POWER REQUIREMENTS

Dual Range 115VAC $\pm 10\%$ and 220VAC $\pm 10\%$, 47Hz - 63Hz
(Auto Range)

IEC380 Standard Power Sockets

SAFETY STANDARDS

(APPLIED FOR AGENCY APPROVALS)

UL, CSA, VDE, and CE

RFI AND EMI STANDARDS

FCC

PHYSICAL CHARACTERISTICS

Height 8.75 Inches (5RU) (222mm)
Width 19 Inches (483mm)
Depth 16.25 Inches (?mm)
Weight 32lbs. (?kg)

OPERATIONAL ENVIRONMENT

Temperature 0-40°C
Humidity 0-90% Non-Condensing

1.6 PS130 Power Supply Specifications

INPUT POWER

Power 163 Watts
Rated Voltage Range 100 - 240 VAC
Operating Voltage Range 90 - 264 VAC
Frequency Range 47 - 63 Hz
Nominal Current 1.6A rms @ 115 VAC
0.78A rms @ 230 VAC
Peak Inrush Current TBD A peak @ 230 VAC
Efficiency 80%
Power Factor 0.9 Minimum

OUTPUT POWER

Maximum Total Power 130 Watts
Output Voltage +8.5VDC +6%; -0% @ 7.65A
-8.5VDC -6%, +0% @ 7.65A
High Frequency Noise Voltage (>10KHz) 20mV P-P
Ripple Voltage (2X Line Frequency) +200mV peak



2.1 Introduction

This section details the Jaguar Audio Routing Switcher installation procedures. The following topics are discussed:

- Receipt Inspection
- Unpacking
- Location
- Mounting
- Cabling
- Jaguar Frame Level Code (Strobe) Selection
- Jaguar Frame Input/Output Coding Selection
- Analog Audio Matrix Card Line and Sync Selection
- Digital Audio Matrix Card Line and Sync Selection
- Output Monitor Card Level Code (Strobe) Selection
- Output Monitor Card Input Coding Selection
- Output Monitor Card Output Coding Selection
- Output Monitor Card Line and Sync Selection
- PS130 Power Supply Installation
- Reference Card Installation
- 64X32 Matrix Card Installation
- Standard Audio Output Card Installation
- Optional Card Cage Installation
- Optional Output Combiner Card Installation
- Optional Output Monitor Card Installation
- Rear Panel Connectors
- Control Panel System Connections
- System Connections

General

If specified when ordered, the Jaguar Audio Frame will be configured for the intended system at the factory. Before attempting to install any frame, matrix card, controller card, or power supply; this section should be read carefully.

WARNING

PS130 POWER SUPPLIES CONTAIN ELECTRICAL SHOCK HAZARDS. THE PS130 POWER SUPPLIES SHOULD ONLY BE SERVICED BY QUALIFIED SERVICE PERSONNEL AND/OR QUALIFIED TECHNICIANS.

2.1 Introduction Continued:

NOTICE

BOTH THE ANALOG AND DIGITAL JAGUAR AUDIO ROUTING SWITCHERS CONTAIN STATIC SENSITIVE DEVICES. CARE SHOULD BE TAKEN WHEN IT IS NECESSARY TO HANDLE THE INTERNAL CIRCUIT CARDS. IT IS RECOMMENDED THAT A GROUND WRIST STRAP AND GROUNDING MAT BE USED BEFORE ATTEMPTING ANY EQUIPMENT INSTALLATIONS.

2.2 Receipt Inspection

The Jaguar Audio Routing Switcher was tested and inspected prior to leaving the factory. Upon receipt, inspect the equipment for shipping damage. If any damage is found, contact the carrier immediately and save all packing material.

2.3 Unpacking

The standard Jaguar Analog Audio Routing Switcher is comprised of a frame (which includes the Backplane), one Reference Interface Card, four 64X32 Analog Audio Matrix Cards, two Standard Audio Output Cards, and two PS130 Power Supplies. Optionally, an Analog Audio Output Monitor Card, a Card Cage, and eight Analog Audio Output Combiner Cards may also be included in the Jaguar Analog Audio Routing Switcher's configuration. See Table 2-1 for complete configuration details.

The standard Jaguar Digital Audio Routing Switcher is comprised of a frame (which includes the Backplane), one Reference Interface Card, four 64X32 Digital Audio Matrix Cards, two Standard Audio Output Cards, and two PS130 Power Supplies. Optionally, a Digital Audio Output Monitor Card, a Card Cage, and eight Digital Audio Output Combiner Cards may also be included in the Jaguar Digital Audio Routing Switcher's configuration. See Table 2-2 for complete configuration details.

Prior to discarding packing material compare the parts received against the packing list. Carefully inspect the layers of packing material for any components which may have been overlooked during the initial unpacking.

2.3 Unpacking Continued:

Table 2-1 Jaguar Analog Audio Configuration Table

JAGUAR ANALOG AUDIO ROUTING SWITCHER CONFIGURATION	
Audio Frame (Includes the Backplane)	1
Reference Interface Card	1
64X32 Analog Audio Matrix Cards	4
Standard Audio Output Cards	2
PS130 Power Supplies	2
Analog Audio Output Monitor Control Card (Optional)	1
Card Cage (Optional)	1
Analog Audio Output Combiner Cards (Optional)	8

Table 2-2 Jaguar Digital Audio Configuration Table

JAGUAR DIGITAL AUDIO ROUTING SWITCHER CONFIGURATION	
Audio Frame (Includes the Backplane)	1
Reference Interface Card	1
64X32 Digital Audio Matrix Cards	4
Standard Audio Output Cards	2
PS130 Power Supplies	2
Digital Audio Output Monitor Control Card (Optional)	1
Card Cage (Optional)	1
Digital Audio Output Combiner Cards (Optional)	8

2.4 Location

Both models of the Jaguar Audio Routing Switcher may be located anywhere power is available. However, units should be mounted as close as possible to their associated equipment to minimize cable runs. Forced air cooling is provided by fans located at the back of the units. Care should be taken not to block airflow around these fans. Installation should be in an area where the ambient temperature does not exceed 40°C (104°F) inside the equipment rack.

2.5 Mounting

Both the analog and digital models of the Jaguar Audio Routing Switcher are rack mountable in a standard 19" equipment rack. Sufficient space must be provided behind the equipment racks to allow for the control cables, signal cables, and power cables. All mounting holes should be utilized and mounting hardware tightened securely. As with all equipment installed in a rack, the bottom screw on each side should be installed before proceeding with the remainder of the screws. Then all screws should be securely tightened. Support the Jaguar Audio Routing Switcher's bottom while installing it in the rack.

To install a Jaguar Audio Routing Switcher in an equipment rack follow these steps:

1. Align the frame with the slotted opening in the rack.
2. Install the bottom screws first.
3. Install the two top screws
4. Install the other four screws in their allocated positions.
5. Tighten all of the screws until they are secure.

2.6 Cabling

Considerable weight will be added to the rear panel of the Jaguar Audio Routing Switchers by the control, signal, and power cables. Therefore, all cables should be strain relieved and secured to racks or other supporting structures. Failure to provide adequate cable support can result in cables separating from connectors.

If cable runs are to be stored under an elevated floor, they should be tied to the racks as a guide. If cables are run along the floor, do not allow them to lay in the work area behind the racks. Stepping or tripping on the cables may result in connections being pulled free or wire breakage inside the insulation. The Jaguar Audio Routing Switcher should be installed in the equipment rack prior to attaching cables.

Use the following rules when cabling the Jaguar Audio Routing Switcher:

2.6 Cabling Continued:

1. Lay all cables in their intended positions, separating control, audio, and power cables wherever possible.
2. Provide proper support for each cable during the cabling process. The use of tie-wraps is recommended.

2.7 Level Code (Strobe) Selection

The level (strobe) select switches, S3 (matrix A) and S6 (matrix B) are located on the inside of the Jaguar Audio Routing Switcher on upper middle and lower middle, respectively, of the backplane. For all switch position to binary code conversions refer to Table 2-3.

Table 2-3 Switch Position to Binary Code Conversion

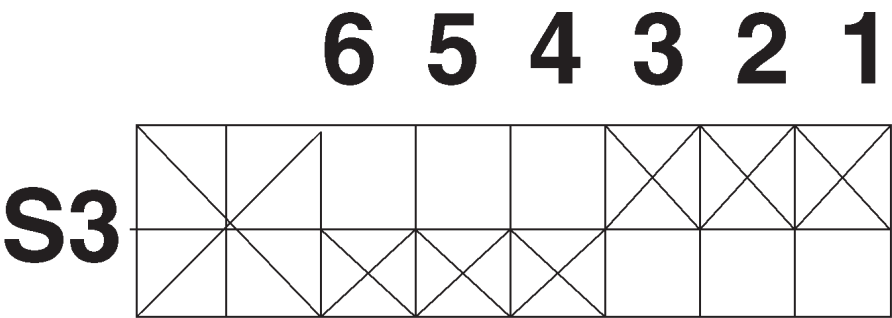
SWITCH POSITION TO BINARY CODE CONVERSION	
SWITCH POSITION	BINARY CODE
1	1
2	2
3	4
4	8
5	16
6	32
7	64
8	128

Switch numbers are 1 through 8 right to left. Switches 1-6 select level codes 1 through 62. **Switches 7 and 8 are not used – their position is unimportant.** Refer to Figure 2-1 for an example of level code selection and see Figure 2-2 for the physical location of the level code switches.

Physical 0 (Logical 1) = OFF (UP)
Physical 1 (Logical 0) = ON (DOWN)

2.7 Level Code (Strobe) Selection Continued:

SWITCH POSITIONS	6	5	4	3	2	1
STROBE LEVEL 1	0	0	0	0	0	1
STROBE LEVEL 2	0	0	0	0	1	0
STROBE LEVEL 3	0	0	0	0	1	1
STROBE LEVEL 4	0	0	0	1	0	0
STROBE LEVEL 5	0	0	0	1	0	1
STROBE LEVEL 6	0	0	0	1	1	0
STROBE LEVEL 7	0	0	0	1	1	1
UP TO....						
STROBE LEVEL 62	1	1	1	1	1	0



SHOWN WITH LEVEL CODE 7 SELECTED

Figure 2-1 Level Code Selection

2.8 Output/Input Code Selection

The input and output coding switches for matrix "A" (S2 and S1 respectively) are located on the inside of the Jaguar Audio Routing Switcher on the upper middle of the backplane. The input and output coding switches for matrix "B" (S5 and S4 respectively) are located on the inside of the Jaguar Audio Routing Switcher on the lower middle of the backplane. The input and output switch numbers run 1 to 8, right to left. For all switch position to binary code conversions refer to Table 2-3.

The output code switches (S1 for matrix "A" and S4 for matrix "B") select output codes 0-255 and the input code switches (S2 for matrix "A" and S5 for matrix "B") select input codes 0-255. Refer to Figures 2-3 and 2-4 for examples of input and output code selection and see Figure 2-2 for the physical location of the output and input code switches.

2.8 Output/Input Code Selection Continued:

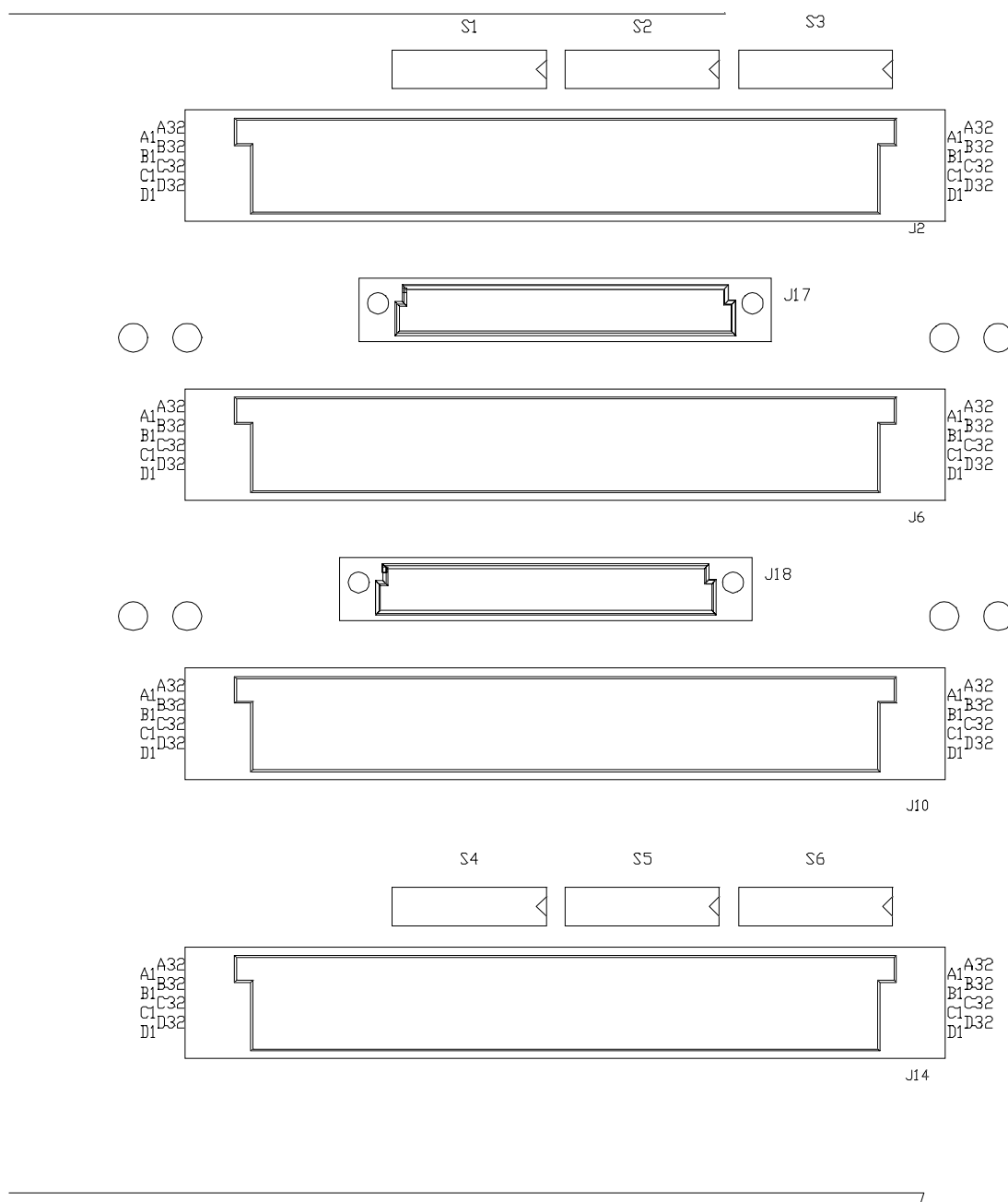


Figure 2-2 Coding Switch Locations

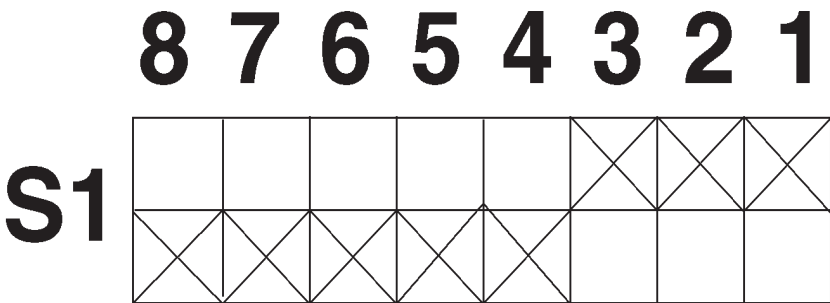
2.8 Input/Output Code Selection Continued:

Output Code

Physical 0 (Logical 1) = OFF (UP)
Physical 1 (Logical 0) = ON (DOWN)

NOTE: The following are logical selections. Output code 0 is all switches on (down) or all switches in the physical 1 position.

SWITCH POSITION	8	7	6	5	4	3	2	1	OUTPUTS
OUTPUT CODE 0	0	0	0	0	0	0	0	0	1-64
OUTPUT CODE 1	0	0	0	0	0	0	0	1	65-128
OUTPUT CODE 2	0	0	0	0	0	0	1	0	129-192
OUTPUT CODE 3	0	0	0	0	0	0	1	1	193-256
OUTPUT CODE 4	0	0	0	0	0	1	0	0	257-320
OUTPUT CODE 5	0	0	0	0	0	1	0	1	321-384
OUTPUT CODE 6	0	0	0	0	0	1	1	0	385-448
OUTPUT CODE 7	0	0	0	0	0	1	1	1	449-512
UP TO....									
OUTPUT CODE 14	0	0	0	0	1	1	1	0	961-1024



SHOWN WITH OUTPUT CODE 7 SELECTED

Figure 2-3 Output Code Selection

2.8 Input/Output Code Selection Continued:

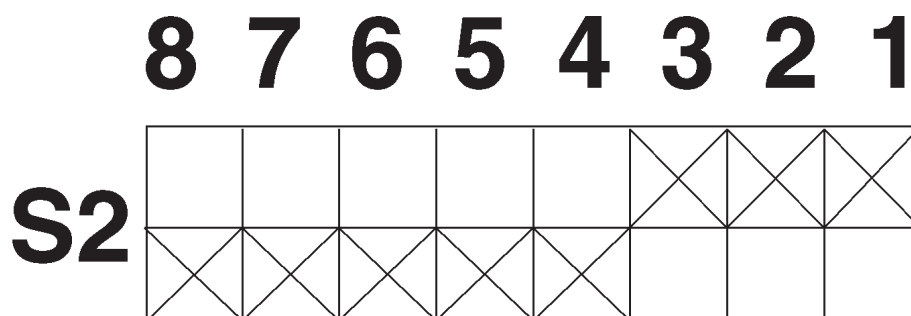
Input Code

Physical 0 (Logical 1) = OFF (UP)

Physical 1 (Logical 0) = ON (DOWN)

NOTE: The following are logical selections. Input code 0 is all switches on (down) or all switches in the physical 1 position.

SWITCH POSITION	8	7	6	5	4	3	2	1	INPUTS
INPUT CODE 0	0	0	0	0	0	0	0	0	1-64
INPUT CODE 1	0	0	0	0	0	0	0	1	65-128
INPUT CODE 2	0	0	0	0	0	0	1	0	129-192
INPUT CODE 3	0	0	0	0	0	0	1	1	193-256
INPUT CODE 4	0	0	0	0	0	1	0	0	257-320
INPUT CODE 5	0	0	0	0	0	1	0	1	321-384
INPUT CODE 6	0	0	0	0	0	1	1	0	385-448
INPUT CODE 7	0	0	0	0	0	1	1	1	449-512
UP TO....									
OUTPUT CODE 14	0	0	0	0	1	1	1	0	961-1024



SHOWN WITH INPUT CODE 7 SELECTED

Figure 2-4 Input Code Selection

2.9 Analog Audio Matrix Card Line and Sync Selection

The 64X32 Analog Audio Matrix Card's line and sync select switch, SW1, is located in the lower, right side of the 64X32 Analog Audio Matrix Card. Switch numbers are 1 through 4 top to bottom. Switch numbers 1 and 2 select the video line (sync 2) to trigger switches on and switch numbers 3 and 4 select the video line (sync 1) to trigger switches on. Refer to Figure 2-5 for examples of line and sync selection and see Figure 2-6 for the physical location of the 64X32 Analog Audio Matrix Card's line and sync select switch.

RIGHT = CLOSED
LEFT = OPEN

Switch 1	Switch 2	Switch 3	Switch 4	Sync 1 Line #	Sync 2 Line #
X	X	OPEN	OPEN	13	X
X	X	OPEN	CLOSED	12	X
X	X	CLOSED	OPEN	11	X
X	X	CLOSED	CLOSED	10	X
OPEN	OPEN	X	X	X	13
OPEN	CLOSED	X	X	X	12
CLOSED	OPEN	X	X	X	11
CLOSED	CLOSED	X	X	X	10

Figure 2-5 64X32 Analog Audio Matrix Card Line and Sync Selection

2.9 Analog Audio Matrix Card Line and Sync Sel. Cont:

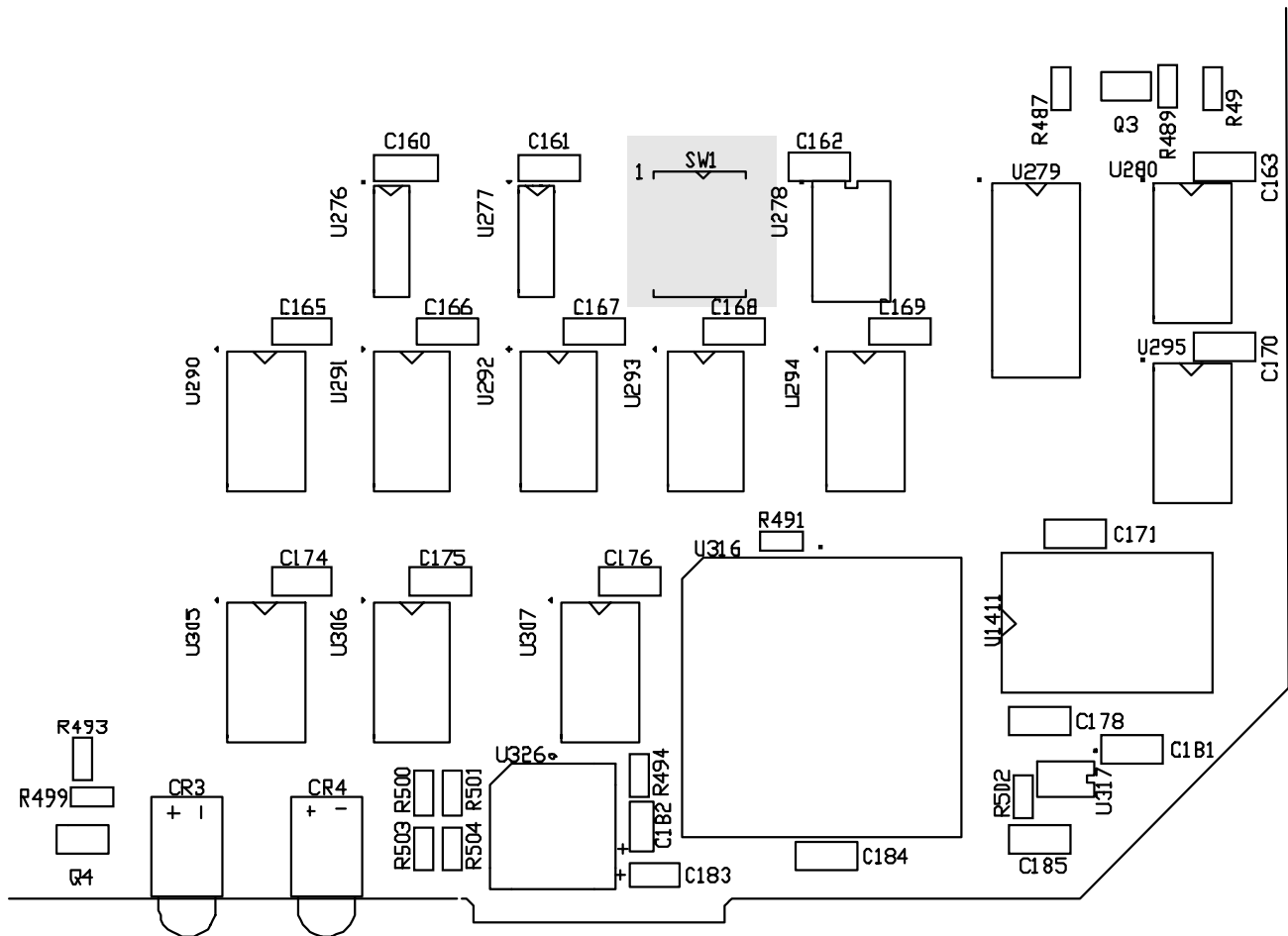


Figure 2-6 64X32 Analog Audio Matrix Card Line and Sync Switch Location

2.10 Digital Audio Matrix Card Line and Sync Selection

The 64X32 Digital Audio Matrix Card's line and sync select switch, S1, is located on the lower, right side of the 64X32 Digital Audio Matrix Card. Switch numbers are 1 through 4 top to bottom. Switch numbers 1 and 2 select the video line (sync 2) to trigger switches on and switch numbers 3 and 4 select the video line (sync 1) to trigger switches on. Refer to Figure 2-5 for examples of line and sync selection and see Figure 2-7 for the physical location of the 64X32 Digital Audio Matrix Card's line and sync select switch.

2.10 Digital Audio Matrix Card Line and Sync Sel. Cont:

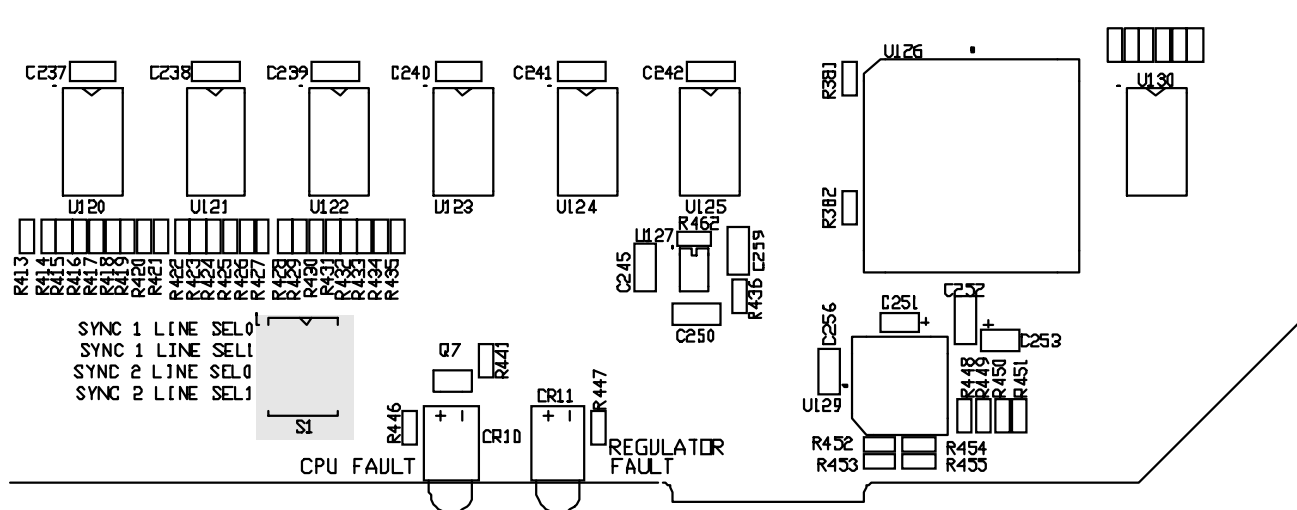
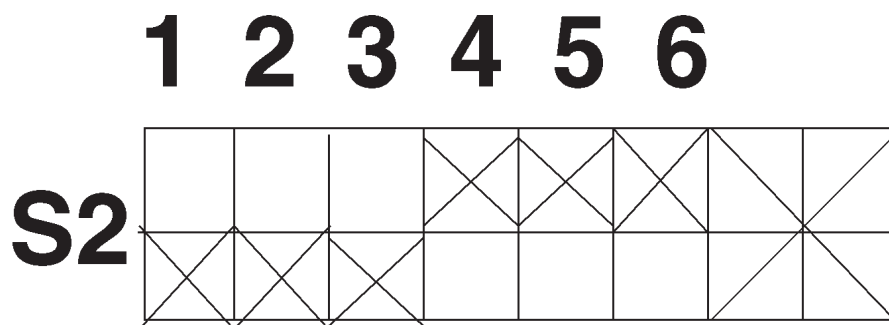


Figure 2-7 64X32 Digital Audio Matrix Card Line and Sync Switch Location

2.11 Output Monitor Card Level Code (Strobe) Selection

The Output Monitor Card's level (strobe) select switch, S3, (a binary coded switch) is located on the front edge of the Output Monitor Card. For all switch position to binary code conversions refer to Table 2-3.

Switch numbers are 1 through 8 left to right. Switches 1-6 select level codes 1 through 62. **Switches 7 and 8 are not used – their position is unimportant.** Refer to Figure 2-8 for an example of level code selection and see Figure 2-10 for the physical location of the level code switch.



SHOWN WITH LEVEL CODE 7 SELECTED

Figure 2-8 Output Monitor Card Level Code

2.11 Output Monitor Card Level Code Selection Cont:

Physical 0 (Logical 1) = OFF (DOWN)

Physical 1 (Logical 0) = ON (UP)

SWITCH POSITIONS	1	2	3	4	5	6
STROBE LEVEL 1	1	0	0	0	0	0
STROBE LEVEL 2	0	1	0	0	0	0
STROBE LEVEL 3	1	1	0	0	0	0
STROBE LEVEL 4	0	0	1	0	0	0
STROBE LEVEL 5	1	0	1	0	0	0
STROBE LEVEL 6	0	1	1	0	0	0
STROBE LEVEL 7	1	1	1	0	0	0
UP TO....						
STROBE LEVEL 62	0	1	1	1	1	1

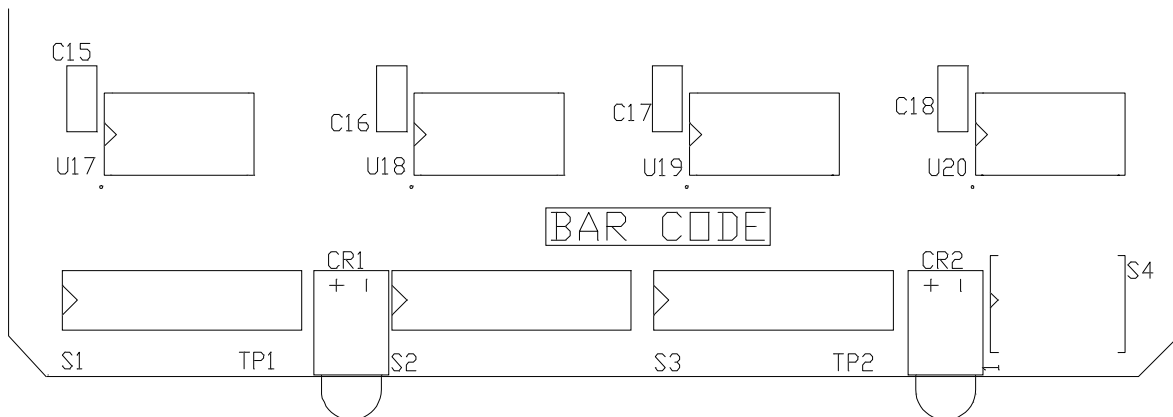


Figure 2-9 Output Monitor Card Switch Locations

2.12 Output Monitor Card Input/Output Coding Select.

The Output Monitor Card's input and output code select switches are located on the front edge of the Output Monitor Card. For all switch position to binary code conversions refer to Table 2-3.

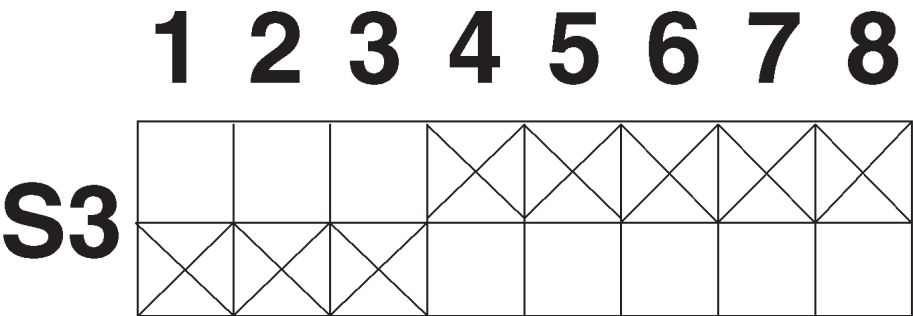
The input and output switch numbers run 1 to 8, left to right. Switch S2 (input code switch) selects input codes 0-255 and switch S1 (output code switch) selects output codes 0-255. Refer to Figures 2-10 and 2-11 for examples of input and output code selection and see Figure 2-9 for the physical location of the output and input code switches.

Input Code

Physical 0 (Logical 1) = OFF (DOWN)
Physical 1 (Logical 0) = ON (UP)

NOTE: The following are logical selections. Input code 0 is all switches on (up) or all switches in the physical 1 position.

SWITCH POSITION	1	2	3	4	5	6	7	8	INPUTS
INPUT CODE 0	0	0	0	0	0	0	0	0	1-64
INPUT CODE 1	1	0	0	0	0	0	0	0	65-128
INPUT CODE 2	0	1	0	0	0	0	0	0	129-192
INPUT CODE 3	1	1	0	0	0	0	0	0	193-256
INPUT CODE 4	0	0	1	0	0	0	0	0	257-320
INPUT CODE 5	1	0	1	0	0	0	0	0	321-384
INPUT CODE 6	0	1	1	0	0	0	0	0	385-448
INPUT CODE 7	1	1	1	0	0	0	0	0	449-512
UP TO....									
OUTPUT CODE 14	0	0	0	0	1	1	1	0	961-1024



SHOWN WITH INPUT CODE 7 SELECTED

Figure 2-10 Output Monitor Card Input Code Selection

2.12 Output Monitor Card In/Out Coding Select. Cont:

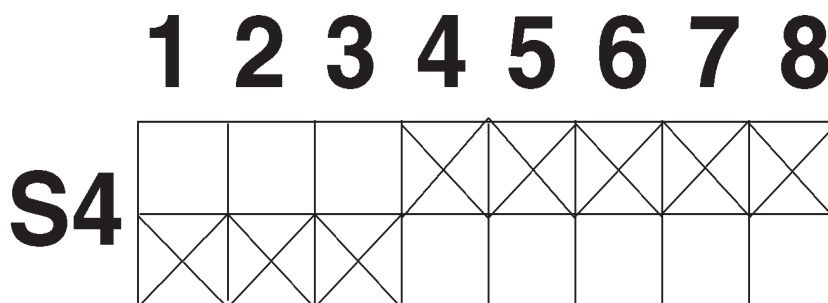
Output Code

Physical 0 (Logical 1) = OFF (DOWN)

Physical 1 (Logical 0) = ON (UP)

NOTE: The following are logical selections. Output code 0 is all switches on (up) or all switches in the physical 1 position.

SWITCH POSITION	1	2	3	4	5	6	7	8	OUTPUT
OUTPUT CODE 0	0	0	0	0	0	0	0	0	0
OUTPUT CODE 1	1	0	0	0	0	0	0	0	1
OUTPUT CODE 2	0	1	0	0	0	0	0	0	2
OUTPUT CODE 3	1	1	0	0	0	0	0	0	3
OUTPUT CODE 4	0	0	1	0	0	0	0	0	4
OUTPUT CODE 5	1	0	1	0	0	0	0	0	5
OUTPUT CODE 6	0	1	1	0	0	0	0	0	6
OUTPUT CODE 7	1	1	1	0	0	0	0	0	7
UP TO....									
OUTPUT CODE 255	1	1	1	1	1	1	1	1	255



SHOWN WITH OUTPUT CODE 7 SELECTED

Figure 2-11 Output Monitor Card Output Code Selection

2.13 Output Monitor Card Line and Sync Selection

The Output Monitor Card's line and sync select switch, S4, is located on the right, front edge of the Output Monitor Card. Switch numbers are 1 through 4 left to right. Switches 1 and 2 select the video sync line to trigger switches on. Switch 3 selects the sync signal which will be used to time switch commands. **Switch 4 is not used – its position is unimportant.** Refer to Figure 2-12 for examples of line and sync selection and see Figure 2-9 for the physical location of the Output Monitor Card's line and sync select switch.

UP = CLOSED
DOWN = OPEN

LINE SEL 1	LINE SEL 0	SWITCH LINE
OPEN	OPEN	LINE 13
OPEN	CLOSED	LINE 12
CLOSED	OPEN	LINE 11
CLOSED	CLOSED	LINE 10

SYNC1/SYNC2	SELECTED SYNC
OPEN	SYNC2
CLOSED	SYNC1

Figure 2-12 Output Monitor Card Line and Sync Selection

2.14 PS130 Power Supply Installation

The PS130 Power Supplies are installed in the upper, right-hand portion of the front of the Jaguar Audio Routing Switcher. The Jaguar Audio Routing Switcher is designed for the internal installation of up to two PS130 Power Supplies.

WARNING

PS130 POWER SUPPLIES CONTAIN ELECTRICAL SHOCK HAZARDS. THE PS130 POWER SUPPLIES SHOULD ONLY BE SERVICED BY QUALIFIED SERVICE PERSONNEL AND/OR QUALIFIED TECHNICIANS.

2.14 PS130 Power Supply Installation Continued:

To install the PS130 Power Supplies in the Jaguar Audio Routing Switcher take the following steps while referring to the Jaguar Audio Mainframe configuration drawing on page 6.2:

1. Align the shield plate on the first PS130 Power Supply with the left-hand set of circuit card guides in the upper, right-hand portion of the front of the Jaguar Audio Routing Switcher (circuit side up).
2. Carefully push the PS130 Power Supply into the Jaguar Audio Routing Switcher until the power supply connectors make initial contact with the backplane connectors. At this point, firmly but carefully continue pushing the PS130 Power Supply into the frame while making sure the connectors are properly aligned. Continue pushing the power supply until the slide lock snaps into place and the connectors are firmly mated.
3. Align the shield plate on the next (redundant) PS130 Power Supply with the next set of circuit card guides in the upper, right-hand portion of the front of the Jaguar Audio Routing Switcher and repeat step 2.
4. Repeat step 3 until all of the PS130 Power Supplies are installed in the Jaguar Audio Frame.

2.15 Reference Interface Card Installation

The Reference Interface Card is installed in the lower set of the stand-off circuit card guides (between card slots 2 and 3) in the Jaguar Audio Routing Switcher. To install the Reference Interface Card in the Jaguar Audio Routing Switcher take the following steps while referring to the Jaguar Audio Mainframe configuration drawing on page 6.2:

1. Align Reference Interface Card with the lower set of stand-off circuit card guides in the Jaguar Audio Routing Switcher (component side up).

2.15 Reference Interface Card Installation Continued:

2. Carefully push the Reference Interface Card into the Jaguar Audio Routing Switcher until the circuit card connectors make initial contact with the backplane connectors. At this point, firmly but carefully continue pushing the interface card into the frame while making sure the connectors are properly aligned. Continue pushing the interface card until it is in place and the connectors are firmly mated.

2.16 64X32 Matrix Card Installation

The 64X32 Matrix Cards are installed in the lower portion of the front of the Jaguar Audio Routing Switcher. The Jaguar Audio Routing Switcher is designed for the installation of up to four 64X32 Matrix Cards.

To install the 64X32 Matrix Cards in the Jaguar Audio Routing Switcher take the following steps while referring to the Jaguar Audio Mainframe configuration drawing on page 6.2:

1. Align the shield plate on the first 64X32 Matrix Card with the upper set of circuit card guides in the lower portion of the front of the Jaguar Audio Routing Switcher.
2. Carefully push the 64X32 Matrix Card into the Jaguar Audio Routing Switcher until the matrix card connectors make initial contact with the backplane connectors. At this point, firmly but carefully continue pushing the 64X32 Matrix Card into the frame while making sure the connectors are properly aligned. Continue pushing the matrix card until the connectors are firmly mated. Make sure the circuit card extractors are engaged in the slots in the sides of the frame.
3. Align the shield plate on the next 64X32 Matrix Card with the next available set of circuit card guides in the lower portion of the front of the Jaguar Audio Routing Switcher and repeat step 2.
4. Repeat step 3 until all of the 64X32 Matrix Cards are installed in the Jaguar Audio Frame.

2.17 Standard Audio Output Card Installation

The Standard Audio Output Cards are installed on the left-hand side of the rear of the Jaguar Audio Routing Switcher. The Jaguar Audio Routing Switcher is designed for the installation of two Standard Audio Output Cards. To install the Standard Audio Output Cards take the following steps while referring to the Jaguar Audio Mainframe configuration drawings on pages 6.3 and 6.4:

1. Align the first Standard Audio Output Card with the right-hand group of 15-pin output connectors on the left-hand side of the rear of the Jaguar Audio Routing Switcher.
2. Carefully push the Standard Audio Output Card onto the rear panel of the Jaguar Audio Routing Switcher until the circuit card connectors make initial contact with the 15-pin backplane connectors. Continue pushing the output card until it is in place and the connectors are firmly mated.
3. Align the second Standard Audio Output Card with the left-hand group of 15-pin output connectors on the left-hand side of the rear of the Jaguar Audio Routing Switcher and repeat step 2.
4. Once both Standard Audio Output Cards are installed, attach them to the Jaguar Audio Routing Switcher's rear panel using Phillips head screws.
5. Once the Standard Audio Output Cards are attached to the rear panel, install the Standard Audio Output Card metal work over the Standard Audio Output Cards and attach it to the rear of the Jaguar Frame and to the card cage extension using four Phillips head screws.

2.18 Optional Card Cage Installation

The Card Cage must be installed prior to the installation of any optional Audio Output Combiner Cards. The Card Cage is designed to accommodate the installation of up to eight Audio Output Combiner Cards. To install the Card Cage take the following steps:

1. Attach the top piece of the Card Cage to the side piece of the Card Cage to form an inverted "L" using two Phillips head screws.

2.18 Optional Card Cage Installation Continued:

2. Align the inverted "L" assembly to the corresponding screw holes on the rear of the Jaguar Audio Frame and on the card cage extension.
3. Once the inverted "L" assembly is aligned with the corresponding screw holes, attach it to the rear of the Jaguar Audio Frame and to the card cage extension using six Phillips head screws.

2.19 Optional Output Combiner Card Installation

The optional Output Combiner Cards are installed in the left-hand portion of the rear of the Jaguar Audio Routing Switcher inside the optional Card Cage. The optional Card Cage is designed for the installation of up to eight Output Combiner Cards.

To install the Output Combiner Cards take the following steps while referring to the Jaguar Audio Mainframe configuration drawings on pages 6.3 and 6.4:

1. Align the first Output Combiner Card with the right-hand of circuit card guides in the Card Cage (component side to the left).
2. Carefully push the Output Combiner Card into the Card Cage until the circuit card connectors make initial contact with the backplane connectors. At this point, firmly but carefully continue pushing the combiner card into the card cage while making sure the connectors are properly aligned. Continue pushing the combiner card until it is in place and the connectors are firmly mated.
3. Once the Output Combiner Card is installed in the Card Cage, install the appropriate combiner card locking brace. To install the combiner card locking brace align the tab end of the locking brace with the slot provided on the card cage extension and insert the tab into the slot. Once the tab is inserted into the appropriate slot, align the screw hole on upper end of the locking brace with the appropriate screw hole on the Card Cage. Once the locking brace screw hole is aligned with the screw hole on the Jaguar Audio Frame, attach the combiner card locking brace to the Card Cage using a pan-head Phillips screw.
4. Align the next Output Combiner Card with the next set of circuit card guides in the Card Cage of the rear of the Jaguar Audio Routing Switcher and repeat steps 2 and 3.

2.19 Optional Output Combiner Card Installation Cont:

5. Repeat steps 2 thru 4 until all of the Output Combiner Cards are installed in the Card Cage.

2.20 Optional Output Monitor Control Card Installation

The optional Output Monitor Control Card is installed in the upper set of stand-off circuit card guides (between circuit card slots 1 and 2) in the front of the Jaguar Audio Routing Switcher. The Jaguar Audio Routing Switcher is designed for the installation of one Output Monitor Card.

To install the Output Monitor Control Card in the Jaguar Audio Routing Switcher take the following steps while referring to the Jaguar Audio Mainframe configuration drawing on page 6.3:

1. If necessary, carefully remove the upper two audio matrix cards to gain access to the upper set of stand-off circuit guides.
2. Align the Output Monitor Control Card with the upper set of stand-off circuit card guides in the Jaguar Audio Routing Switcher (component side up).
3. Carefully push the Output Monitor Control Card into the Jaguar Audio Routing Switcher until the circuit card connectors make initial contact with the backplane connectors. At this point, firmly but carefully continue pushing the interface card into the frame while making sure the connectors are properly aligned. Continue pushing the interface card until it is in place and the connectors are firmly mated.
4. If any audio matrix cards were removed to install the Output Monitor Control Card, reinstall them at this time using the installation instructions found in Section 2.17.

2.21 Rear Panel Connectors

These manual subsections discuss the various system connectors found on the rear of a fully configured Jaguar Audio Routing Switcher. Refer to Figure 2-13 and to Jaguar Audio Mainframe Assembly configuration drawing on page 6.3 for visual references.

2.21 Rear Panel Connectors Continued:

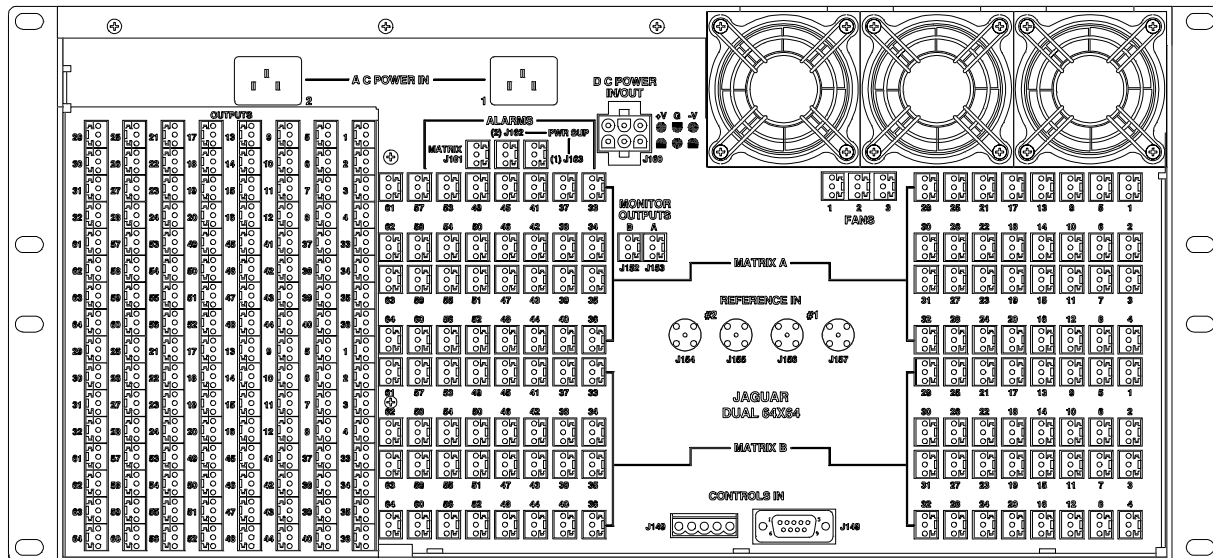


Figure 2-13 Jaguar Audio Routing Switcher Rear View

DC Power In/Out Connector

Power can be supplied to the Jaguar Audio Routing Switcher by the use of an externally mounted power supply or by the use of internal PS130 Power Supplies. The DC Power In/Out Connector can be used as DC power input (external power supply) or as DC power output (internal power supplies) to allow the Jaguar Audio Routing Switcher to power additional equipment items. External power supplies must be diode isolated from the internal power supplies. 1N5821 or equivalent type diodes may be used for this purpose. See Figure 2-14 for an external power supply connection guide. **NOTE:** An inline fuse should be used to prevent damage to the frame.

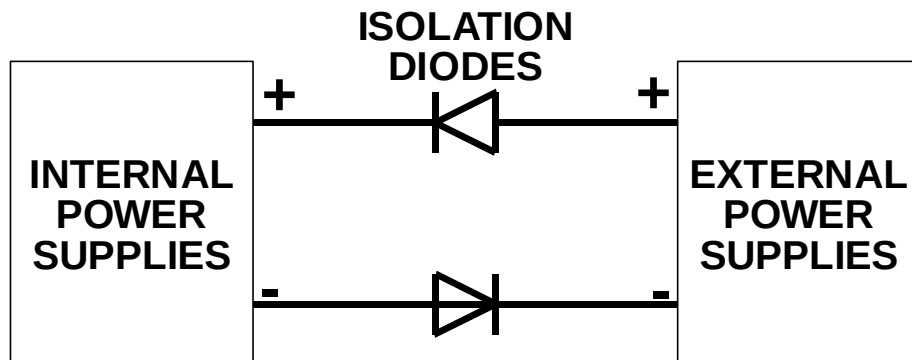


Figure 2-14 External Power Supply Isolation

2.21 Rear Panel Connectors Continued:

Fan Connectors

The fan connectors provide DC power to the Jaguar Audio Routing Switcher's chassis fans.

AC Power Connectors

The AC Power Connector enables the connection of the AC line to the Jaguar Audio Routing Switcher. The AC line input voltage can be from 100 - 240 VAC and the AC line frequency range can be from 47 - 63 Hz.

System Alarm Connectors

Matrix Card Alarm Connector (MATRIX)

An alarm circuit has been provided in the circuitry of each of the 64X32 Audio Matrix Cards. This circuit acts as a switch to trigger an optional external alarm in the event of a matrix card CPU fault or failure. The controller alarm circuit supplies a "contact" closure but does not provide a voltage to the external alarm. The alarm circuit has 10mA current limit. The Matrix Card Alarm Connector allows connection of the Matrix Card Alarm.

Power Supply Alarm Connectors (PWR)

An alarm circuit has been provided in the circuitry of each of the PS130 Power Supplies. This circuit acts as a switch to trigger an optional external alarm in the event of a failure in the power supply or of the AC line source. The alarm circuit supplies a contact closure but does not provide a voltage to the external alarm and has a 10mA current limit. The Power Supply Alarm Connectors allow connection of the Power Supply Alarms.

Control (PRC) Connectors (CONTROLS IN)

The 9-Pin Control Connector provides for the connection of an optional external controller to the Jaguar Audio Routing Switcher. The 5-Pin Control Connector provides for the connection of additional Jaguar Audio Routing Switchers to form a larger switching matrix. Both of the control connectors allow for the bi-directional transmission of data.

2.21 Rear Panel Connectors Continued:

Control (PRC) Connectors (CONTROLS IN) Continued:

The pinout of the 9-Pin Control Connector is as follows:

PIN NO.	DESCRIPTION
1	GROUND
2	RX+ DATA
3	TX- DATA
4	GROUND
5	SPARE
6	GROUND
7	RX- DATA
8	TX+ DATA
9	GROUND

The pinout of 5-Pin Control Connector is as follows:

PIN NO.	DESCRIPTION
1	TX+ DATA
2	TX- DATA
3	GROUND
4	RX+ DATA
5	RX- DATA

For PRC communications, the user should use a direct pin-for-pin cable for interfacing between the control connectors and the peripheral equipment. DO NOT use a "NULL MODEM" cable.

Monitor Output Connectors

The Monitor Output Connectors provide a test signal which will be utilized to monitor Jaguar Audio Routing Switcher activity when an optional monitor card and output combiner cards are installed in the Jaguar Frame.

Reference (Sync) Connectors (1 and 2)

The sync connectors are used to connect an external sync signal to the Jaguar Audio Routing Switcher. The sync signal may be either a color black or composite sync signal. The use of an external sync signal allows switch changes to be accurately timed in the vertical interval. The sync connectors are loop-thru connectors and must be terminated with 75 ohms if looping is not used.

2.21 Rear Panel Connectors Continued:

Audio Input Connectors

There are 64 matrix "A" and 64 matrix "B" audio input connectors located on the rear of the Jaguar Audio Routing Switcher when the Jaguar Frame is configured as a 64X64 stereo routing switcher. When the Jaguar Frame is configured as a 128X64 mono routing switcher matrix "A" inputs function as inputs 1-64 and matrix "B" inputs function as inputs 65-128. These connectors allow the connection of the audio sources to the Jaguar Audio Routing Switcher.

The pinout of the audio input connectors is as follows:

PIN NO.	DESCRIPTION
1	SIGNAL +
2	SIGNAL -
3	SHIELD

Audio Output Connectors

There are 64 matrix "A" and 64 matrix "B" outputs on the rear of the Jaguar Audio Routing Switcher. These connectors allow the connection of the audio destinations to the Jaguar Audio Routing Switcher.

The pinout of the audio output connectors is as follows:

PIN NO.	DESCRIPTION
1	SIGNAL +
2	SIGNAL -
3	SHIELD

2.22 System Connections

Once the Jaguar Audio Routing Switcher is installed in the equipment rack and the Standard Output Cards or the optional Output Combiner Cards are installed; system connections can be made. Use the following guide to insure that the Jaguar Audio Routing Switcher system interconnections are properly connected and that the control, power, sync, and audio cables are correctly installed.

2.22 System Connections Continued:

Connection Guide

1. Connect the external sync sources to the reference inputs using Belden 8281 coaxial cable or equivalent. Be sure to properly terminate the external sync sources into 75 ohms.
2. If an additional Jaguar Routing Switcher is to be utilized as part of the switching matrix, connect the 5-Pin Control Connector on the primary Jaguar Routing Switcher to 5-Pin Control Connector on the other Jaguar Audio Routing Switcher using a 5-pin cable.
3. Connect the external controller (a stand-alone System Controller or a control connection from a Jaguar Video Frame) to the 9-Pin Control Connector using a 9-pin RS232 cable or the 5-Pin Control Connector using 5-pin ribbon cable.
4. If desired, connect external alarms to the Alarm Connectors.
5. Connect the audio sources to the audio inputs.
6. Connect the audio outputs to the audio destinations.

3.1 Introduction

This section details the Jaguar Audio Routing Switcher operational procedures. The operation of the Jaguar Audio Routing Switcher consists of periodically monitoring the power supply and circuit card LEDs. The following topics are discussed:

- PS130 Power Supply Operation
- Dual Reference Interface Card Operation
- Analog Audio Matrix Card Operation
- Digital Audio Matrix Card Operation
- Optional Audio Output Combiner Card Operation
- Optional Audio Output Monitor Card Operation

WARNING

PS130 POWER SUPPLIES CONTAIN ELECTRICAL SHOCK HAZARDS. THE PS130 POWER SUPPLIES SHOULD ONLY BE SERVICED BY QUALIFIED SERVICE PERSONNEL AND/OR QUALIFIED TECHNICIANS.

3.2 PS130 Power Supply Operation

The operation of the PS130 Power Supplies consists of periodically monitoring each power supply's LED to insure that each power supply is functioning properly.

3.3 Dual Reference Interface Card Operation

The operation of the Dual Reference Interface Card consists of periodically monitoring the interface card LEDs. The interface card LEDs and their proper indication is discussed in the following manual sub-sections.

Sync #1A Fail LED (Red)

The Sync #1A Fail LED (CR11), located on the front edge of the dual interface card, is utilized to visually indicate that external sync number one "A" has failed or is missing. Normally, the Sync #1A Fail LED should be extinguished.

3.3 Dual Reference Interface Card Operation Cont:

Sync #2A Fail LED (Red)

The Sync #2A Fail LED (CR10), located on the front edge of the interface card, is utilized to visually indicate that external sync number two "A" has failed or is missing. Normally, the Sync #2A Fail LED should be extinguished.

Sync A Power OK LED (Green)

The Sync A Power OK LED (CR9) on the front edge of the interface card is utilized to visually indicate that the proper power supply voltage is being supplied to the card. A decrease in the brightness of this LED indicates an approximate 12% drop in voltage and should be checked. A 25% drop in voltage will cause the LED to extinguish.

Sync #1B Fail LED (Red)

The Sync #1B Fail LED (CR12), located on the front edge of the interface card, is utilized to visually indicate that external sync number one "B" has failed or is missing. Normally, the Sync #1 Fail LED should be extinguished.

Sync #2B Fail LED (Red)

The Sync #2B Fail LED (CR13), located on the front edge of the interface card, is utilized to visually indicate that external sync number two "B" has failed or is missing. Normally, the Sync #2 Fail LED should be extinguished.

Sync B Power OK LED (Green)

The Sync B Power OK LED (CR14) on the front edge of the interface card is utilized to visually indicate that the proper power supply voltage is being supplied to the card. A decrease in the brightness of this LED indicates an approximate 12% drop in voltage and should be checked. A 25% drop in voltage will cause the LED to extinguish.

3.4 Analog Audio Matrix Card Operation

The operation of the Jaguar Analog Audio Matrix Card consists of periodically monitoring the matrix card's LEDs. The matrix card LEDs and their proper indications are discussed in the following manual sections.

Regulator Fault LED (Red)

The Regulator Fault LED (CR4) is utilized to visually indicate a regulator problem on the matrix card. A problem with the power supply or regulator circuits will cause this LED to light. However, in the event of a total power outage this LED will be rendered inoperable.

CPU Fault LED (Red)

The CPU Fault LED (CR3) is utilized to visually indicate a microprocessor problem on the matrix card. A problem with the matrix card CPU or controller circuits will cause this LED to light.

Power OK LED (Green)

The Power OK LED (CR2) on the front edge of the matrix card is utilized to visually indicate that the proper power supply voltage is being supplied to the card. A decrease in the brightness of this LED indicates an approximate 12% drop in voltage and should be checked. A 25% drop in voltage will cause the LED to extinguish.

3.5 Digital Audio Matrix Card Operation

The operation of the Jaguar Digital Audio Matrix consists of periodically monitoring the matrix card's LEDs. The matrix card LEDs and their proper indications are discussed in the following manual sub-sections.

Regulator Fault LED (Red)

The Regulator Fault LED (CR11) is utilized to visually indicate a regulator problem on the matrix card. A problem with the power supply or regulator circuits will cause this LED to light. However, in the event of a total power outage this LED will be rendered inoperable.

CPU Fault LED (Red)

The CPU Fault LED (CR10) is utilized to visually indicate a microprocessor problem on the matrix card. A problem with the matrix card CPU or controller circuits will cause this LED to light.

3.5 Digital Audio Matrix Card Operation Continued:

Power OK LED (Green)

The Power OK LED (CR9) on the front edge of the matrix card is utilized to visually indicate that the proper power supply voltage is being supplied to the card. A decrease in the brightness of this LED indicates an approximate 12% drop in voltage and should be checked. A 25% drop in voltage will cause the LED to extinguish.

3.6 Optional Output Monitor Control Card Operation

The operation of the optional Analog Audio Output Monitor Card consists of periodically monitoring the circuit card LEDs. The monitor card LEDs and their proper indications are discussed in the following manual sub-sections.

Power OK LED (Green)

The Power OK LED (CR1) on the front edge of the matrix card is utilized to visually indicate that the proper power supply voltage is being supplied to the card. A decrease in the brightness of this LED indicates an approximate 12% drop in voltage and should be checked. A 25% drop in voltage will cause the LED to extinguish.

CPU Fault LED (Red)

The CPU Fault LED (CR2) is utilized to visually indicate a microprocessor problem on the monitor card. A problem with the CPU or controller circuits will cause this LED to light.

4.1 Introduction

This section contains the functional descriptions of the major circuit cards which can comprise the configuration of the Jaguar Audio Switchers (both analog and digital versions). Please note that your Jaguar Audio Switcher configuration may or may not contain all of the listed circuit cards. The circuit cards described in this manual sections are as follows:

- Backplane
- PS130 Power Supply
- Single Reference Interface Card
- 64X32 Analog Audio Matrix Card
- 64X32 Digital Audio Matrix Card
- Standard Output Card
- Optional Analog Output Combiner Card
- Optional Output Monitor Control Card

4.2 Backplane

The Jaguar Audio Backplane is responsible for providing passive distribution of the audio input signals to the audio matrix cards and for providing distribution of the audio output signals to the standard output cards or the optional output combiner cards. The backplane is also responsible for distribution of power from the power supplies to the Jaguar Audio Frame's circuit cards and to the chassis fans. An additional function of the backplane is to distribution control and communication signals to and from the matrix cards, monitor control card (if installed), and control ports. The power supply alarm signals and the matrix card alarm signals are also distributed by the backplane. The backplane are provides the passive distribution of the reference input signals (sync signals). Binary coded DIP switches on the backplane allow the selection of level, input, and output codes for both the matrix "A" and matrix "B" audio matrix cards.

4.3 PS130 Power Supply

The PS130 Power Supply is responsible for providing an unregulated $\pm 8.5\text{VDC}$ @ 7.65A at a maximum power rating of 130 watts to the Jaguar Frame. The PS130 Power Supply is designed to operate within output specifications with AC line voltage ranges from 100 - 240 VAC and with AC line frequency ranges from 47 - 63 Hz automatically. 3.15A 250VAC AC line fuses provide over-load protection.

NOTE

There are no user serviceable parts contained in the PS130 Power Supply. All service performed on the PS130 Power Supply should be accomplished by qualified service personnel. **The internal circuits of the PS130 Power Supply contain dangerous voltage and current levels.**

4.4 Dual Reference Interface Card

The Dual Reference Interface Card is responsible for providing sync signals to the Jaguar Audio Frame. The sync signals provided by the Dual Reference Interface Card can either be derived from composite sync or color black signals or generated internally by the Dual Reference Interface Card. The Dual Reference Interface Card's electronic circuits contain two complete sync separating and generating networks (one is primary, the other one is backup) which are discussed in the following manual sub-sections. Please note the primary sync circuit operates until the output signal from the card is lost, then the card switches to the backup circuit.

Primary

U15 provides regulated power, +5V, for the Dual Reference Interface Card's matrix "A" electronic circuits. U1 and U3 (sync separators) along with their associated components form the Dual Reference Interface's matrix "A" sync separator network. U1 and U2 can separate the sync signal from either composite sync or color black video signals. Once the sync signal is separated, it is provided to U7 (inverter) and to U9 (quad two-input or gate). U7 and U9 along with U11 form a gating network that passes the external sync signal to the Jaguar Audio Frame when an external sync signal is present.

If no external sync is supplied, the gating network will pass the internally generated sync signal to the Jaguar Audio Frame. Also when the external sync fails the gating network will illuminate the LED (CR10 or CR11) corresponding to the failed sync signal. U5 working in conjunction with U12 generate the matrix "A" internal sync signal.

4.4 Dual Reference Interface Card Continued:

Backup

U16 provides regulated power, +5V, for the Dual Reference Interface Card's matrix "B" electronic circuits. U2 and U4 (sync separators) along with their associated components form the Dual Reference Interface's matrix "B" sync separator network. U2 and U4 can separate the sync signal from either composite sync or color black video signals. Once the sync signal is separated, it is provided to U8 (inverter) and to U10 (quad two-input or gate). U8 and U10 along with U14 form a gating network that passes the external sync signal to the Jaguar Audio Frame when an external sync signal is present.

If no external sync is supplied the gating network will pass the internally generated sync signal to the Jaguar Audio Frame. Also when the external sync fails the gating network will illuminate the LED (CR12 or CR13) corresponding to the failed sync signal. U4 working in conjunction with U5 generate the matrix "B" internal sync signal.

4.5 64X32 Analog Audio Matrix Card

The 64X32 Audio Matrix Card contains a 64X32 matrix consisting of several main circuits. This discussion will be broken down to the main circuits as they are found on the schematics in Section 6 (Schematics).

Control

The microprocessor controller (U316) is used to interface switch commands from the PRCI control port (U256) to the switch matrix and return status information to the controller. Communications to and from the system controller are through U246, a RS485 receiver and transmitter. System timing is provided to the microprocessor by U1411, a 7.3728MHz oscillator. The microprocessor divides the timing single from the oscillator by a factor of four to form the system clock single. Reset for the microprocessor is provided by U317.

U326, a power supply monitor, monitors the output of the 64X32 Audio Matrix Card's power circuits and reports power fault conditions to the microprocessor. CR4 is utilized by power supply monitor circuit to provide a visual indication of power supply fault conditions.

4.5 64X32 Analog Audio Matrix Card Continued:

Control Continued:

Matrix output, input, and level coding is read from the backplane through U290, U305, and U306 respectively for matrix A and U293, U292, and U291 respectively for matrix B. U277, U295, U276, and U307 provide address decoding for the 64X32 Audio Matrix Card.

U278 and U279 comprise the nonvolatile RAM for the processor. C156 provides memory backup voltage for approximately seven days **as long as the matrix card is not removed from the Jaguar Frame**. CR3 is utilized by the processor on the 64X32 Audio Matrix Card to indicate a CPU fault condition. An external alarm connection is provided by U327. The external connection can be utilized to audibly indicate CPU fault conditions.

Two external sync signals are used for timing switches as set by SW1. The external sync can be color black or composite sync. U185 and U206 decode the composite signal to an even/odd field signal which is used by the microprocessor.

32X8 Control ICs

The 32X8 control ICs (U198, U225, U199, and U226) are responsible for the control and switching of 32 inputs to 8 outputs for matrix A. The 32X8 control ICs (U204, U227, U205, and U228) are responsible for the control and switching of 32 inputs to 8 outputs for matrix B. The control of the control ICs is accomplished by signals sent over the control bus by the microprocessor. The control ICs interpret the signals and provide control signals and the BUSEN to the 32X1 crosspoint switch circuits. U215 and U216 provide the reset, data, and clock signals for the 32X8 control ICs.

64X1 Crosspoint

The 64X1 crosspoint switches are responsible for switching one of 64 inputs to an output. The 64X1 crosspoint switches are comprised of four 16X1 crosspoints which form a 64X1 matrix. The switching of a selected input signal to a selected output by 64X1 crosspoint is controlled by the state of the associated BUS and BUSEN data lines. The 64X1 crosspoint switches are also responsible for providing the selected output to the associated output circuit on the 64X32 Audio Matrix Card.

4.5 64X32 Analog Audio Matrix Card Continued:

Input

The input circuits on the 64X32 Audio Matrix Card provide the initial conditioning and termination of the audio input signals. The input circuits are comprised of an operational amplifier and its associated components. Common mode rejection ratio adjustments in each input circuit provide the means to eliminate unwanted common mode hum and noise on the input audio signals. The input circuits also provide the connection of the audio input signals to the 64X1 crosspoint switch circuits.

Output

The output circuits on the 64X32 Audio Matrix Card are responsible for providing an electronically balanced output and driving the output lines. The output circuits are comprised of two dual staged operational amplifiers and their associated components. The first stage of primary operational amplifier is responsible for conditioning the audio output signal and the second stage of the primary operational amplifier is responsible for inverting the audio output to provide an electronically balanced output. The secondary operational amplifier is responsible for driving the audio output lines. The audio output lines are driven through precision 33.2 ohm resistors. An adjustment is provided in each output circuit to adjust the output for unity gain for either high impedance termination or 600 ohm termination.

Power

The power regulator circuits on the 32X32 Audio Matrix Card are responsible for producing all of the regulated operational voltages required by the matrix card's electronic circuits. The heart of the power supply circuit on the audio matrix card is a switching regulator (U300) which produces the +20V DC and -20V DC. Adjustment of the output of the switching regulator is provided by R492, a variable resistor. Regulation of the +5V DC supply is provided by U281. CR2 provides a visual indication that power is being applied to the input of the regulator circuits. Fuses F1 and F2 protect the power regulator circuits from overload conditions and protect the audio matrix card from overload damage. The power circuits also contain a fan speed regulator circuit which controls the speed of the associated chassis fans. As the temperature of the hottest matrix card's circuits increase the fan speed will increase. Inversely as the hottest matrix card's circuits decrease in temperature the fan speed will slow down.

4.6 64X32 Digital Audio Matrix Card

The 64X32 Digital Audio Matrix Card contains a 64X32 matrix consisting of several main circuits. This discussion will be broken down to the main circuits as they are found on the schematics in Section 6 (Schematics).

Control

The microprocessor controller (U126) is used to interface switch commands from the PRCI control port (U103) to the switch matrix and return status information to the controller. Two external sync signal signals are used for switch timing as set by S1. The external sync can be either color black or composite sync. U102 and U103 decode the composite sync signal to produce the even/odd field signal used by the microprocessor.

Matrix input, output, and level coding is read from the backplane through U116 thru U118 for matrix A and U119 thru U121 for matrix B. U110, U123, and U111 provide address decoding for the 64X32 Digital Audio Matrix Card.

U112 and U108 comprise the nonvolatile RAM for the microprocessor. C218 provides memory backup voltage for approximately seven days as long as the matrix card is not removed from the Cougar Digital Audio Frame. CR10 can be turned on by the processor to indicate a fault condition.

Crosspoint Matrix

U81 thru U84 and U89 thru U92 comprise the 64X32 matrix A switch. Refer to Schematic Sheets 4 and 5, 32X32 Digital Audio Matrix Card, pages 6.50 and 6.51. U85 thru U88 and U93 thru U96 comprise the 32X32 matrix B switch. The two matrix sections "A" and "B" are summed together to form a 64X32 matrix.

U97 and U99 contain the data used to configure the 64X4 crosspoints. On power up the data is automatically loaded on the crosspoint ICs. BA0-BA2 select the output buss to control. BD0-BD7 select the input to be routed to the selected output. CS0-CS7 latches the data into a hold register, then either BVREF1 or BVREF2 (depending on the received switch command) latches the data into the crosspoint control registers.

4.6 64X32 Digital Audio Matrix Card Continued:

Input Equalizers

U1 thru U4 and U41 thru U44 provide adequate input cable equalization for matrix A inputs dependent upon the quality of the input cables. U21 thru U24 and U61 thru U64 provide adequate cable equalization for matrix B inputs dependent upon the quality of the input cables. For input cable runs of 5000 feet or longer please verify the quality of the audio input cables.

Output Drivers

U5 thru U20 and U45 thru U60 are used to drive the outputs for matrix A. U25 thru U40 and U65 thru U80 are used to drive the outputs for matrix B.

Power Regulators

U113 is a switching regulator that creates +5.0 volts @ 3 amps to power the crosspoint matrix, input, control, output ICs.

U115 provides power to the backplane for the chassis fan. Q4 and Q5 provide ± 5.6 volts for U101 and input sync buffers Q1 and Q2.

U129 monitors all primary circuit card voltages for out of voltage range conditions ($\pm 15\%$). If a fault is sensed CR11 will light and the controller will report the error condition. CR9 indicates that power is applied to the 64X32 Digital Audio Matrix Card.

4.7 Standard 64X64 Audio Output Card

The Standard Audio Output Card provides passive distribution of the audio output signals from the 15-pin audio output connectors located on the Backplane to the 3-pin audio output connectors located on the Standard Audio Output Card. See Schematic, Standard Audio Output Card, page 6.55.

4.8 Optional 128X64 Analog Audio Output Comb. Card

The electronic circuits on the Analog Audio Output Combiner Card are responsible for combining two outputs from the 64X32 Analog Audio Matrix Cards to form one output from the Jaguar Audio Frame. The circuits on the Analog Audio Output Combiner Card consist of eight 2X1 summing combiner circuits, control circuits, and a power regulation circuit. Optionally, a monitor circuit may also be included on the Analog Audio Output Combiner Card.

Each 2X1 output combiner circuit is comprised of a dual DG405 switch which functions as 2X1 crosspoint. The 2X1 crosspoints are controlled by U25 which functions as a serial port decoder. On power-up U25 loads its program from U6. U25 obtains data, clock, and clear information from all four audio matrix cards. All four matrix cards send control information in sequence (slot 1 thru slot 4) using TDM. The serial data stream is then decoded into parallel control lines that are made available to the 2X1 crosspoints. The audio output signal selected by the 2X1 crosspoint is coupled to a dual operational amplifier which functions as an audio output line driver.

The power regulator circuit on the Analog Audio Output Combiner Card consists of power regulator U1 and its associated components. U1 is responsible for providing a regulated +5V to the Analog Audio Output Combiner Card's electronic circuits. +20V, -20V, +V, and -V are also distributed to the Analog Audio Combiner Card's electronic circuits.

Optionally, the Analog Audio Output Combiner Card can be equipped with an output monitor circuit consisting of additional 2X1 crosspoints and their associated components. The monitor circuits and audio monitor signal selection are controlled by the optional Output Monitor Control Card. U12, a dual operational amplifier, and its associated components function as the line driver for the monitor outputs.

4.9 Optional Output Monitor Control Card

The Output Monitor Control Card contains the circuits that control the selection of the audio monitor output signals. The control circuits on the Output Monitor Control Card consist of a microprocessor and its associated components as described in the following paragraphs.

4.9 Optional Output Monitor Control Card Continued:

The microprocessor controller (U13) is used to interface commands from the system controller and return status information to the system controller. Communications to and from the system controller are through U6, a RS485 receiver and transmitter. System timing is provided to the microprocessor by XTAL1, a 7.3728MHz oscillator. Reset for the microprocessor is provided by U7.

Monitor output, input, and level coding is read from S1, S2, and S3 by U17, U18, and U19 respectively. Two external sync signals are used for timing switches as set by S4. The external sync can be color black or composite sync. U8 and U14 decode the composite signal to an even/odd field signal which is used by the microprocessor.

U4 and U5 comprise the nonvolatile RAM for the processor. C2 provides memory backup voltage for approximately seven days as long as the monitor control card is not removed from the Jaguar Frame. CR2 is utilized by the processor on the Output Monitor Control Card to indicate a CPU fault condition. An external alarm connection is provided by U2. The external connection can be utilized to audibly indicate CPU fault conditions.

The power regulator circuits on the Output Monitor Control Card are comprised of U3 and its associated components. U3 is responsible for providing a regulated +5V to the Output Monitor Control Card's electronic circuits. CR1 provides a visible indication of the health of the regulator circuits.

5.1 Introduction

This section will cover the maintenance, troubleshooting, and repair of the Jaguar Audio Switchers.

WARNING

PS130 POWER SUPPLIES CONTAIN ELECTRICAL SHOCK HAZARDS. THE PS130 POWER SUPPLIES SHOULD ONLY BE SERVICED BY QUALIFIED SERVICE PERSONNEL AND/OR QUALIFIED TECHNICIANS.

NOTICE

THIS EQUIPMENT CONTAINS STATIC SENSITIVE DEVICES. IT IS RECOMMENDED THAT A GROUNDED WRIST STRAP AND MAT BE USED WHILE MAKING REPAIRS OR ADJUSTMENTS.

5.2 General

The Jagaur Audio Switchers are designed to produce the proper audio levels throughout the frame. There is no need to perform periodic adjustments and the need for regular maintenance is minimal.

5.3 Test Equipment

The test equipment recommended for servicing the Jaguar Audio Switchers and their associated circuit cards is listed below. Equivalent test equipment may be used.

Audio Generator
Distortion Analyzer
Digital Voltmeter
Oscilloscope
600 Ohm Termination



5.4 Preventive Maintenance

Use the following guidelines for general preventive maintenance:

- Keep the inside of the equipment items clean, especially if your facility is subject to dust or dirt in the atmosphere. Use low velocity compressed air, an antistatic cloth, or a gentle vacuum to clean the frame and internal components.
- Observe proper procedures for preventing electrostatic discharge when cleaning the units, and when inserting and removing cards. Ensure that all tools and personnel handling individual components are properly grounded.
- Avoid covering the front grille for any extended period. Blocking the front grille will block the air flow through the chassis fans and may overheat the internal circuit cards.

5.5 Maintenance

The Jaguar Audio Switchers and their associated circuit cards are designed and manufactured to give long, trouble free service with minimum maintenance requirements. If problems do occur, follow the troubleshooting procedure provided in this section. If additional technical assistance is required, refer to the General Assistance and Service information in the front of the manual. Section 6 contains component layout drawings and schematics for assistance in troubleshooting and Section 7 contains the lists of replacement parts for repairing the Jagaur Audio Switchers and their associated circuit cards.

5.6 Corrective Maintenance

The following paragraphs provide information to assist the servicing technician in performing the maintenance of the Jagaur Audio Switchers and their associated circuit cards.



5.6 Corrective Maintenance Continued:

Factory Repair Service

If desired, equipment or boards may be returned to the factory (transportation prepaid) for repair. Refer to the General Assistance and Service Information Sheet in the front of this manual. Call the PESA Service Department (the phone number is listed on the Service Information Sheet) for a RMA number before shipping an equipment item.

NOTE

PACK THE EQUIPMENT SECURELY AND LABEL WITH THE CORRECT ADDRESS. PROPER PACKAGING SAVES MONEY. THE SMALL AMOUNT OF EXTRA CARE AND TIME IT TAKES TO CUSHION A PART OR UNIT PROPERLY MAY PREVENT COSTLY DAMAGE WHILE IN TRANSIT. MAKE CERTAIN THAT THE ADDRESS IS BOTH LEGIBLE AND COMPLETE. FAILURE TO DO SO OFTEN RESULTS IN DELAY OR EVEN LOSS.

Troubleshooting

The best troubleshooting tool is a familiarity with the equipment and a thorough understanding of its operation. Before troubleshooting the Jaguar Audio Switchers or their associated circuit cards review Sections 3 and 4 of this manual. Use the functional descriptions and adjustment procedures to quickly locate problems.

- If a problem is suspected with an individual circuit card and a replacement card is available, swap out the card and recheck the system for the problem. If the problem can be isolated to the card, and your facility is equipped for component level repair, proceed with repairs using the schematics provided in Section 6 of this manual.

NOTE

BEFORE PROCEEDING WITH COMPONENT LEVEL REPAIR MAKE SURE THE EQUIPMENT IS OUT OF WARRANTY. REPAIRING EQUIPMENT COVERED BY A WARRANTY WILL VOID THE WARRANTY.



5.6 Corrective Maintenance Continued:

System Checks

Prior to troubleshooting the Jagaur Audio Switchers the following basic system checks should be performed.

1. Verify the AC circuit condition. Ensure the unit is receiving the correct voltage from the main AC power source.
2. Check all line fuses and power cords.
3. Ensure that all circuit cards are firmly seated
4. Ensure all interconnecting cables and connectors are plugged in or firmly seated.
5. If applicable, ensure main power switch is turned on.

Replacement Parts

Only parts of the highest quality have been used in the design and manufacture of the Jagaur Audio Switchers and their associated circuit cards. If the inherent stability and reliability are to be maintained, replacement parts must be of the same quality. A replacement parts list is provided in Section 7 of this manual. When replacing parts, avoid using excessive solder on the printed circuit board. Always make sure that the solder does not short two circuits together. Be sure the replacement part is identical to the original, and is placed in exactly the same position with the same lead lengths (if applicable).

5.7 Filter Cleaning

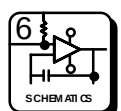
The front door of the Jagaur Audio Switchers contains an air filter. The air filter should be cleaned on a periodic basis. Remove the filter from the door and clean it with soapy water or low pressure air. After drying reinstall the filter in the door.

6.1 Schematics

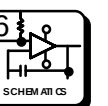
General

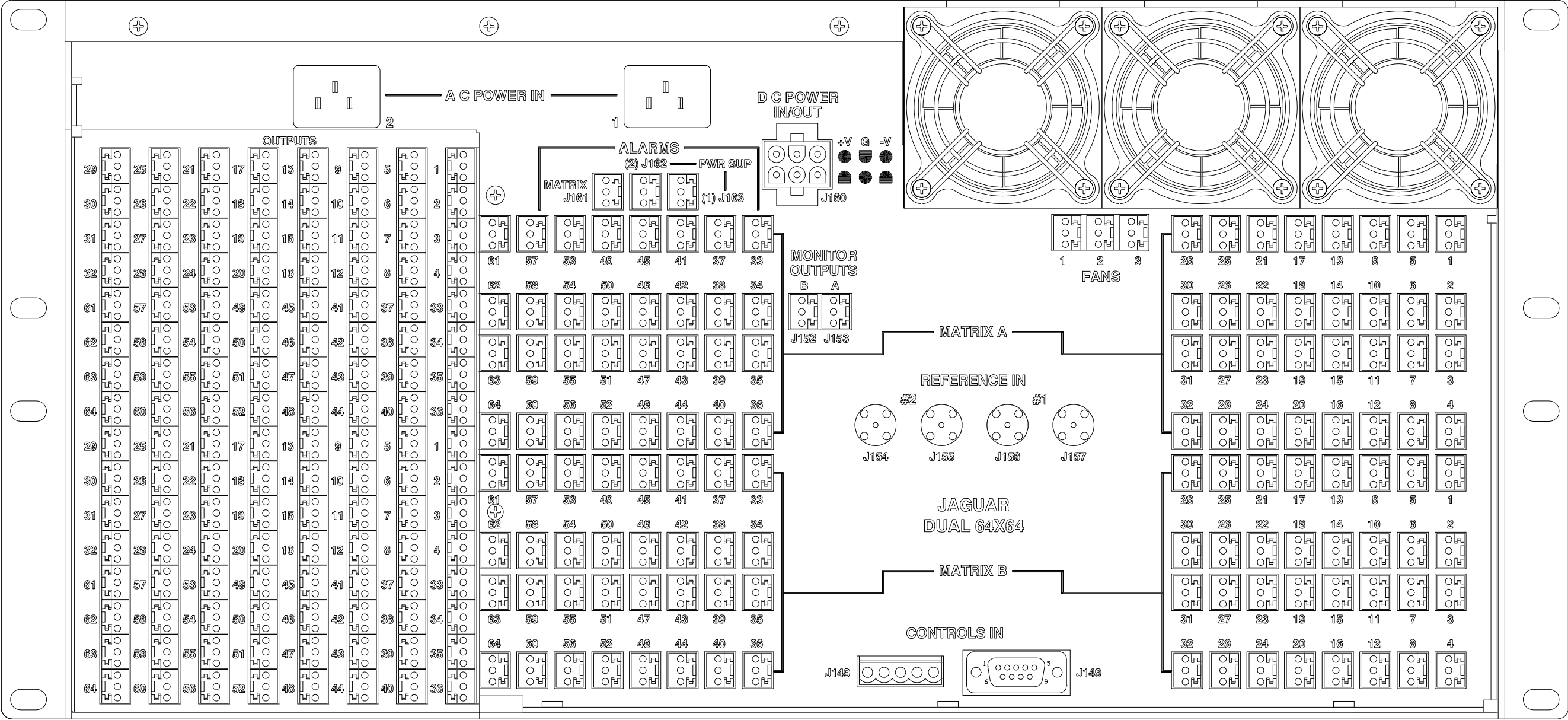
This section contains the schematic diagrams and parts location diagrams for the Jaguar Audio Routing Switchers. Please refer to this section when troubleshooting the equipment or replacing defective parts.

<u>Description</u>	<u>Dwg No.</u>	<u>Page No.</u>
Jaguar Audio Mainframe Assembly	CD63-0768	6.2
Jaguar Audio Chassis Assembly	CD63-0766	6.4
Jaguar Audio Backplane	CA25-1322	6.5
	SC33-1322	6.7
Dual Audio Reference Interface Card	CA25-1337	6.13
	SC33-1337	6.14
64X32 Analog Audio Matrix Card	CA25-1277	6.16
	SC33-1277	6.18
64X32 Digital Audio Matrix Card	CA25-1279	6.42
	SC33-1279	6.43
Standard Audio Output Card	CA25-1323	6.53
	SC33-1323	6.54
Card Cage	CD63-0767	6.55
128X64 A/A Output Combiner Card	CA25-1324	6.56
	SC33-1324	6.57
Digital Audio Output Combiner Card	CA25-1327	6.60
	SC33-1327	6.61
Output Monitor Control Card	CA25-1334	6.63
	SC33-1334	6.64

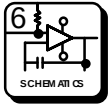


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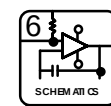


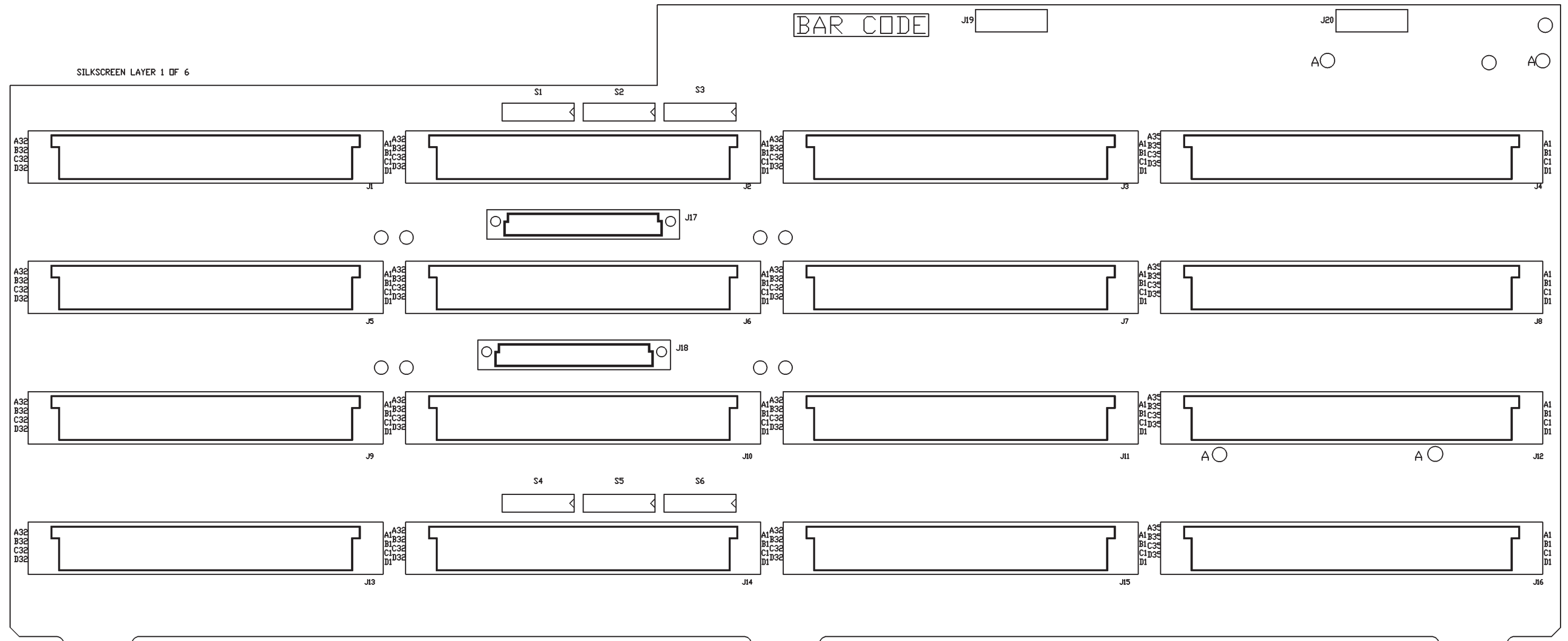


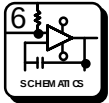
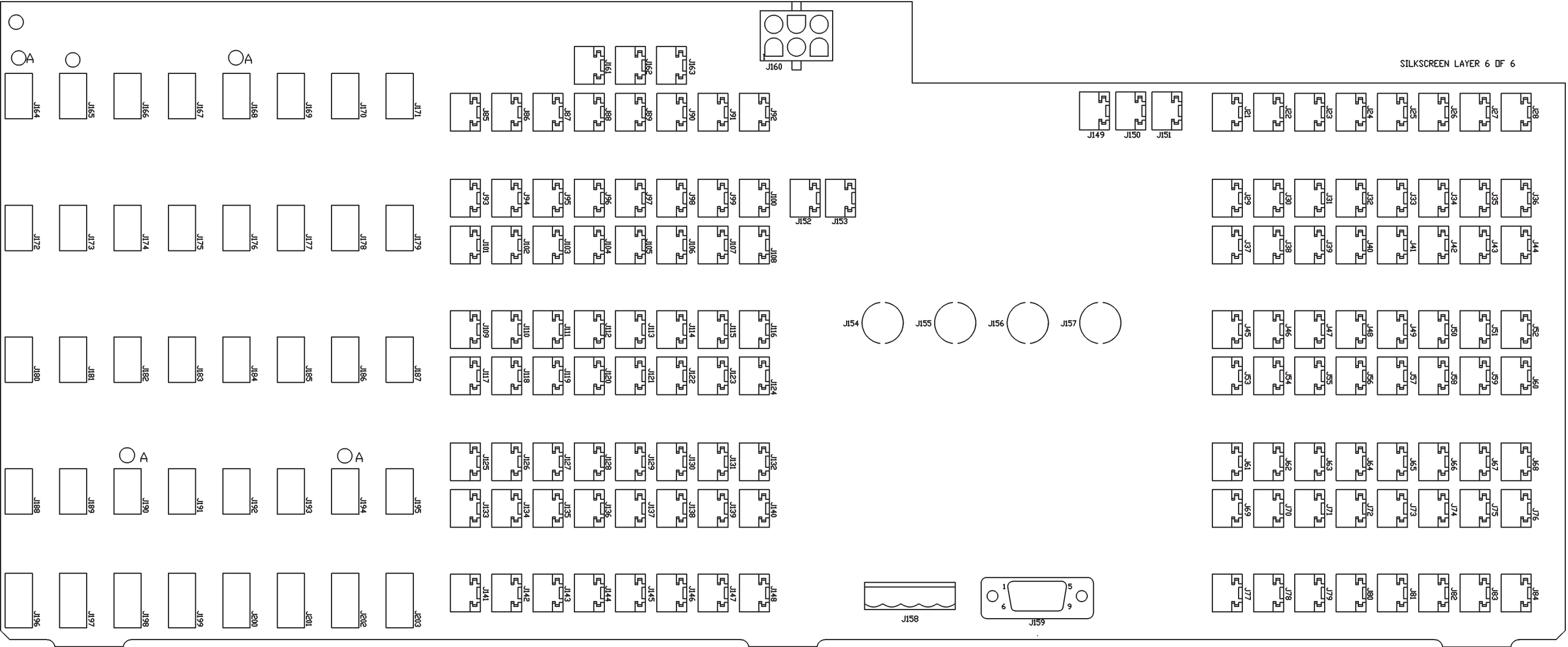
Configuration Drawing (Sheet 2 of 2) • Jaguar Audio Mainframe Assembly • CD63-0768

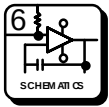
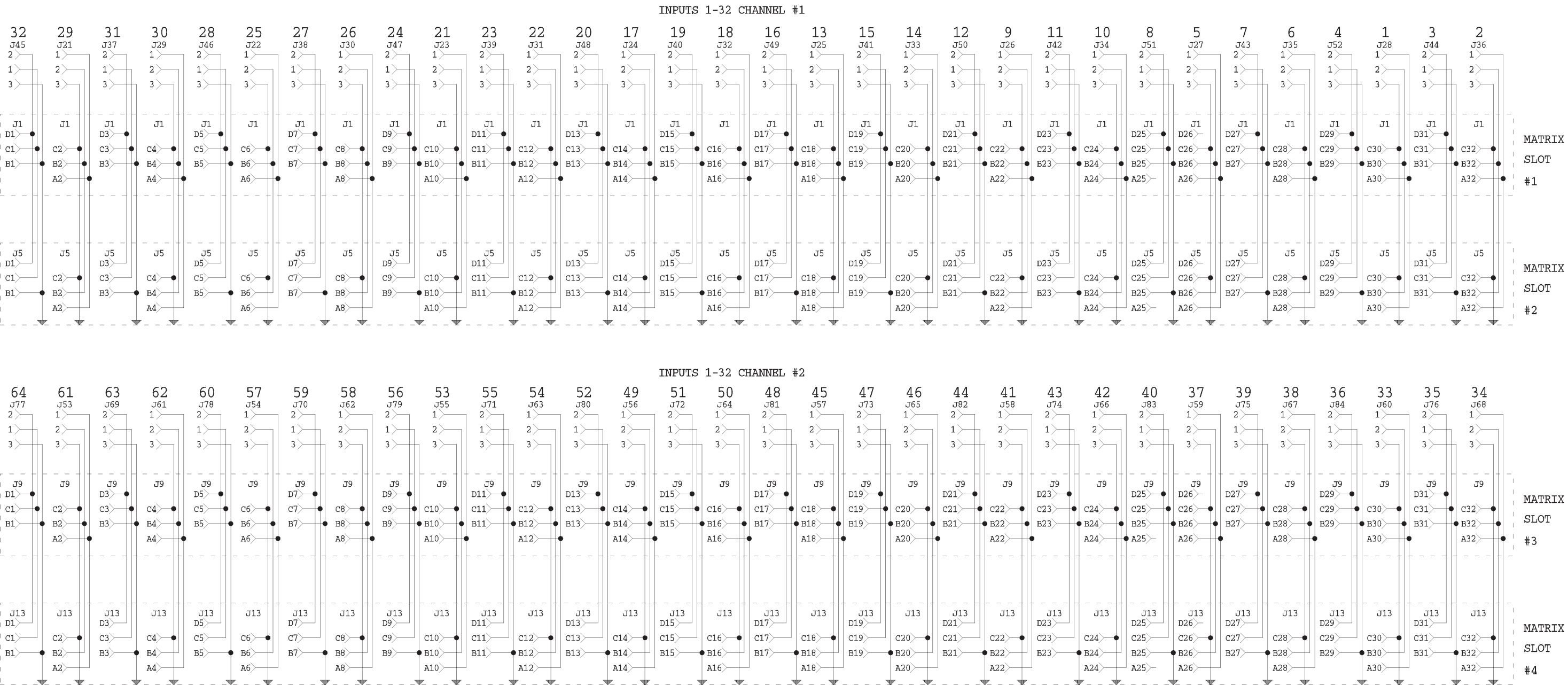


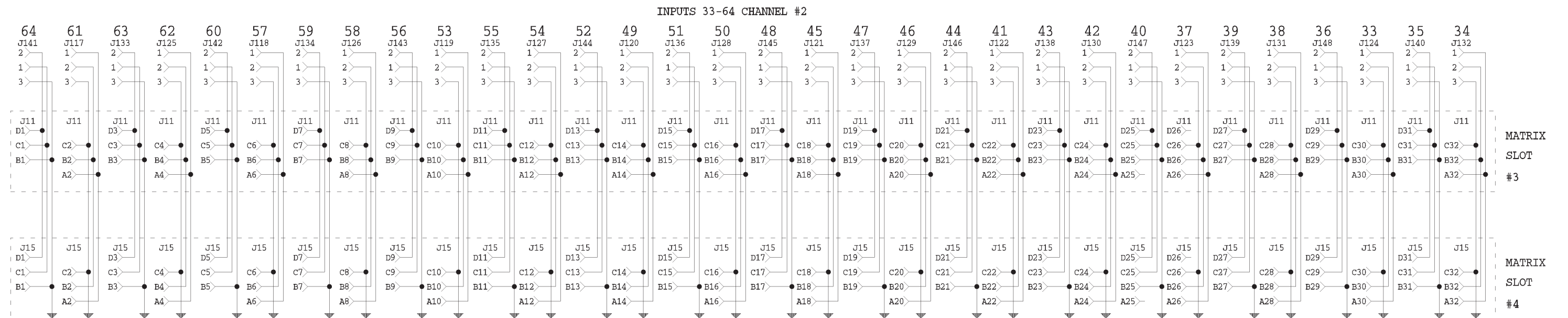
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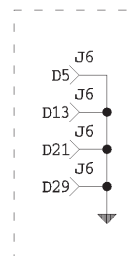
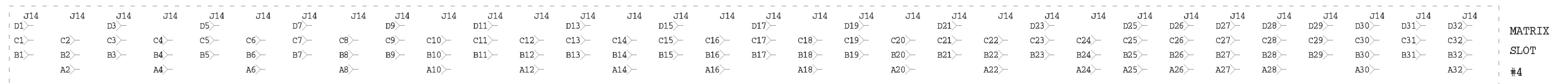
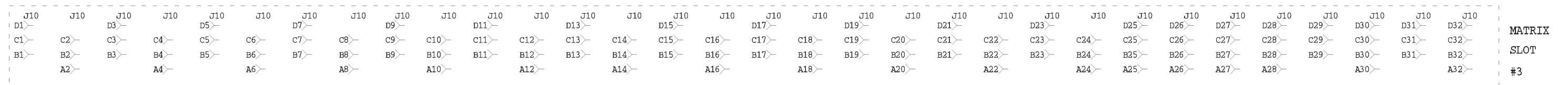
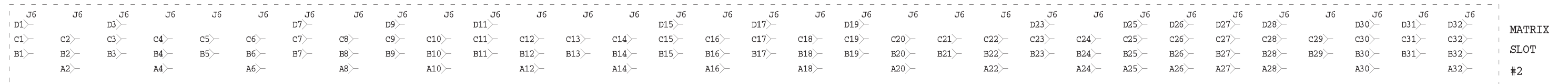
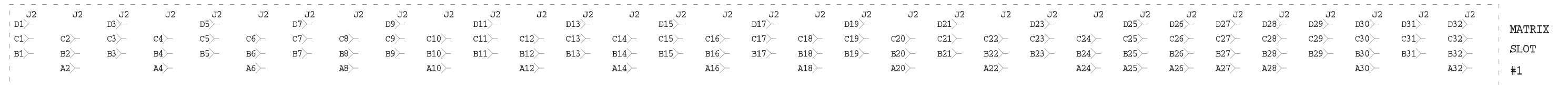




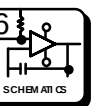


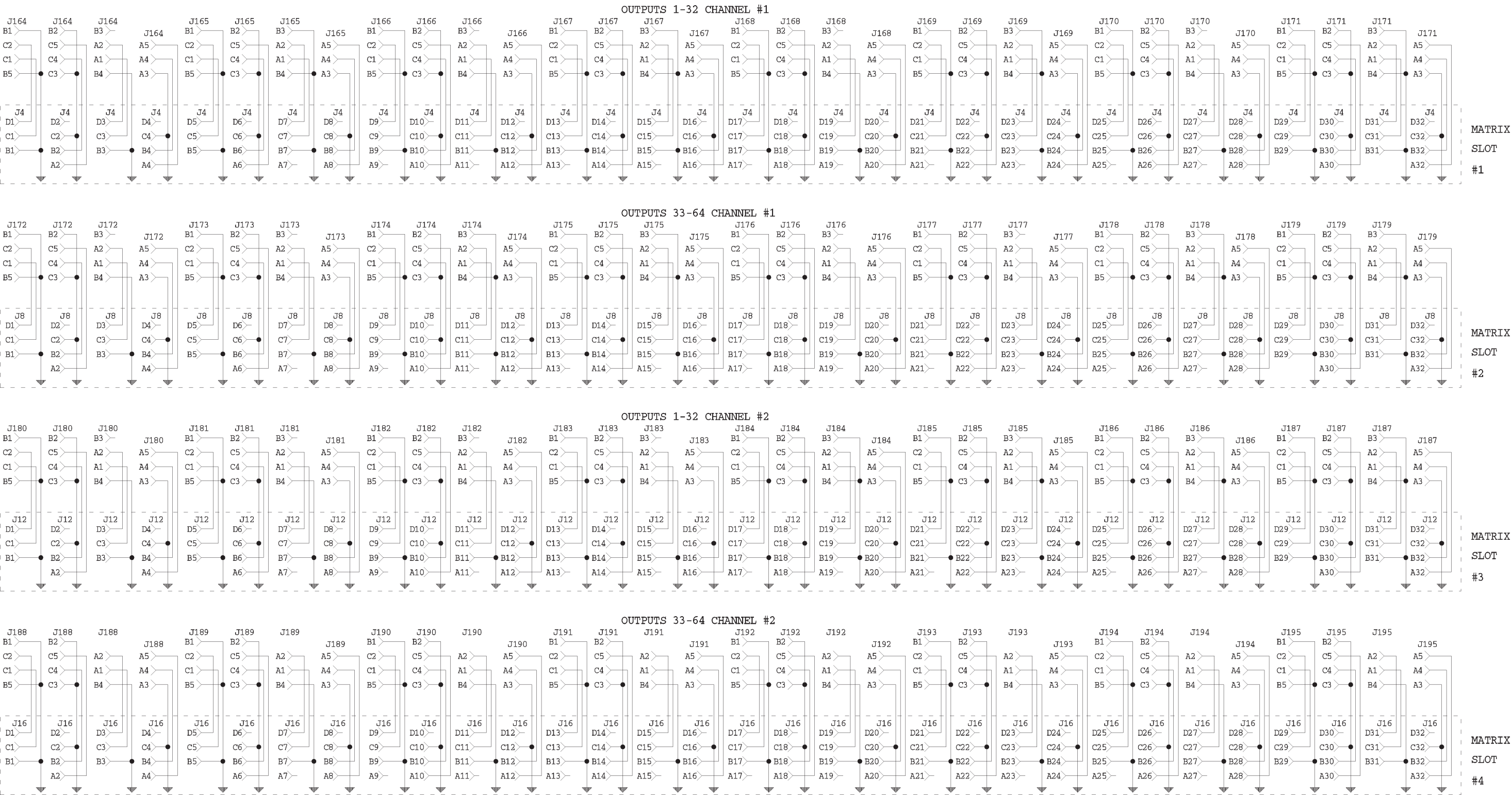




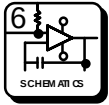


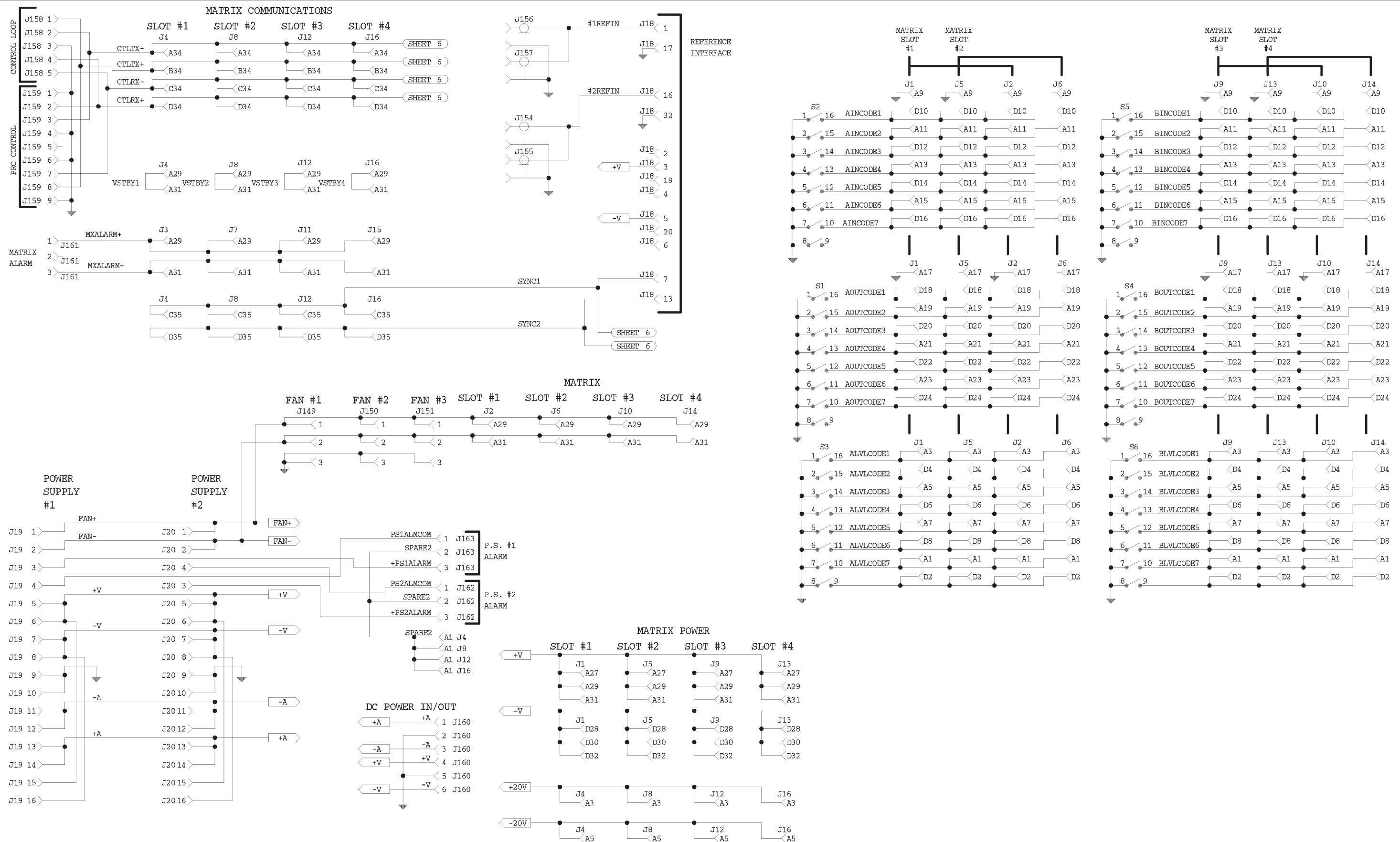
NOTE: THESE PINS SHOULD REMAIN GROUNDED
GROUNDED CASE ON BNC CONNECTORS TOUCH THESE PINS



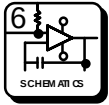


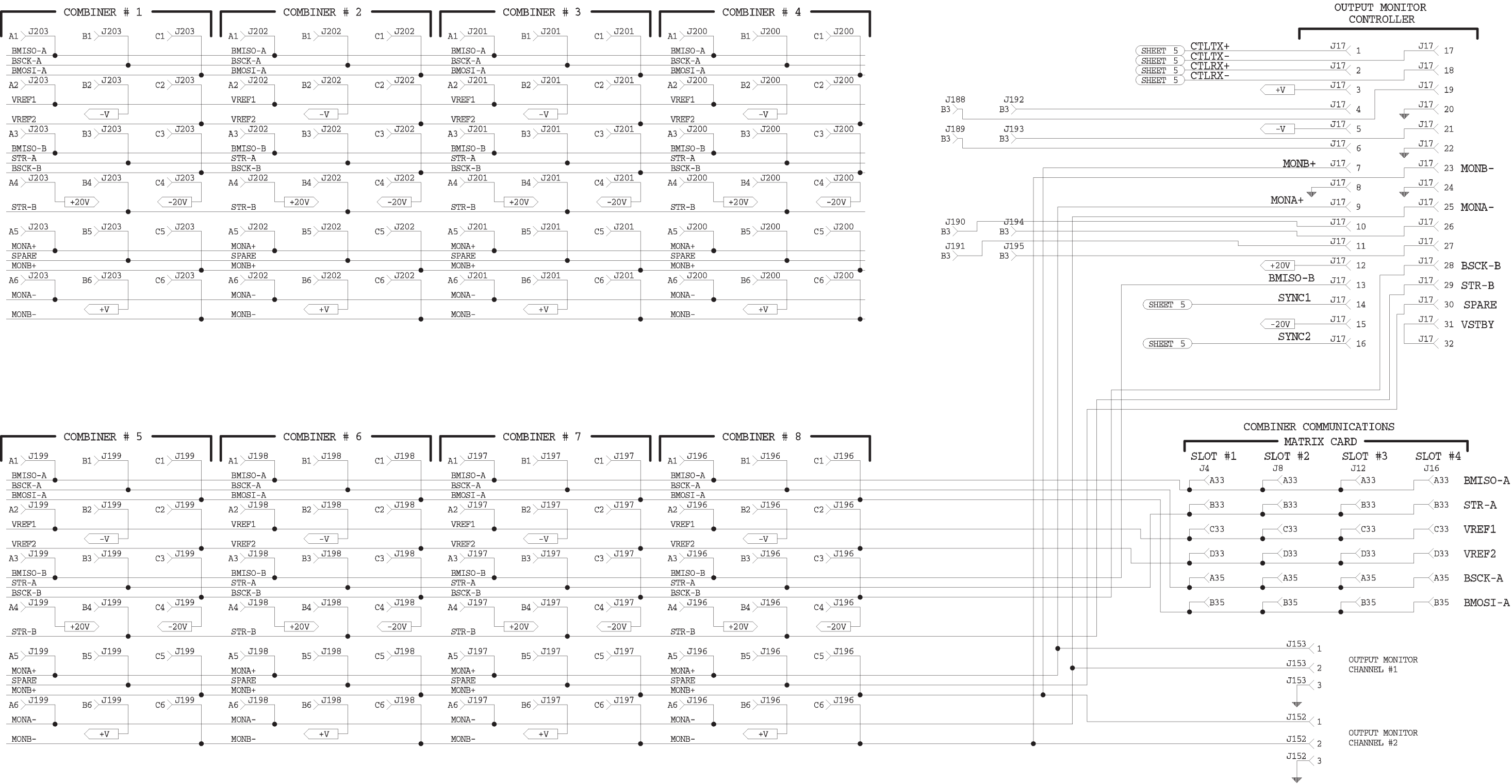
Schematic (Sheet 4 of 6) • Jaguar Audio Backplane • SC33-1322



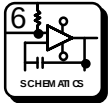


Schematic (Sheet 5 of 6) • Jaguar Audio Backplane • SC33-1322

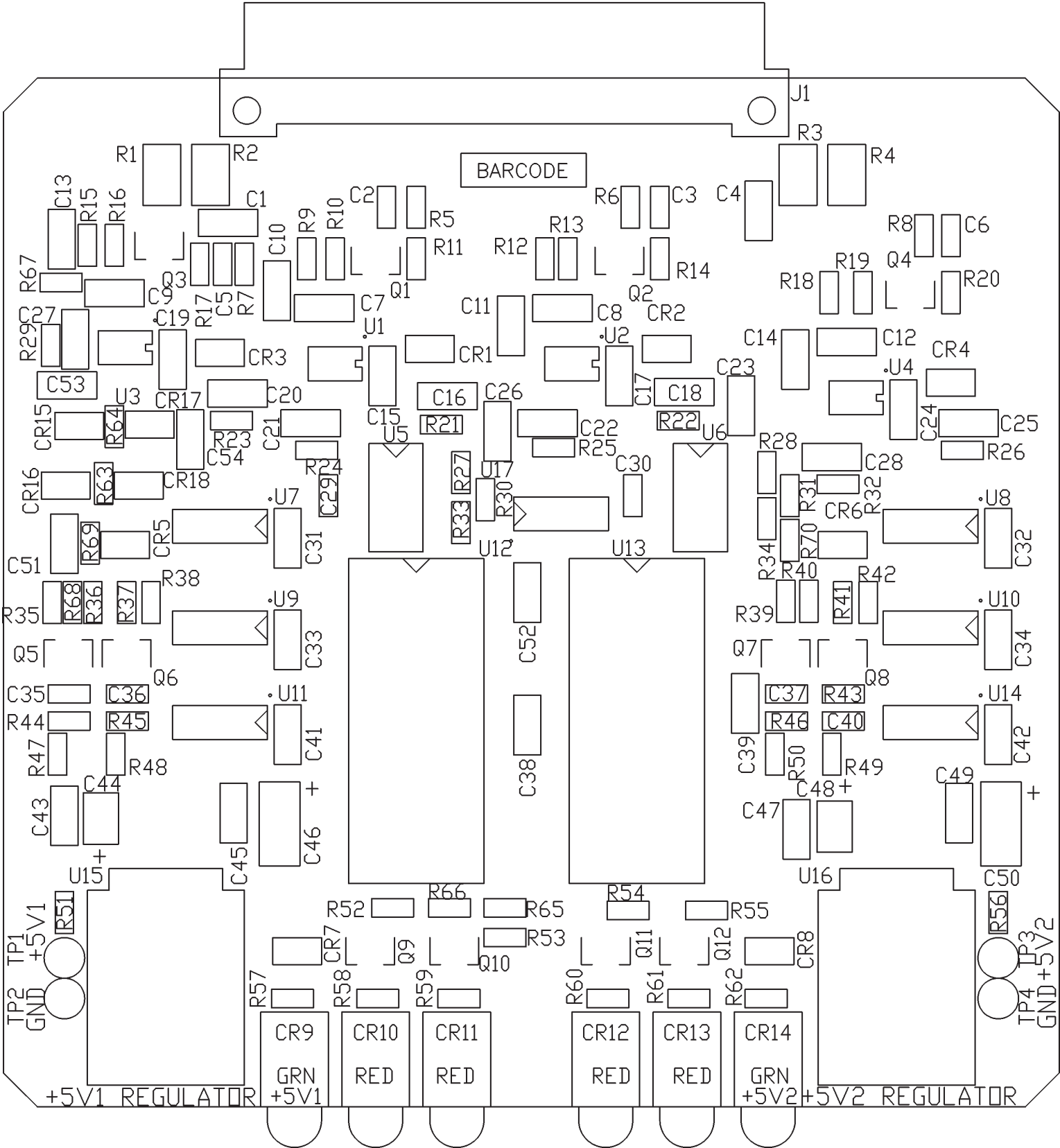




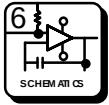
Schematic (Sheet 6 of 6) • Jaguar Audio Backplane • SC33-1322

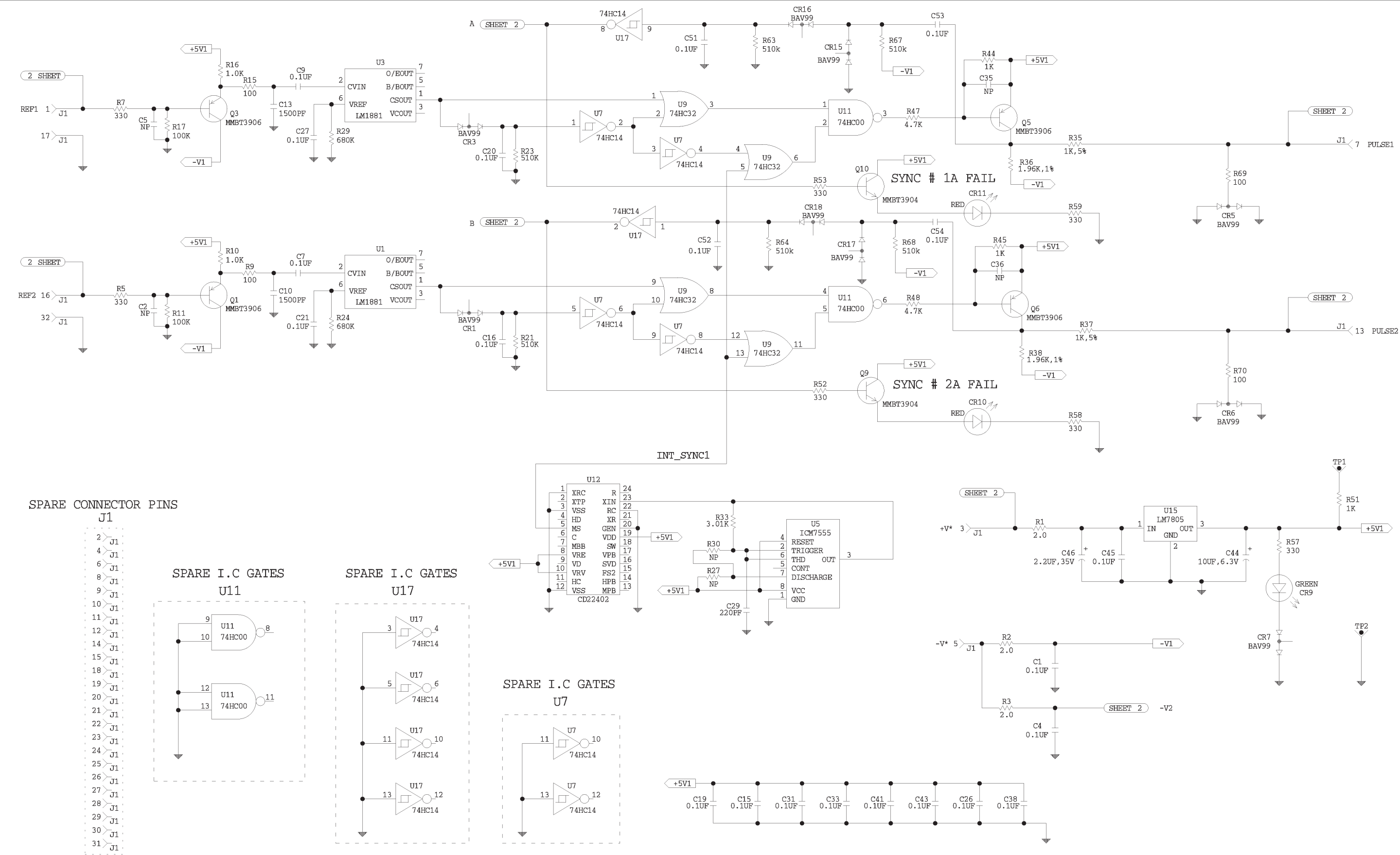


SILKSCREEN COMPONENT SIDE

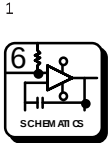


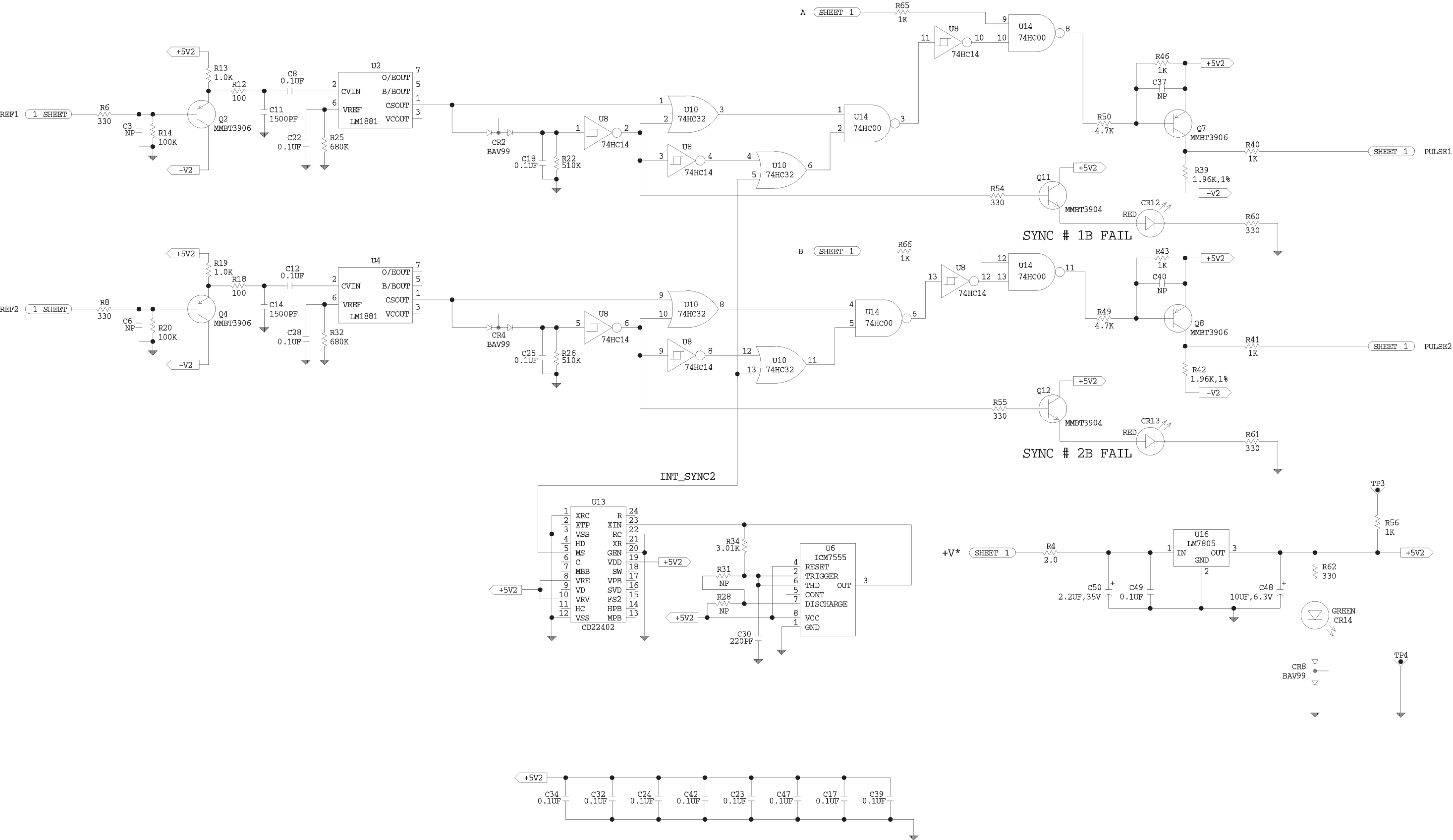
Component Assembly • Dual Audio Reference Interface Card • CA25-1337



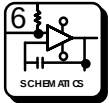


Schematic (Sheet 1 of 2) • Dual Audio Reference Interface Card • SC33-1337

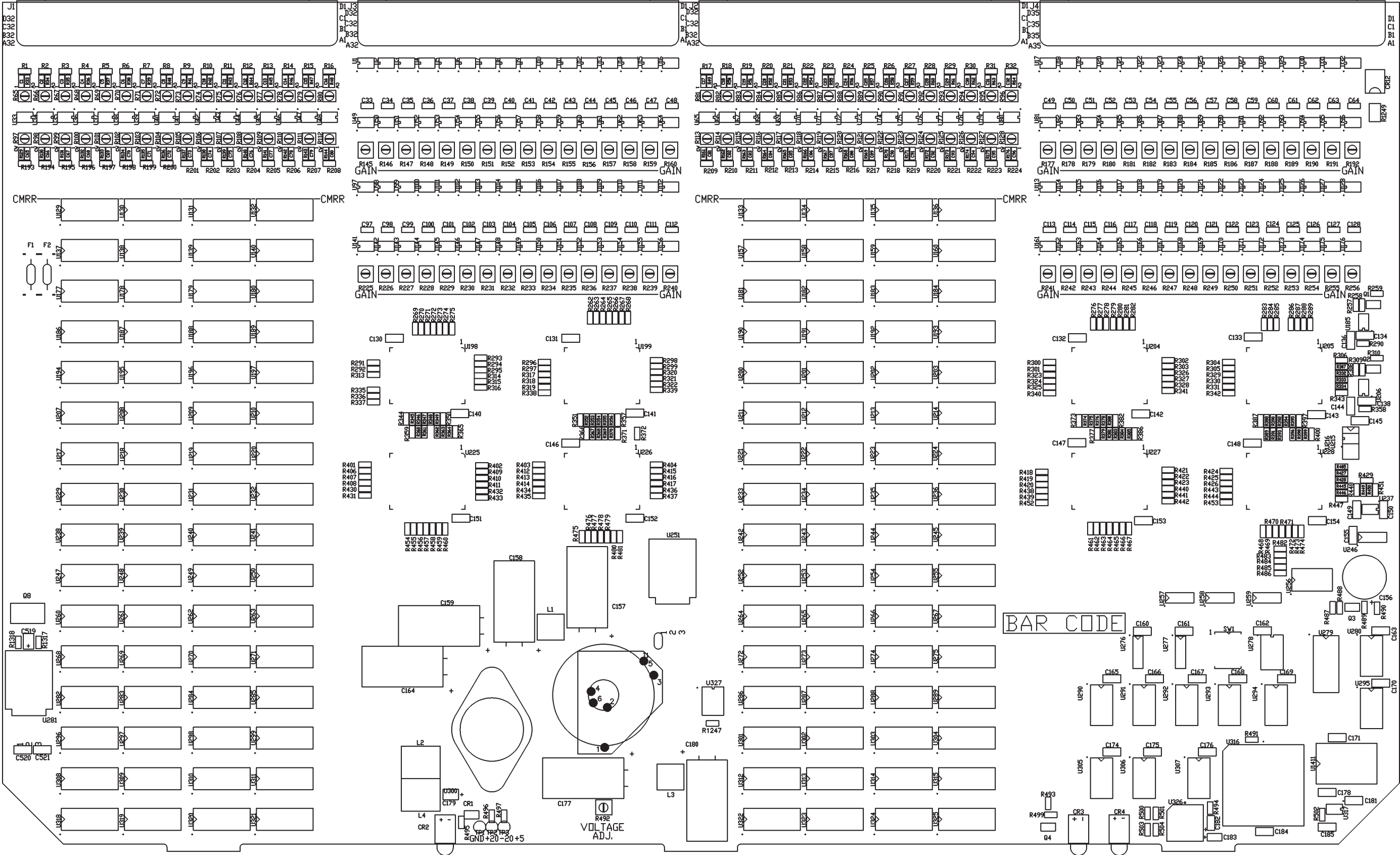


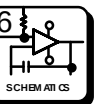


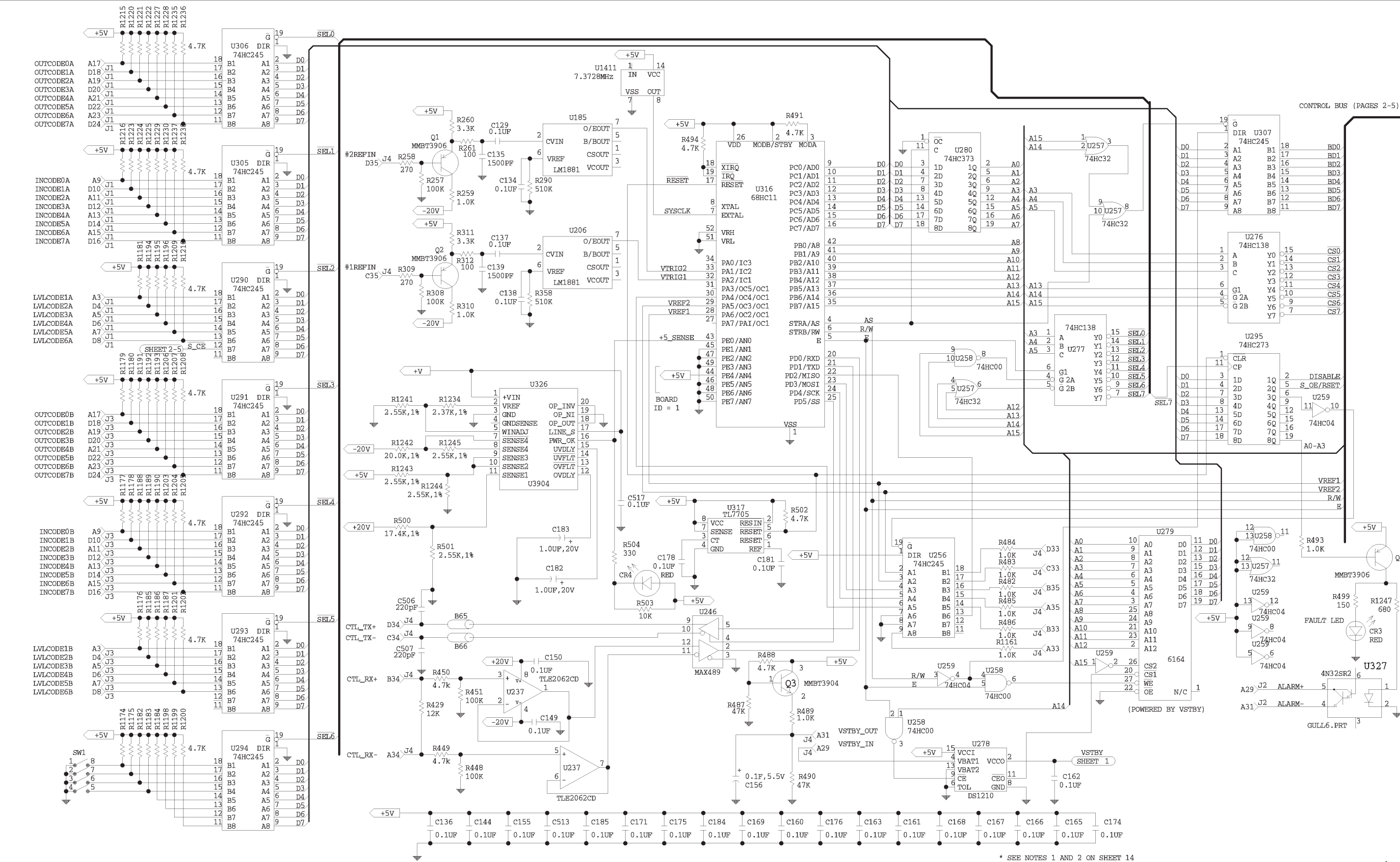
Schematic (Sheet 2 of 2) • Dual Audio Reference Interface Card • SC33-1337



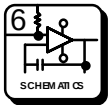
SILKSCREEN COMPONENT SIDE LAYER 1 OF 10

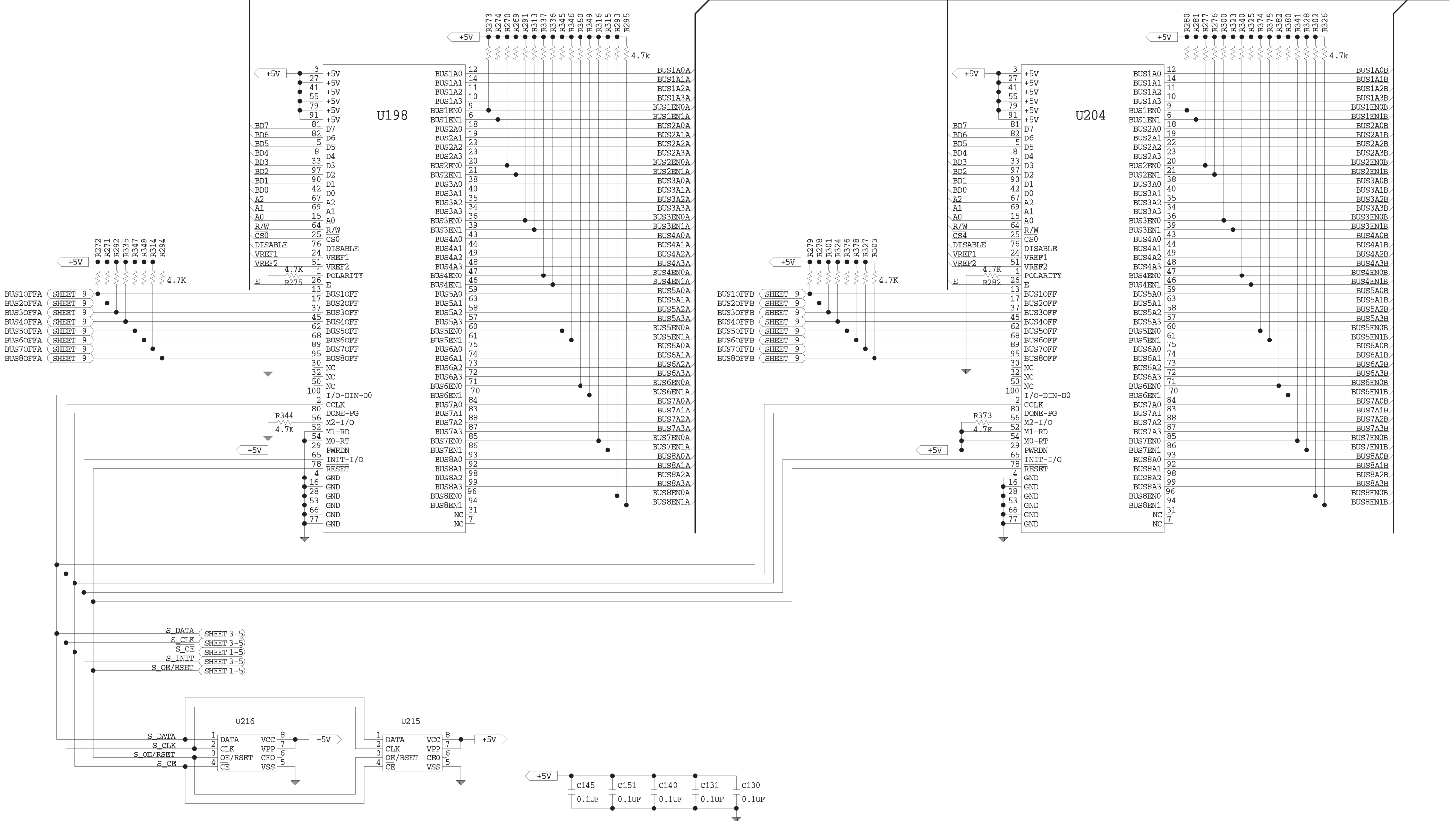




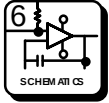


Schematic (Sheet 1 of 24) • 64X32 Analog Audio Matrix Card • SC33-1277

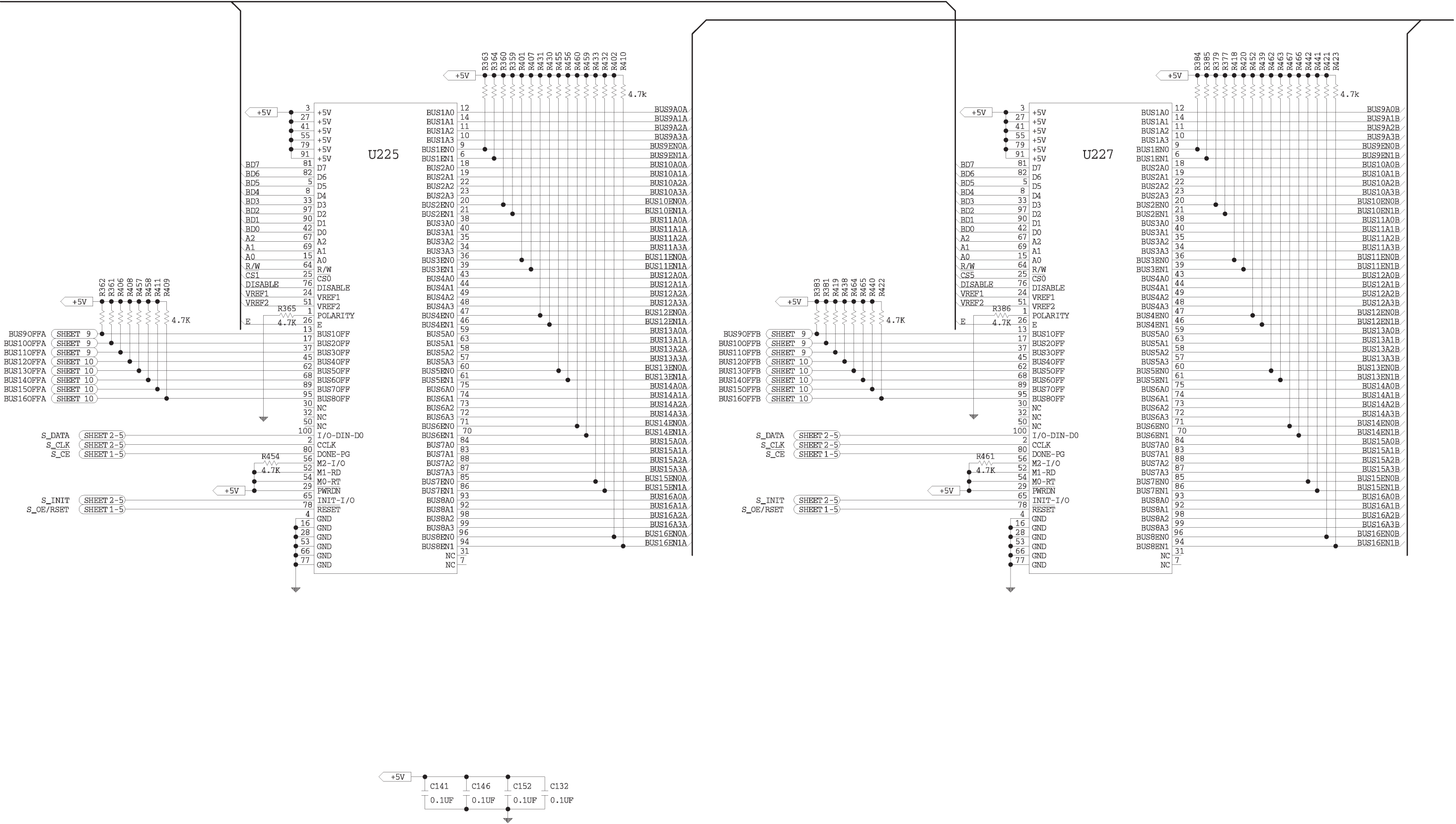




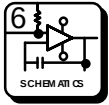
Schematic (Sheet 2 of 24) • 64X32 Analog Audio Matrix Card • SC33-1277

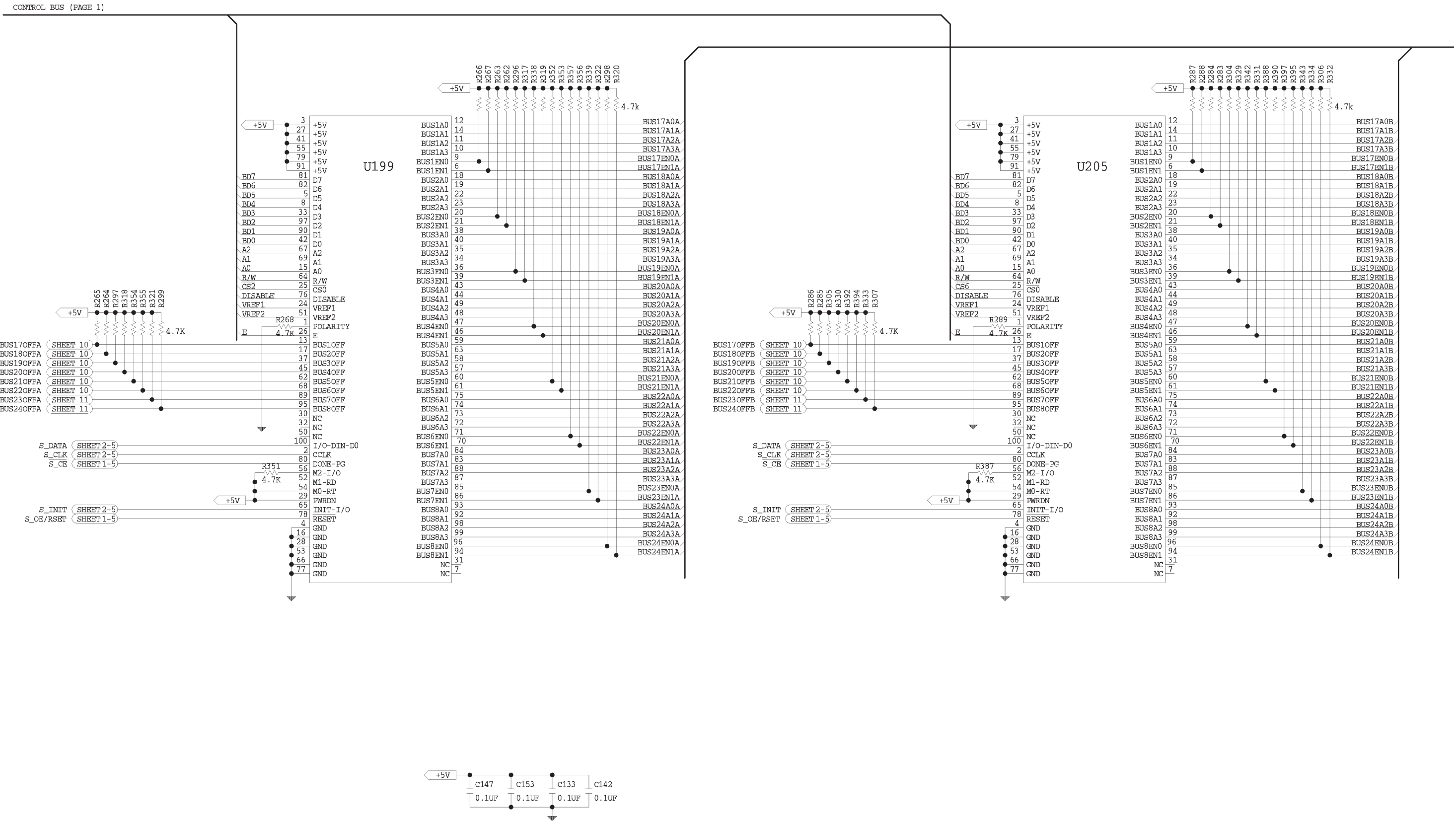


CONTROL BUS (PAGE 1)

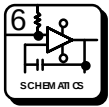


Schematic (Sheet 3 of 24) • 64X32 Analog Audio Matrix Card • SC33-1277

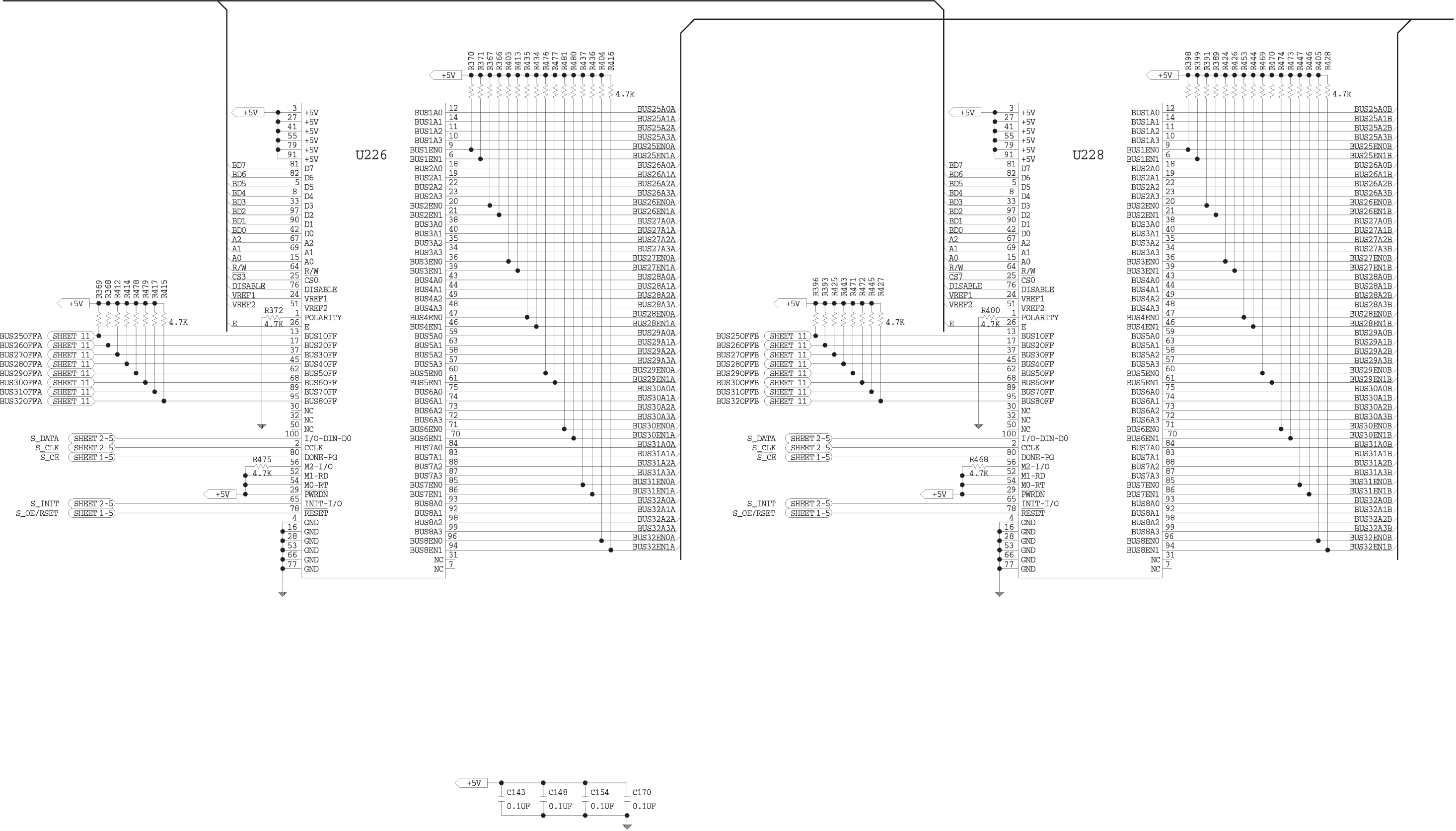




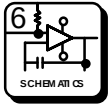
Schematic (Sheet 4 of 24) • 64X32 Analog Audio Matrix Card • SC33-1277

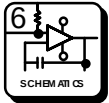
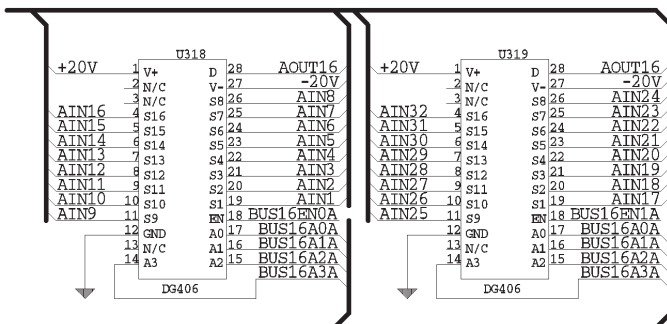
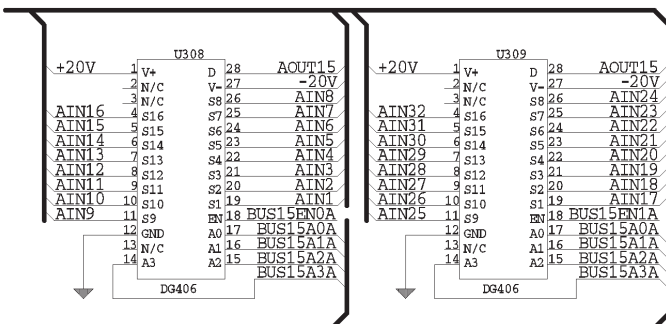
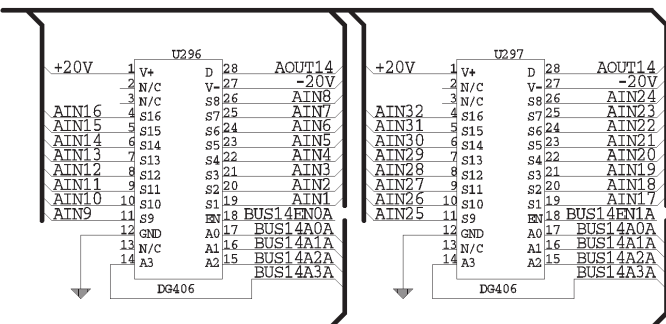
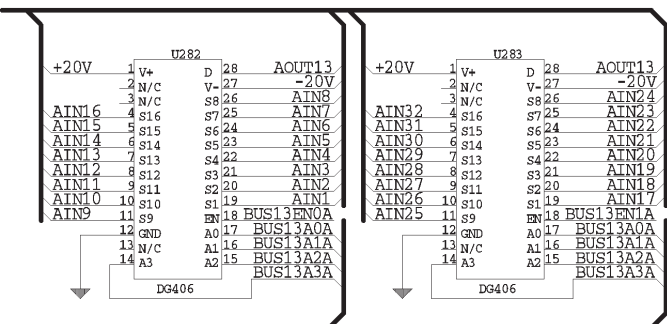
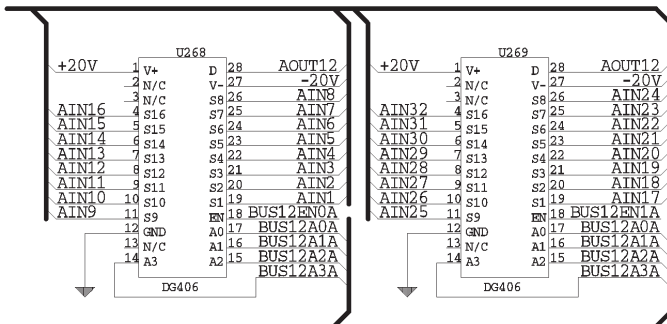
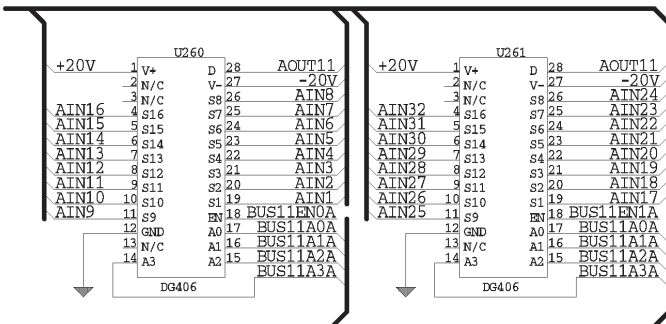
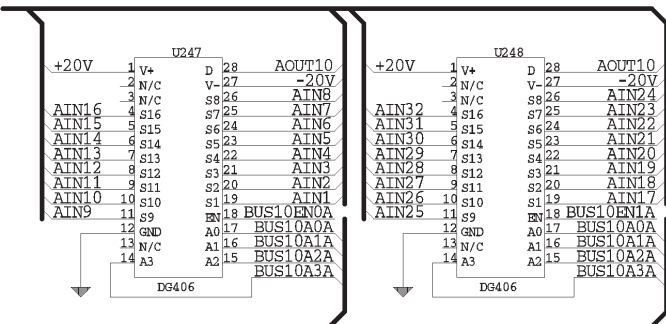
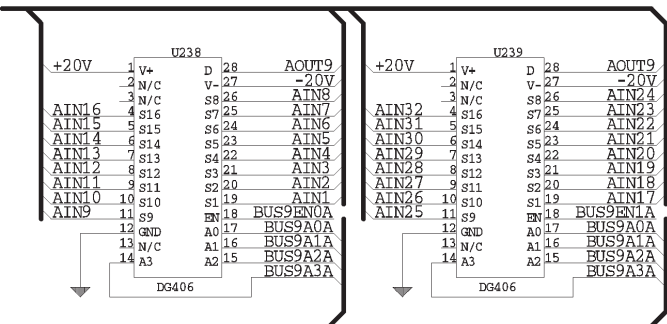
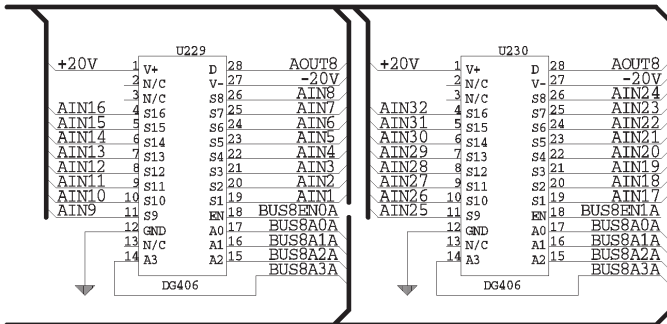
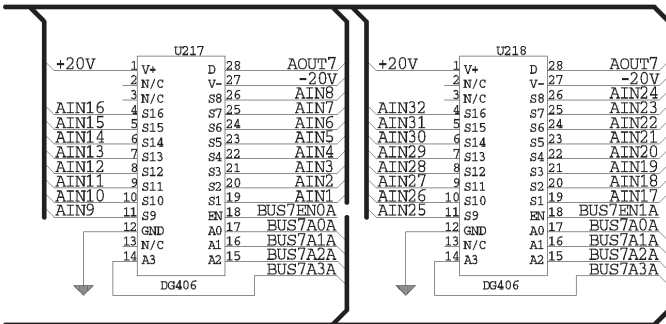
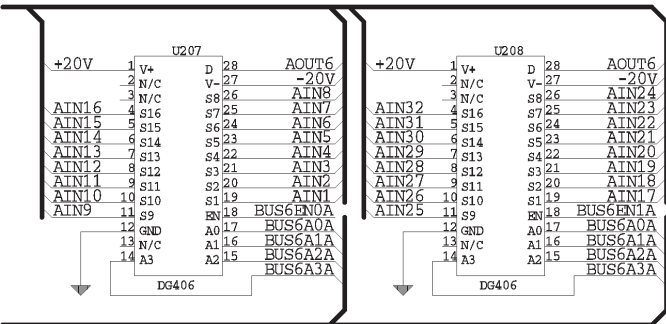
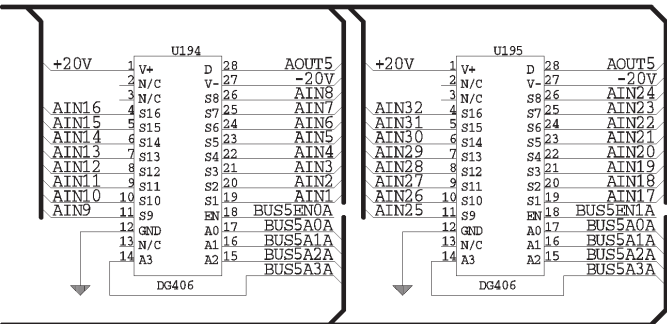
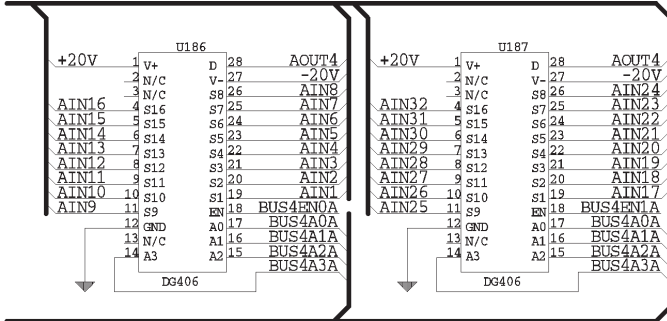
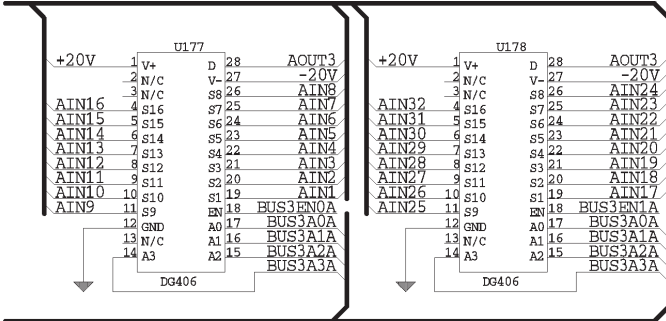
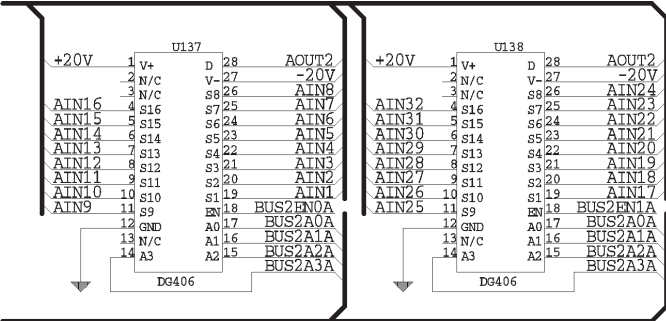
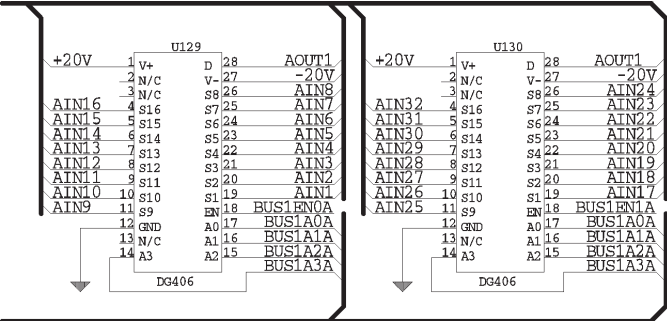


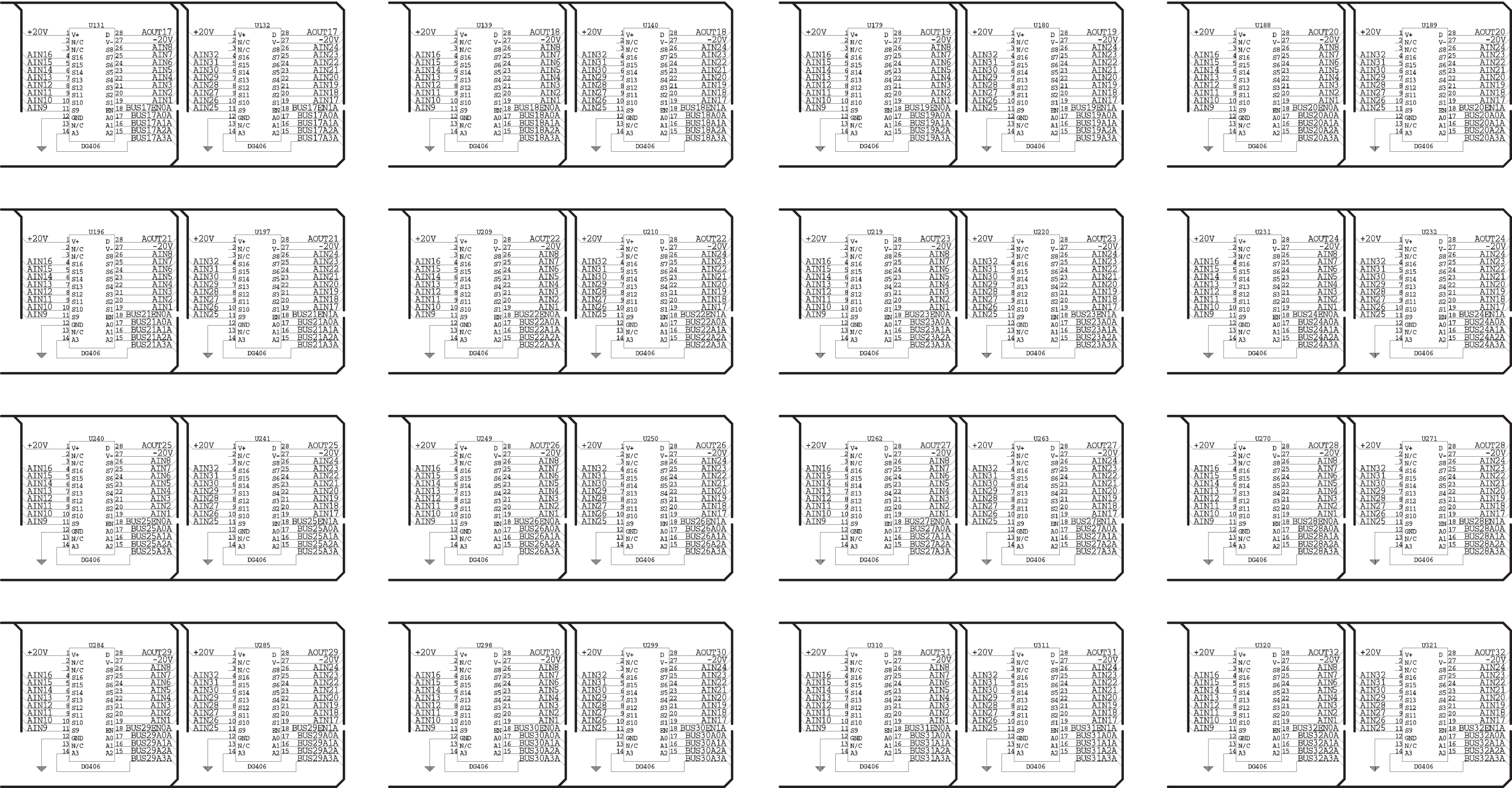
CONTROL BUS (PAGE 1)



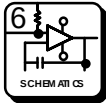
Schematic (Sheet 5 of 24) • 64X32 Analog Audio Matrix Card • SC33-1277

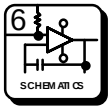
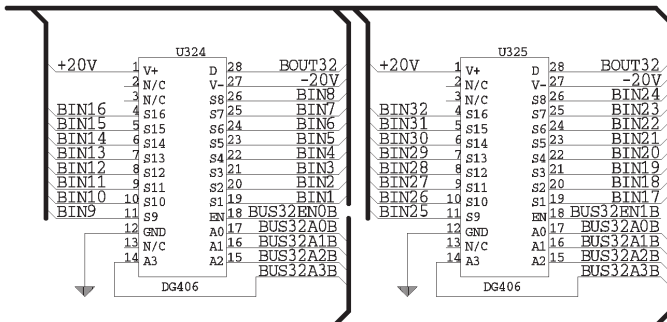
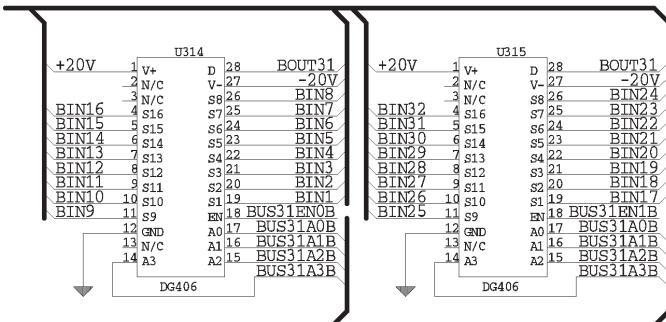
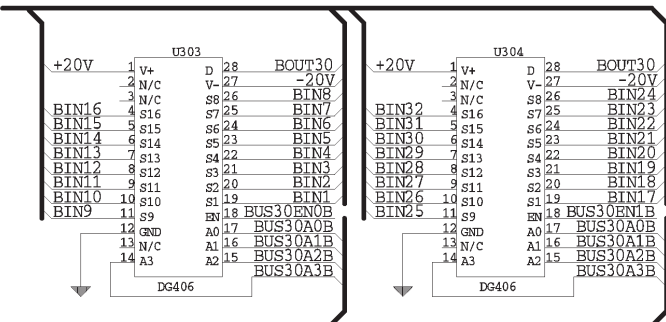
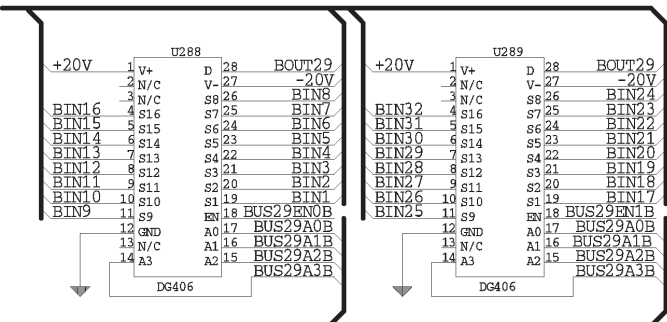
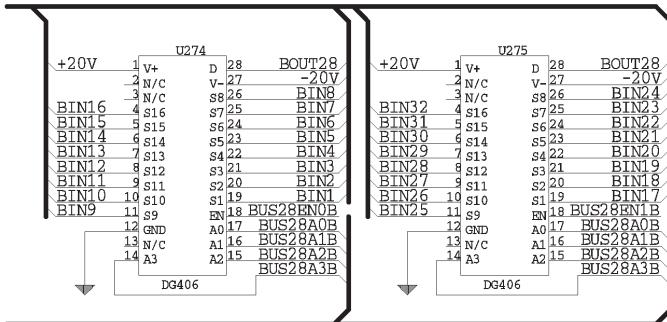
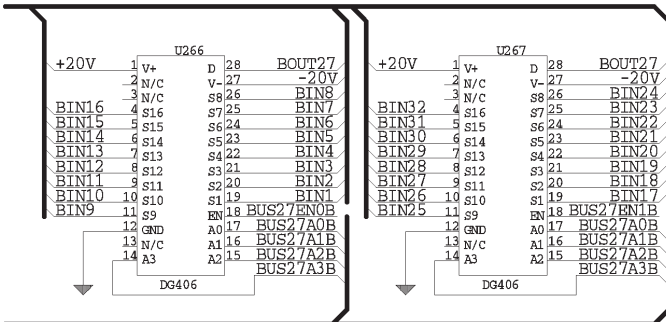
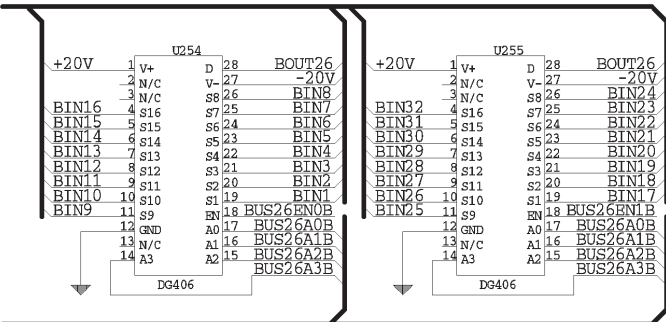
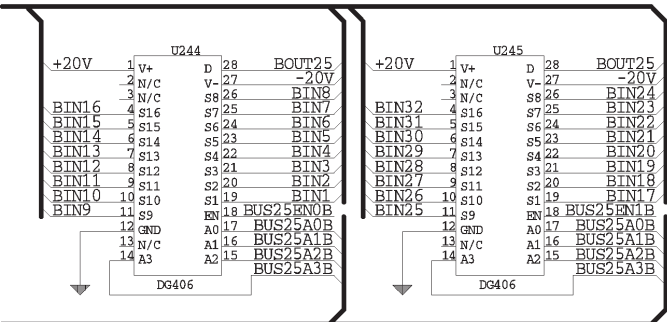
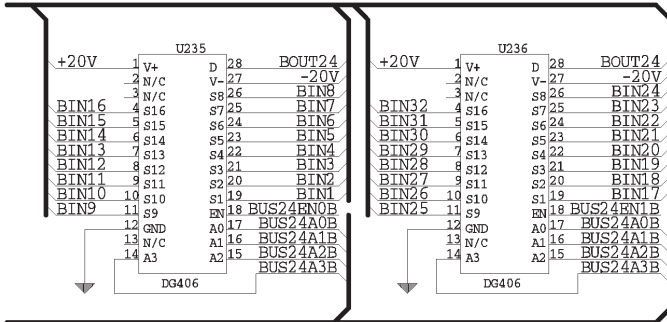
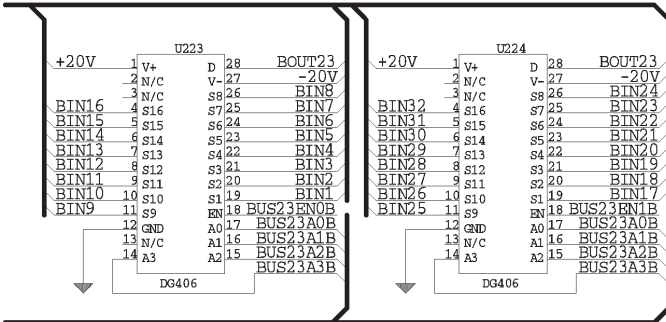
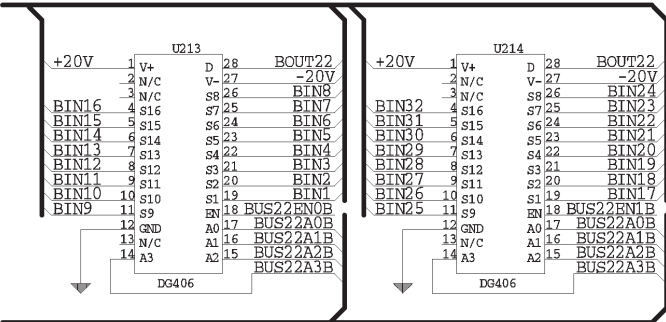
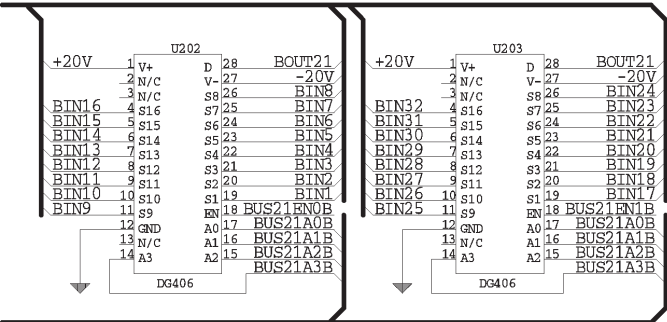
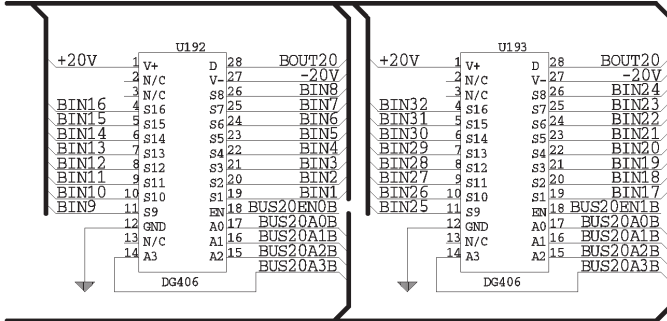
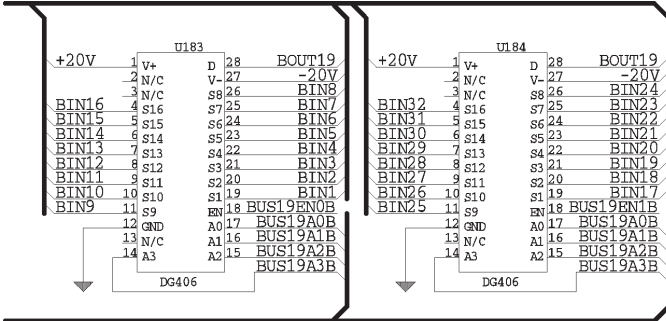
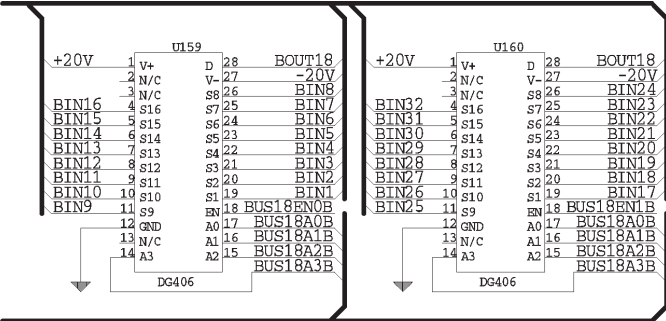
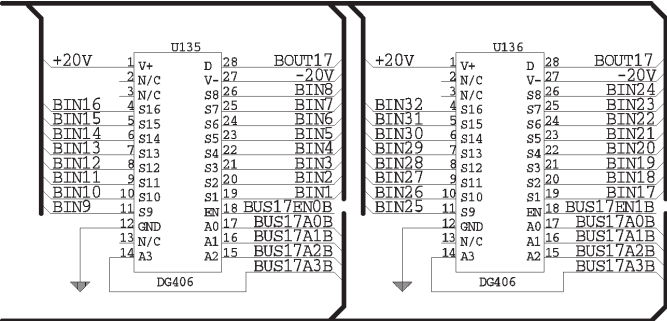


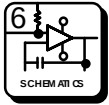
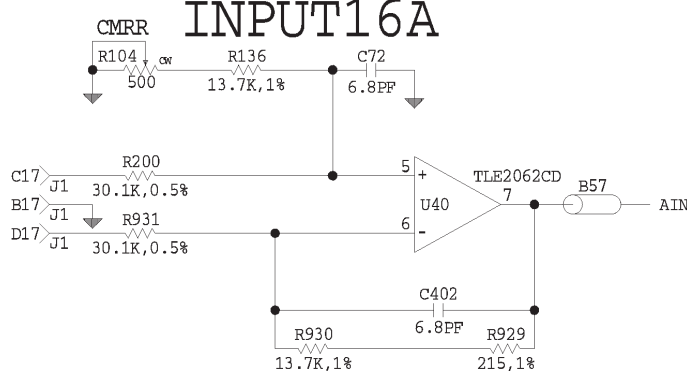
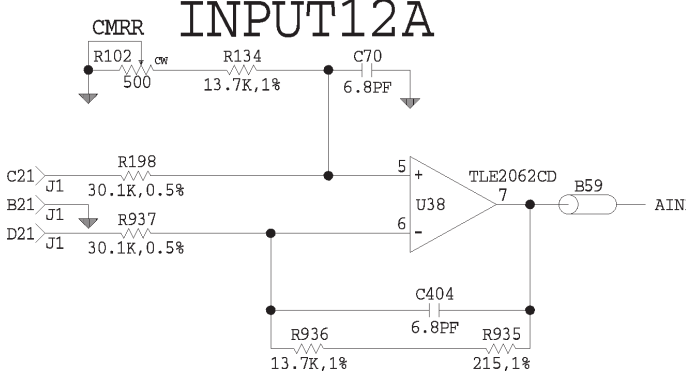
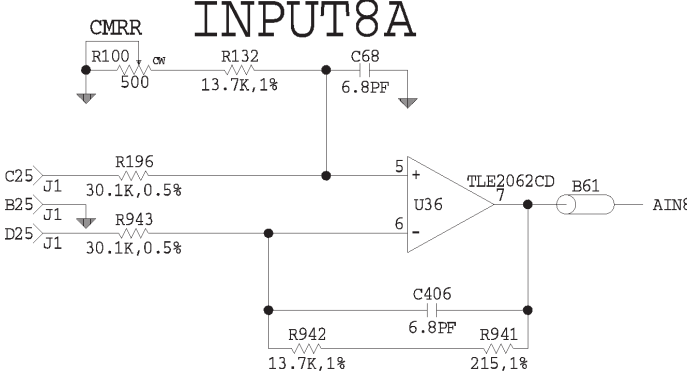
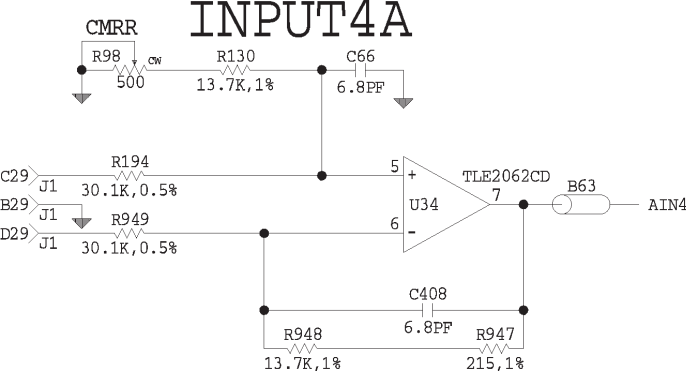
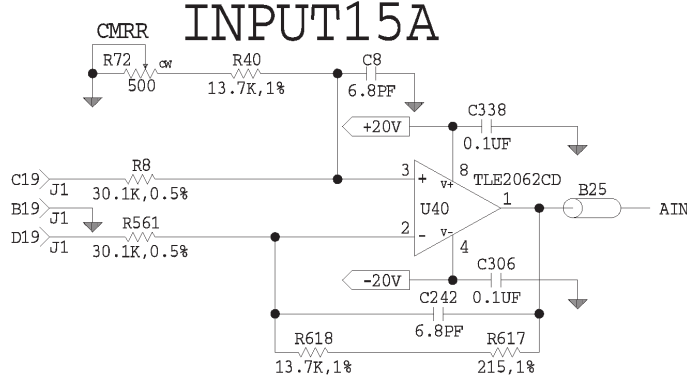
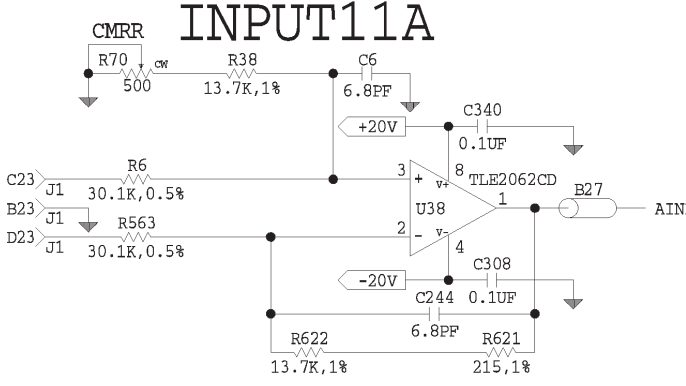
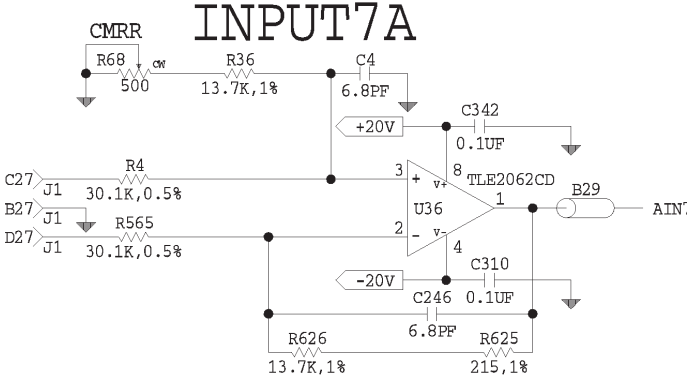
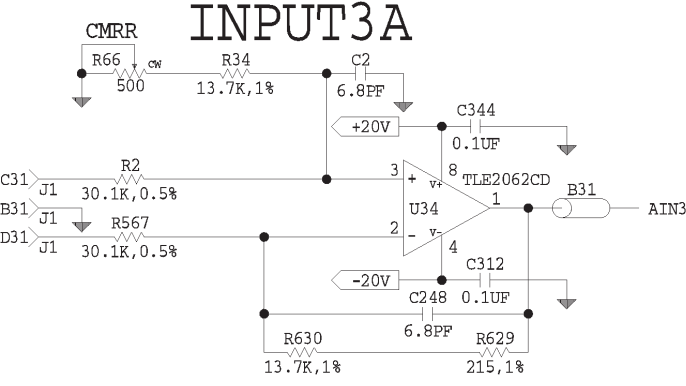
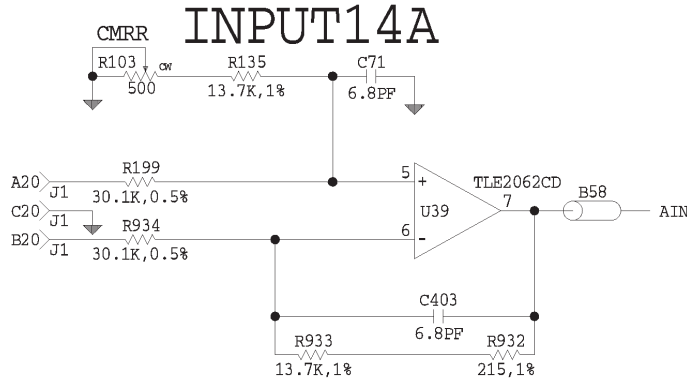
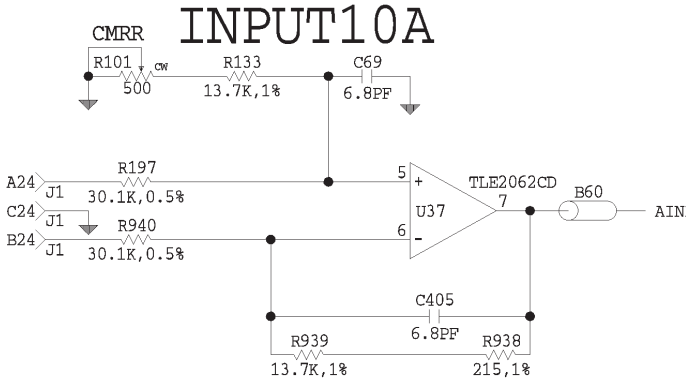
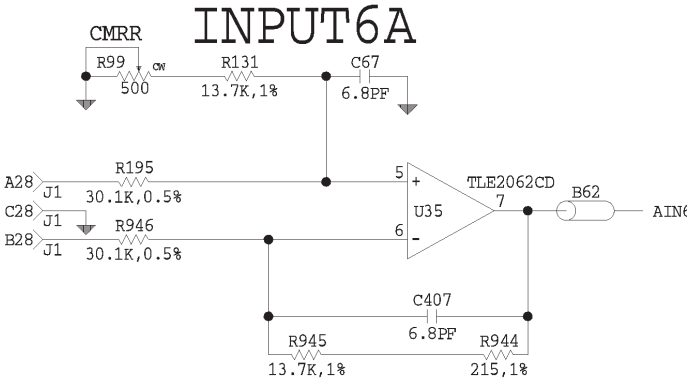
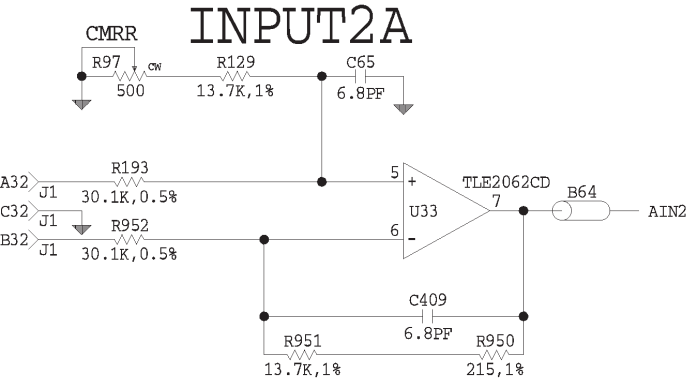
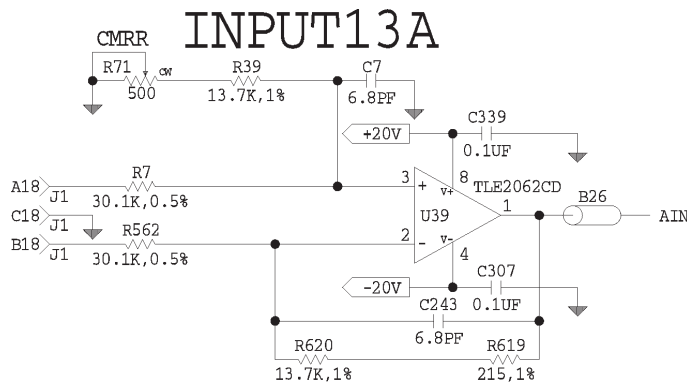
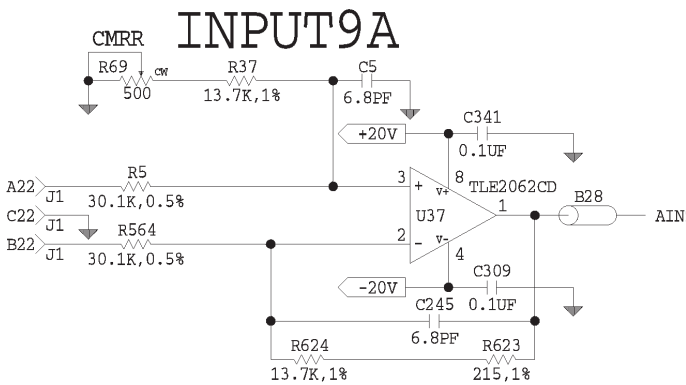
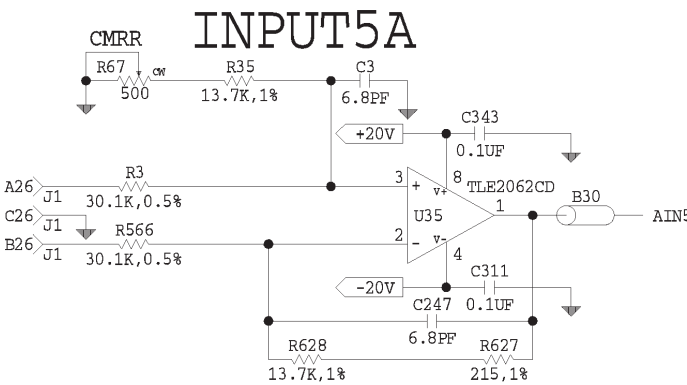
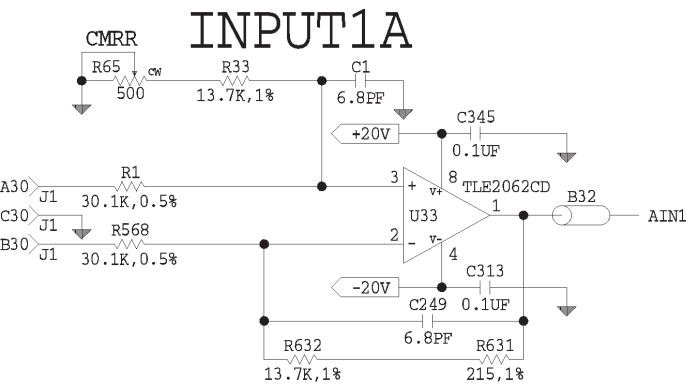


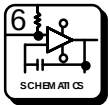
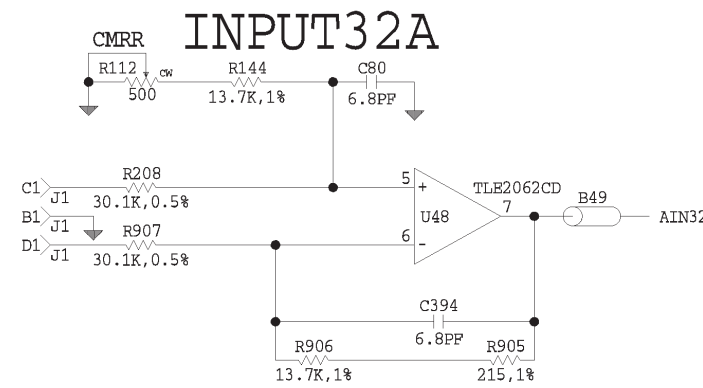
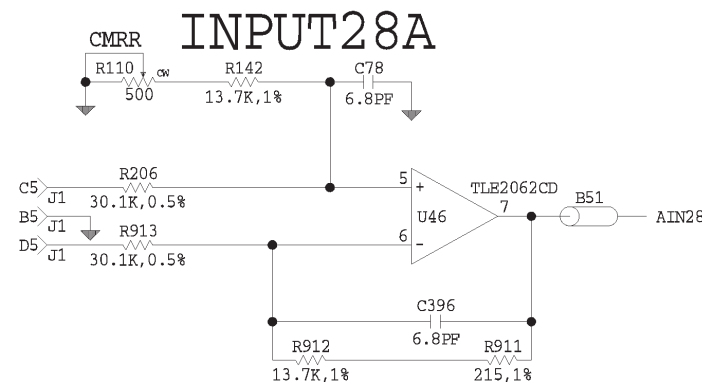
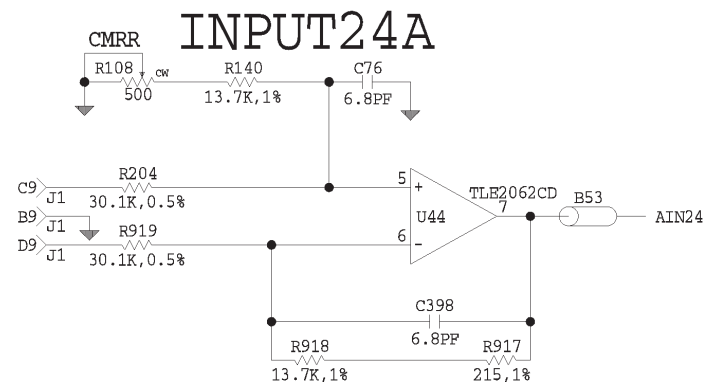
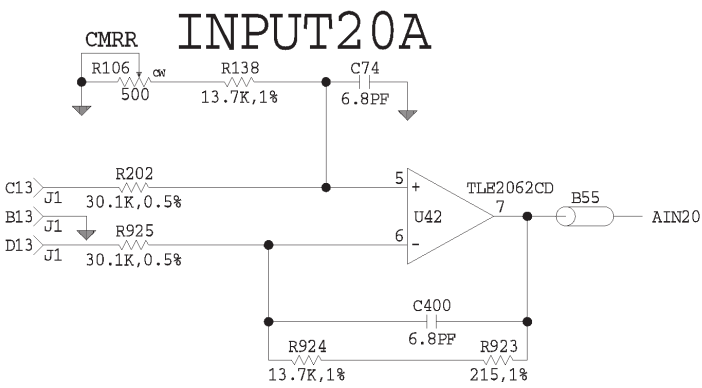
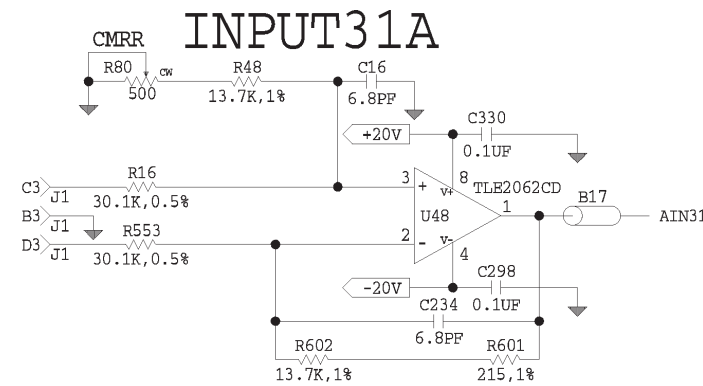
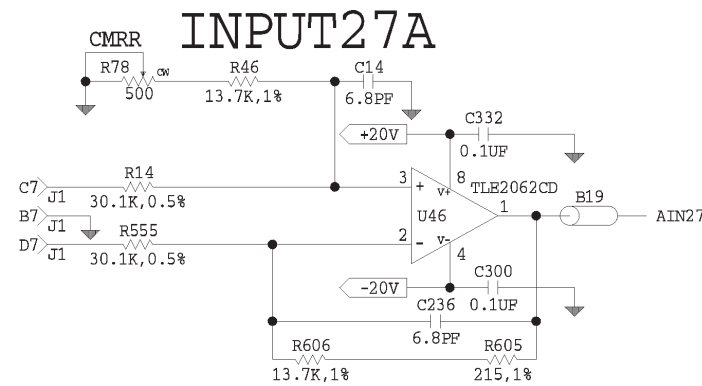
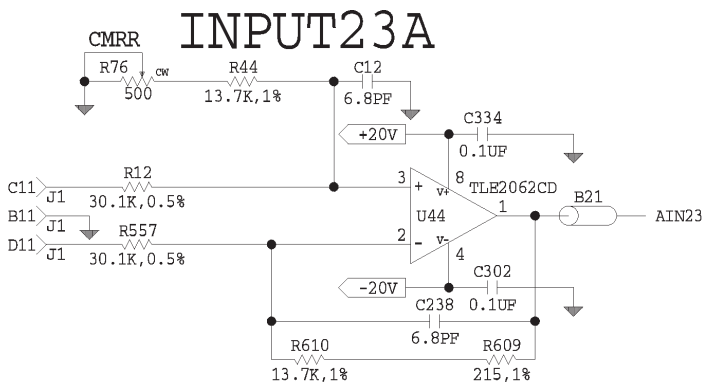
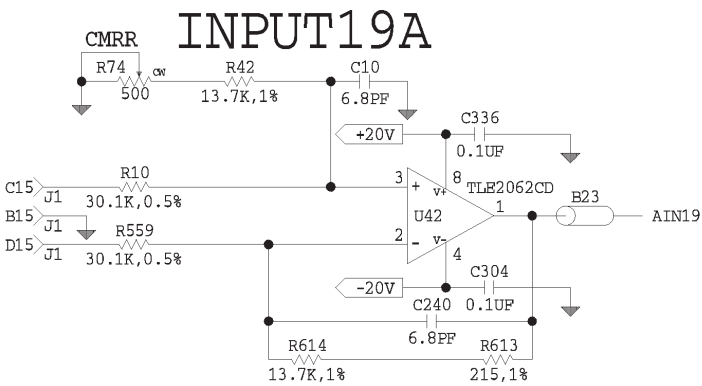
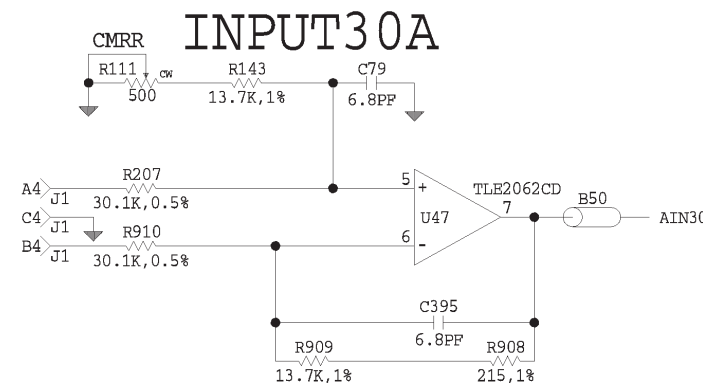
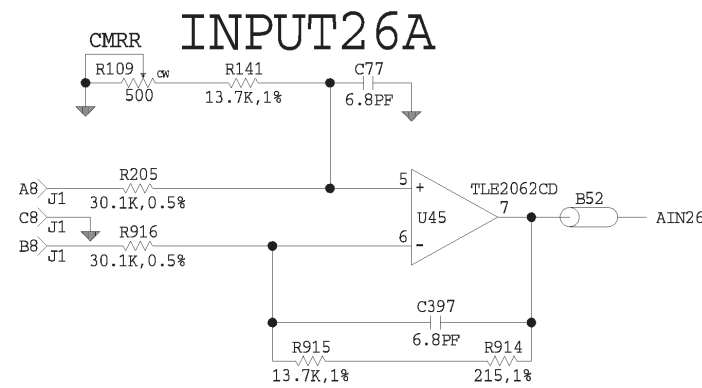
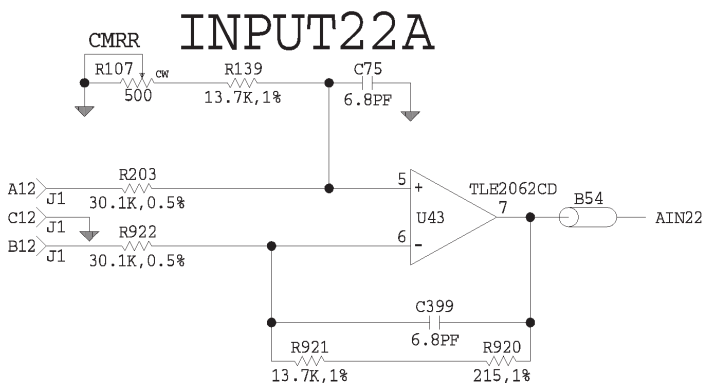
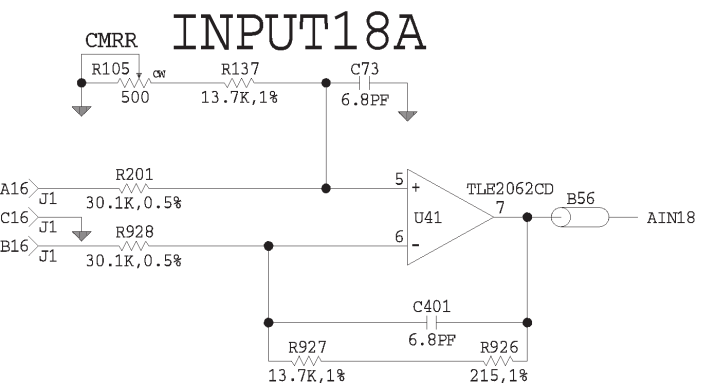
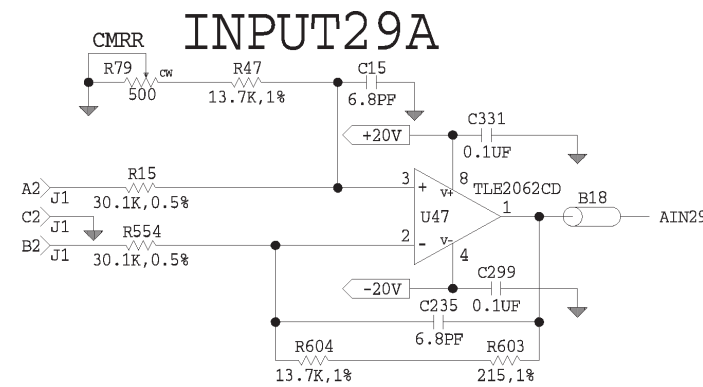
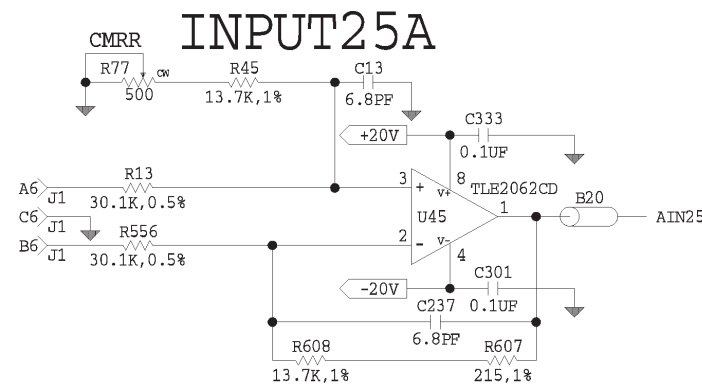
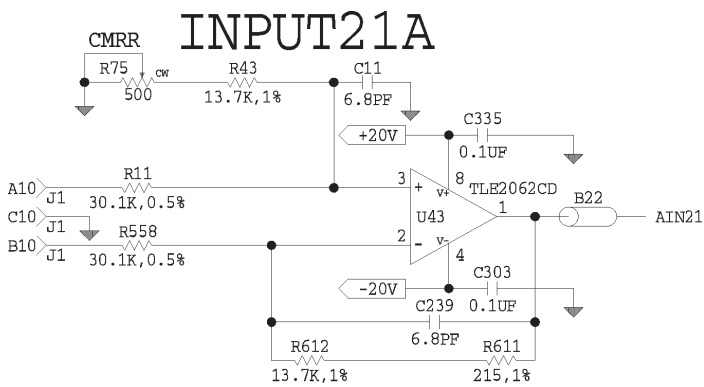
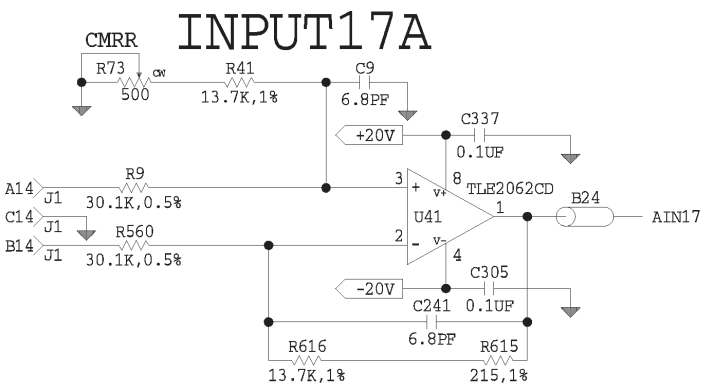


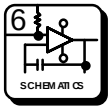
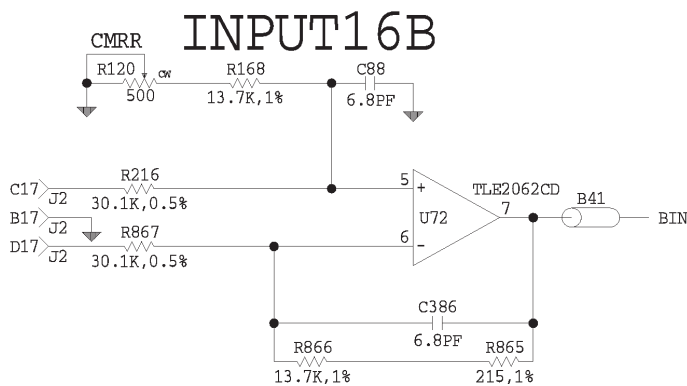
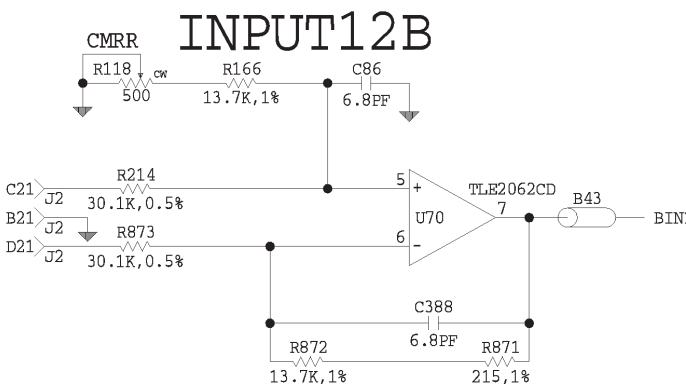
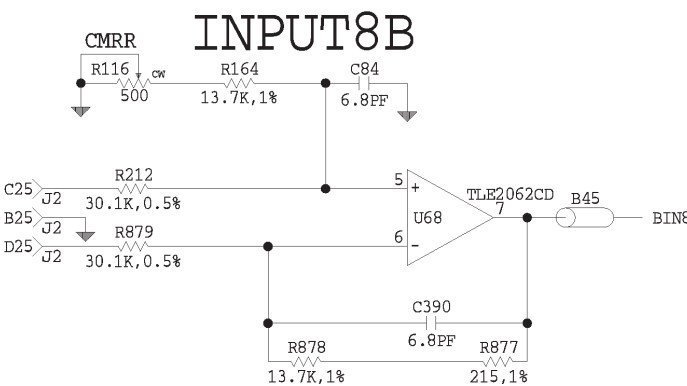
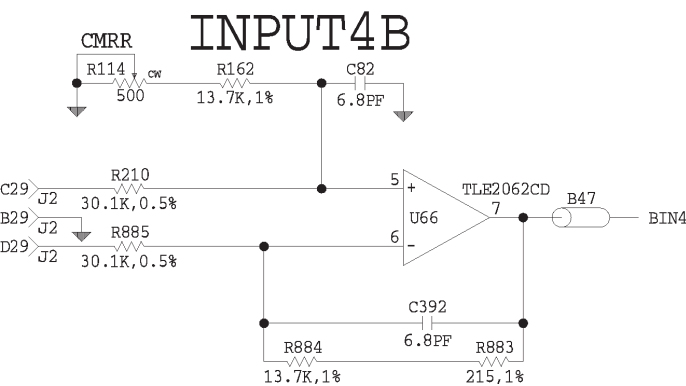
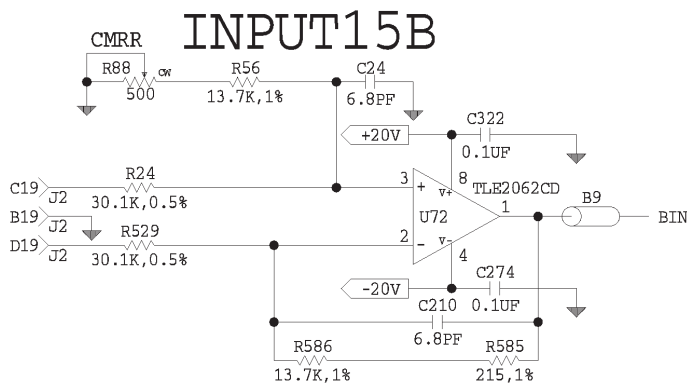
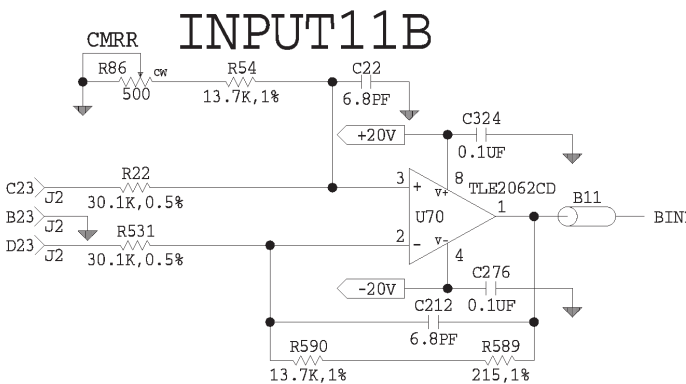
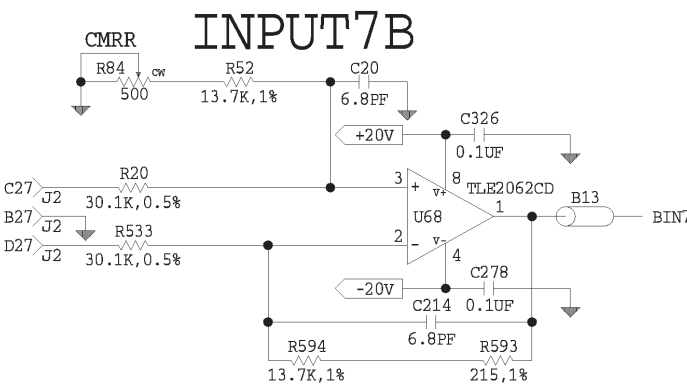
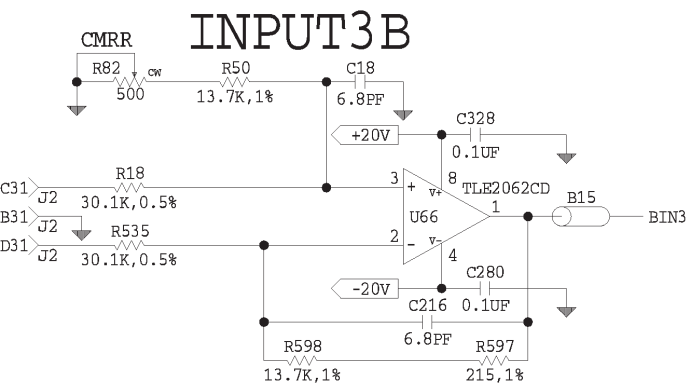
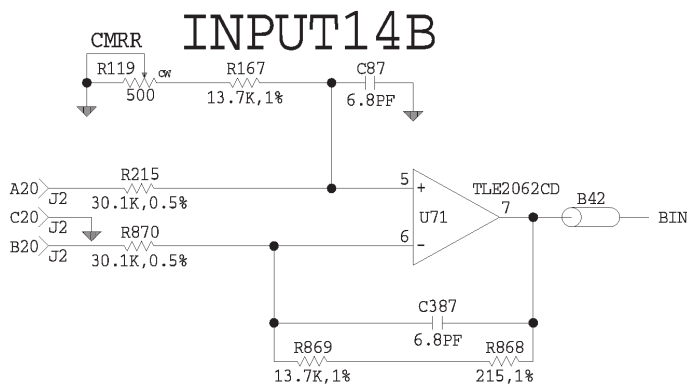
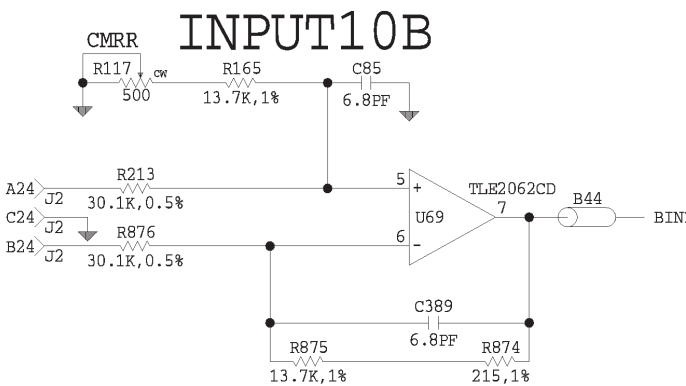
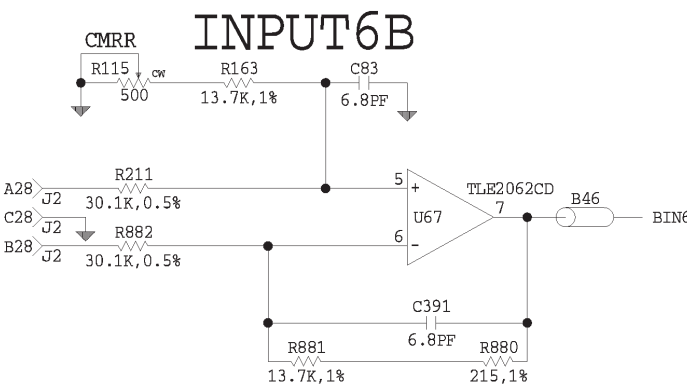
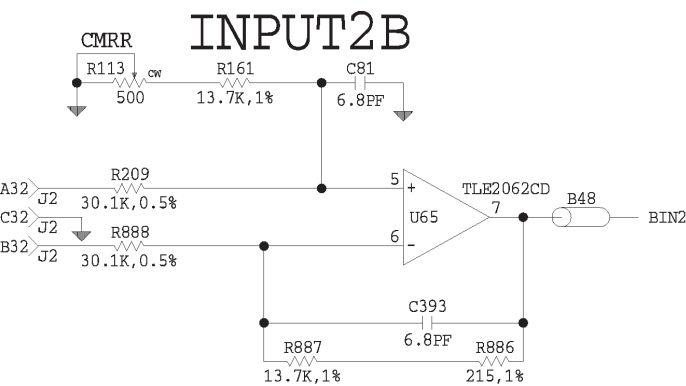
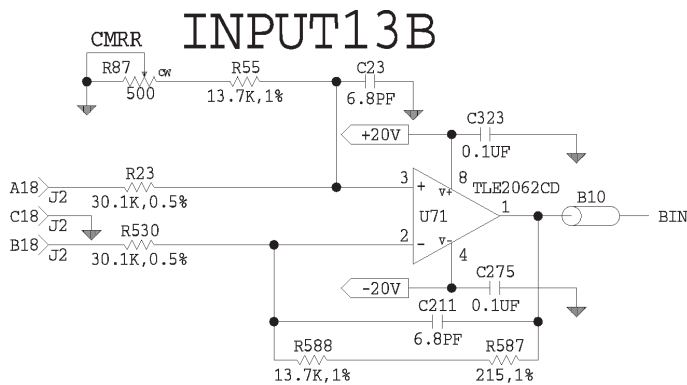
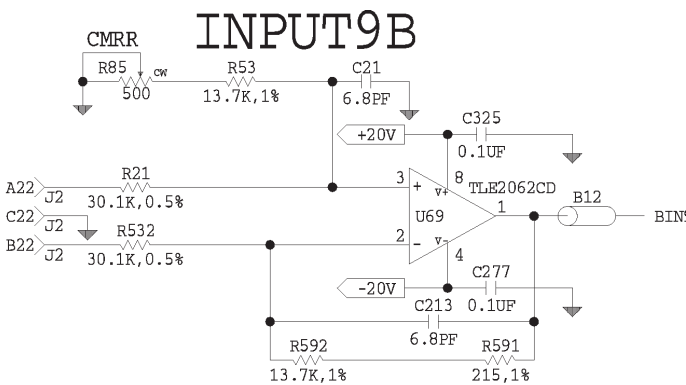
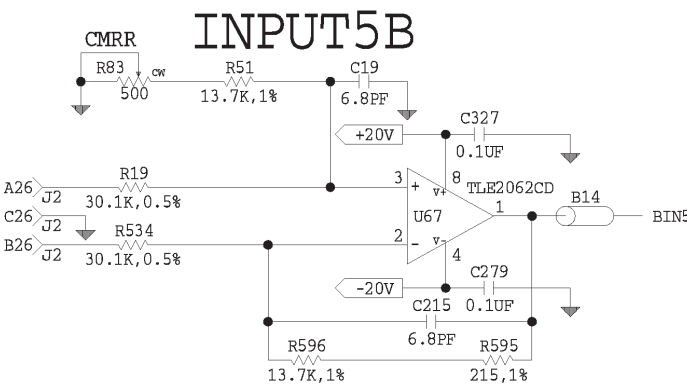
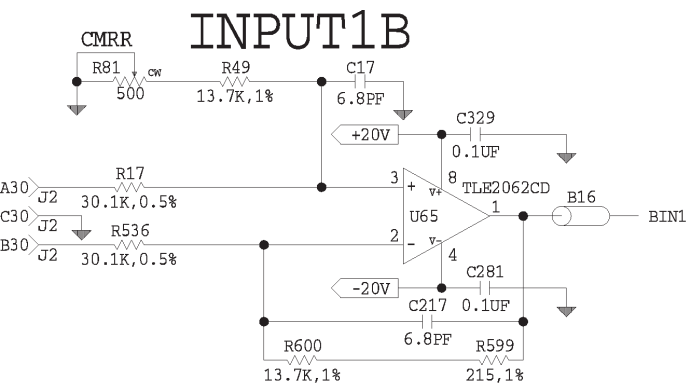
Schematic (Sheet 7 of 24) • 64X32 Analog Audio Matrix Card • SC33-1277

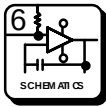
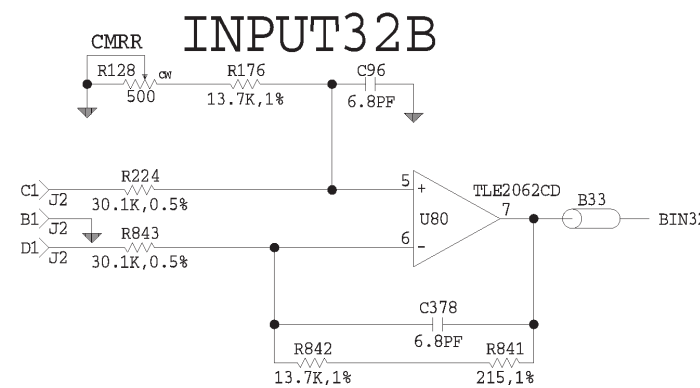
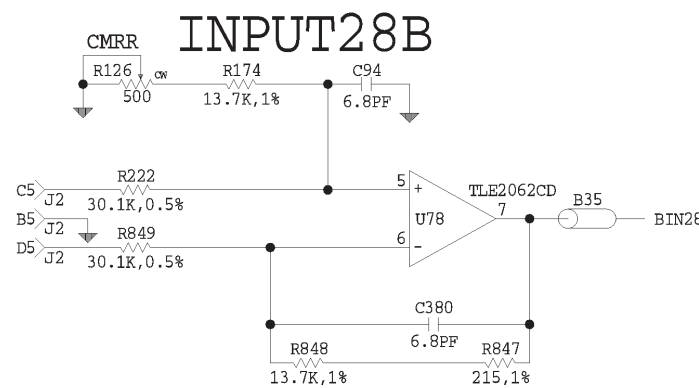
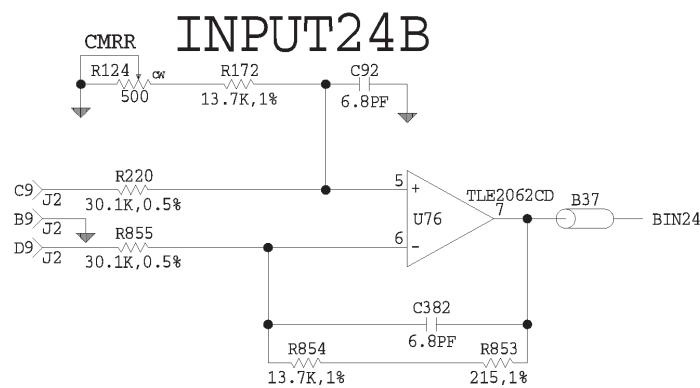
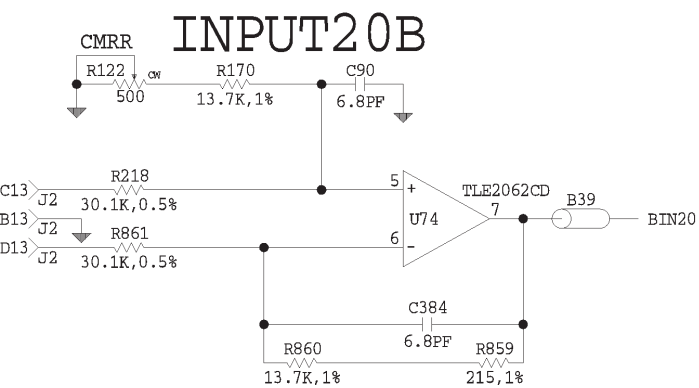
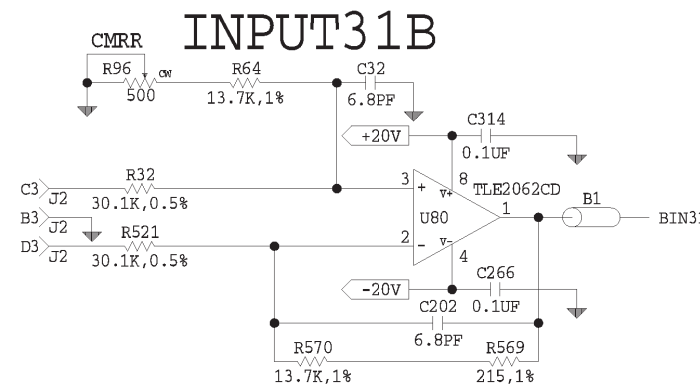
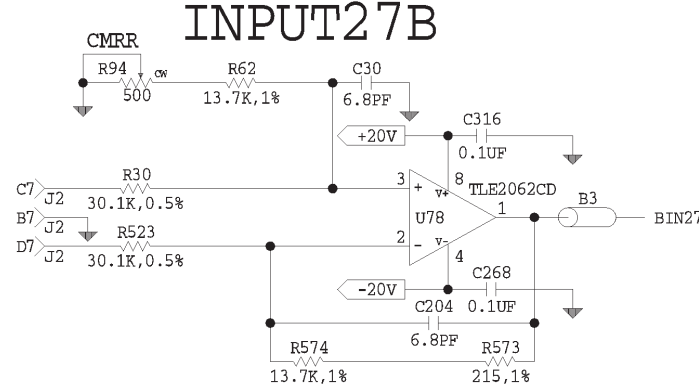
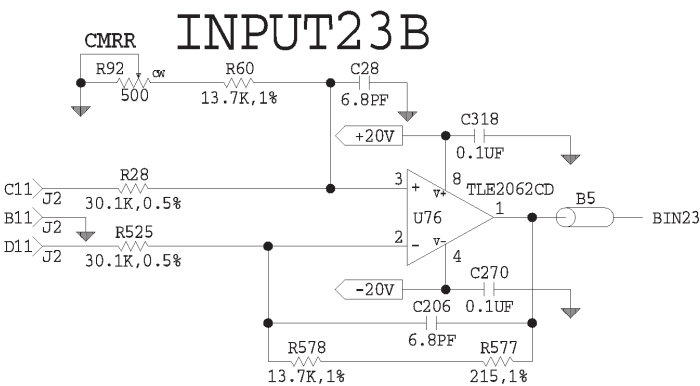
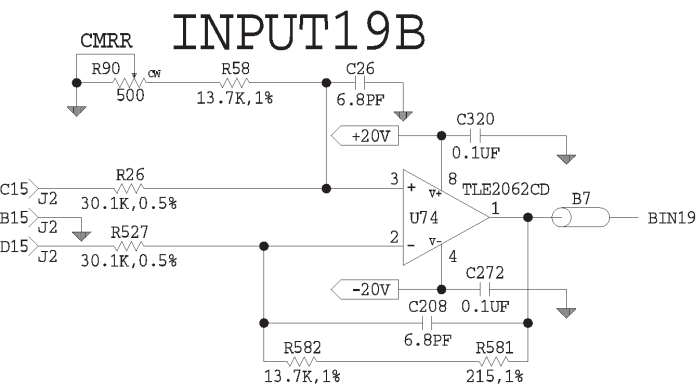
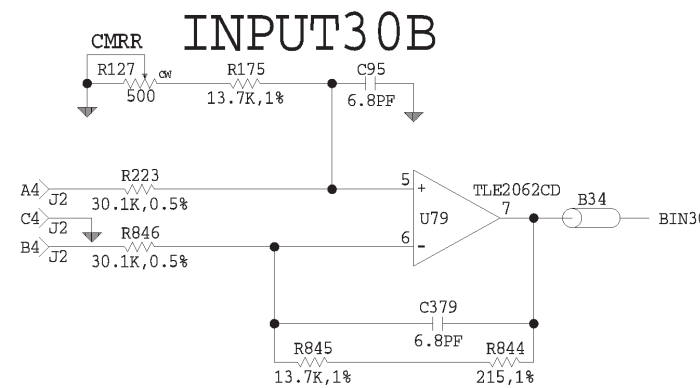
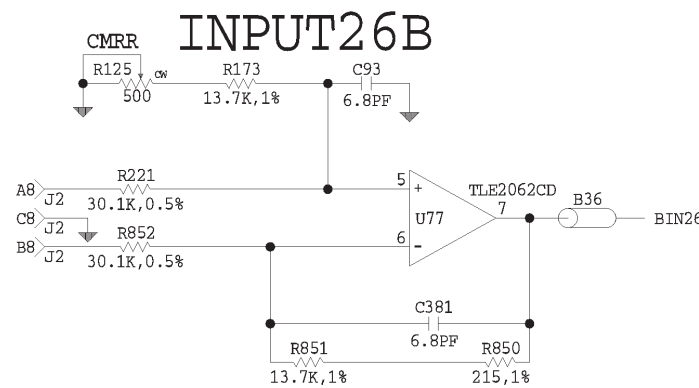
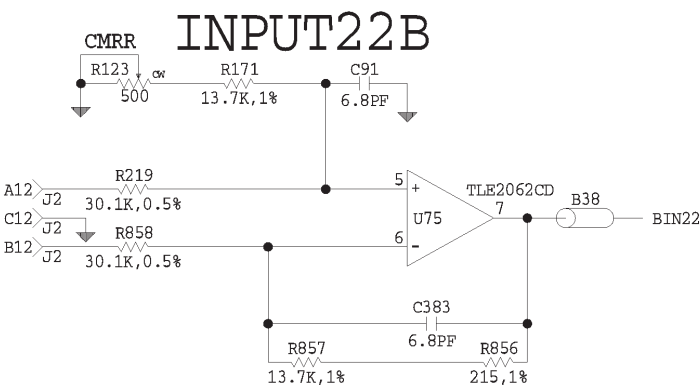
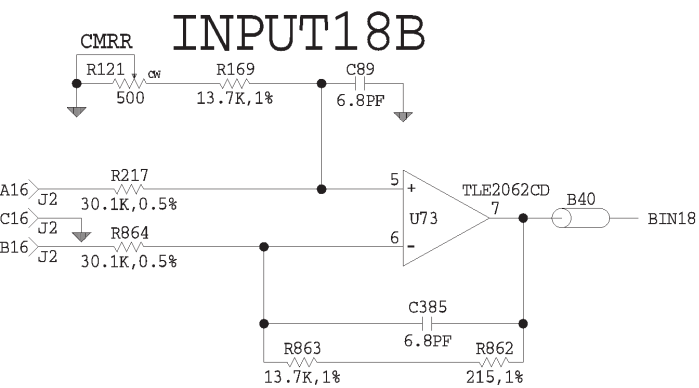
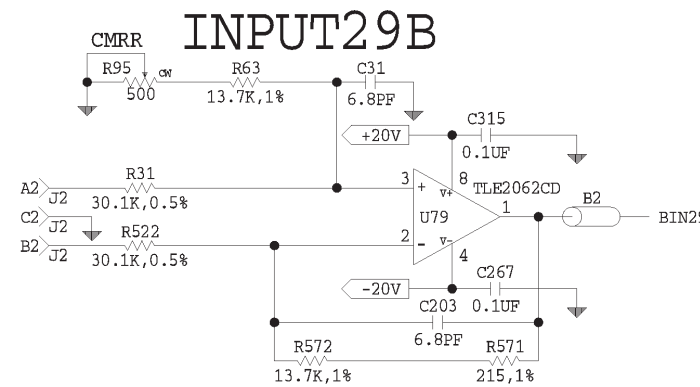
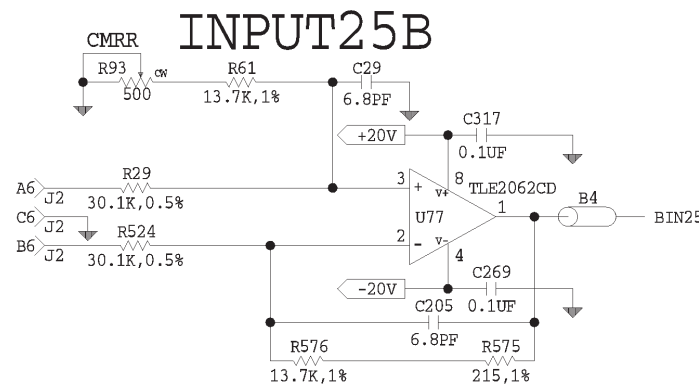
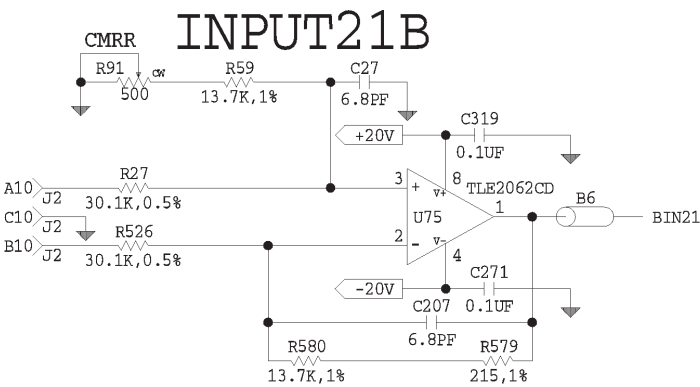
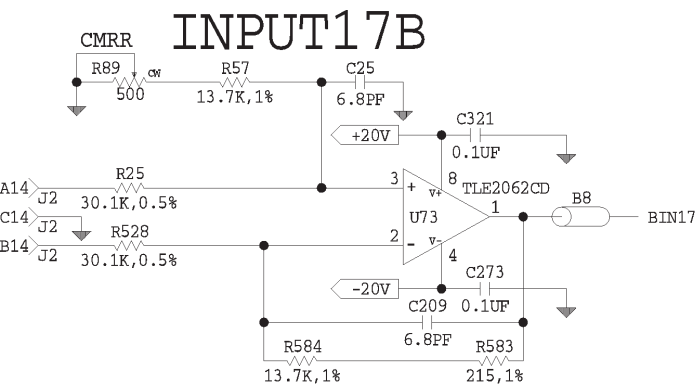




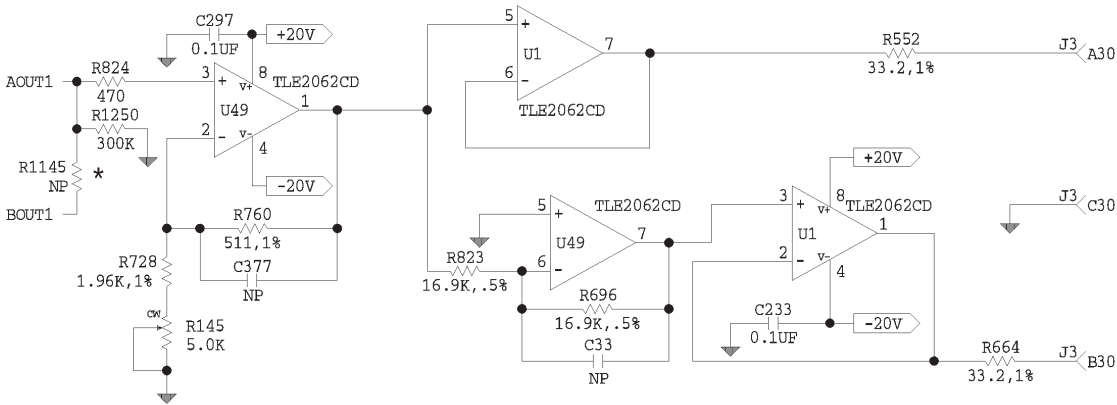




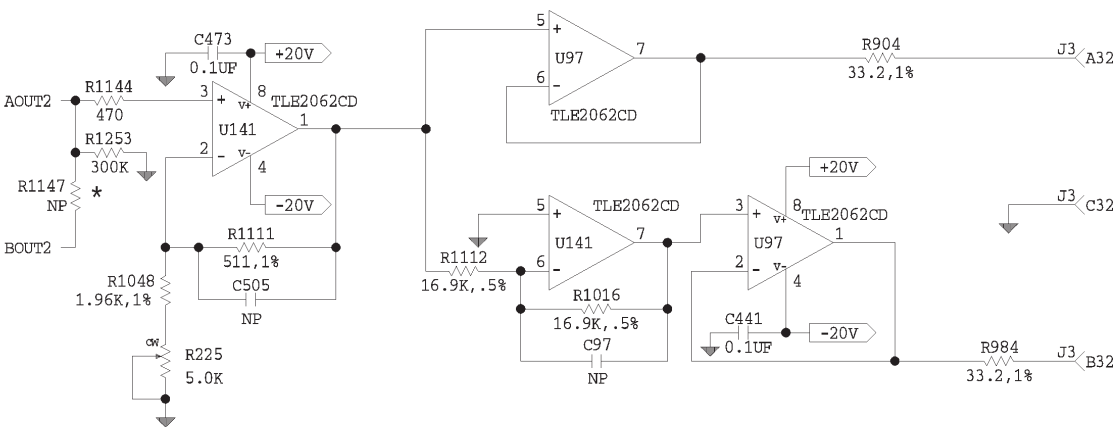




OUTPUT1A



OUTPUT2A

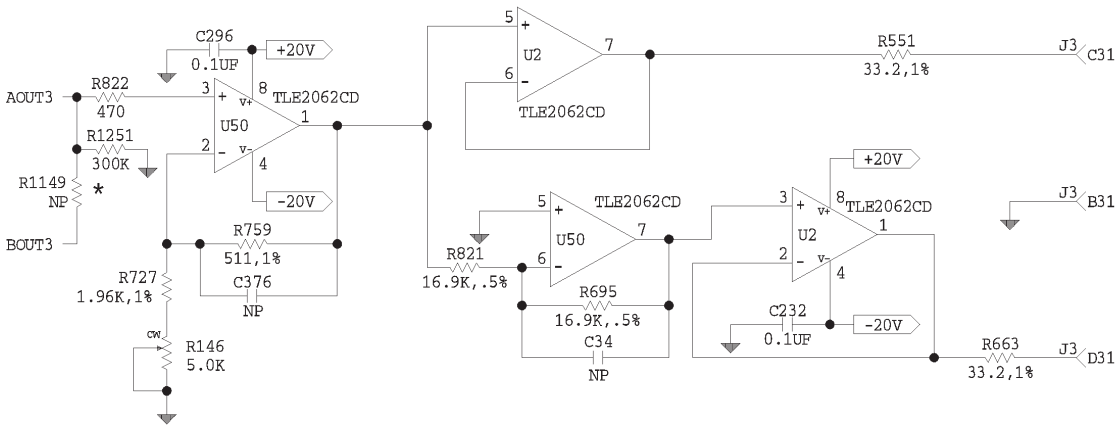


* NOTE 1 FOR 81906518560
(64X32 SINGLE MATRIX)
ADD 32 RESISTORS PESA PART NUMBER
81906621520 0 OHM 5% 1206 PACKAGE
TO RESISTOR POSTIONS SHOWN BELOW.
R1145, R1146, R1147, R1148, R1149,
R1150, R1151, R1152, R1153, R1154,
R1155, R1156, R1157, R1158, R1159,
R1160, R1162, R1163, R1164, R1165,
R1167, R1171, R1172, R1173, R1197,
R1212, R1214, R1219, R1226, R1233,
R1233, AND 1246

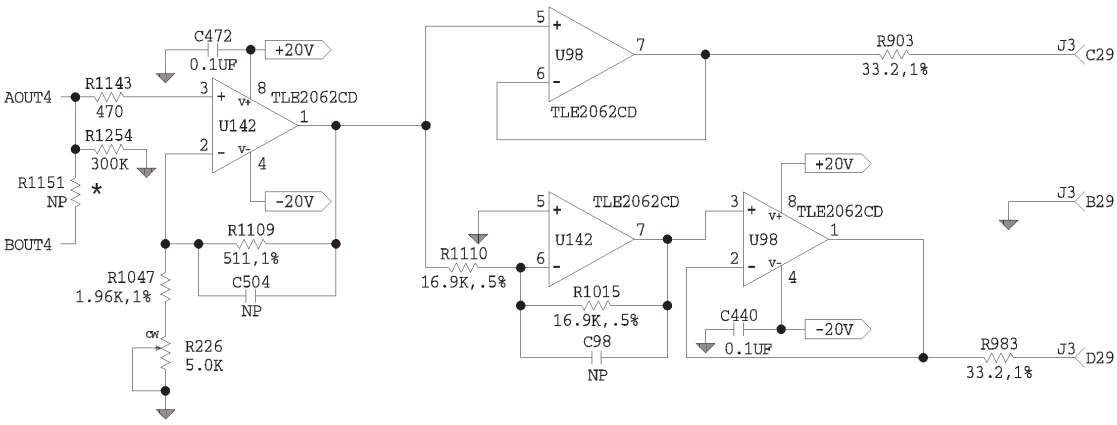
* NOTE 2 FOR 81906517470
(32X32 DUAL MATRIX)

RESISTOR LISTED ABOVE ARE NOT PLACED
AS SHOWN ON SCHEMATIC.

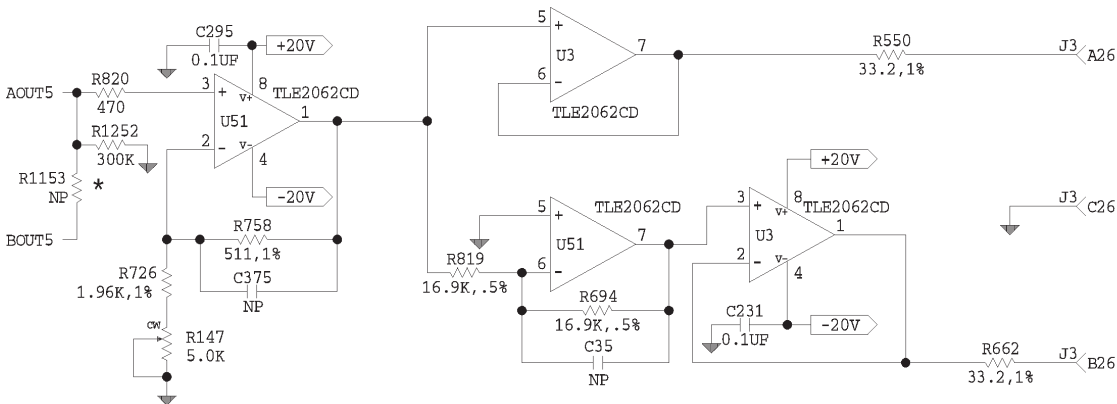
OUTPUT3A



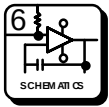
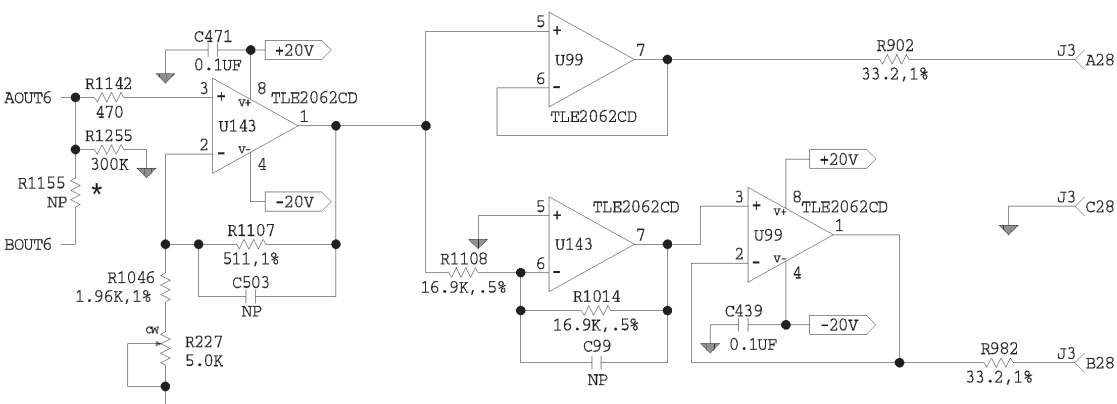
OUTPUT4A



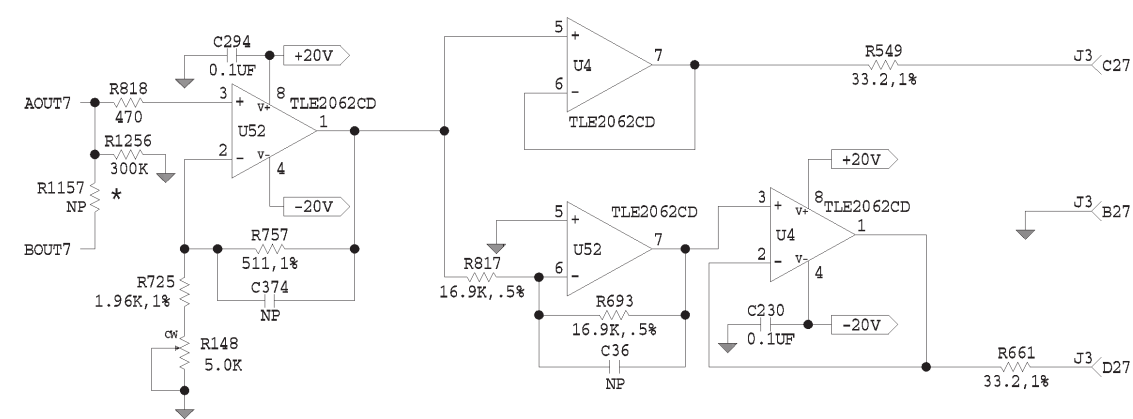
OUTPUT5A



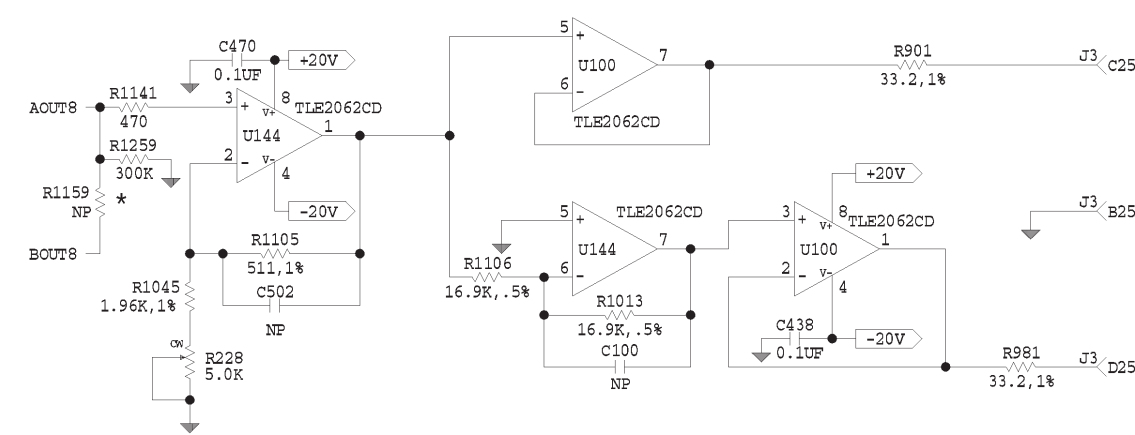
OUTPUT6A



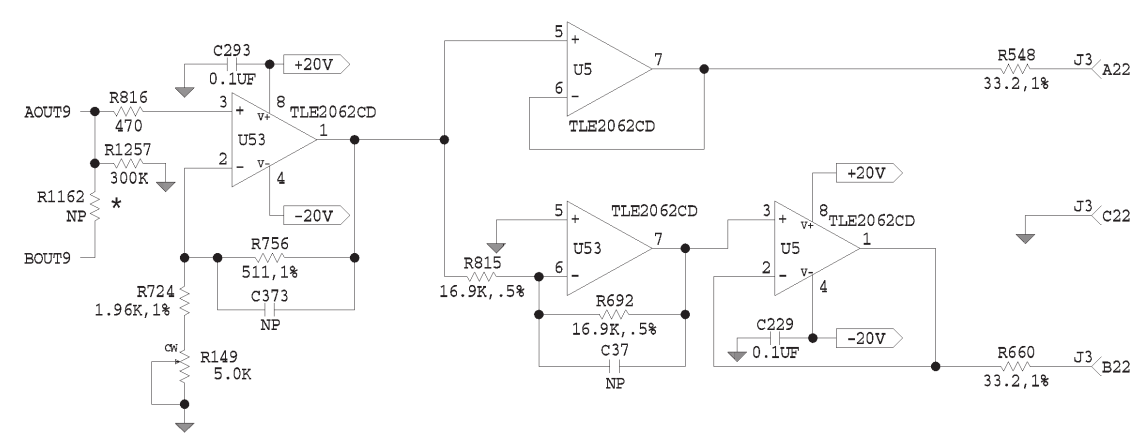
OUTPUT7A



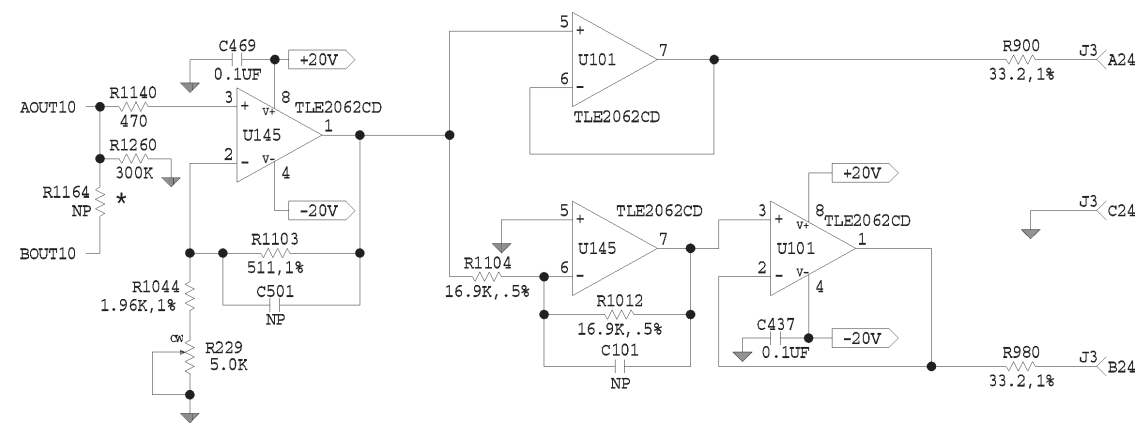
OUTPUT8A



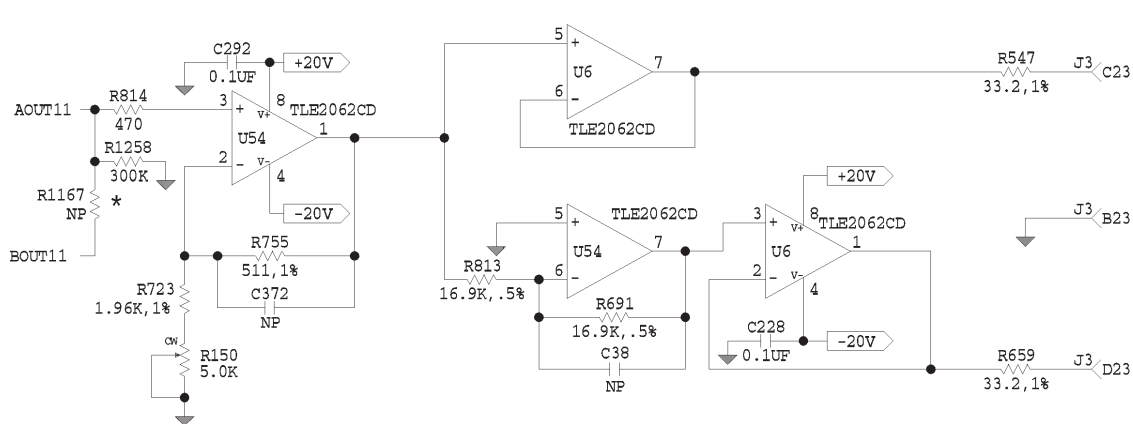
OUTPUT9A



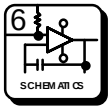
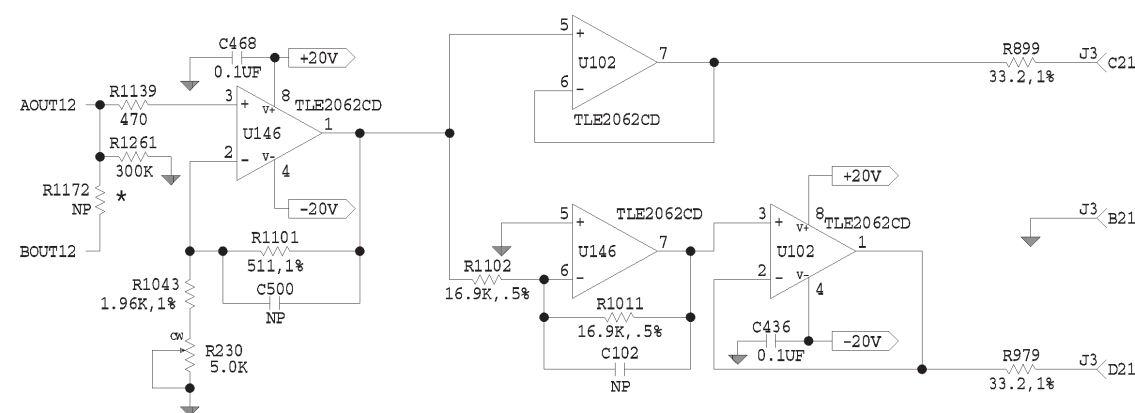
OUTPUT10A



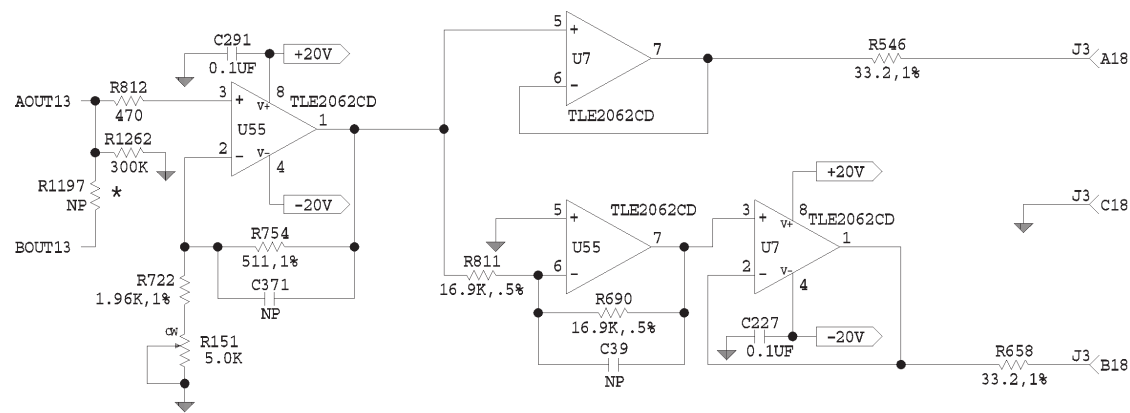
OUTPUT11A



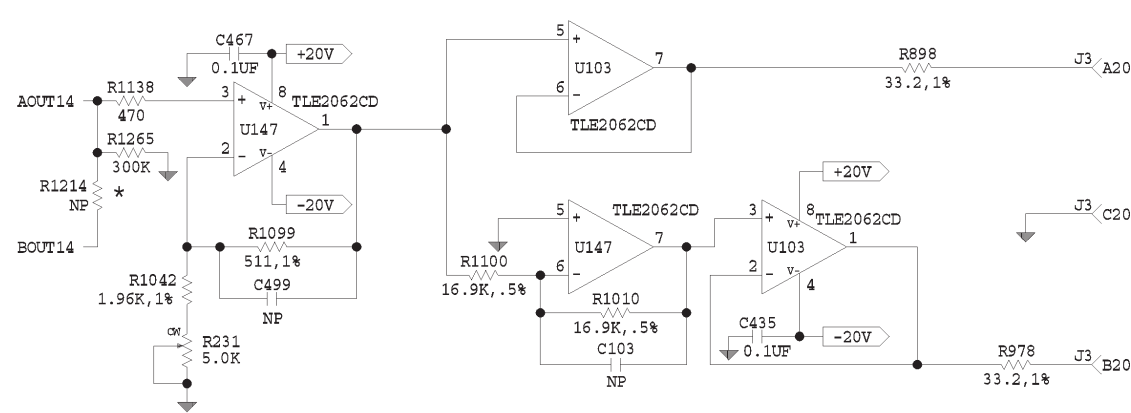
OUTPUT12A



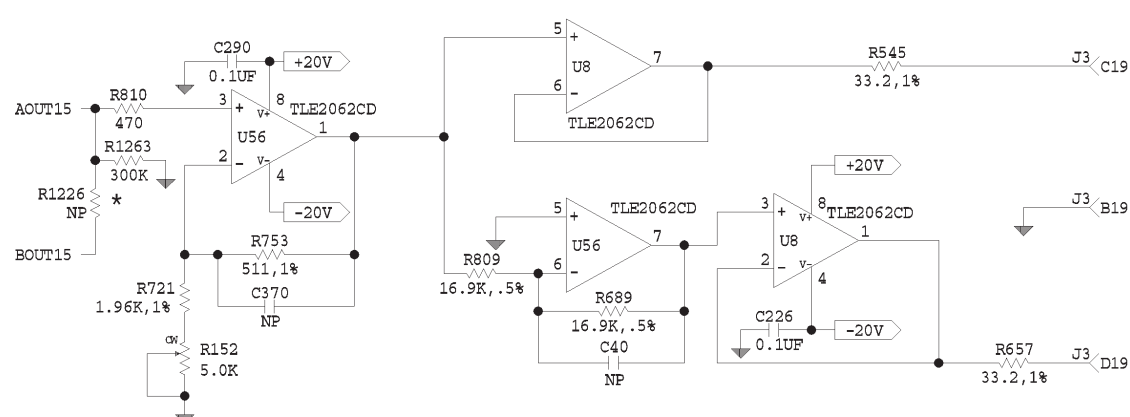
OUTPUT13A



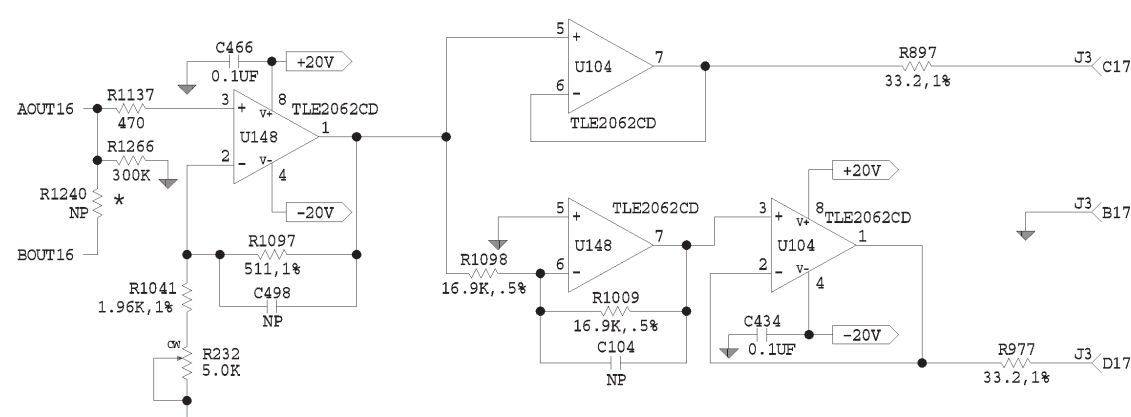
OUTPUT14A



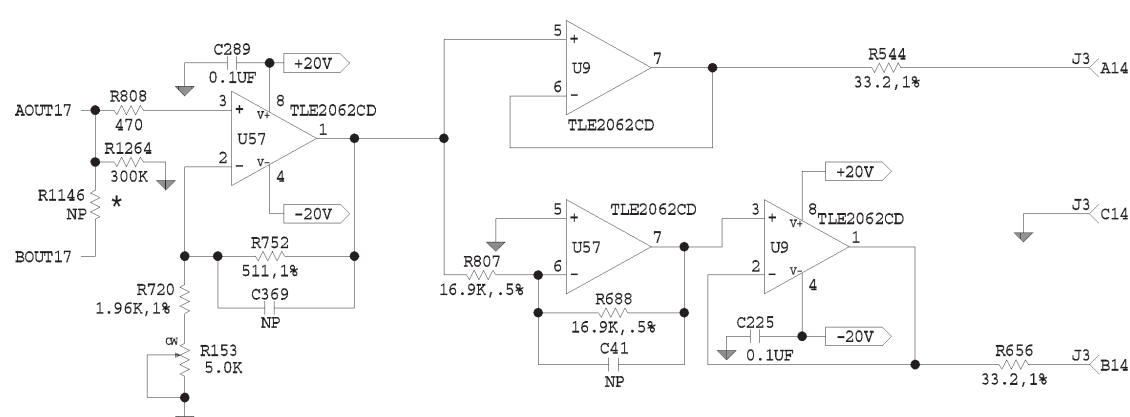
OUTPUT15A



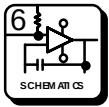
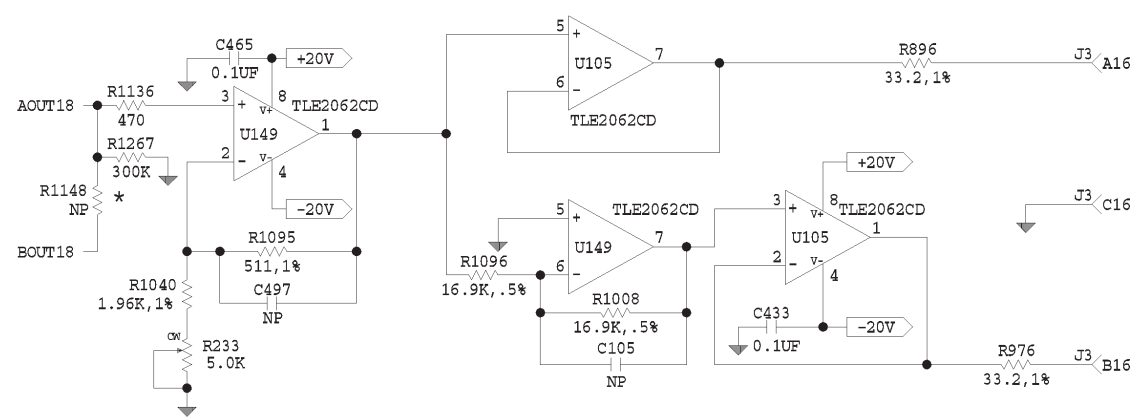
OUTPUT16A



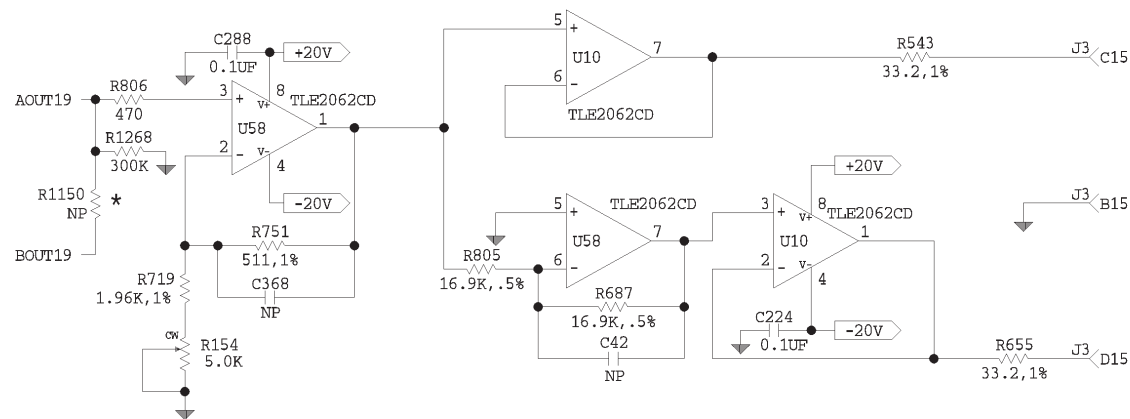
OUTPUT17A



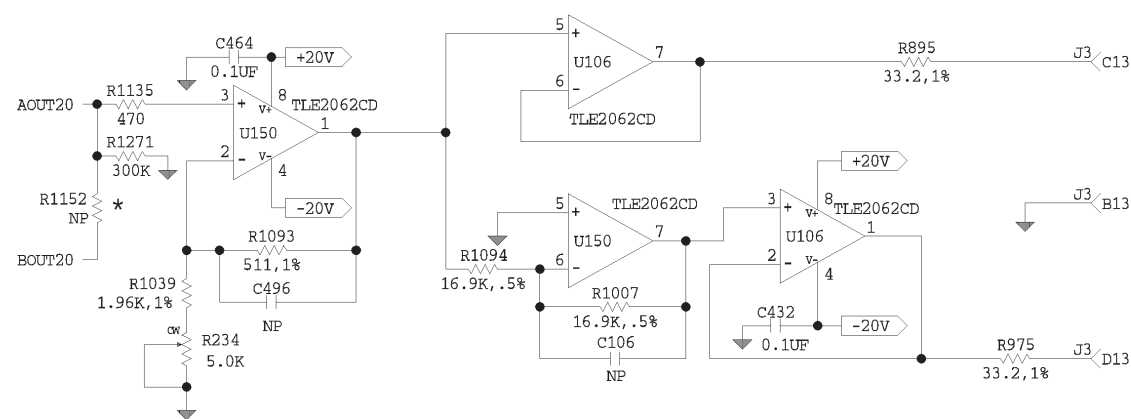
OUTPUT18A



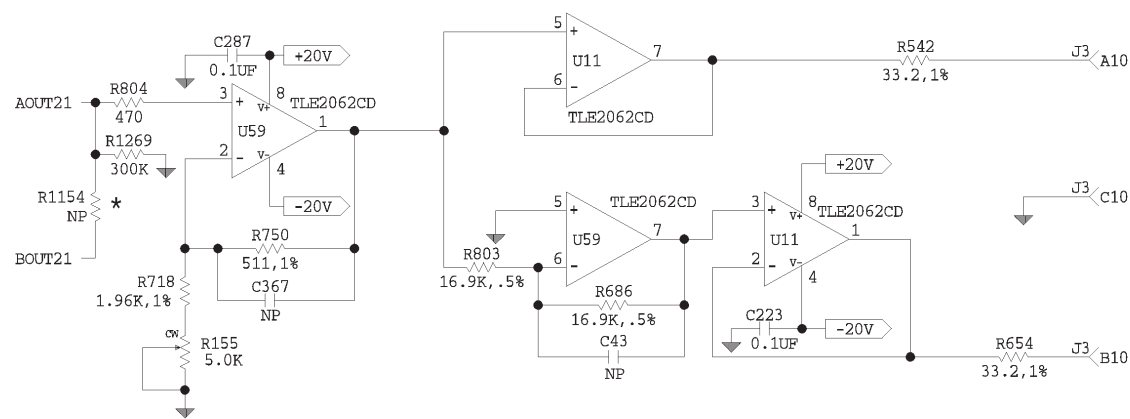
OUTPUT19A



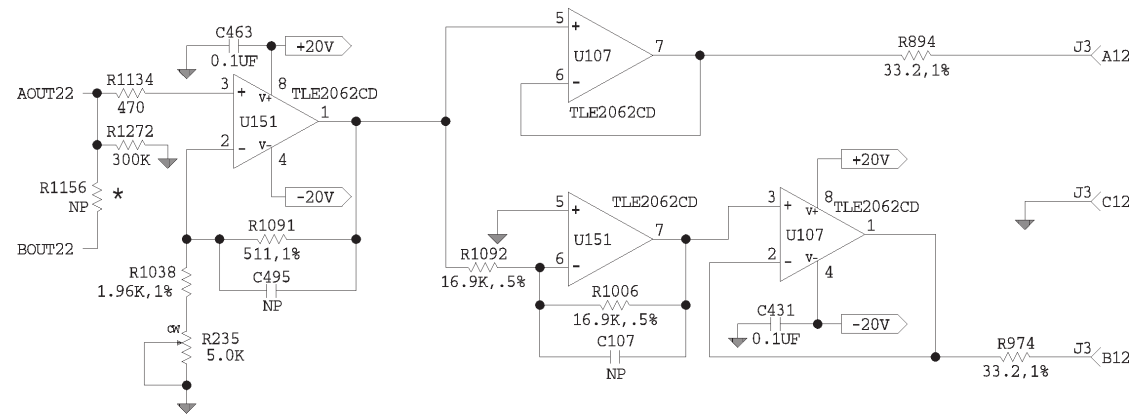
OUTPUT20A



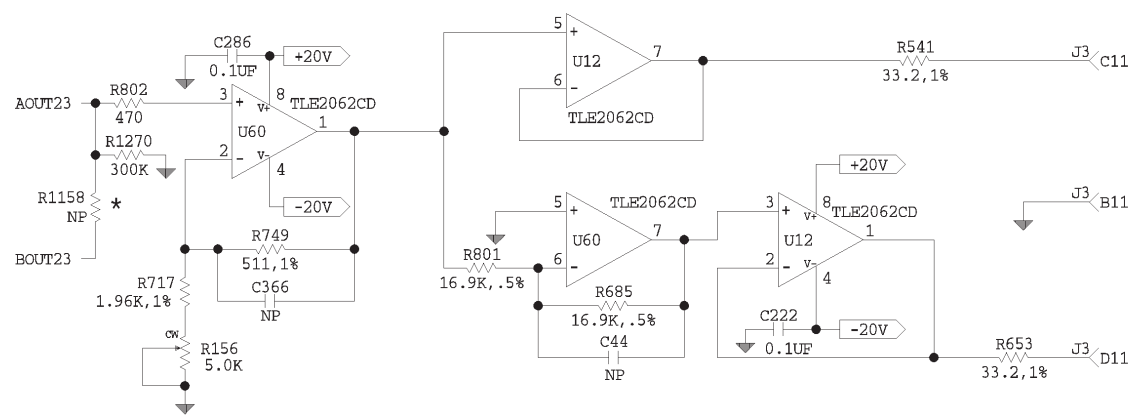
OUTPUT21A



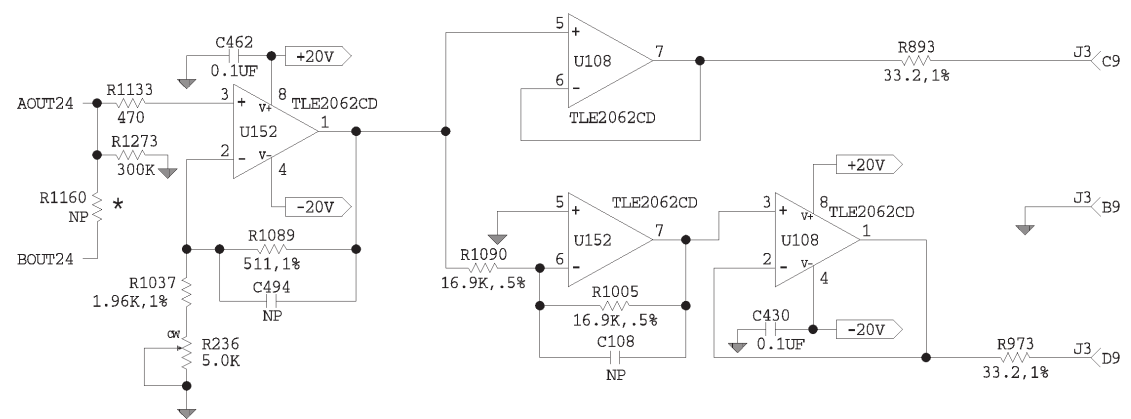
OUTPUT22A



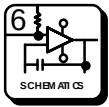
OUTPUT23A



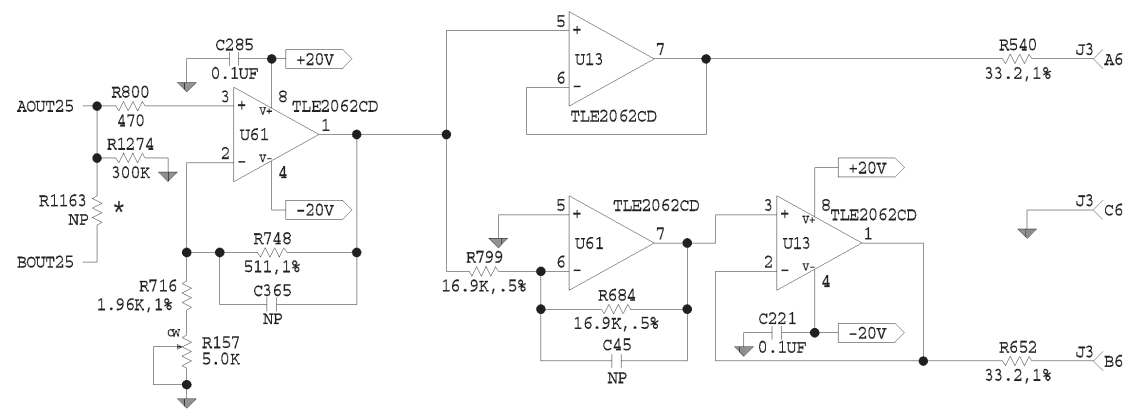
OUTPUT24A



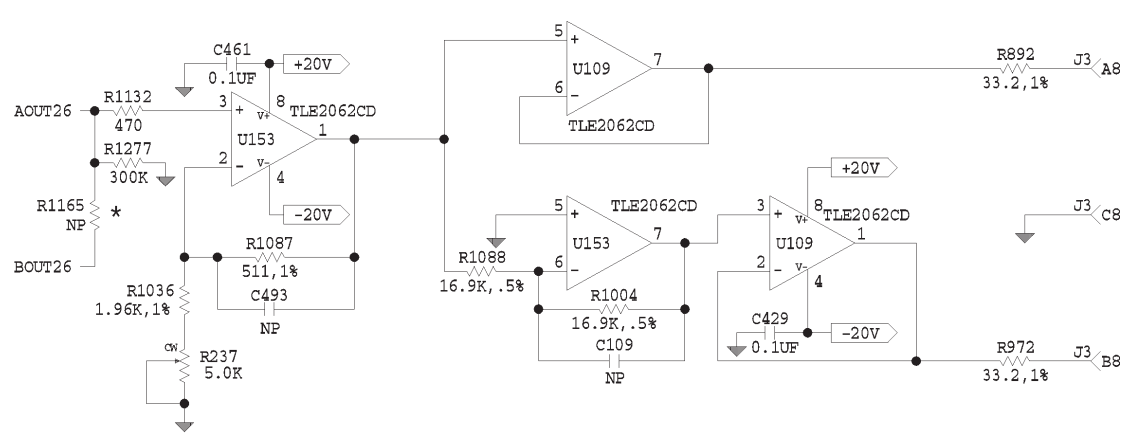
Schematic (Sheet 17 of 24) • 64X32 Analog Audio Matrix Card • SC33-1277



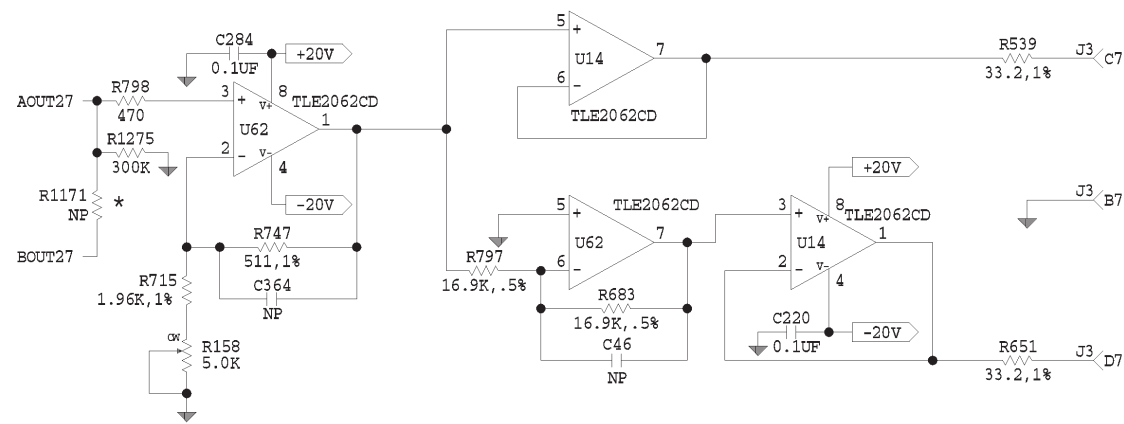
OUTPUT25A



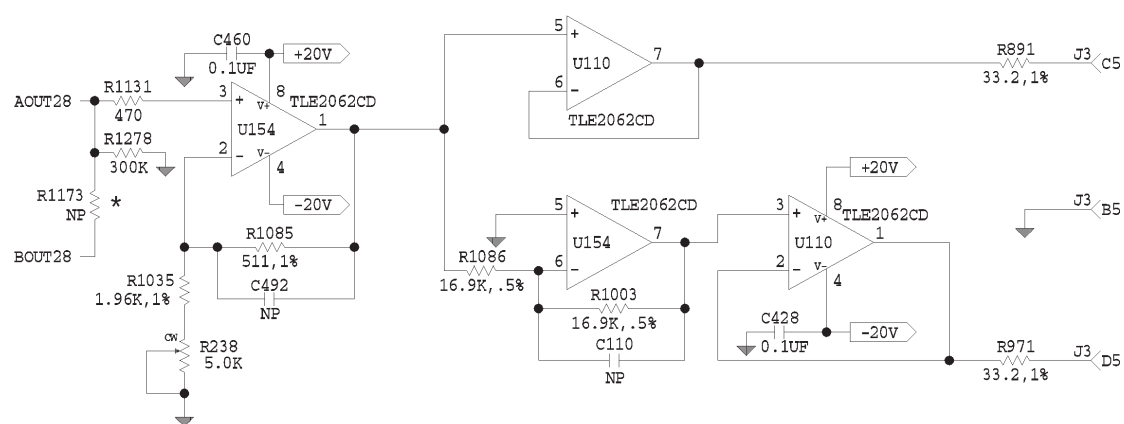
OUTPUT26A



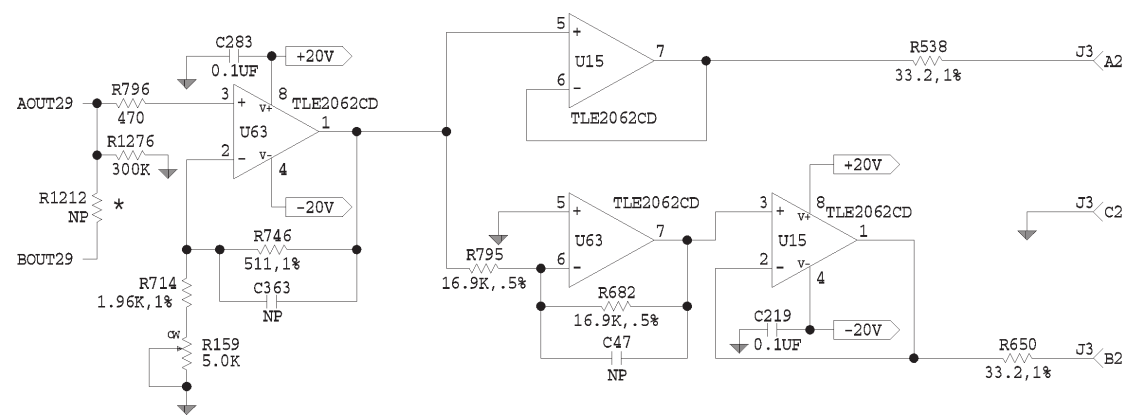
OUTPUT27A



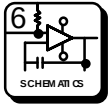
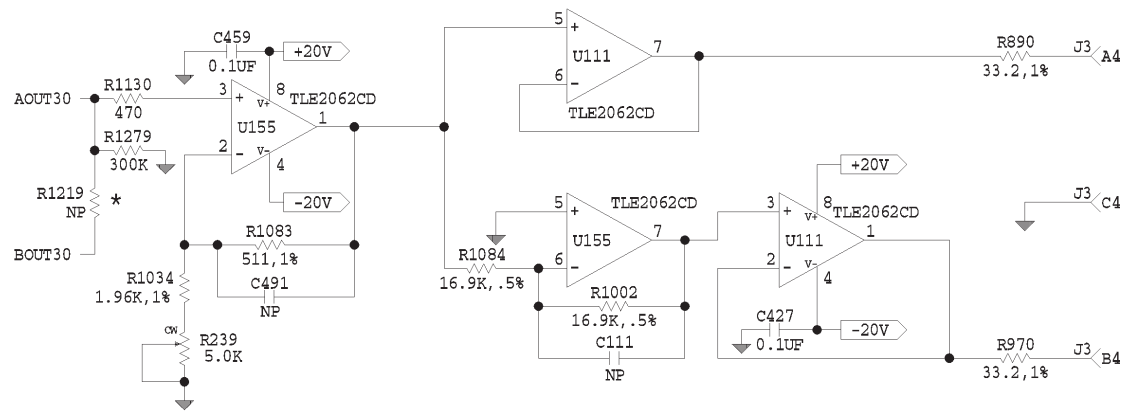
OUTPUT28A



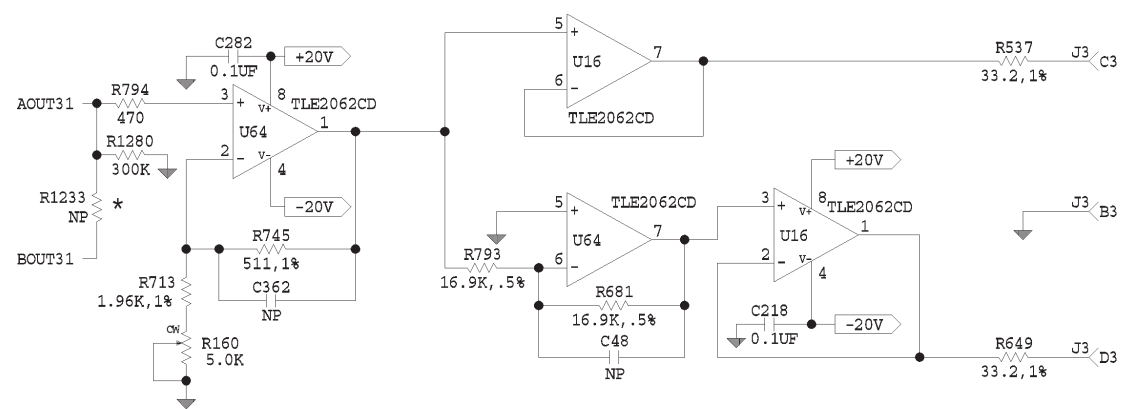
OUTPUT29A



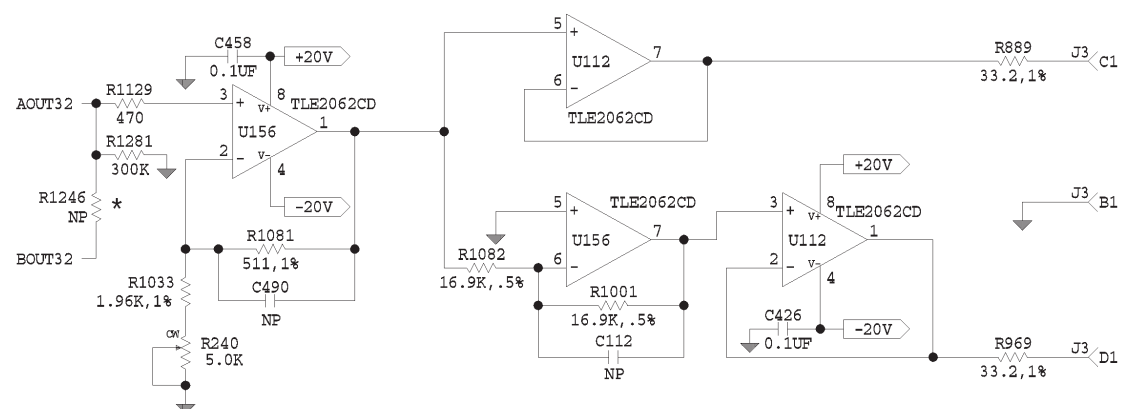
OUTPUT30A



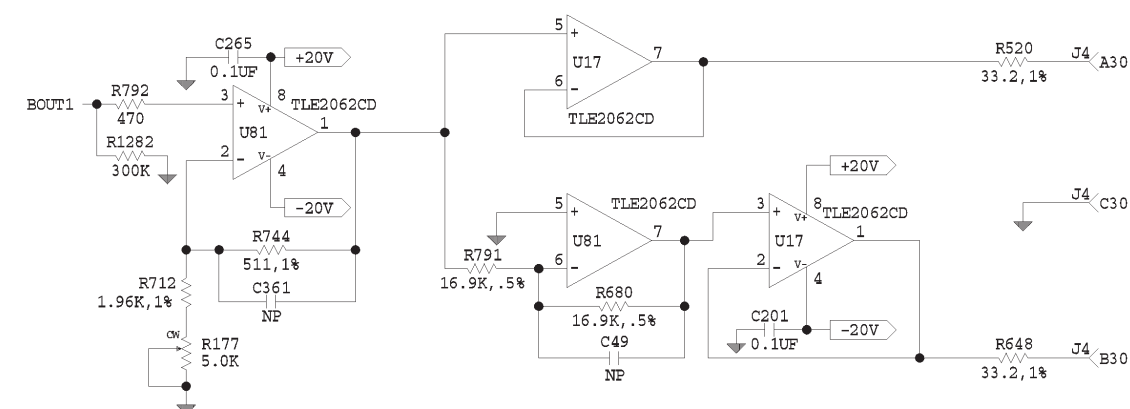
OUTPUT31A



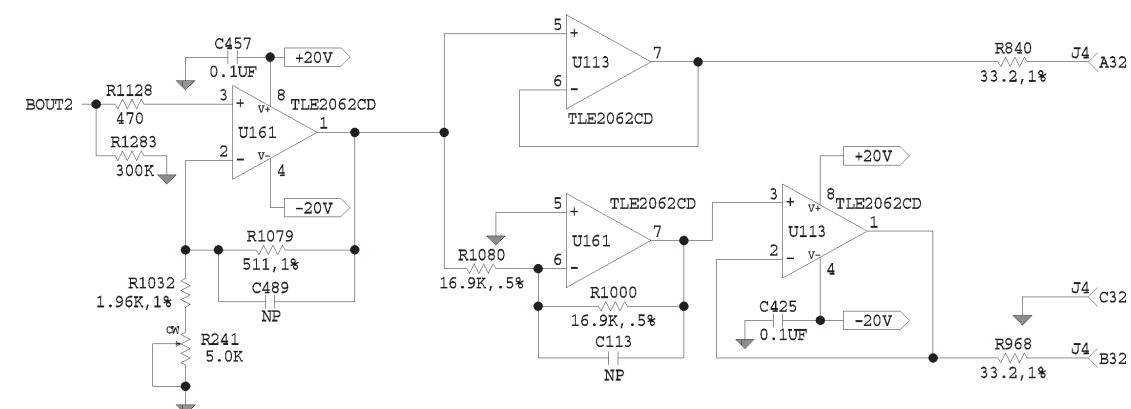
OUTPUT32A



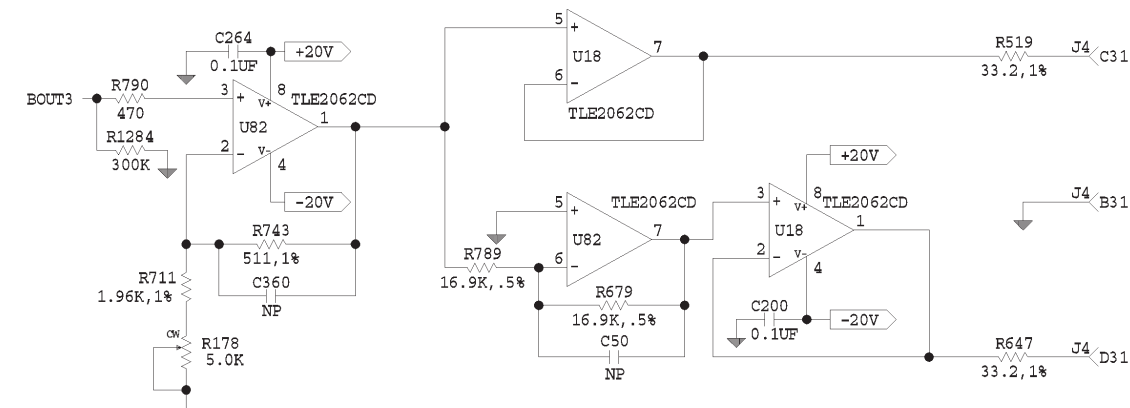
OUTPUT1B



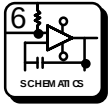
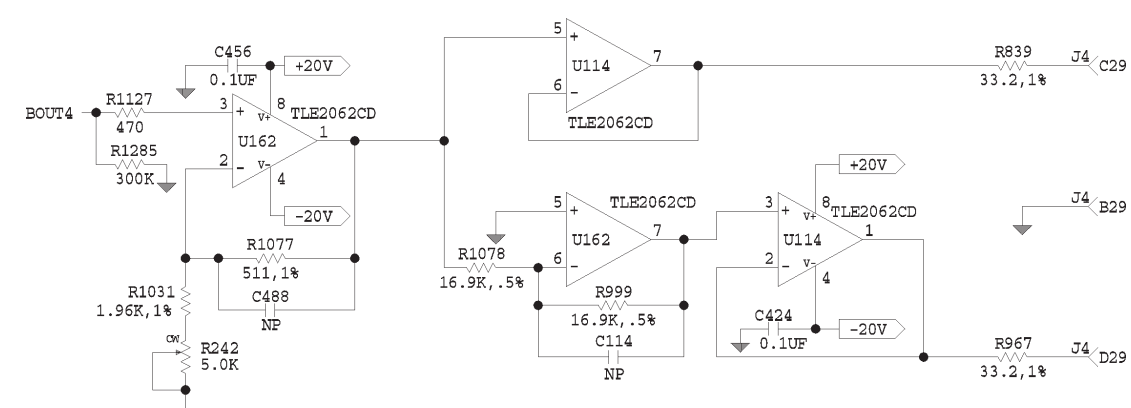
OUTPUT2B



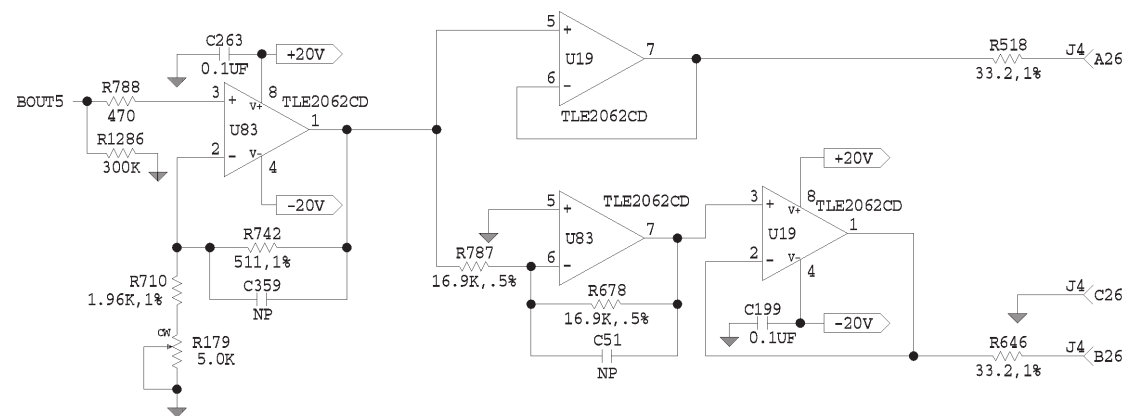
OUTPUT3B



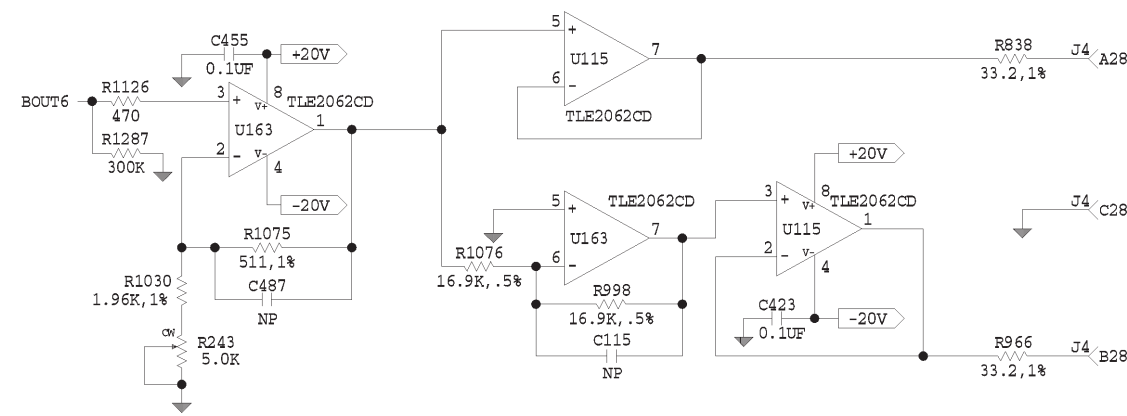
OUTPUT4B



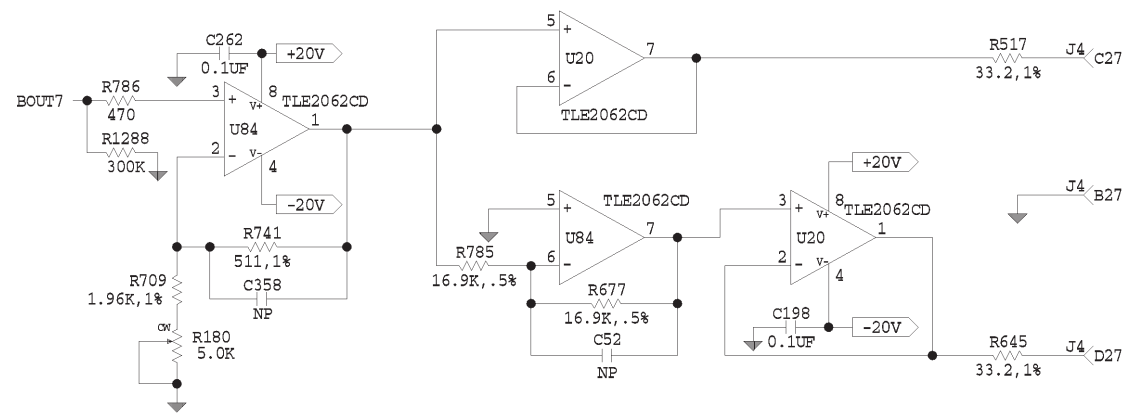
OUTPUT5B



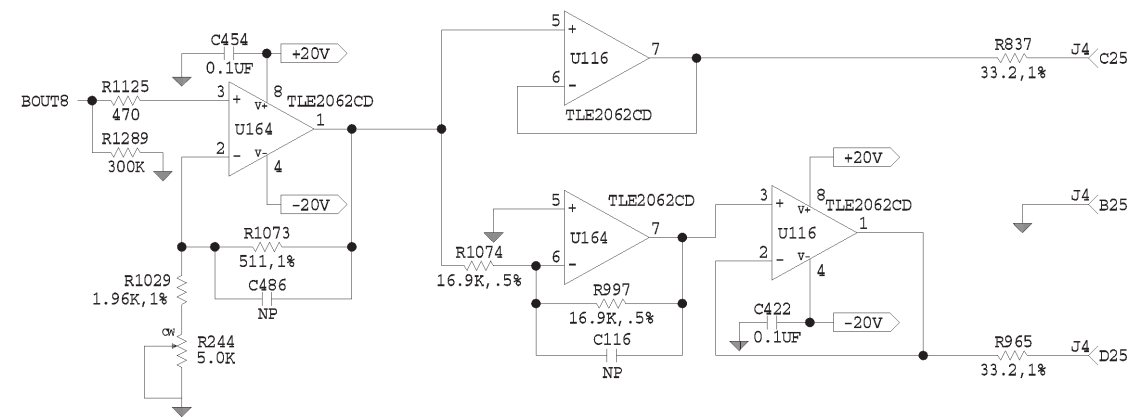
OUTPUT6B



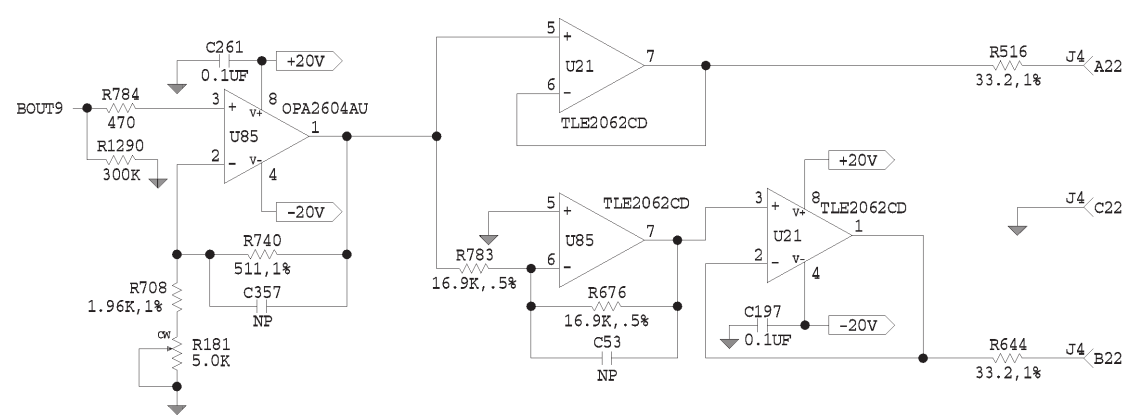
OUTPUT7B



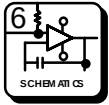
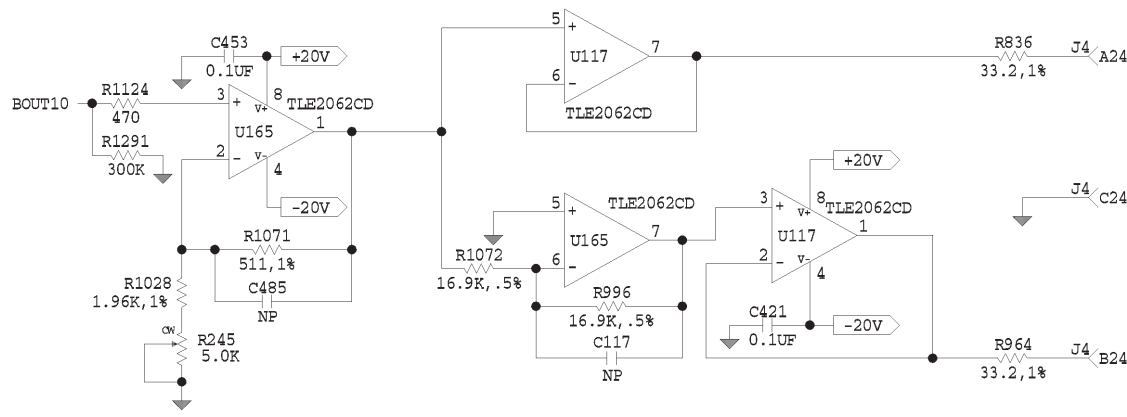
OUTPUT8B



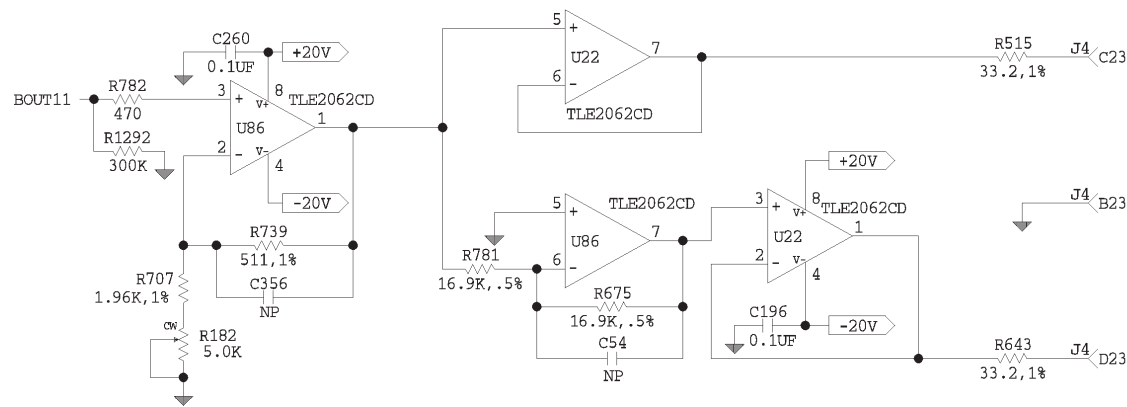
OUTPUT9B



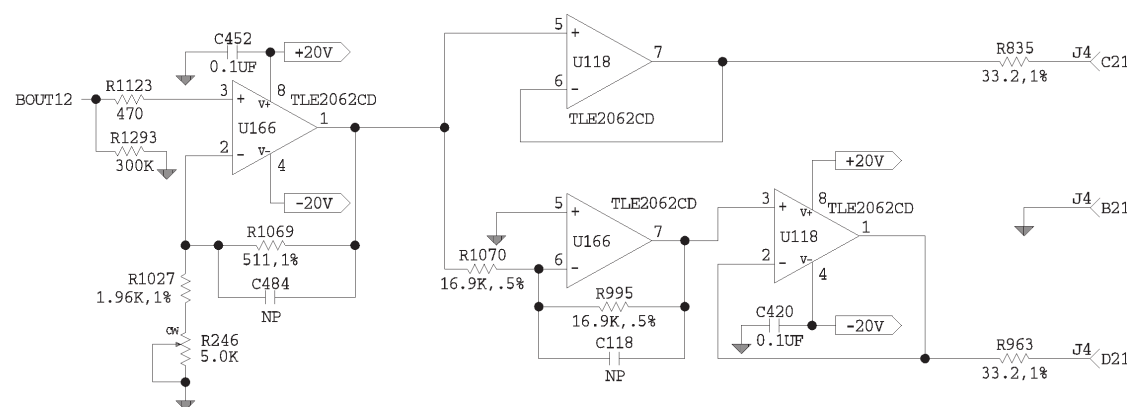
OUTPUT10B



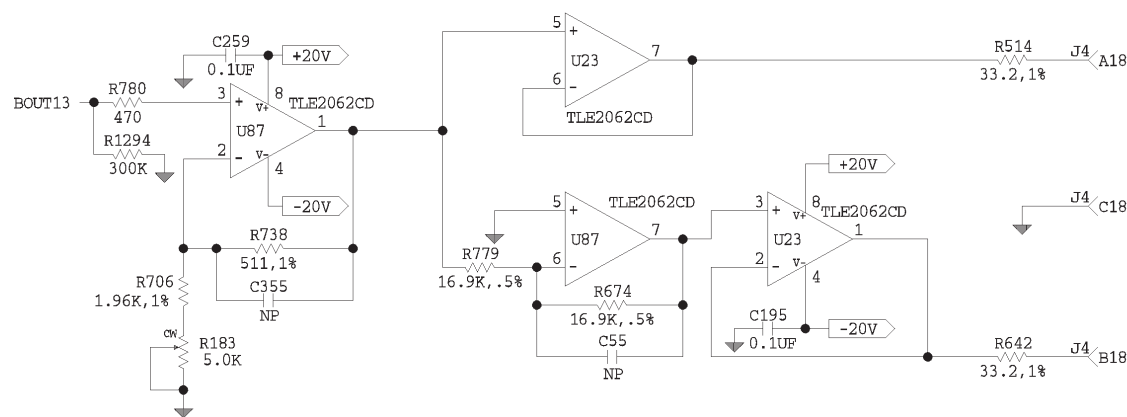
OUTPUT11B



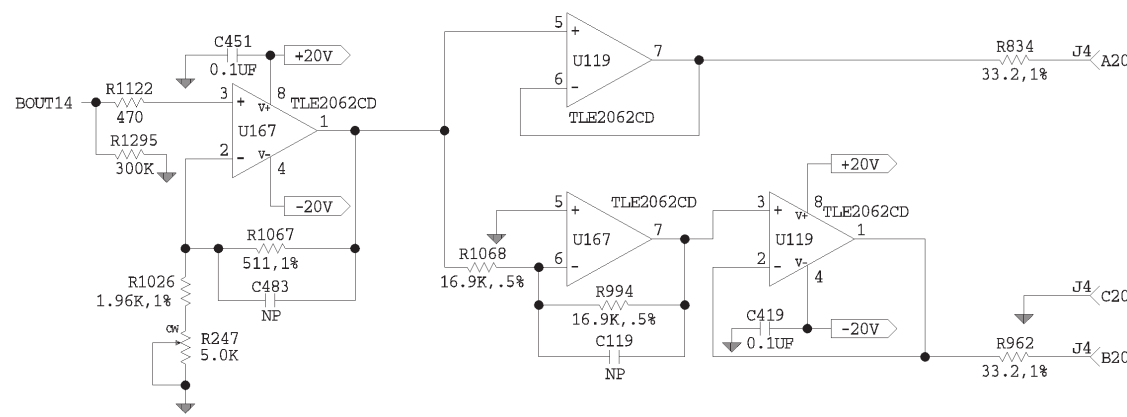
OUTPUT12B



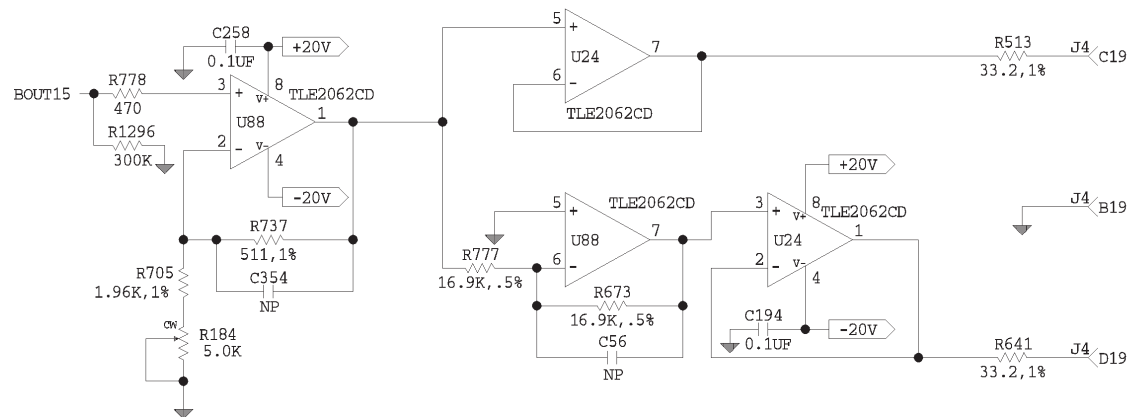
OUTPUT13B



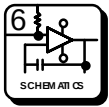
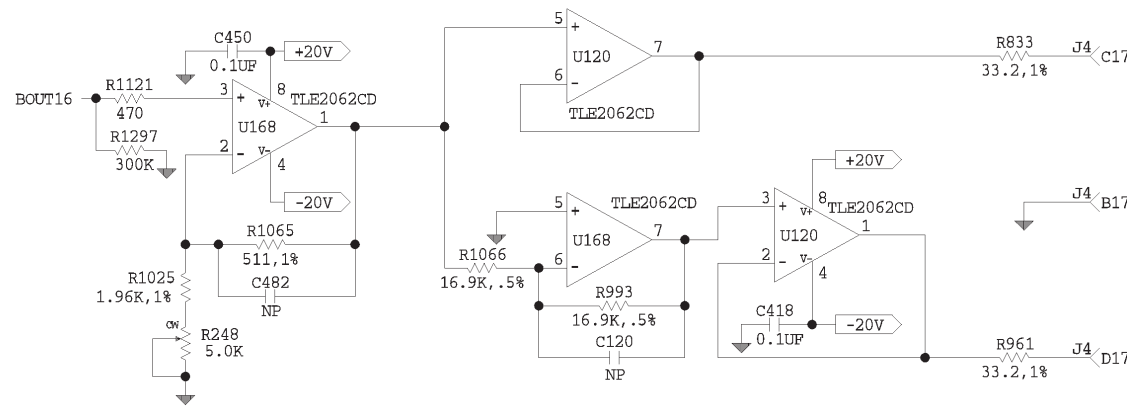
OUTPUT14B



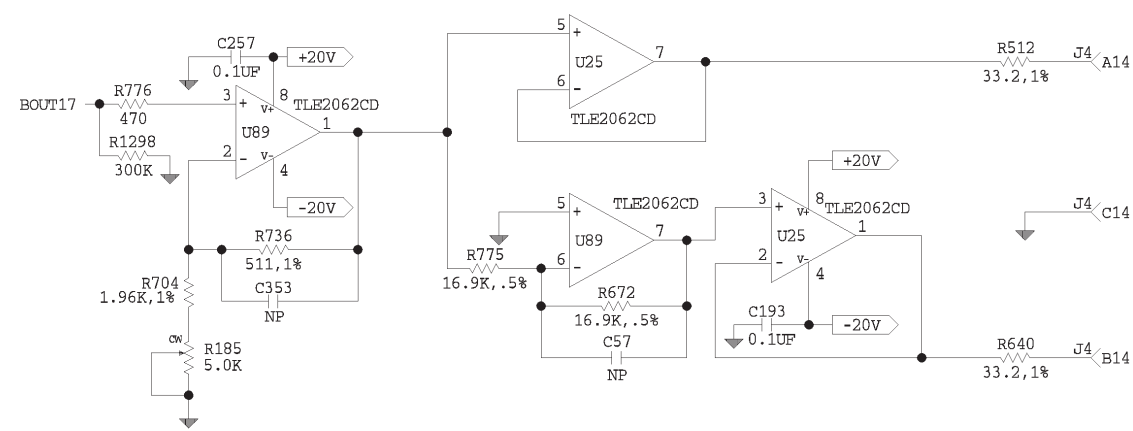
OUTPUT15B



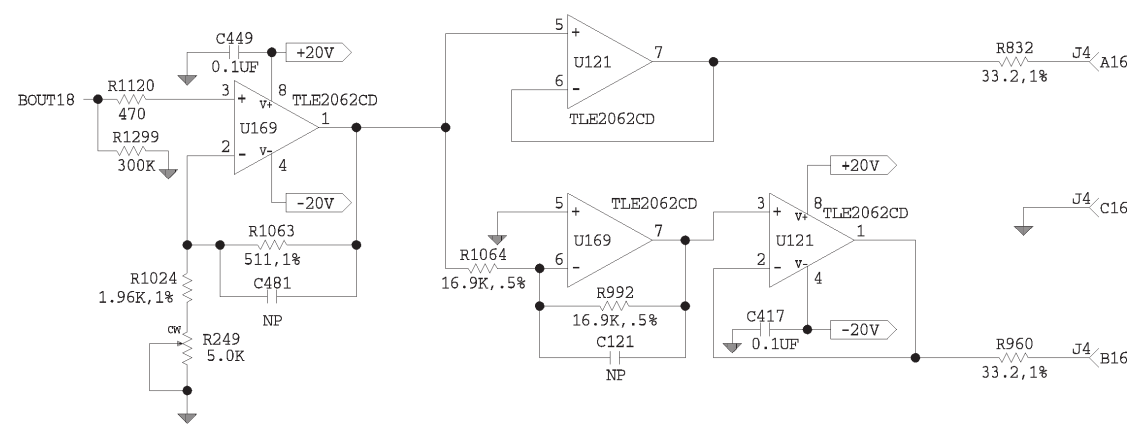
OUTPUT16B



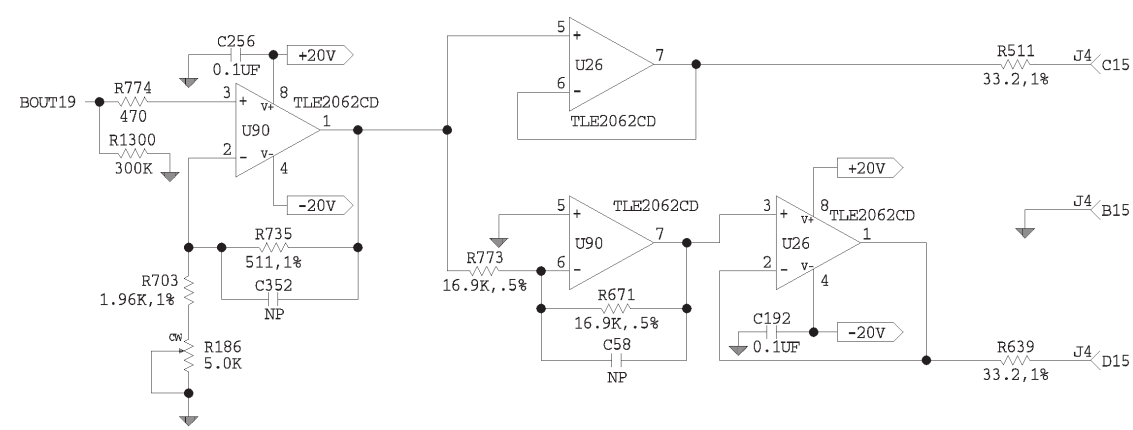
OUTPUT17B



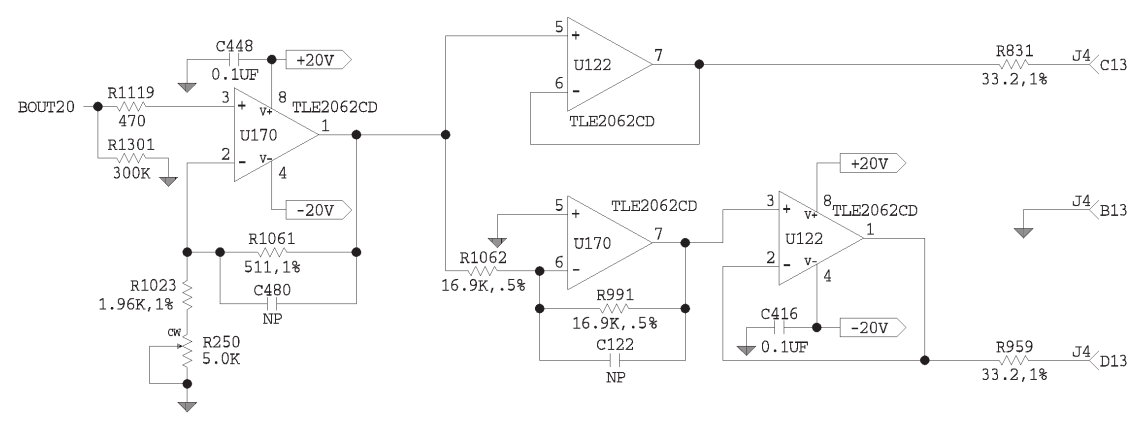
OUTPUT18B



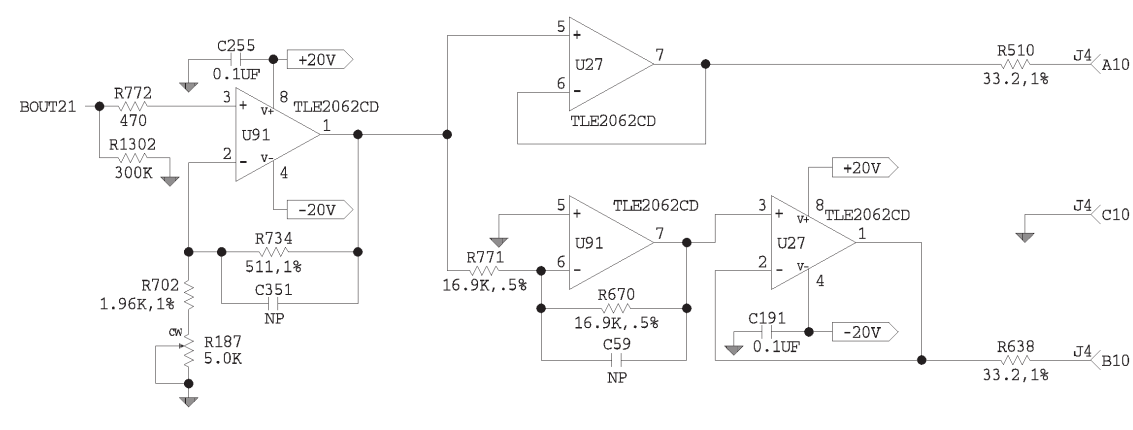
OUTPUT19B



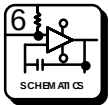
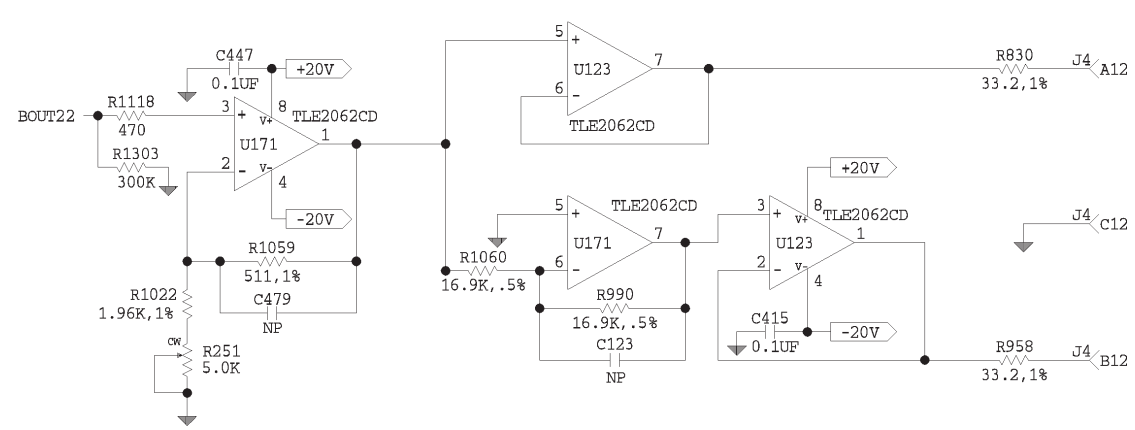
OUTPUT20B



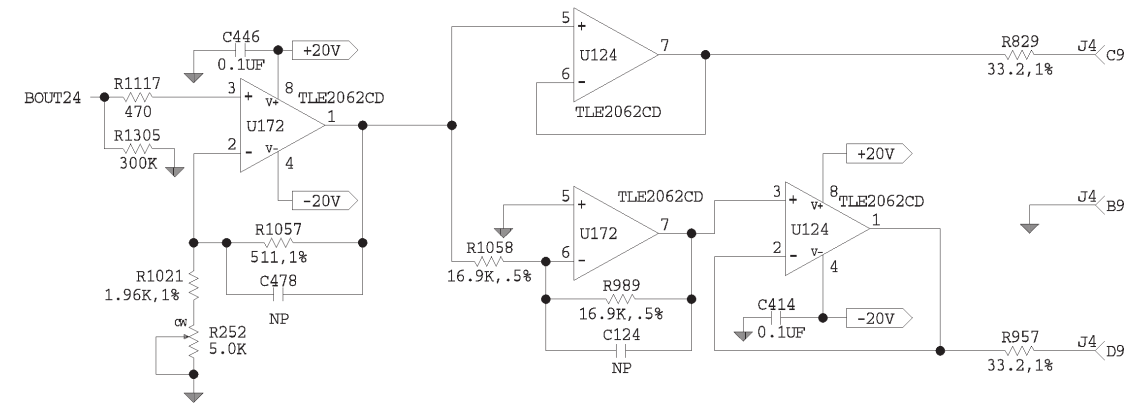
OUTPUT21B



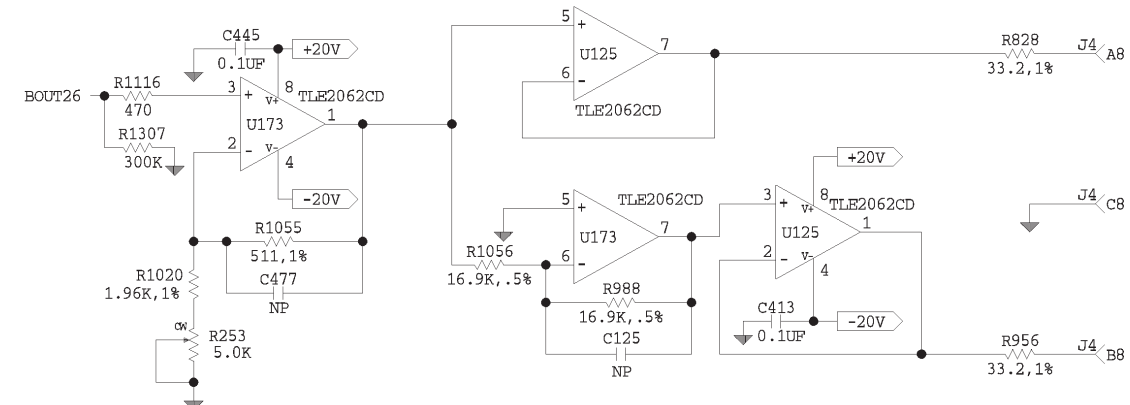
OUTPUT22B



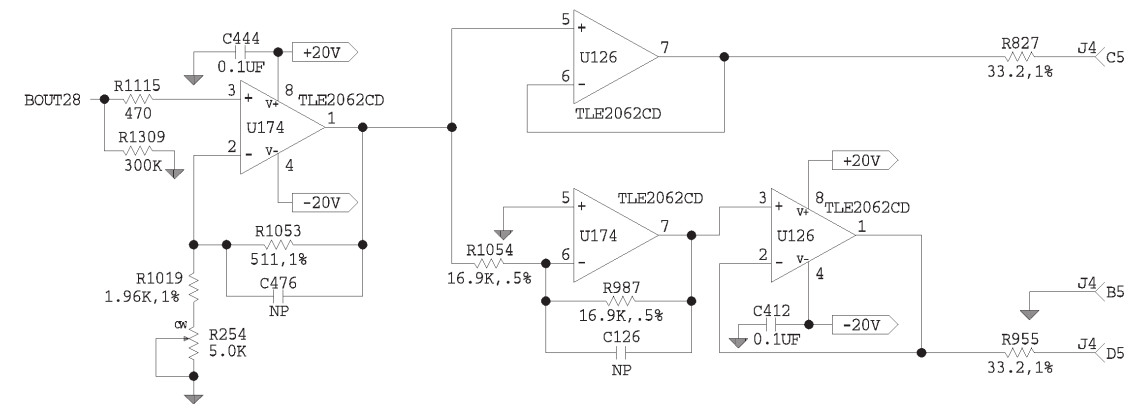
OUTPUT24B



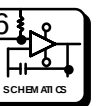
OUTPUT26B



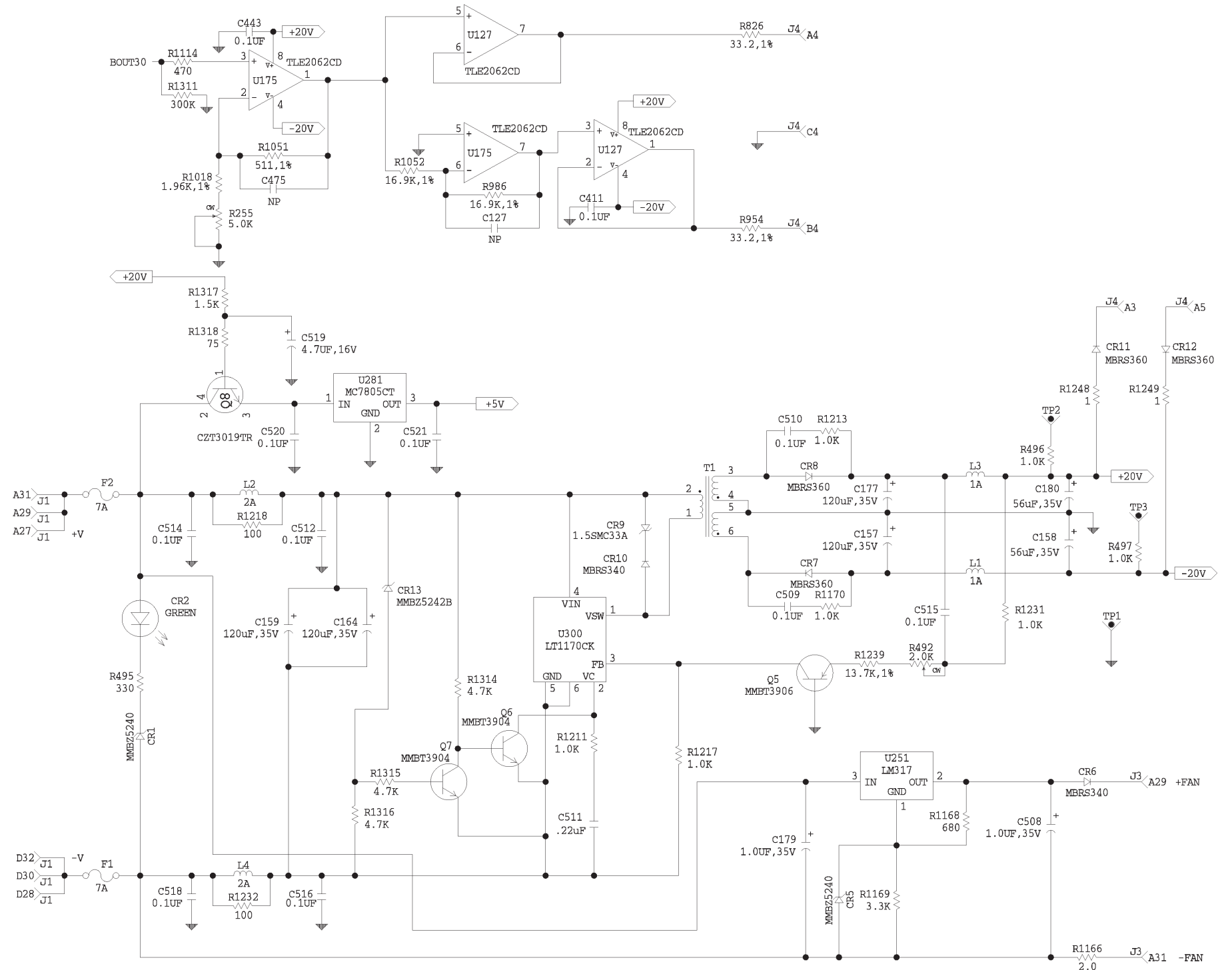
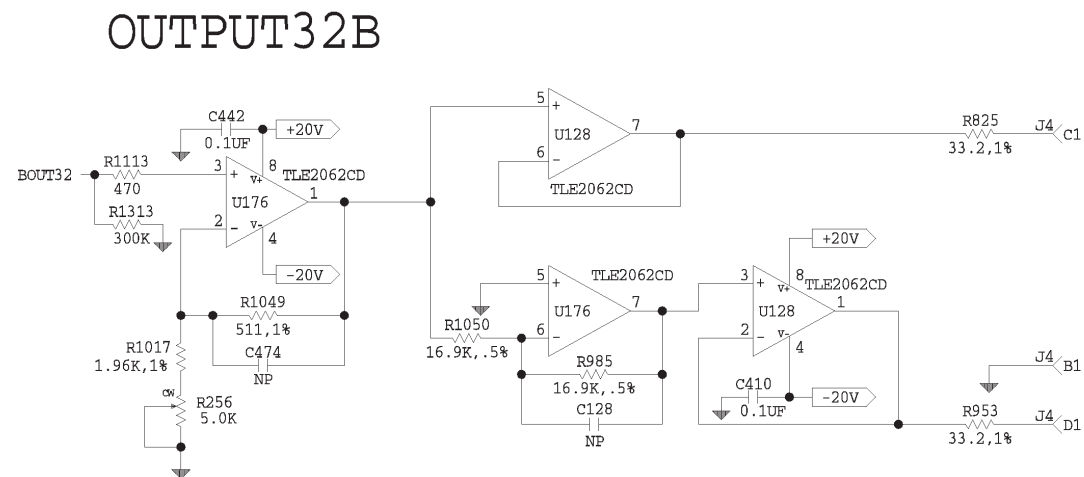
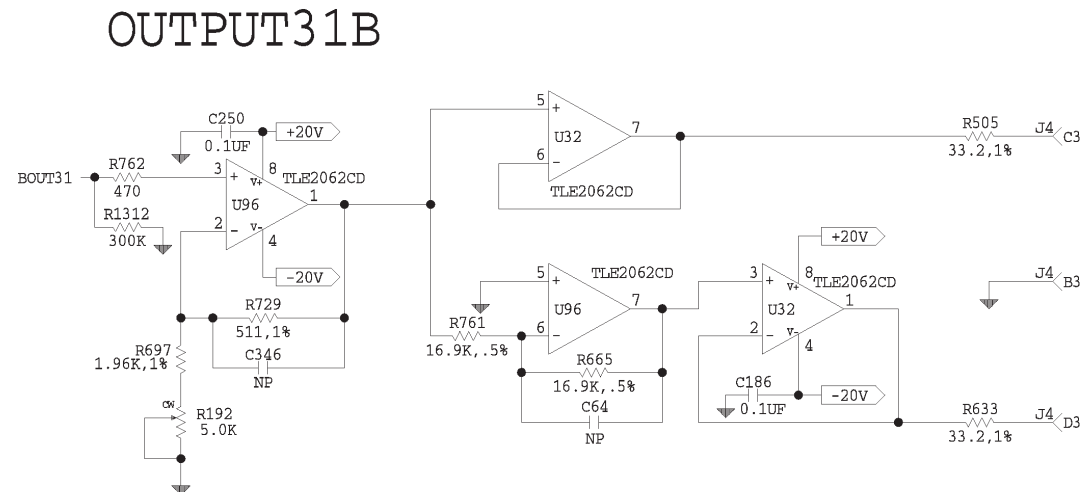
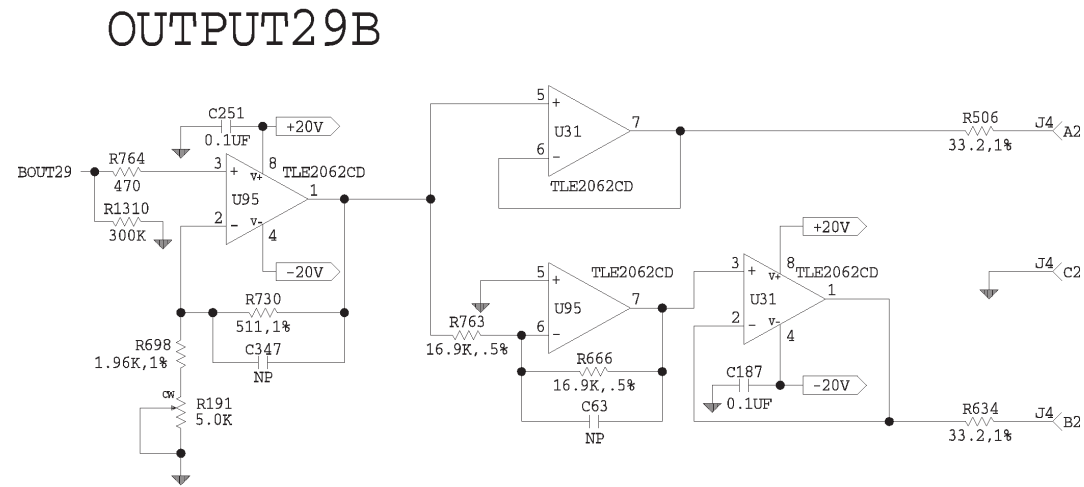
OUTPUT28B



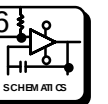
3/98
P/N 81905903730

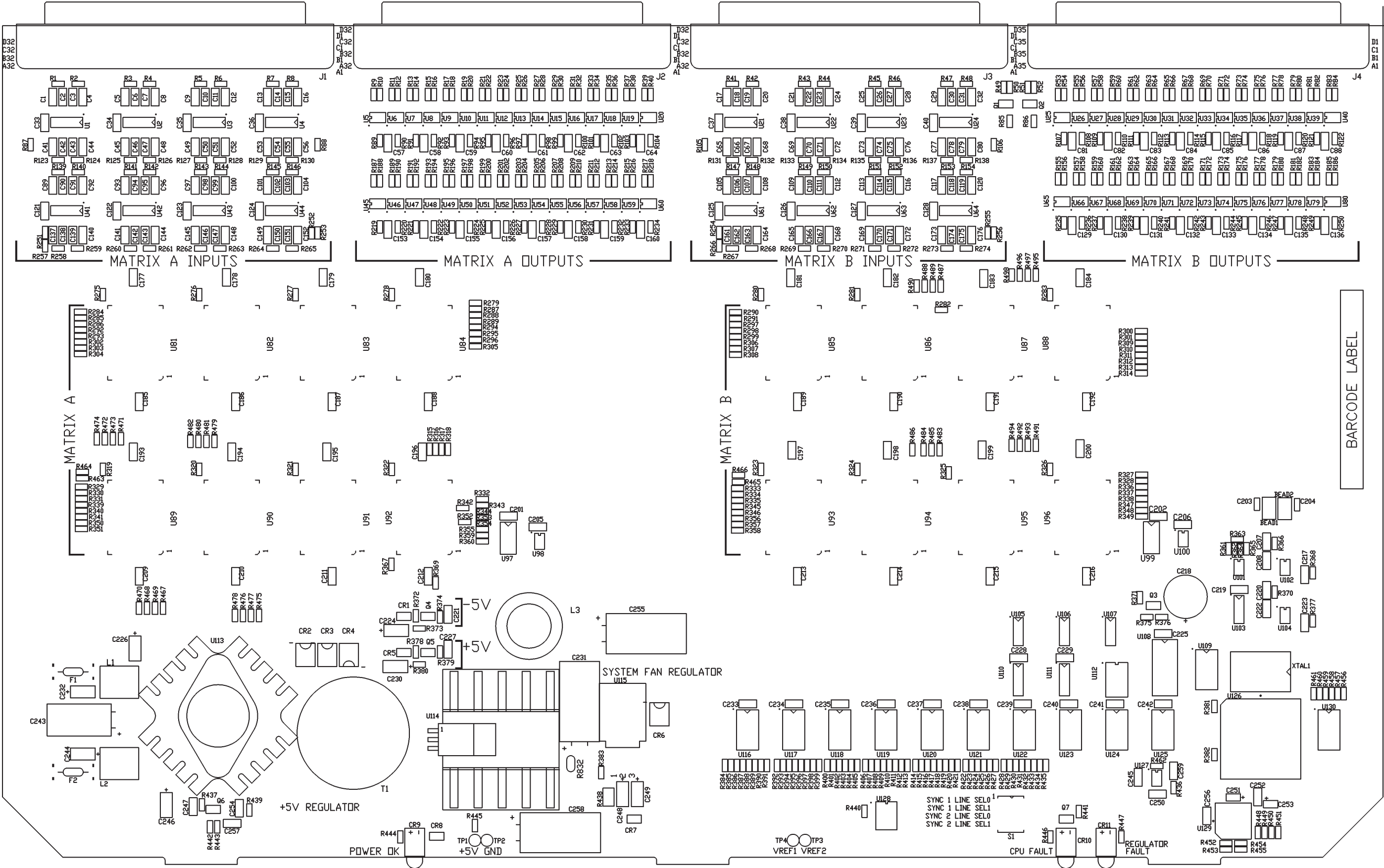


OUTPUT30B

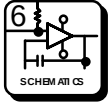


Schematic (Sheet 24 of 24) • 64X32 Analog Audio Matrix Card • SC33-1277

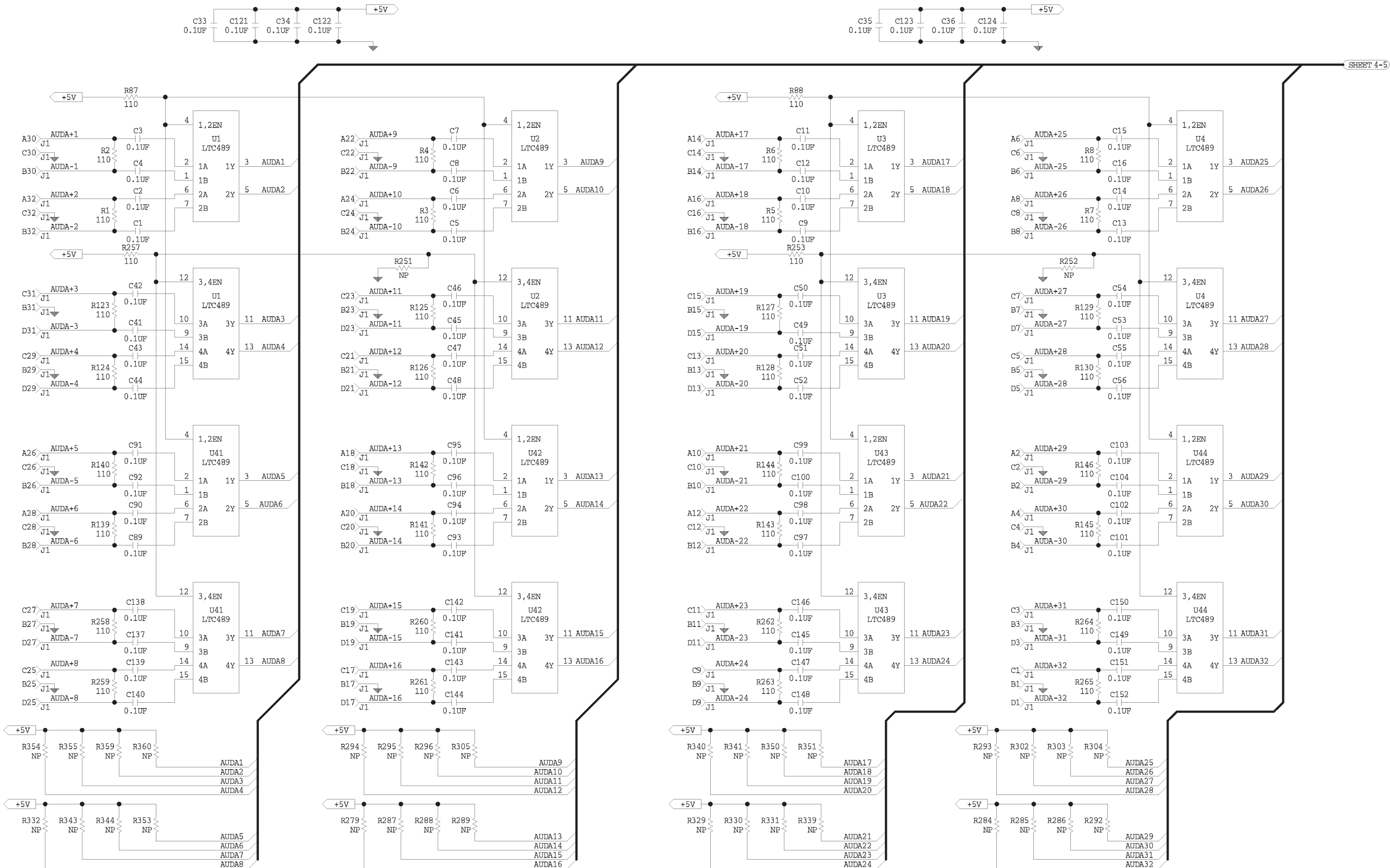




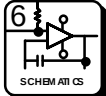
Component Assembly • 64X32 Digital Audio Matrix Card • CA25-1279

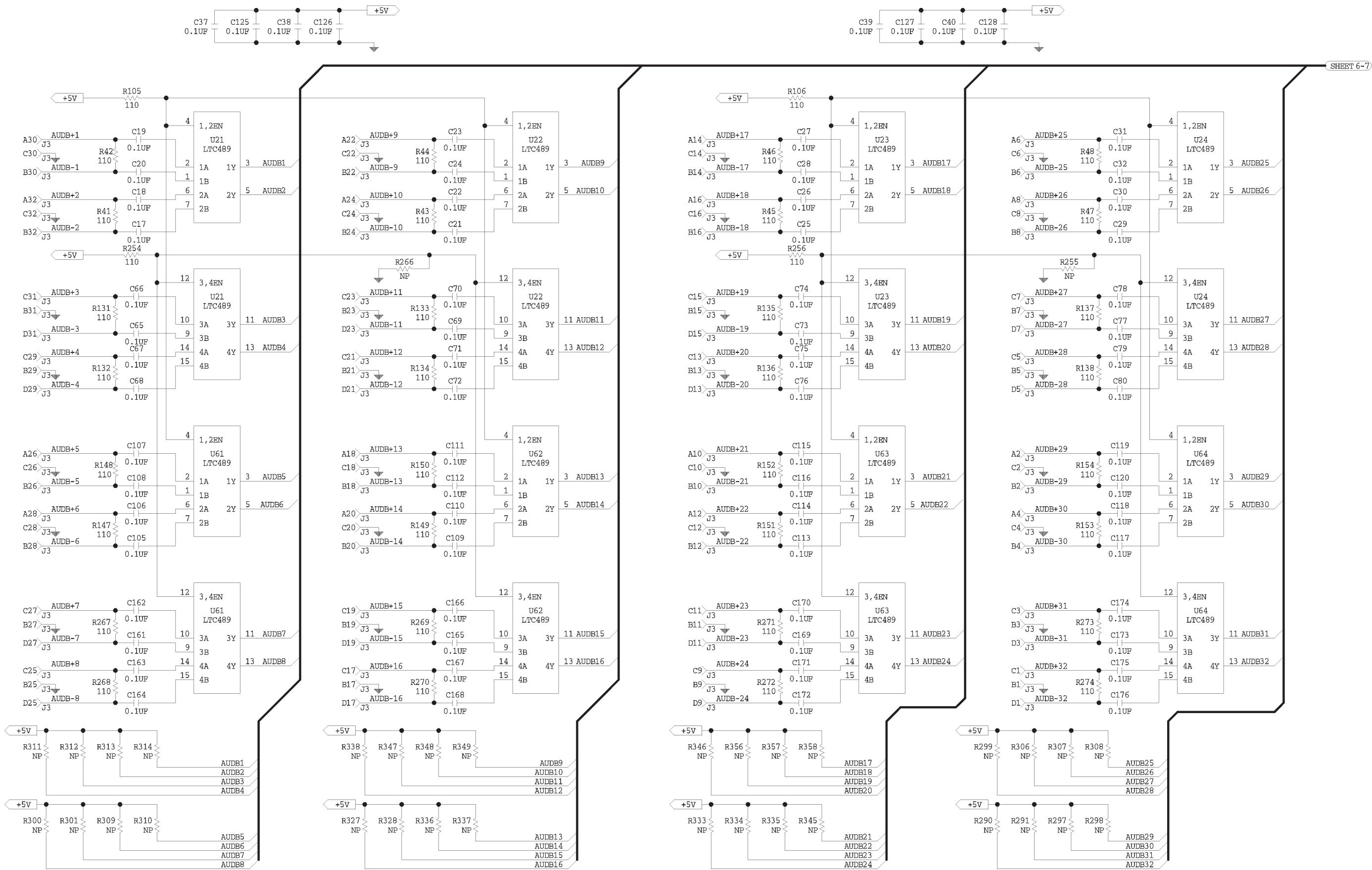




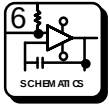


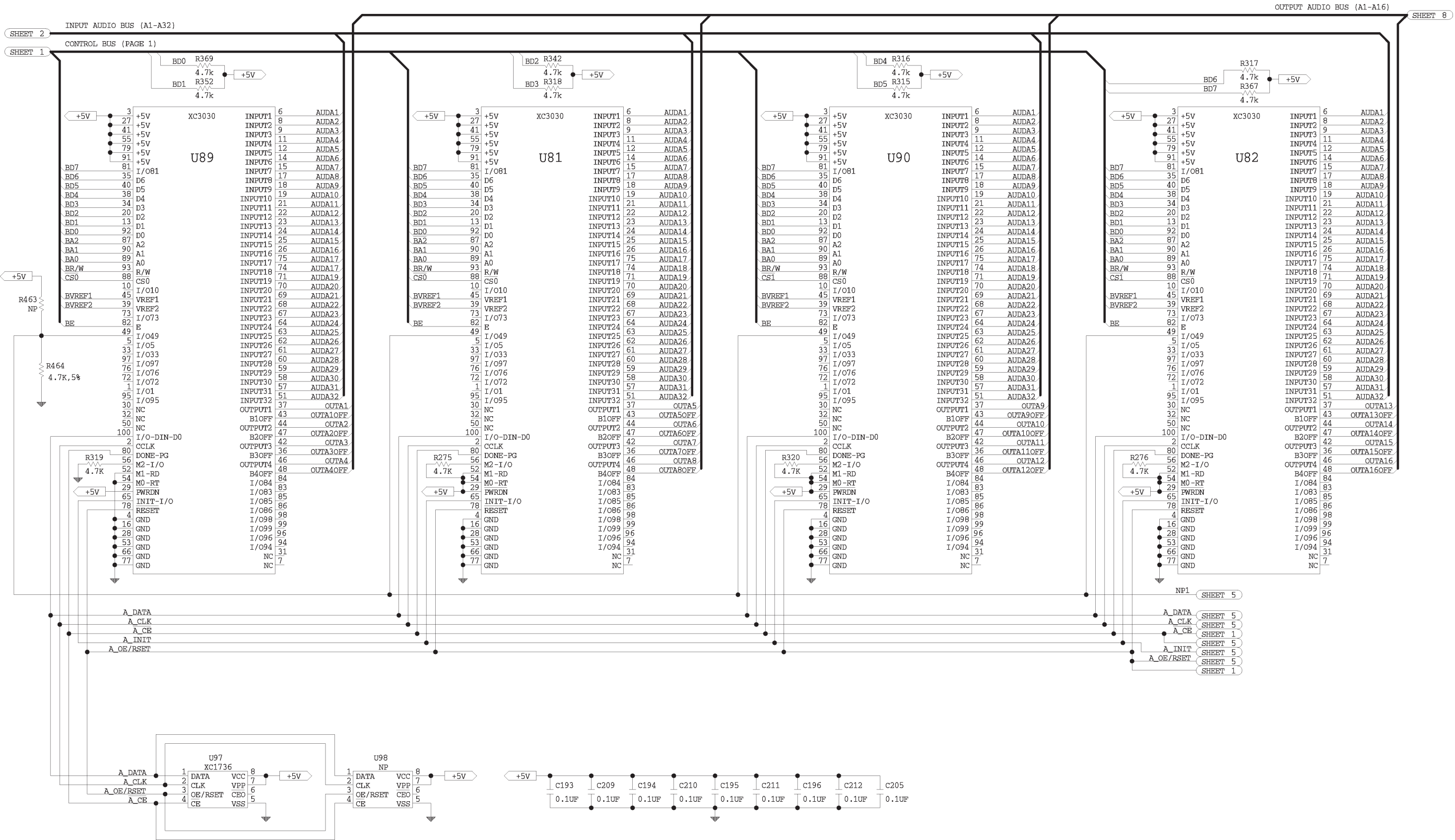
Schematic (Sheet 2 of 10) • 64X32 Digital Audio Matrix Card • SC33-1279



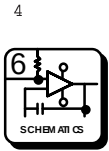


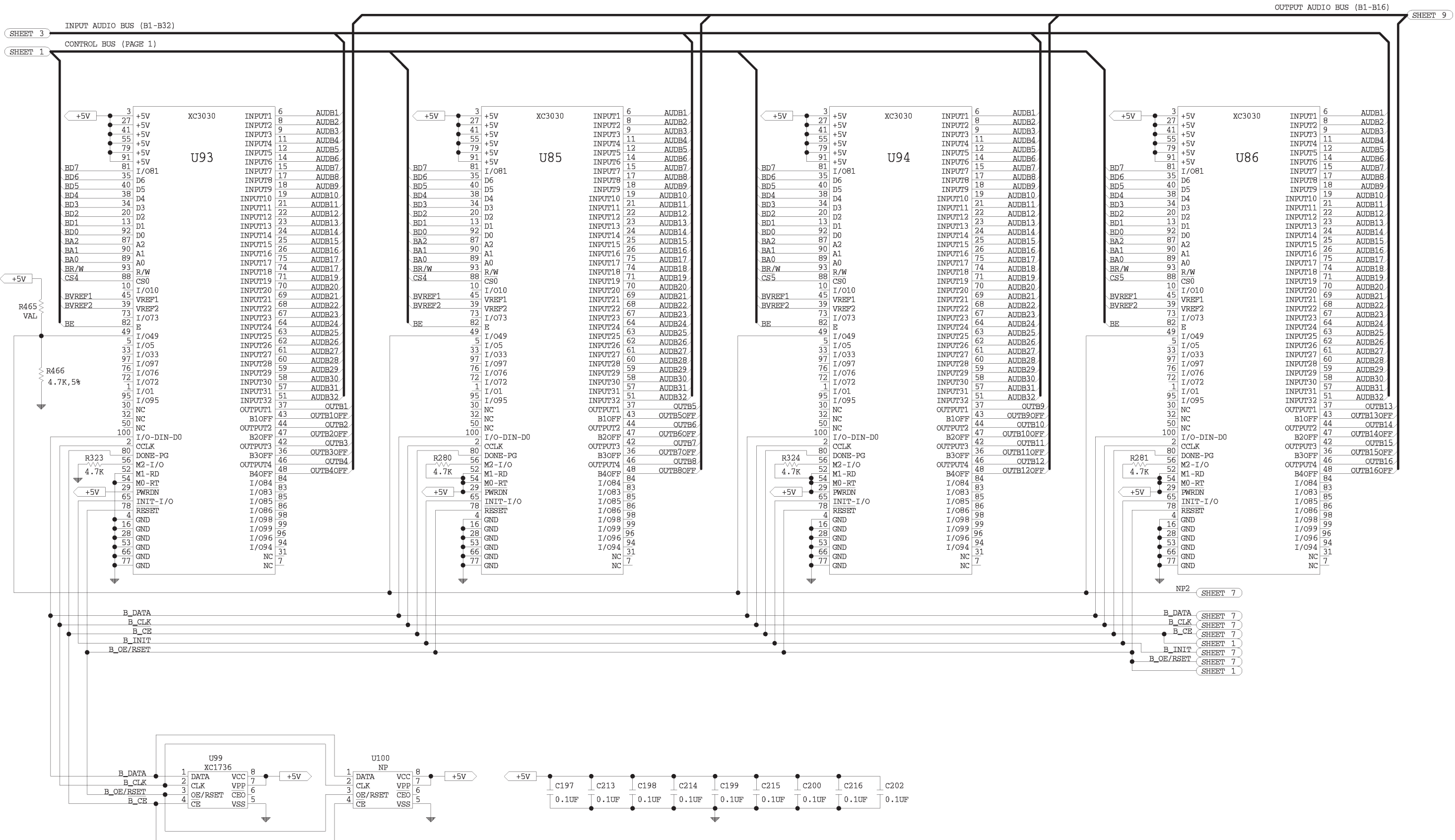
Schematic (Sheet 3 of 10) • 64X32 Digital Audio Matrix Card • SC33-1279



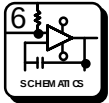


Schematic (Sheet 4 of 10) • 64X32 Digital Audio Matrix Card • SC33-1279

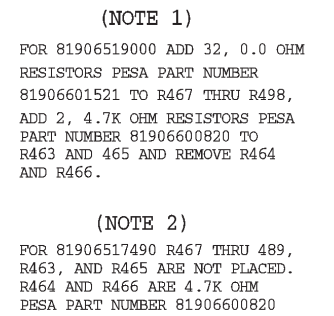


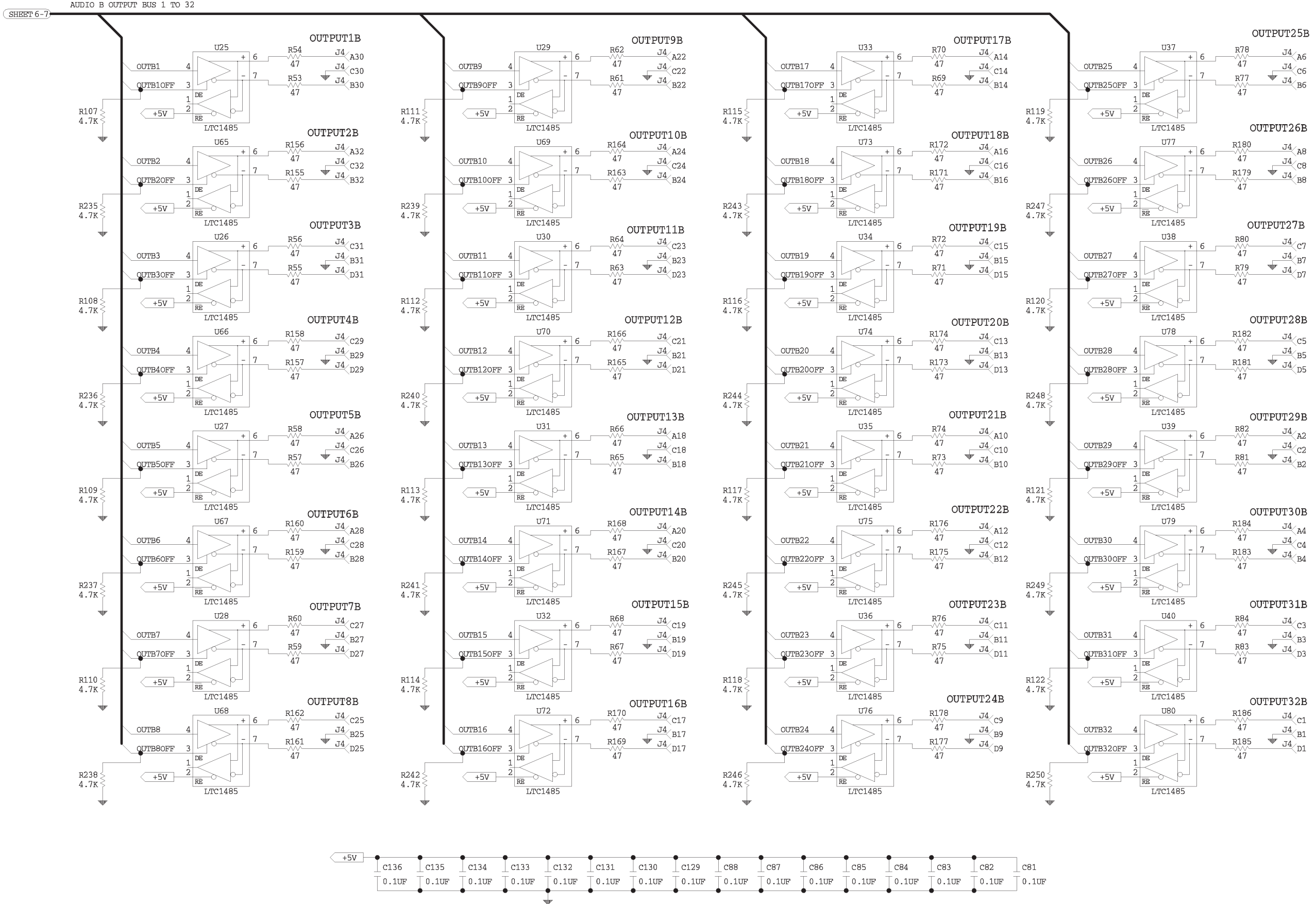


Schematic (Sheet 6 of 10) • 64X32 Digital Audio Matrix Card • SC33-1279

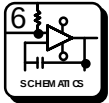


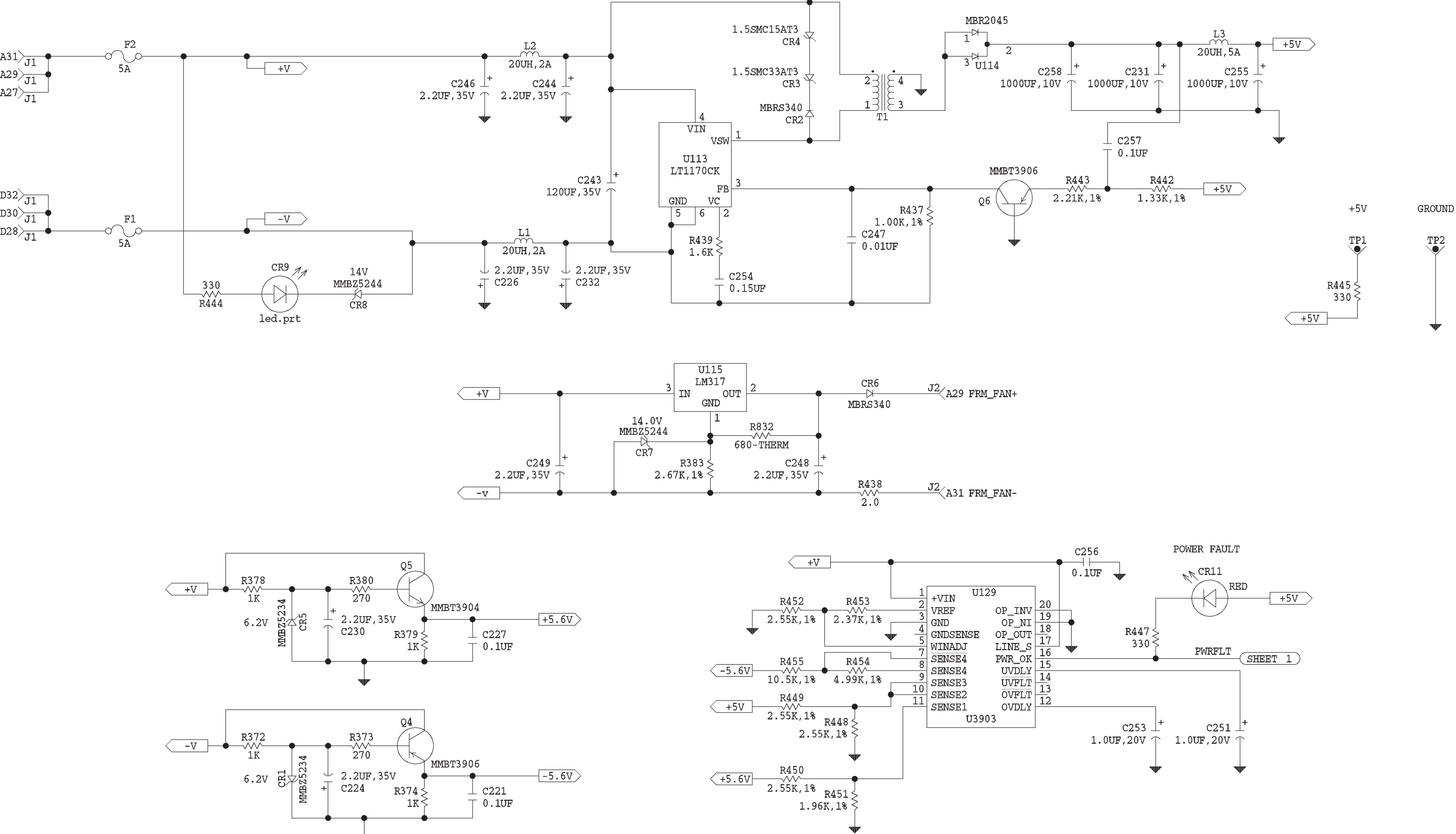




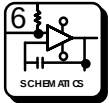


Schematic (Sheet 9 of 10) • 64X32 Digital Audio Matrix Card • SC33-1279

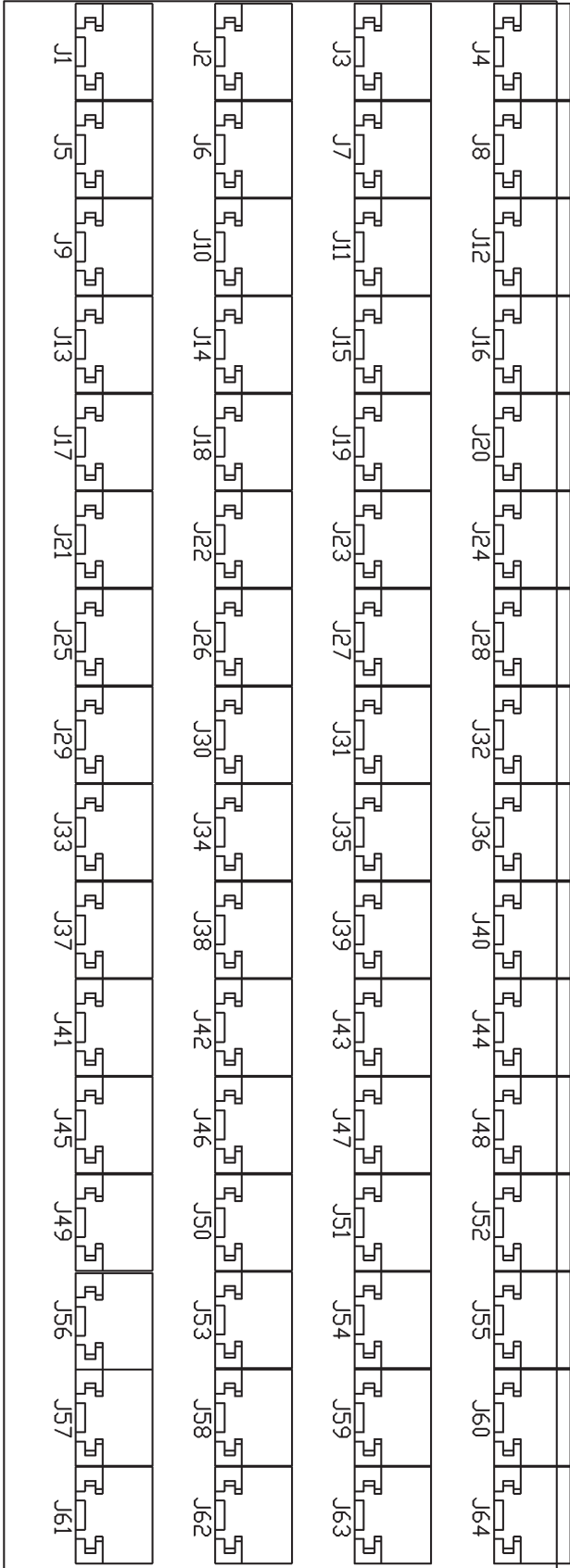




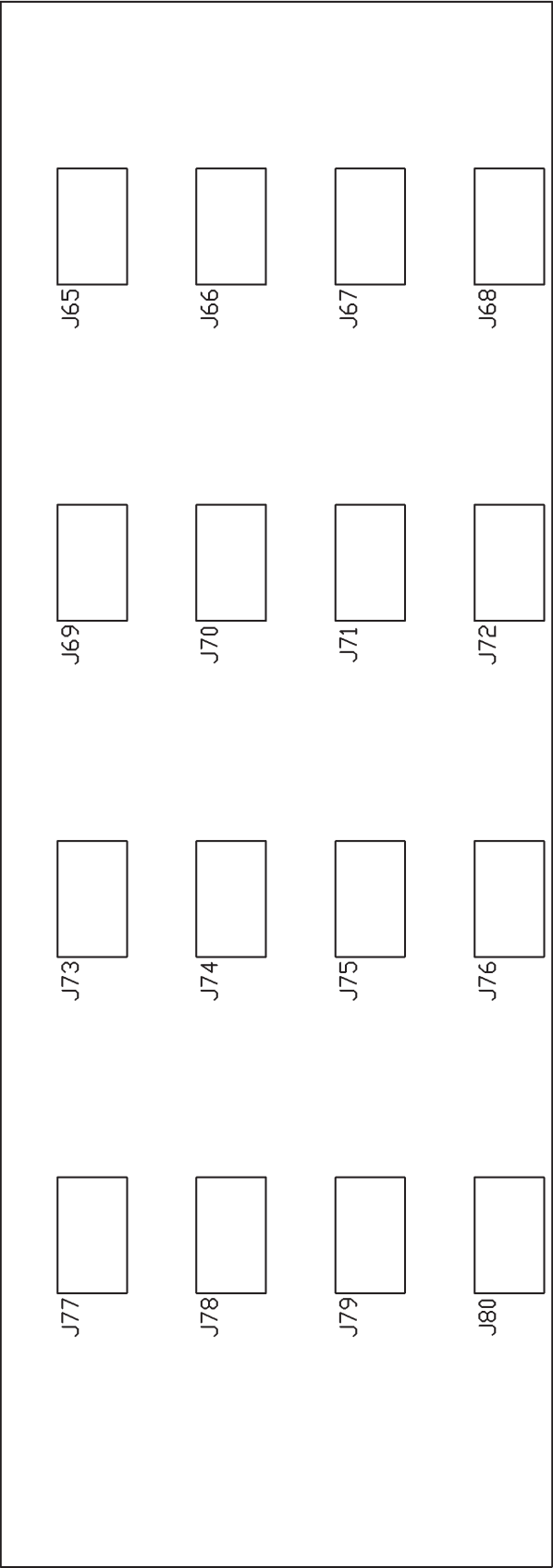
Schematic (Sheet 10 of 10) • 64X32 Digital Audio Matrix Card • SC33-1279



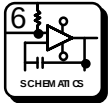
SILKSCREEN SOLDER SIDE LAYER 2 OF 2

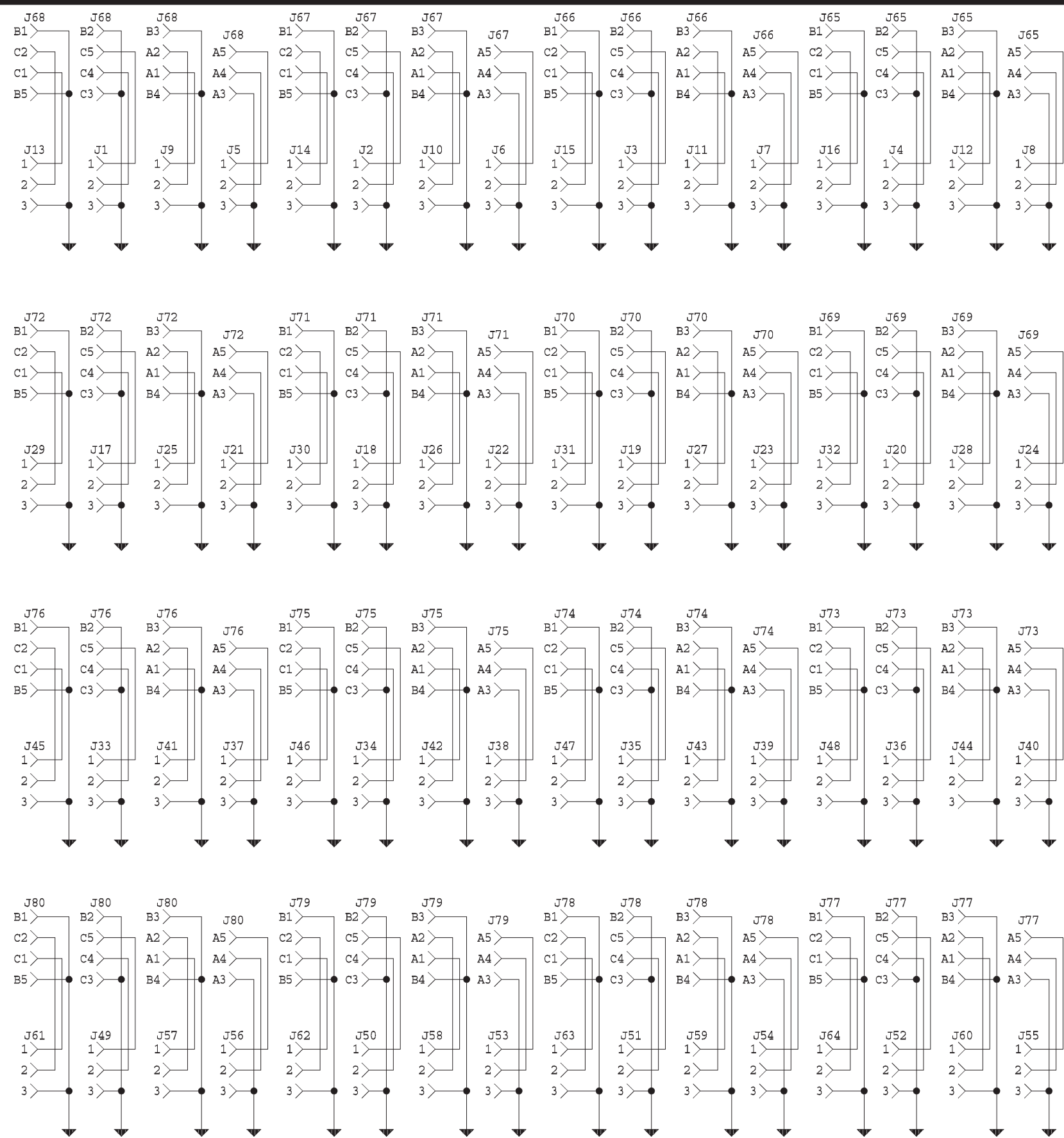


SILKSCREEN COMPONENT SIDE LAYER 1 OF 2

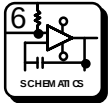


Component Assembly • Standard Audio Output Card • CA25-1323

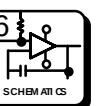




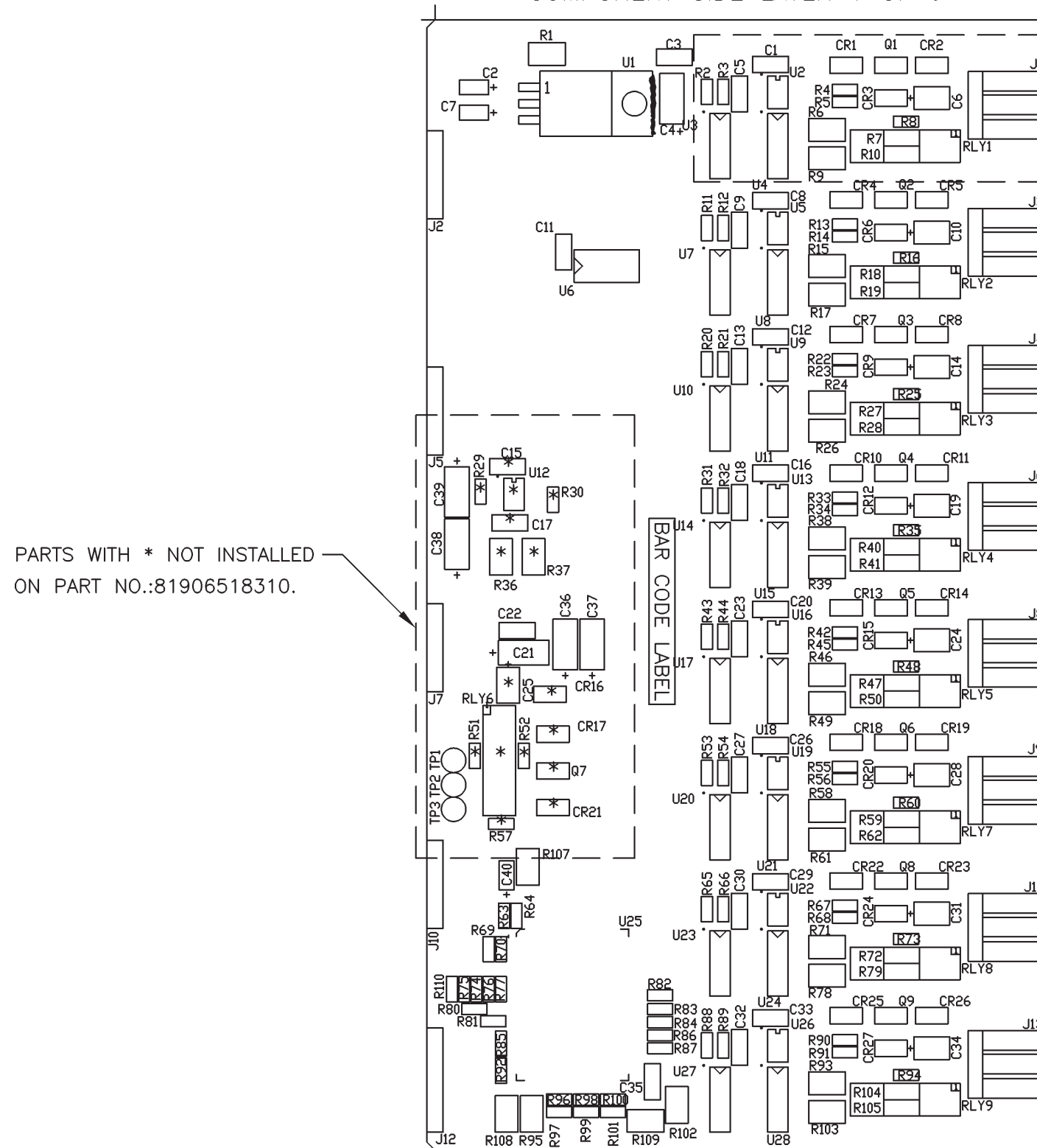
Schematic • Standard Audio Output Card • SC33-1323



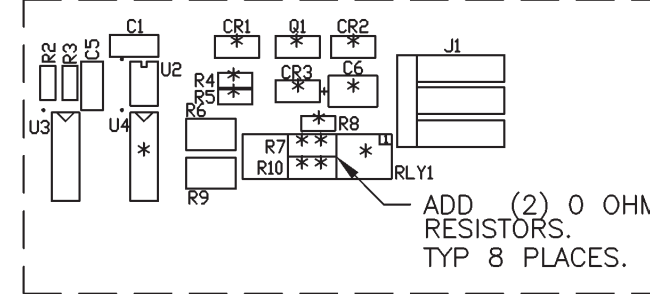
NOT AVAILABLE AT TIME OF PRINTING



COMPONENT ASSEMBLY
COMPONENT SIDE LAYER 1 OF 6

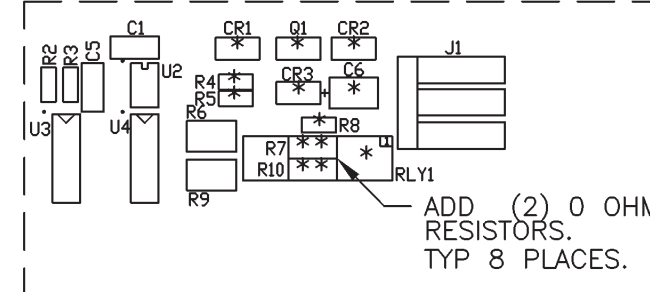


DETAIL "A"



NOTE 1
FOR ASSEMBLY OF PART NO.:
81906518310 DO NOT PLACE PARTS
WITH *. ADD 0 OHM RESISTORS TO
PARTS WITH **.
(ALL CHANGES SHOWN ARE
TYPICAL 8 PLACES.)

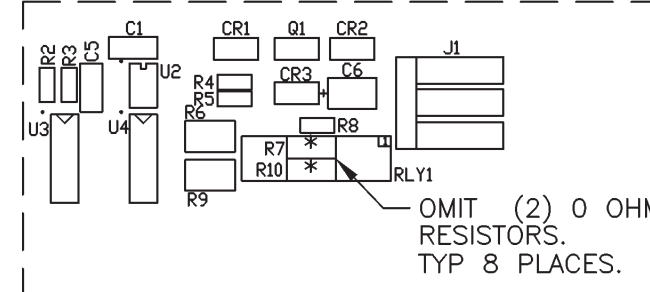
DETAIL "B"



NOTE 2
FOR ASSEMBLY OF PART NO.:
81906518430 DO NOT PLACE PARTS
WITH *. ADD 0 OHM RESISTORS TO
PARTS WITH **.

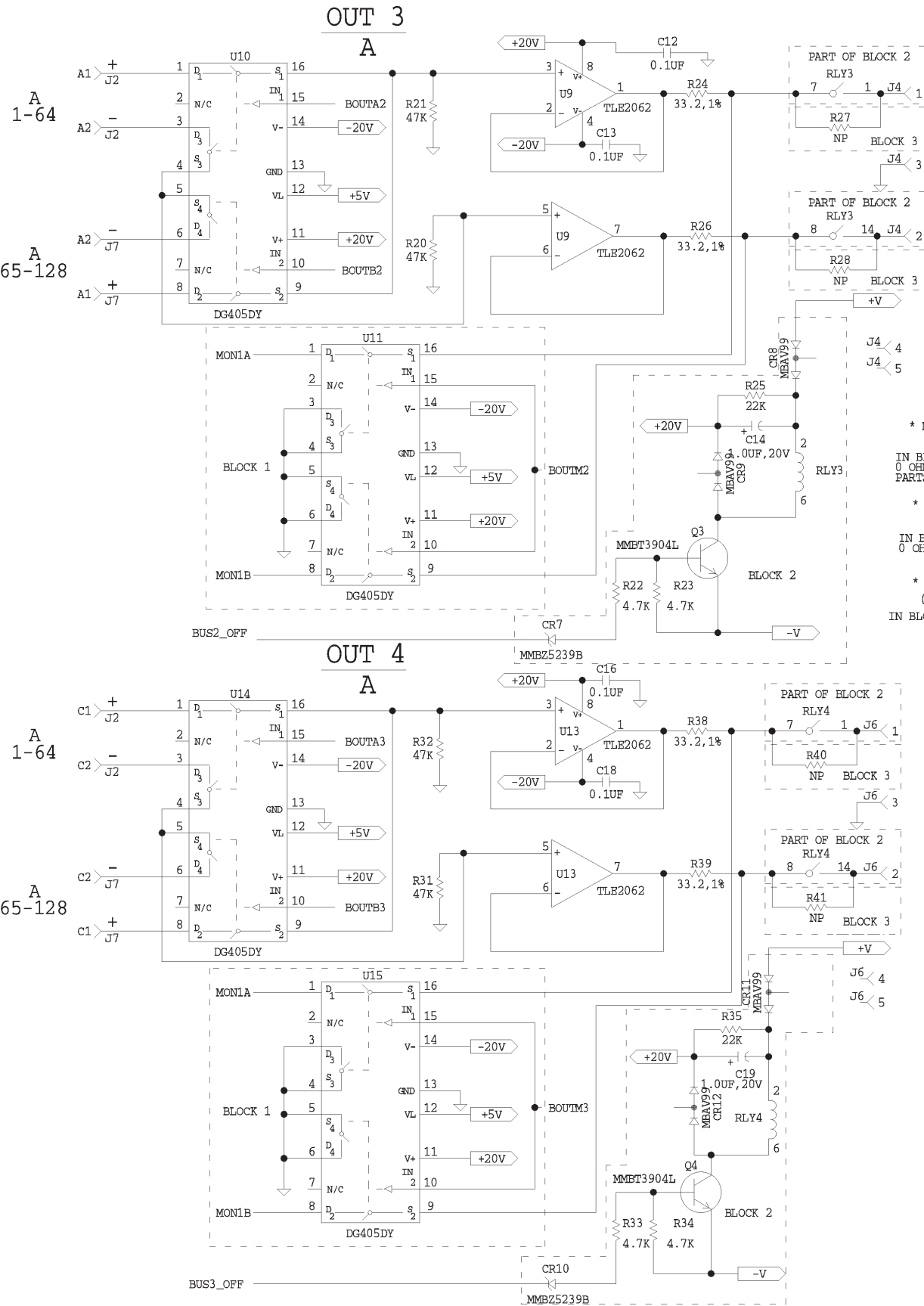
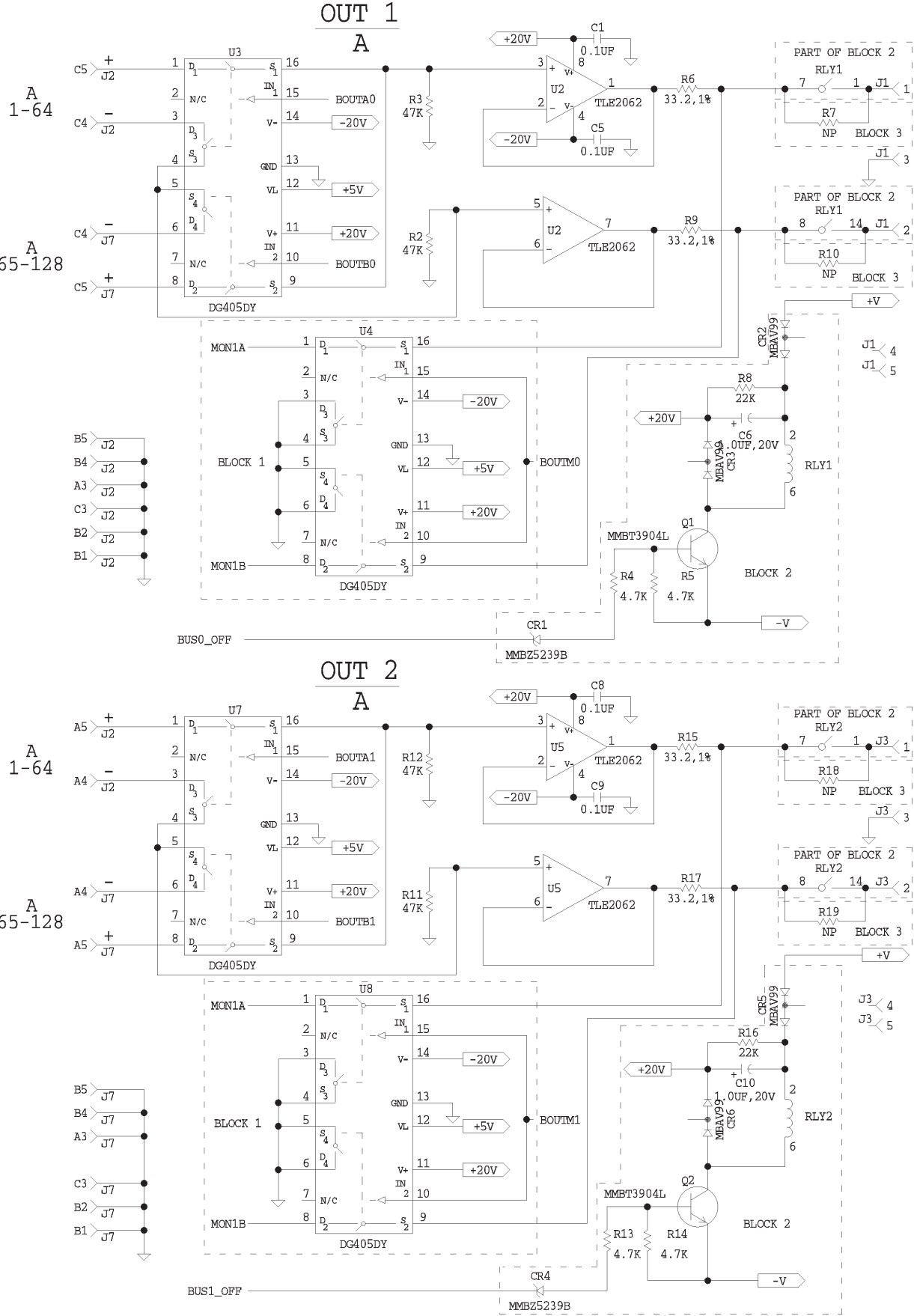
(ALL CHANGES SHOWN ARE
TYPICAL 8 PLACES.)

DETAIL "C"



NOTE 3
FOR ASSEMBLY OF PART NO.:
81906518440 DO NOT PLACE PARTS
WITH *.

(ALL CHANGES SHOWN ARE
TYPICAL 8 PLACES.)

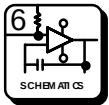


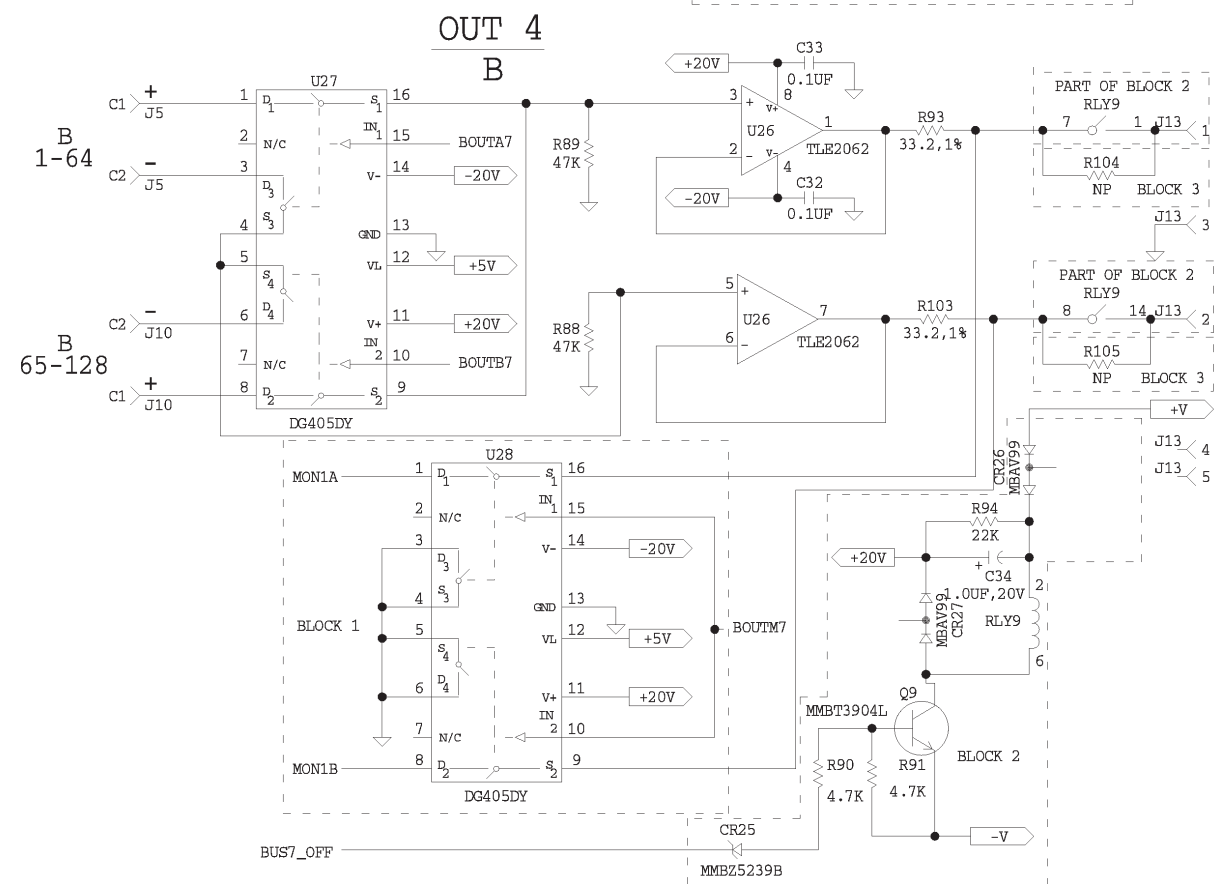
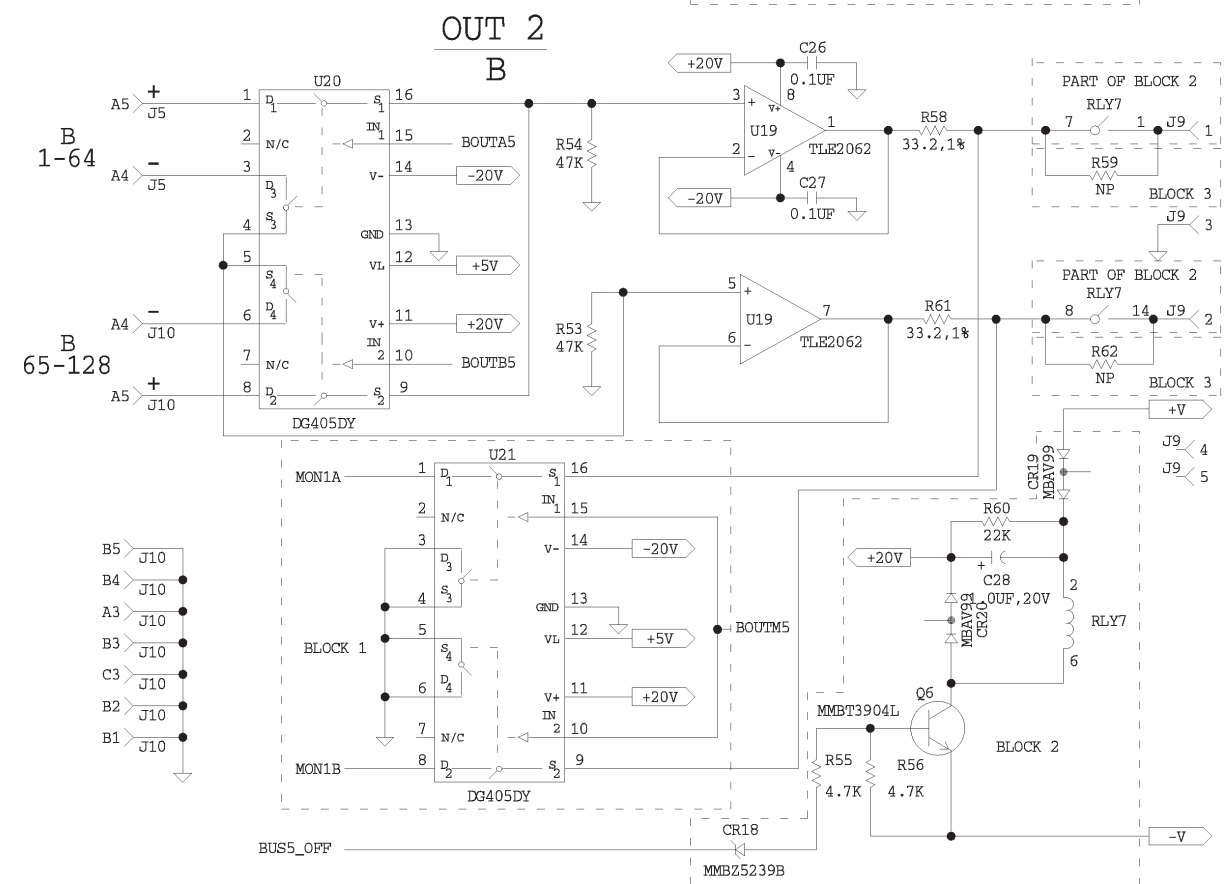
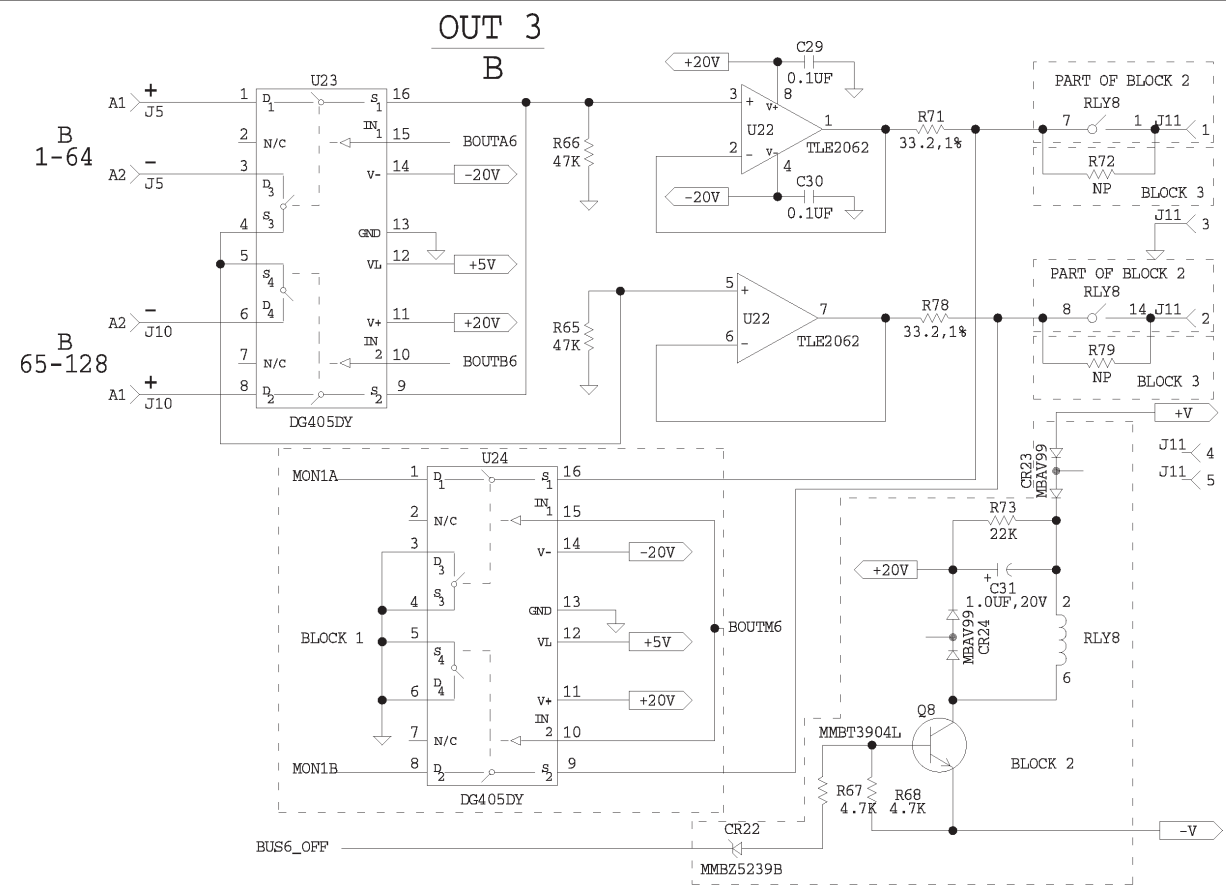
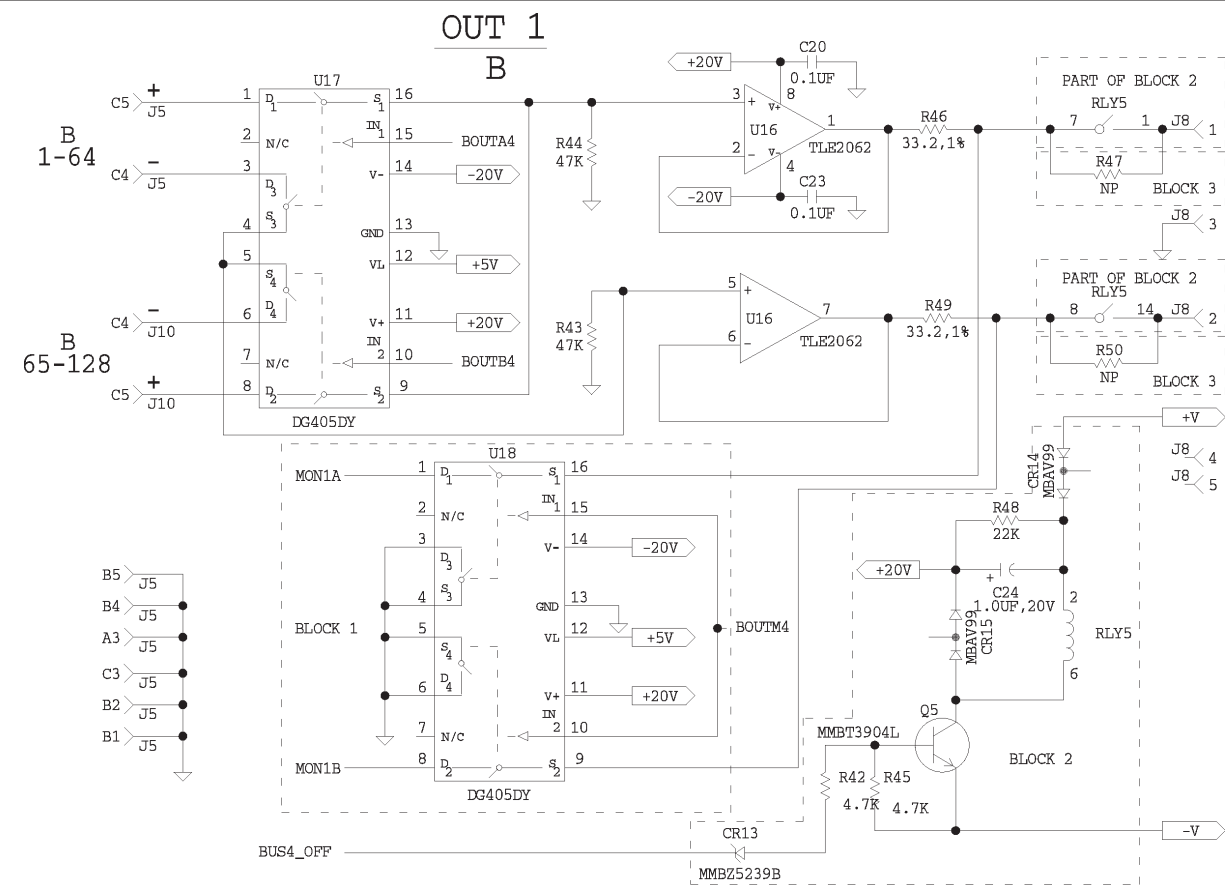
* NOTE 1 FOR 81906518310
(NO MONITOR, NO "OFF")
IN BLOCKS 1,2 OMIT PARTS AND ADD
0 OHM RESISTORS TO BLOCK 3. OMIT
PARTS FORM BLOCK 4 SHEET 3.

* NOTE 2 FOR 81906518430
(WITH MONITOR, NO "OFF")
IN BLOCK 2 OMIT PARTS AND ADD
0 OHM RESISTORS TO BLOCK 3.

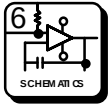
* NOTE 3 FOR 81906518440
(WITH MONITOR, AND "OFF")
IN BLOCKS 1,2,3 ADD PARTS AS DRAWN

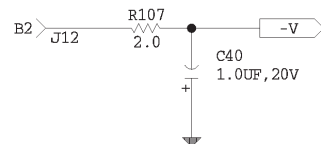
Schematic (Sheet 1 of 3) • 128X64 Analog Audio Output Combiner Card • SC33-1324

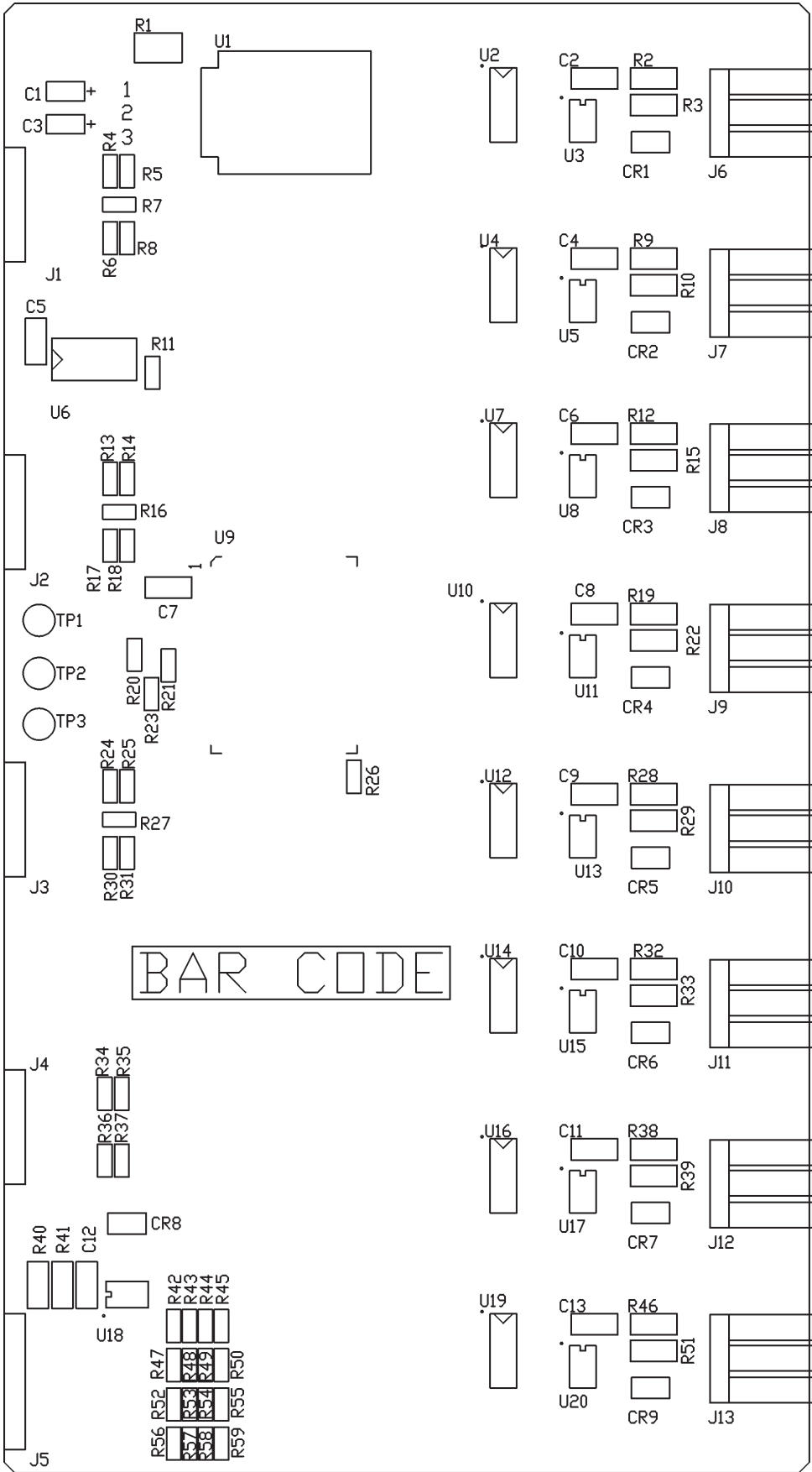




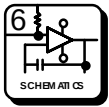
Schematic (Sheet 2 of 3) • 128X64 Analog Audio Output Combiner Card • SC33-1324

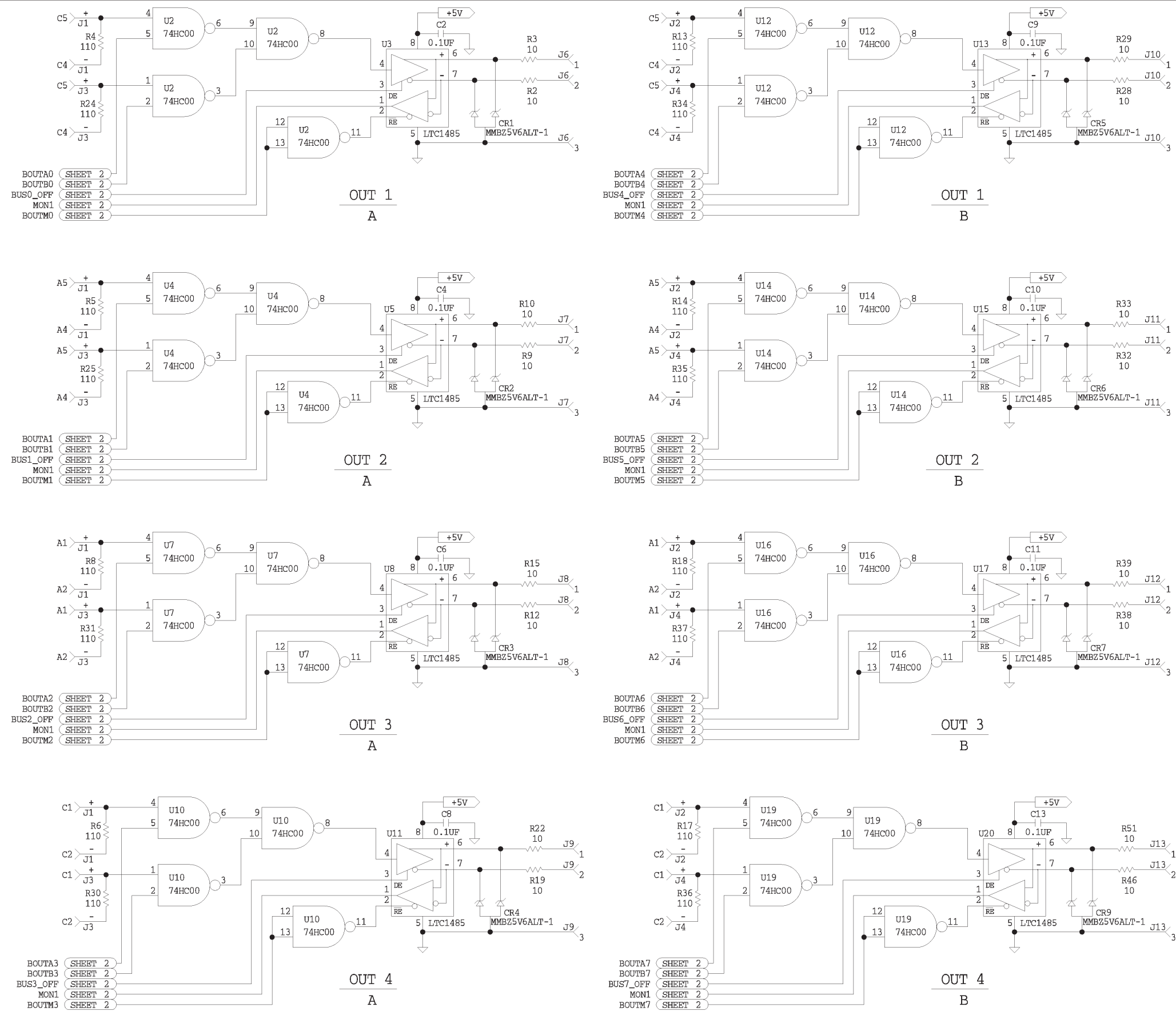




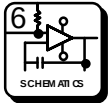


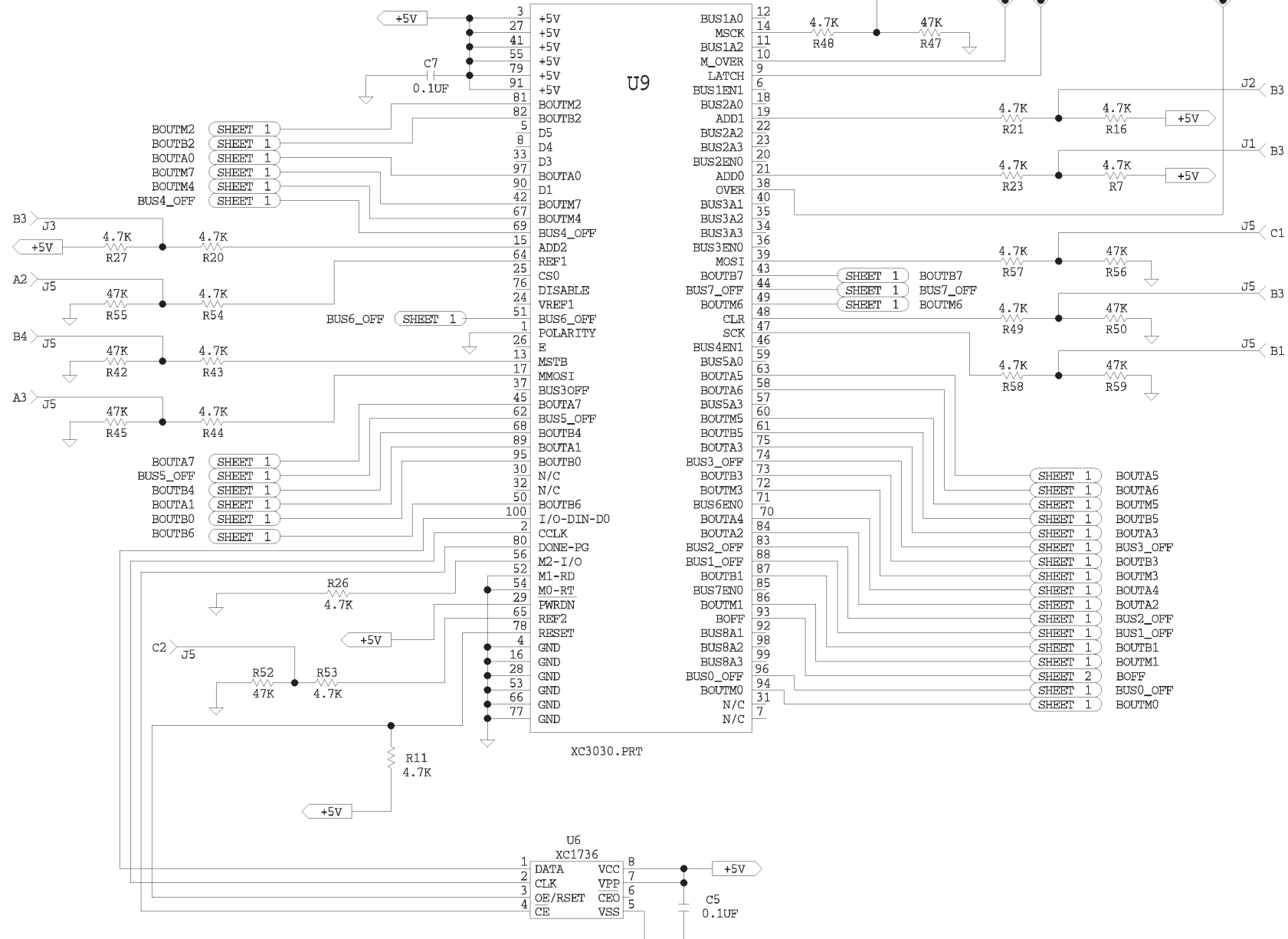
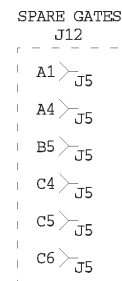
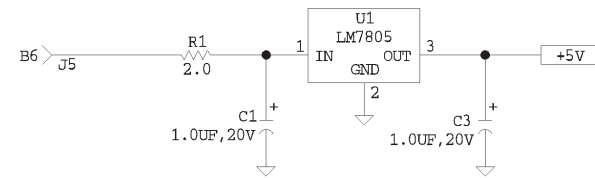
Component Assembly • Digital Audio Output Combiner Card • CA25-1327



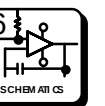


Schematic (Sheet 1 of 2) • Digital Audio Output Combiner Card • SC33-1327

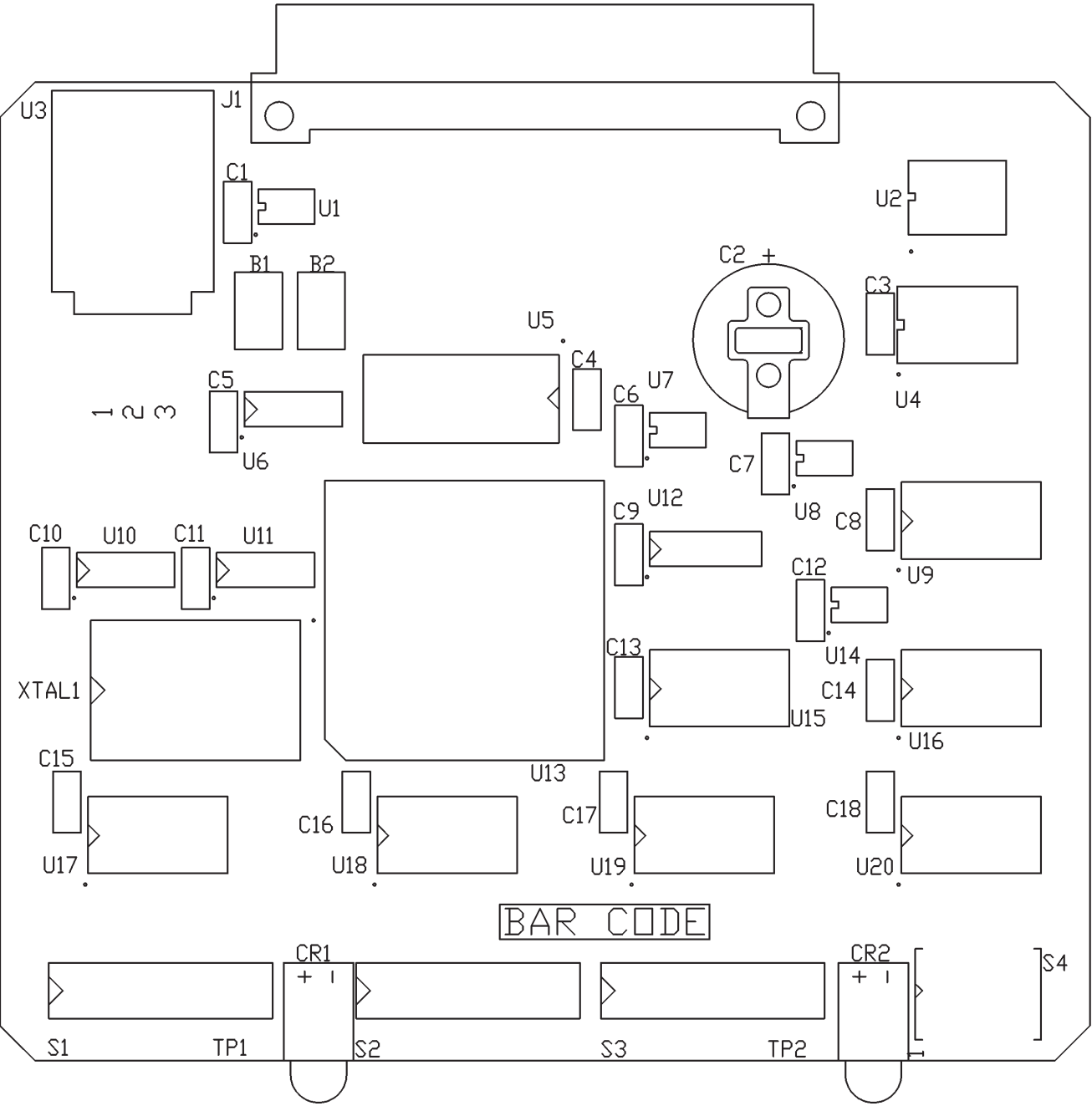




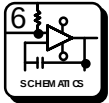
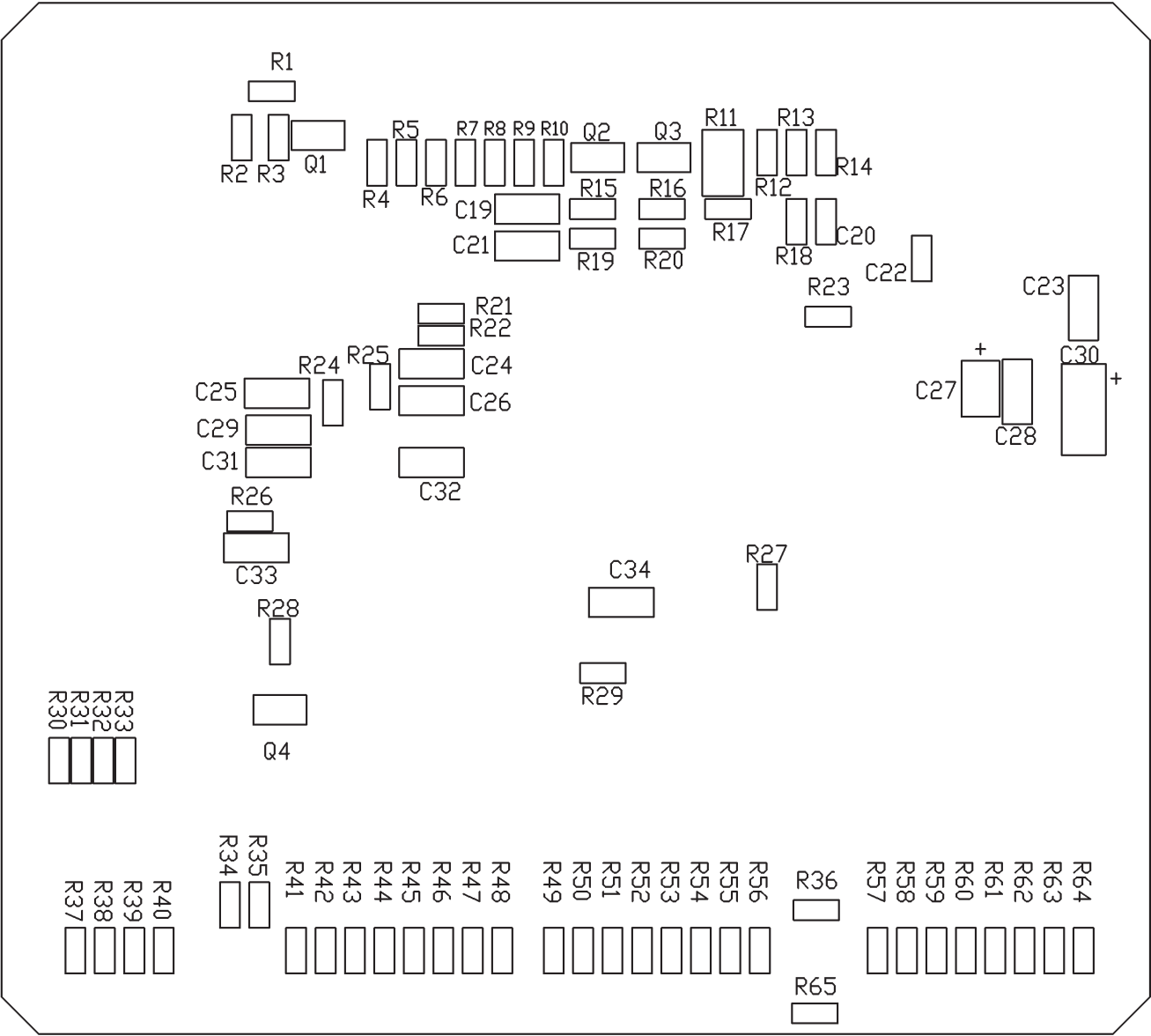
Schematic (Sheet 2 of 2) • Digital Audio Output Combiner Card • SC33-1327

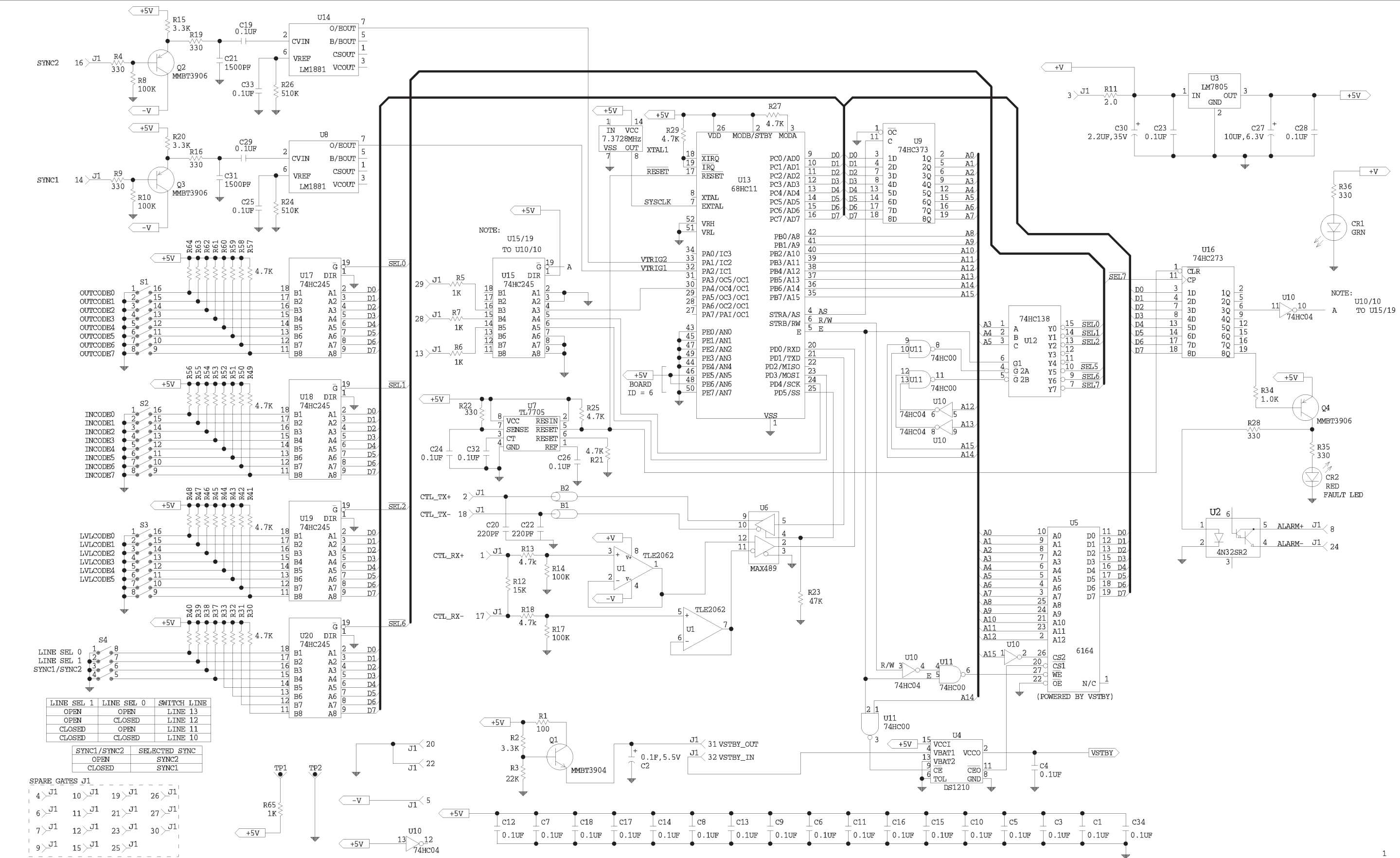


SILKSCREEN COMPONENT SIDE LAYER 1 OF 4

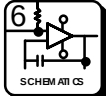


SILKSCREEN SOLDER SIDE LAYER 4 OF 4





Schematic • Output Monitor Control Card • SC33-1334



7.1 Parts List

General

The Parts List in this section have been grouped according to each assembly associated with the Jaguar Audio Switchers. Refer to each list by name of card, board, or section of the equipment requiring replacement parts.

<u>Part</u>	<u>Part Number</u>	<u>Page</u>
Jaguar Audio Mainframe Assembly	81906518280	7.2
Jaguar Audio Chassis	81906518340	7.3
Jaguar Audio Backplane	81906518290	7.4
Dual Audio Reference Interface	81906518550	7.5
64X32 Analog Audio Matrix Assembly	81906518560	7.6
64X32 Analog Audio Matrix Card	81906517470	7.7
64X32 Digital Audio Matrix Assembly	81906519000	7.11
64X32 Digital Audio Matrix Card	81906517490	7.12
Standard Audio Output Card	81906518300	7.15
Option Card Cage	81906518350	7.16
128X64 Standard A/A Output Combiner Card	81906518310	7.17
128X64 A/A Output Comb. Card with Monitor	81906518430	7.18
128X64 A/A Output Card with Monitor (X-Off)	81906518440	7.19
Digital Audio Output Combiner Card	81906518360	7.20
Output Monitor Control Card	81906518460	7.21



Jaguar Audio Mainframe Assembly - 81906518280

81901701110	FAN 12VDC 18.7CFM 60X25MM	3	EA
81901702740	AIR FLTR 6 7/16"x9 11/16"	1	EA
81902003151	FINGER GUARD 50MM CENTERS	3	EA
81902100288	CABLE TIE 4" R/A SST1M-MP	3	EA
81902200799	SCREW 8-32x1.25 PN HD PHI	12	EA
81902202647	SCREW 4-40x1/4 SIMM PANHD	6	EA
81902202980	#6 WING NUT	2	EA
81902202990	SCREW 8-32x1/2 WING HEAD	1	EA
81902908110	CONN 3 PIN F STRAIN RELF	8	EA
81906518290	BACKPLANE AUDIO ASSY JAG	1	EA
81906518340	CHASSIS AUDIO JAGUAR	1	EA
81906518550	DUAL AUDIO REF INTRFCE	1	EA
CD63-0768	DOC MAINFRAME AUDIO JAG	0	EA

Jaguar Audio Chassis - 81906518340

81902003235	LATCH ADJUST GRIP ARROWHD	1	EA
81902104810	HINGE LIFTOFF 10-24 NYLON	1	EA
81902105210	CIR-O-GUIDE .324x.078 THK	16	EA
81902105220	CARD GUIDE PLASTIC 3"	24	EA
81902200138	SCREW 4-40x5/16 PN HD PHI	16	EA
81902201409	SCREW 4-40x1/4 FLT HD PHI	14	EA
81902203060	SCREW 10-32x5/16 UCFH PHI	8	EA
81903464280	HINGE SPACER, JAGUAR	2	EA
81903464320	TRAY CHASSIS AUDIO JAGUAR	1	EA
81903464330	COVER TOP AUDIO JAGUAR	1	EA
81903464340	DOOR FRONT AUDIO JAGUAR	1	EA
81903464350	PLATE HORIZONTAL AUD JAG	1	EA
81903464360	PLATE RIGHT VERT AUD JAG	1	EA
81903464370	PLATE VERT LEFT AUD JAG	1	EA
81903464380	PLATE REAR AUDIO JAGUAR	1	EA
81903464390	COVER STD OUTPUT AUD JAG	1	EA
81903464450	BRACKET SHIP AUD PS JAG	1	EA
CD63-0766	DOC CHASSIS AUDIO JAGUAR	0	EA
SS49-0834	DOC FRONT DOOR SCREEN	0	EA
SS49-0835	DOC REAR PLATE SCREEN	0	EA
SS49-0836	DOC STD OUTPUT COVER	0	EA



Jaguar Audio Backplane - 81906518290

81902003480	STANDOFF 3/16 x 7/16 M-F	4	EA	REF:PCB
81902003490	NUT BROACHING 440 PC MNT	4	EA	REF:PCB
81902105050	LABEL BARCODE 1.5"x0.25"	1	EA	
81902202696	SCREW 4-40x7/16 SIMM PANH	2	EA	REF:J159
81902413220	PCB BACKPLANE AUDIO JAG	1	EA	
81902600436	SWITCH 8 POS DIP 16-PIN	6	EA	S1-S6
81902903061	CONN 6-POS MNL FEMALE RED	1	EA	J160
81902906486	CONN BNC PRESS-IN 75 OHM	4	EA	J154-J157
81902906932	CONN 9-PIN MALE D SOLDER	1	EA	J159
81902907200	CONN 16-POS PC MT FEMALE	2	EA	J19 J20
81902907230	CONN 32 POS FEMALE 16x2	2	EA	J17 J18
81902907900	CONN 128 PIN 4 ROW VERT	12	EA	J1-J3 J5-J7 J9-J11 J13-J15
81902907910	CONN 140 PIN 4 ROW VERT	4	EA	J4 J8 J12 J16
81902908010	CONN 5 PIN 5.08mm VT MALE	1	EA	J158
81902908100	CONN 3 PIN PC MNT VERTCL	136	EA	J21-J153 J161 J162 J163
81902908270	CONN 3x5 RECPTCLE .10 CTR	32	EA	J164-J195
81902908290	RECEPT 3x6 .1 CTR PC MT	8	EA	J196-J203
CA25-1322	DOC BACKPLANE AUDIO JAG	0	EA	
DD52-1322	DOC BACKPLANE AUDIO JAG	0	EA	
SC33-1322	DOC BACKPLANE AUDIO JAG	0	EA	

Dual Audio Reference Interface - 81906518550

81901601187	REG MC7805C +5V 1A TO-220	2	EA	U15 U16
81901606740	IC LMC555 CMOS TIMER	2	EA	U5 U6
81901607100	IC CD22402E SYNC GENERATOR	2	EA	U12 U13
81902105050	LABEL BARCODE 1.5"x0.25"	1	EA	
81902413370	PCB DUAL AUDIO REF INTRFC	1	EA	
81902907240	CONN 32 POS MALE R/A 16x2	1	EA	J1
81903200541	LED GREEN RT/A HI-EFF PCB	2	EA	CR9 CR14
81903200558	LED RED RT/A HI-EFF PC MT	4	EA	CR10 - CR13
81906600424	RESISTOR 100 OHM 5% 0805	6	EA	R9 R15 R12 R18 R69 R70
81906600549	RESISTOR 330 OHM 5% 0805	14	EA	R5 R6 R7 R8 R52 R53 R54 R55 R57-R62
81906600663	RESISTOR 1K OHM 5% 0805	16	EA	R10 R13 R16 R19 R43 R44 R45 R46 R51 R56 R65 R66 R40 R41 R35 R37
81906600820	RESISTOR 4.7K 5% 0805 SMT	4	EA	R47-R50
81906601133	RESISTOR 100K 5% 0805 SMT	4	EA	R11 R14 R17 R20
81906601307	RESISTOR 510K 5% 0805 SMT	8	EA	R21 R22 R23 R26 R63 R64 R67 R68
81906601331	RESISTOR 680K 5% 0805 SMT	4	EA	R24 R25 R29 R32
81906612213	RESISTOR 1.96K 1% 0805	4	EA	R36 R38 R39 R42
81906612397	RESISTOR 3.01K 1% 0805	2	EA	R33 R34
81906640024	RESISTOR 2.0 OHM 5% 1210	4	EA	R1 R2 R3 R4
81906700320	CAP 220PF NPO 0805 CERAMC	2	EA	C29 C30
81906730015	CAP 0.1MF 50V CERMIC 1206	36	EA	C1 C4 C7 C8 C9 C12 C15-C28 C31-C34 C38 C39 C41 C42 C43 C45 C47 C49 C51 C52 C53 C54
81906760160	CAP 1500PF 50V CERAM 1206	4	EA	C10 C11 C13 C14
81906770037	CAP TANTLM,SMT,2.2MFD/35V	2	EA	C46 C50
81906770060	CAP 10MF 6.3V TANT CASE B	2	EA	C44 C48
81906800016	TRANS SMT,MMBT3904LT1	4	EA	Q9-Q12
81906800107	TRANS SMT,MMBT3906L	8	EA	Q1-Q8
81906800164	DIODE BAV99 50ma SOT-23	12	EA	CR1-CR8 CR15-CR18
81906810106	IC LM1881 VID SYNC SEPART	4	EA	U1-U4
81906810340	IC 74HC00 QUAD AND SO SMT	2	EA	U11 U14
81906810530	IC 74HC14 HEX INVERTER SO	3	EA	U7 U8 U17
81906810770	IC 74HC32 QUAD 2-INPUT OR	2	EA	U9 U10
CA25-1337	DOC DUAL AUD REF INTRFCE	0	EA	
DD52-1337	DOC DUAL AUD REF INTRFCE	0	EA	
NOT-PLACED	ITEMS NOT PLACED ON EBOM	0	EA	C2 C3 C5 C6 C35 C36 C37 C40 R27 R28 R30 R31 TP1 TP2 TP3 TP4
SC33-1337	DOC DUAL AUD REF INTRFCE	0	EA	



64X32 Analog Audio Matrix Assembly - 81906518560

81906517470	32x32 AUDIO MATRIX	1	EA	
81906621520	RESISTOR 0.0 OHM 5% 1206	32	EA	R1145 R1147 R1149 R1151 R1153 R1155 R1157 R1159 R1162 R1164 R1167 R1172 R1197 R1214 R1226 R1240 R1146 R1148 R1150 R1152 R1154 R1156 R1158 R1160 R1163 R1165 R1171 R1173 R1212 R1219 R1233 R1246

64X32 Analog Audio Matrix Card - 81906517470

81900601022	THERMISTOR 680 OHM 5%	1	EA	R1168
81901000720	CAP SWX REG 35V 1.7A RAD	4	EA	C157 C159 C164 C177
81901000840	CAP 0.1F 5.5V	1	EA	C156
81901000850	CAP DA SWX REG 35V ELECT	2	EA	C158 C180
81901601187	REG MC7805C +5V 1A TO-220	1	EA	U281
81901603738	REG LM317T 1.2V-37V ADJUST	1	EA	U251
81901606830	IC 7.3728 MHZ OSCILLATOR	1	EA	U1411
81901606980	REG LT1170 5A SWXING 60V	1	EA	U300
81902105050	LABEL BARCODE 1.5"x0.25"	1	EA	
81902200070	NUT 4-40 HEX	2	EA	U300
81902202712	SCREW 4-40x5/16 SIMM PNHD	8	EA	REF:BD SHLD/U300
81902301080	INDUCTOR 20uH 2A TOROIDAL	2	EA	L2 L4
81902301350	TRANSFORMER 32X32 AUDIO	1	EA	T1
81902412770	PCB 32x32 AUDIO MATRIX	1	EA	
81902700749	FUSE PICO, 7 AMP, LEADED	2	EA	F1 F2
81902901479	SOCKET 8 PIN LOW PROF IC	1	EA	REF:U216
81902907920	CONN 128 RECPT R/A 4 ROW	3	EA	J1 J2 J3
81902907930	CONN 140 RECPT R/A 4 ROW	1	EA	J4
81902908060	SPLIT TERMINAL	4	EA	REF:F1 F2
81903200541	LED GREEN RT/A HI-EFF PCB	1	EA	CR2
81903200558	LED RED RT/A HI-EFF PC MT	2	EA	CR3 CR4
81903464030	SHIELD BOARD AUDIO 32x32	1	EA	
81903900700	INDUCT 20MH 1A TORIODAL	2	EA	L1 L3
81906517730	SOFT 32x8 CNTRL CHIP	0	EA	REF:U216
81906517980	SOFT COUGAR BIOS	0	EA	REF:U316
81906600390	RESISTOR 75 OHM 5% 0805	1	EA	R1318
81906600424	RESISTOR 100 OHM 5% 0805	4	EA	R1218 R1232 R261 R312
81906600465	RESISTOR 150 OHM 5% 0805	1	EA	R499
81906600520	RESISTOR 270 OHM 5% 0805	2	EA	R258 R309
81906600549	RESISTOR 330 OHM 5% 0805	2	EA	R495 R504
81906600580	RESISTOR 470 OHM 5% 0805	64	EA	R762 R764 R766 R768 R770 R772 R774 R776 R778 R780 R782 R784 R786 R788 R790 R792 R794 R796 R798 R800 R802 R804 R806 R808 R810 R812 R814 R816 R818 R820 R822 R824 R1113-R1144
81906600620	RESISTOR 680 OHM 5% 0805	1	EA	R1247
81906600663	RESISTOR 1K OHM 5% 0805	17	EA	R259 R310 R496 R482 R483 R484 R485 R486 R489 R493 R497 R1170 R1161 R1211 R1213 R1217 R1231
81906600700	RESISTOR 1.5K 5% 0805	1	EA	R1317
81906600783	RESISTOR 3.3K 5% 0805 SMT	3	EA	R260 R311 R1169



64X32 Analog Audio Matrix Card - 81906517470 Continued:

81906600820 RESISTOR 4.7K 5% 0805 SMT	269	EA	R262-R289 R291-R307 R313-R357 R359-R428 R449 R450 R452 R453-R481 R488 R491 R494 R502 R1174-R1196 R1198-R1210 R1215 R1216 R1220-R1225 R1227-R1230 R1235-R1238 R430 R431-R447 R1314-R1316
81906600903 RESISTOR 10K 5% 0805 SMT	1	EA	R503
81906600920 RESISTOR 12K OHM 5% 0805	1	EA	R429
81906601067 RESISTOR 47K 5% 0805 SMT	1	EA	R487
81906601133 RESISTOR 100K 5% 0805 SMT	4	EA	R257 R308 R448 R451
81906601240 RESISTOR 300K 5% 0805	64	EA	R1250-R1313
81906601307 RESISTOR 510K 5% 0805 SMT	2	EA	R290 R358
81906611290 RESISTOR 215 OHM 1% 0805	64	EA	R569 R571 R573 R575 R577 R579 R581 R583 R585 R587 R589 R591 R593 R595 R597 R599 R601 R603 R605 R607 R609 R611 R613 R615 R617 R619 R621 R623 R625 R627 R629 R631 R841 R844 R847 R850 R853 R856 R859 R862 R865 R868 R871 R874 R877 R880 R883 R886 R905 R908 R911 R914 R917 R920 R923 R926 R929 R932 R935 R938 R941 R944 R947 R950
81906611652 RESISTOR 511 OHM 1% 0805	64	EA	R729-R760 R1049 R1051 R1053 R1055 R1057 R1059 R1061 R1063 R1065 R1067 R1069 R1071 R1073 R1075 R1077 R1079 R1081 R1083 R1085 R1087 R1089 R1091 R1093 R1095 R1097 R1099 R1101 R1105 R1107 R1109 R1111 R1103
81906612213 RESISTOR 1.96K 1% 0805	64	EA	R697-R728 R1017-R1048
81906612296 RESISTOR 2.37K 1% 0805	1	EA	R1234
81906612320 RESISTOR 2.55K 1% 0805	5	EA	R501 R1241 R1243 R1244 R1245
81906613010 RESISTOR 13.7K 1% 0805	129	EA	R33-R64 R129-R144 R161-R176 R570 R572 R574 R576 R578 R580 R582 R584 R586 R588 R590 R592 R594 R596 R598 R600 R602 R604 R606 R608 R610 R612 R614 R616 R618 R620 R622 R624 R626 R628 R630 R632 R842 R845 R848 R851 R854 R857 R860 R863 R866 R869 R872 R875 R878 R881 R884 R887 R906 R909 R912 R915 R918 R921 R924 R927 R930 R933 R936 R939 R942 R945 R948 R951 R1239
81906613110 RESISTOR 17.4K 1% 0805	1	EA	R500



64X32 Analog Audio Matrix Card - 81906517470 Continued:

81906613179 RESISTOR 20K 1% 0805	1	EA	R1242
81906630510 RESISTOR 33.2 OHM 1% 1206	128	EA	R505-R520 R537-R552 R633-R664
81906630510 RESISTOR 33.2 OHM 1% 1206	128	EA	R825-R840 R889-R904 R953- R984
81906640024 RESISTOR 2.0 OHM 5% 1210	1	EA	R1166
81906640240 RESISTOR 16.9K OHM .5%	128	EA	R665-R696 R761 R463 R765 R767 R769 R771 R773 R775 R777 R779 R781 R783 R785 R787 R789 R791 R793 R795 R797 R799 R801 R803 R805 R807 R809 R811 R813 R815 R817 R819 R921 R823 R985-R1016 R1050 R1052 R1054 R1056 R1058 R1060 R1062 R1064 R1066 R1068 R1070 R1072 R1074 R1076 R1078 R1080 R1082 R1084 R1086 R1088 R1090 R1092 R1094 R1096 R1098 R1100 R1102 R1104 R1106 R1108 R1110 R1112
81906640250 RESISTOR 30.1K OHM .5%	128	EA	R1-R32 R193-R224 R521-R536 R553-R568 R843 R846 R849 R852 R855 R858 R861 R864 R867 R870 R873 R876 R879 R882 R885 R888 R907 R910 R913 R916 R919 R922 R925 R928 R931 R934 R937 R940 R943 R946 R949 R952
81906640320 RESISTOR 1 OHM 5% 1210	2	EA	R1248 R1249
81906650270 POT 2K OHM VERT 1T 20%	1	EA	R492
81906650280 POT 500 OHM VERT 1T 20%	64	EA	R65-R128
81906650290 POT 5KOHM VERT IT 20% 4MM	64	EA	R145-R160 R177-R192 R225-R256
81906700059 CAP 6.8PFD 50V CERAM,0805	128	EA	C1-C32 C65-C96 C202-C217 C234-C249 C378-C409
81906700320 CAP 220PF NPO 0805 CERAMC	2	EA	C506 C507
81906700460 CAP 1500PF 50V CERM 0805	2	EA	C135 C139
81906720010 CAP 0.1MF 25V X7R 0805	1	EA	C517
81906730015 CAP 0.1MF 50V CERMIC 1206	245	EA	C130-C134 C136 C138 C140- C155
81906730015 CAP 0.1MF 50V CERMIC 1206	245	EA	C160-C163 C165-C171 C174 C175 C176 C178 C181 C184 C185 C509 C510 C512-C515 C129 C137 C186-C201 C218-C233 C250-C345 C410-C473 C516 C518 C520 C521
81906730090 CAP 0.22MF CERMIC X7R 1206	1	EA	C511
81906770052 CAP 1MF 20V TANLUM SIZE A	2	EA	C182 C183
81906770100 CAP 1mf 35 VOLTS TANTALUM	2	EA	C179 C508
81906770120 CAP 4.7mf 16V TANT SIZE B	1	EA	C519
81906800016 TRANS SMT,MMBT3904LT1	3	EA	Q3 Q6 Q7



64X32 Analog Audio Matrix Card - 81906517470 Continued:

81906800073	DIODE ZENER SMT,MMBZ5240B	2	EA	CR1 CR5
81906800107	TRANS SMT,MMBT3906L	4	EA	Q1 Q2 Q4 Q5
81906800230	DIODE MBR340 40V 3A SHTTK	2	EA	CR6 CR10
81906800410	TRANSIENT SUPPRESSOR 33V	1	EA	CR9
81906800520	TRANS NPN SOT223 AUDIO	1	EA	Q8
81906800570	DIODE MBR360 SCHTTKY 3A	4	EA	CR7 CR8 CR11 CR12
81906800580	ZENER MBZ5242 12V SOT23	1	EA	CR13
81906810072	IC 3903 QUAD SPLY MONITOR	1	EA	U326
81906810106	IC LM1881 VID SYNC SEPART	2	EA	U185 U206
81906810171	IC SMT,74HC04 (SOIC-14)	1	EA	U259
81906810340	IC 74HC00 QUAD AND SO SMT	1	EA	U258
81906810510	IC 6264 8Kx8 SRAM 100ns	1	EA	U279
81906810550	IC 74HC245 OCTL TRANSCEVR	9	EA	U256 U290 U291 U292 U293 U294 U305 U306 U307
81906810570	IC 74HC373 OCTAL LATCH SO	1	EA	U280
81906810770	IC 74HC32 QUAD 2-INPUT OR	1	EA	U257
81906810890	IC RS485 RECVR/TRANSMITTR	1	EA	U246
81906810930	IC TL7705 MICRO SUPERVISR	1	EA	U317
81906810960	IC OPTOCOUPLER SMT 4N32	1	EA	U327
81906811010	IC DG406DY 16x1 MUX 44V	128	EA	U129-U140 U157-U160 U177-U184 U186-U197 U200-U203 U207-U214 U217-U224 U229-U236 U238-U245 U247-U250 U252-U255 U260-U275 U282-U289 U296-U299 U301-U304 U308-U315 U318-U325
81906811030	IC 74HC273 OACTAL REGISTR	1	EA	U295
81906811040	IC 74HC138 3 TO 8 DECODER	2	EA	U276 U277
81906811060	IC XC3030A LCA	8	EA	U198 U199 U204 U205 U225 U226 U227 U228
81906811080	IC DS1210 NONVOL CNTL CHP	1	EA	U278
81906811100	IC DUAL AUDIO LO PWR	161	EA	U1-U128 U141-U156 U161-U176 U237
81906920030	SWITCH DIP 4 POS GULLWING	1	EA	SW1
81906940040	SOCKET 52 PIN PLCC SMT	1	EA	REF: U316
81906950040	BEAD INDUCTOR SMT	66	EA	B1-B66
CA25-1277	DOC 32x32 AUDIO MATRIX	0	EA	
NOT-PLACED	ITEMS NOT PLACED ON EBOM	0	EA	C33-C64 C97-C128 C346-C377 C474-C505 R1145-R1160 R1162-R1165 R490 R1167 R1171 R1172 R1173 R1197 R1212 R1214 R1219 R1226 R1233 R1240 R1246 TP1 TP2 TP3 U215
SC33-1277	DOC 32x32 AUDIO MATRIX	0	EA	



64X32 Digital Audio Matrix Assembly - 81906519000

81906517490 32x32 AUD DIGTL 110 MATRX	1	EA	
81906600820 RESISTOR 4.7K 5% 0805 SMT	2	EA	R463 R465
81906601521 RESISTOR 0.0 OHM 5% 0805	32	EA	R467-R498
NOT-PLACED ITEMS NOT PLACED ON EBOM	0	EA	REMOVE R464 R466



64X32 Digital Audio Matrix Card - 81906517490

81900601022	THERMISTOR 680 OHM 5%	1	EA	R832
81901000740	CAP SWXR REG OUT 35V ELEC	1	EA	C243
81901000760	CAP SWXR REG OUT 10V 12mm	3	EA	C255 C231 C258
81901000840	CAP 0.1F 5.5V	1	EA	C218
81901500827	DIODE PACK MBR2045	1	EA	U114
81901603738	REG LM317T 1.2V-37V ADJST	1	EA	U115
81901606830	IC 7.3728 MHZ OSCILLATOR	1	EA	XTAL1
81901606980	REG LT1170 5A SWXING 60V	1	EA	U113
81901900280	HEATSINK LOW PROFILE	1	EA	REF:U114
81902104512	INSERT/EXTRACTR NYLON	2	EA	REF:SHIELD PLATE
81902105050	LABEL BARCODE 1.5"x0.25"	1	EA	
81902200070	NUT 4-40 HEX	4	EA	REF:U113 U114
81902202647	SCREW 4-40x1/4 SIMM PANHD	6	EA	REF:SHIELD PLATE
81902202712	SCREW 4-40x5/16 SIMM PNHD	4	EA	REF:U113 U114
81902301080	INDUCTOR 20uH 2A TOROIDAL	2	EA	L1 L2
81902301280	TRANSFORMER CUST SDV24x16	1	EA	T1
81902301330	INDUCTOR 30 UH CUSTOM	1	EA	L3
81902412790	PCB 32x32 AUD DIGTL 110	1	EA	
81902700880	FUSE 5A PICO AXIAL 125V	2	EA	F1 F2
81902901479	SOCKET 8 PIN LOW PROF IC	2	EA	REF:U97 U99
81902907920	CONN 128 RECPT R/A 4 ROW	3	EA	J1 J2 J3
81902907930	CONN 140 RECPT R/A 4 ROW	1	EA	J4
81902908060	SPLIT TERMINAL	4	EA	REF: F1 F2
81903200541	LED GREEN RT/A HI-EFF PCB	1	EA	CR9
81903200558	LED RED RT/A HI-EFF PC MT	2	EA	CR10 CR11
81903464030	SHIELD BOARD AUDIO 32x32	1	EA	
81906517980	SOFT COUGAR BIOS	1	EA	REF:U126
81906518020	SOFT 32x4 DIGITAL AUD XPT	2	EA	U97 U99
81906518600	HOLD OFF CIRCUIT L1170	1	EA	
81906600341	RESISTOR 47 OHM 5% 0805	128	EA	R9-R40 R53-R84 R155-R218
81906600424	RESISTOR 100 OHM 5% 0805	3	EA	R371 R366 R370
81906600432	RESISTOR 110 OHM 5% 0805	72	EA	R1-R8 R41-R48 R87 R88 R105
	R106 R123-R154 R253 R254 R256-R265 R267-R274			
81906600520	RESISTOR 270 OHM 5% 0805	4	EA	R49 R52 R373 R380
81906600549	RESISTOR 330 OHM 5% 0805	6	EA	R440 R444 R445 R446 R447 R462
81906600663	RESISTOR 1K OHM 5% 0805	13	EA	R372 R374 R378 R379 R441 R85
				R86 R456-R461
81906600713	RESISTOR 1.6K OHM 5% 0805	1	EA	R439
81906600783	RESISTOR 3.3K 5% 0805 SMT	1	EA	R376
81906600820	RESISTOR 4.7K 5% 0805 SMT	147	EA	R89-R104 R107-R122 R219-R250
				R275-R278 R315-R326 R342 R352
				R362 R364 R367 R369 R381 R382
				R384-R436 R280-R283 R464 R466
81906600945	RESISTOR 15K 5% 0805 SMT	1	EA	R363
81906600986	RESISTOR 22K 5% 0805 SMT	1	EA	R375
81906601133	RESISTOR 100K 5% 0805 SMT	4	EA	R50 R51 R361 R365
81906601307	RESISTOR 510K 5% 0805 SMT	2	EA	R368 R377



64X32 Digital Audio Matrix Card - 81906517490 Continued:

81906611930	RESISTOR 1.0K 1% 0805 SMT	1	EA	R437
81906612050	RESISTOR 1.33K 1% 0805	1	EA	R442
81906612213	RESISTOR 1.96K 1% 0805	1	EA	R451
81906612264	RESISTOR 2.21K 1% 0805	1	EA	R443
81906612296	RESISTOR 2.37K 1% 0805	1	EA	R453
81906612320	RESISTOR 2.55K 1% 0805	4	EA	R448 R449 R450 R452
81906612340	RESISTOR 2.67K 1% 0805	1	EA	R383
81906612593	RESISTOR 4.99K 1% 0805	1	EA	R454
81906612900	RESISTOR 10.5K 1% 0805	1	EA	R455
81906640024	RESISTOR 2.0 OHM 5% 1210	1	EA	R438
81906700320	CAP 220PF NPO 0805 CERAMC	2	EA	C203 C204
81906710110	CAP 0.15MF 50V CERAM 1206	1	EA	C254
81906730015	CAP 0.1MF 50V CERMIC 1206	238	EA	C1-C202 C205 C206 C208-C217 C219 C221 C222 C223 C225 C227 C228 C229 C233-C242 C245 C250 C252 C256 C257 C259
81906730056	CAP 0.01MF 50V CERAM 1206	1	EA	C247
81906760160	CAP 1500PF 50V CERAM 1206	2	EA	C207 C220
81906770037	CAP TANTLM,SMT,2.2MFD/35V	8	EA	C224 C226 C230 C232 C244 C246 C248 C249
81906770052	CAP 1MF 20V TANLUM SIZE A	2	EA	C251 C253
81906800016	TRANS SMT,MMBT3904LT1	2	EA	Q3 Q5
81906800065	TRANS SMT,MMBZ5234B	2	EA	CR1 CR5
81906800107	TRANS SMT,MMBT3906L	5	EA	Q1 Q2 Q4 Q6 Q7
81906800230	DIODE MBR340 40V 3A SHTTK	2	EA	CR2 CR6
81906800360	ZENER MB5244 14V SOT-23	2	EA	CR7 CR8
81906800390	ZENER MC15 15V 1.5W SMT	1	EA	CR4
81906800410	TRANSIENT SUPPRESSOR 33V	1	EA	CR3
81906810072	IC 3903 QUAD SPLY MONITOR	1	EA	U129
81906810106	IC LM1881 VID SYNC SEPART	2	EA	U102 U104
81906810171	IC SMT,74HC04 (SOIC-14)	1	EA	U105
81906810340	IC 74HC00 QUAD AND SO SMT	1	EA	U106
81906810510	IC 6264 8Kx8 SRAM 100ns	1	EA	U108
81906810550	IC 74HC245 OCTL TRANSCEVR	10	EA	U109 U116-U122 U124 U130
81906810570	IC 74HC373 OCTAL LATCH SO	1	EA	U125
81906810770	IC 74HC32 QUAD 2-INPUT OR	1	EA	U107
81906810890	IC RS485 RECVR/TRANSMITTR	1	EA	U103
81906810900	IC DUAL 24V AMP AUDIO	1	EA	U101
81906810930	IC TL7705 MICRO SUPERVISR	1	EA	U127
81906810960	IC OPTOCOUPLER SMT 4N32	1	EA	U128
81906810970	IC DIFF BUS TRANSCEIVER	64	EA	U5-U20 U25-U40 U45-U60 U65-U80
81906810980	IC QUAD LINE RECEIVER	16	EA	U1-U4 U21-U24 U41-U44 U61-U64
81906811030	IC 74HC273 OACTAL REGISTR	1	EA	U123
81906811040	IC 74HC138 3 TO 8 DECODER	2	EA	U110 U111
81906811060	IC XC3030A LCA	16	EA	U81-U96
81906811080	IC DS1210 NONVOL CNTL CHP	1	EA	U112
81906920030	SWITCH DIP 4 POS GULLWING	1	EA	S1



64X32 Digital Audio Matrix Card - 81906517490 Continued:

81906940040	SOCKET 52 PIN PLCC SMT	1	EA	REF:U126
81906950040	BEAD INDUCTOR SMT	2	EA	BEAD1 BEAD2
CA25-1279	DOC 32x32 AUD DIGTL 110	0	EA	
NOT-PLACED	ITEMS NOT PLACED ON EBOM	0	EA	R251 R252 R255 R266 R279 R284-R314 R327-R341 R343-R351 R353-R360 TP1 TP2 TP3 TP4 U98 U100 R463 R465 R467-R498
SC33-1279	DOC 32x32 AUD DIGTL 110	0	EA	

Standard Audio Output Card - 81906518300

81902413230	PCB OUTPUT CARD AUDIO JAG	1	EA	
81902908100	CONN 3 PIN PC MNT VERTCL	64	EA	J1 - J64
81902908230	CONN 5 PIN POST .025 SQ	48	EA	J65 - J80
CA25-1323	DOC OUTPUT CARD AUDIO JAG	0	EA	
DD52-1323	DOC OUTPUT CARD AUDIO JAG	0	EA	
SC33-1323	DOC OUTPUT CARD AUDIO JAG	0	EA	



Option Card Cage - 81906518350

81902202647	SCREW 4-40x1/4 SIMM PANHD	16	EA	
81903464400	COVER CAGE AUDIO JAGUAR	1	ST	1 SET = 8 PARTS
81903464410	CAGE CARD AUDIO JAGUAR	1	EA	
81903464420	CAGE,CARD,AUDIO JAG,SIDE	1	EA	
CD63-0767	DOC CARD CAGE AUDIO JAG	0	EA	
SS49-0839	DOC AUDIO CARD CAGE KIT	0	EA	1 KIT = 8 PLATES
SS49-0843	DOC REAR PANEL - MONO	0	EA	

128X64 Standard A/A Output Combiner Card - 81906518310

81901601187	REG MC7805C +5V 1A TO-220	1	EA	U1
81902105050	LABEL BARCODE 1.5"x0.25"	1	EA	
81902413240	PCB OUTPUT MONITR AUD JAG	1	EA	
81902901479	SOCKET 8 PIN LOW PROF IC	1	EA	U6
81902908300	CONN 3x5 PIN MALE RA .025	4	EA	J2 J5 J7 J10
81902908310	CONN 3x6 PIN MALE RA .025	1	EA	J12
81902908320	CONN 3 PIN PC MNT R/A	8	EA	J1 J3 J4 J6 J8 J9 J11 J13
81906518490	SOFT SERIAL PORT DECODER	1	EA	U6
81906600820	RESISTOR 4.7K 5% 0805 SMT	16	EA	R64 R70 R75-R77 R80-R82 R84 R85 R87 R92 R96 R98 R100 R110
81906601067	RESISTOR 47K 5% 0805 SMT	24	EA	R2 R3 R11 R12 R20 R21 R31 R32 R43 R44 R53 R54 R65 R66 R88 R89 R63 R69 R74 R83 R86 R97 R99 R101
81906621520	RESISTOR 0.0 OHM 5% 1206	16	EA	R7 R10 R18 R19 R27 R28 R40 R41 R47 R50 R59 R62 R72 R79 R104 R105
81906640024	RESISTOR 2.0 OHM 5% 1210	5	EA	R1 R95 R102 R108 R109
81906640200	RESISTOR 33.2ohm 1% 1210	16	EA	R6 R9 R15 R17 R24 R26 R38 R39 R46 R49 R58 R61 R71 R78 R93 R103
81906730015	CAP 0.1MF 50V CERMIC 1206	20	EA	C1 C3 C5 C8 C9 C11 C12 C13 C16 C20 C22 C23 C26 C27 C29 C30 C32 C33 C35 C18
81906770037	CAP TANTLM,SMT,2.2MFD/35V	6	EA	C4 C21 C36 C37 C38 C39
81906770052	CAP 1MF 20V TANLUM SIZE A	2	EA	C2 C7
81906811060	IC XC3030A LCA	1	EA	U25
81906811100	IC DUAL AUDIO LO PWR	8	EA	U2 U5 U9 U13 U16 U19 U22 U26
81906811150	IC DG405DY SOIC-16 DUAL	8	EA	U3 U7 U10 U14 U17 U20 U23 U27
CA25-1324	DOC OUTPUT MONTOR AUD JAG	0	EA	
DD52-1324	DOC OUTPUT MONTOR AUD JAG	0	EA	
SC33-1324	DOC OUTPUT MONTOR AUD JAG	0	EA	



128X64 A/A Output Comb. Card with Monitor - 81906518430

81901601187	REG MC7805C +5V 1A TO-220	1	EA	U1
81901800190	RELAY DIP 24V DPST (2A)	1	EA	RLY6
81902105050	LABEL BARCODE 1.5"x0.25"	1	EA	
81902413240	PCB OUTPUT MONITR AUD JAG	1	EA	
81902901479	SOCKET 8 PIN LOW PROF IC	1	EA	U6
81902908300	CONN 3x5 PIN MALE RA .025	4	EA	J2 J5 J7 J10
81902908310	CONN 3x6 PIN MALE RA .025	1	EA	J12
81902908320	CONN 3 PIN PC MNT R/A	8	EA	J1 J3 J4 J6 J8 J9 J11 J13
81906518490	SOFT SERIAL PORT DECODER	1	EA	U6
81906600820	RESISTOR 4.7K 5% 0805 SMT	18	EA	R52 R57 R64 R70 R75 R76 R77 R80 R81 R82 R84 R85 R87 R92 R96 R98 R100 R110
81906600986	RESISTOR 22K 5% 0805 SMT	1	EA	R51
81906601067	RESISTOR 47K 5% 0805 SMT	26	EA	R2 R3 R11 R12 R20 R21 R29 R30 R31 R32 R43 R44 R53 R54 R65 R66 R88 R89 R63 R69 R74 R83 R86 R97 R99 R101
81906621520	RESISTOR 0.0 OHM 5% 1206	16	EA	R7 R10 R18 R19 R27 R28 R40 R41 R47 R50 R59 R62 R72 R79 R104 R105
81906640024	RESISTOR 2.0 OHM 5% 1210	6	EA	R1 R95 R102 R108 R109 R107
81906640200	RESISTOR 33.2ohm 1% 1210	18	EA	R6 R9 R15 R17 R24 R26 R36 R37 R38 R39 R46 R49 R58 R61 R71 R78 R93 R103
81906730015	CAP 0.1MF 50V CERMIC 1206	22	EA	C1 C3 C5 C8 C9 C11 C12 C13 C15 C16 C17 C20 C22 C23 C26 C27 C29 C30 C32 C33 C35 C18
81906770037	CAP TANTLM,SMT,2.2MFD/35V	6	EA	C4 C21 C36 C37 C38 C39
81906770052	CAP 1MF 20V TANLUM SIZE A	4	EA	C2 C7 C25 C40
81906800016	TRANS SMT,MMBT3904LT1	1	EA	Q7
81906800156	ZENER 5239 9.1V SOT-23	1	EA	CR21
81906800164	DIODE BAV99 50ma SOT-23	2	EA	CR16 CR17
81906811060	IC XC3030A LCA	1	EA	U25
81906811100	IC DUAL AUDIO LO PWR	9	EA	U2 U5 U9 U13 U16 U19 U22 U26 U12
81906811150	IC DG405DY SOIC-16 DUAL	16	EA	U3 U7 U10 U14 U17 U20 U23 U27 U4 U8 U11 U15 U18 U21 U24 U28
CA25-1324	DOC OUTPUT MONTOR AUD JAG	0	EA	
DD52-1324	DOC OUTPUT MONTOR AUD JAG	0	EA	
SC33-1324	DOC OUTPUT MONTOR AUD JAG	0	EA	

128X64 A/A Output Card with Monitor (X-Off) - 81906518440

81901800190	RELAY DIP 24V DPST (2A)	9	EA	RLY1-RLY9
81906518430	JAG AUD OUT SWX CRD W/MON	1	EA	
81906600820	RESISTOR 4.7K 5% 0805 SMT	41	EA	R4 R5 R13 R14 R22 R23 R33 R34 R42 R45 R55 R56 R67 R68 R90 R91 R52 R57 R63 R64 R69 R70 R74 R75 R76 R77 R80 R81 R82 R83 R84 R85 R86 R87 R92 R96 R97 R98 R99 R100 R110
81906600986	RESISTOR 22K 5% 0805 SMT	9	EA	R8 R16 R25 R35 R48 R60 R73 R94 R51
81906770052	CAP 1MF 20V TANLUM SIZE A	12	EA	C6 C10 C14 C19 C24 C28 C31 C34 C25 C2 C7 C40
81906800016	TRANS SMT,MMBT3904LT1	9	EA	Q1-Q9
81906800156	ZENER 5239 9.1V SOT-23	9	EA	CR1 CR4 CR7 CR10 CR13 CR18 CR22 CR25 CR21
81906800164	DIODE BAV99 50ma SOT-23	18	EA	CR2 CR3 CR5 CR6 CR8 CR9 CR11 CR12 CR14 CR15 CR16 CR17 CR19 CR20 CR23 CR24 CR26 CR27
CA25-1324	DOC OUTPUT MONTOR AUD JAG 0		EA	
SC33-1324	DOC OUTPUT MONTOR AUD JAG 0		EA	



Digital Audio Output Combiner Card - 81906518360

81901601187	REG MC7805C +5V 1A TO-220	1	EA	U1
81902105050	LABEL BARCODE 1.5"x0.25"	1	EA	
81902413270	PCB DIGITAL AUD OUTPUT MON	1	EA	
81902901479	SOCKET 8 PIN LOW PROF IC	1	EA	REF U6
81902908300	CONN 3x5 PIN MALE RA .025	4	EA	J1 J2 J3 J4
81902908310	CONN 3x6 PIN MALE RA .025	1	EA	J5
81902908320	CONN 3 PIN PC MNT R/A	8	EA	J6-J13
81906518490	SOFT SERIAL PORT DECODER	1	EA	REF U6
81906600432	RESISTOR 110 OHM 5% 0805	16	EA	R4 R5 R6 R8 R13 R14 R17 R18 R24 R25 R30 R31 R34 R35 R36 R37
81906600820	RESISTOR 4.7K 5% 0805 SMT	16	EA	R7 R11 R16 R20 R21 R23 R26 R27 R43 R44 R48 R49 R53 R54 R57 R58
81906601067	RESISTOR 47K 5% 0805 SMT	8	EA	R42 R45 R47 R50 R52 R55 R56 R59
81906620180	RESISTOR 10 OHM 5% 1206	18	EA	R2 R3 R9 R10 R12 R15 R19 R22 R28 R29 R32 R33 R38-R41 R46 R51
81906640024	RESISTOR 2.0 OHM 5% 1210	1	EA	R1
81906730015	CAP 0.1MF 50V CERMIC 1206	11	EA	C2 C4-C13
81906770052	CAP 1MF 20V TANLUM SIZE A	2	EA	C1 C3
81906800590	ZENER MMBZ5V6ALT1 SOT23	9	EA	CR1-CR9
81906810340	IC 74HC00 QUAD AND SO SMT	8	EA	U2 U4 U7 U10 U12 U14 U16 U19
81906810970	IC DIFF BUS TRANSCEIVER	9	EA	U3 U5 U8 U11 U13 U15 U17 U18 U20
81906811060	IC XC3030A LCA	1	EA	U9
CA25-1327	DOC DIGITAL AUD OUTPUT MON	0	EA	
DD52-1327	DOC DIGITAL AUD OUTPUT MON	0	EA	
SC33-1327	DOC DIGITAL AUD OUTPUT MON	0	EA	

Output Monitor Control Card - 81906518460

81901000840	CAP 0.1F 5.5V	1	EA	C2
81901601187	REG MC7805C +5V 1A TO-220	1	EA	U3
81901606730	IC 68HC11E9 SINGLE CHIP	1	EA	U13
81901606830	IC 7.3728 MHZ OSCILLATOR	1	EA	XTAL1
81902105050	LABEL BARCODE 1.5"x0.25"	1	EA	
81902413340	PCB AUDIO OUTPUT CONTROL	1	EA	
81902600436	SWITCH 8 POS DIP 16-PIN	3	EA	S1 S2 S3
81902907240	CONN 32 POS MALE R/A 16x2	1	EA	J1
81903200541	LED GREEN RT/A HI-EFF PCB	1	EA	CR1
81903200558	LED RED RT/A HI-EFF PC MT	1	EA	CR2
81906600424	RESISTOR 100 OHM 5% 0805	1	EA	R1
81906600549	RESISTOR 330 OHM 5% 0805	8	EA	R4 R9 R16 R19 R22 R28 R35 R36
81906600663	RESISTOR 1K OHM 5% 0805	5	EA	R5-R7 R65 R34
81906600783	RESISTOR 3.3K 5% 0805 SMT	3	EA	R2 R15 R20
81906600820	RESISTOR 4.7K 5% 0805 SMT	38	EA	R13 R18 R21 R25 R27 R29-R33 R37-R64
81906600945	RESISTOR 15K 5% 0805 SMT	1	EA	R12
81906600986	RESISTOR 22K 5% 0805 SMT	1	EA	R3
81906601067	RESISTOR 47K 5% 0805 SMT	1	EA	R23
81906601133	RESISTOR 100K 5% 0805 SMT	4	EA	R8 R10 R14 R17
81906601307	RESISTOR 510K 5% 0805 SMT	2	EA	R24 R26
81906640024	RESISTOR 2.0 OHM 5% 1210	1	EA	R11
81906700320	CAP 220PF NPO 0805 CERAMC	2	EA	C20 C22
81906730015	CAP 0.1MF 50V CERMIC 1206	27	EA	C1 C3-C19 C23-C26 C28 C29 C32 C33 C34
81906760160	CAP 1500PF 50V CERAM 1206	2	EA	C21 C31
81906770037	CAP TANTLM,SMT,2.2MFD/35V	1	EA	C30
81906770060	CAP 10MF 6.3V TANT CASE B	1	EA	C27
81906800016	TRANS SMT,MMBT3904LT1	1	EA	Q1
81906800107	TRANS SMT,MMBT3906L	3	EA	Q2 Q3 Q4
81906810106	IC LM1881 VID SYNC SEPART	2	EA	U8 U14
81906810171	IC SMT,74HC04 (SOIC-14)	1	EA	U10
81906810340	IC 74HC00 QUAD AND SO SMT	1	EA	U11
81906810510	IC 6264 8Kx8 SRAM 100ns	1	EA	U5
81906810550	IC 74HC245 OCTL TRANSCEVR	5	EA	U15 U17-U20
81906810570	IC 74HC373 OCTAL LATCH SO	1	EA	U9
81906810890	IC RS485 RECVR/TRANSMITTR	1	EA	U6
81906810930	IC TL7705 MICRO SUPERVISR	1	EA	U7
81906810960	IC OPTOCOUPLER SMT 4N32	1	EA	U2
81906811030	IC 74HC273 OACTAL REGISTR	1	EA	U16
81906811040	IC 74HC138 3 TO 8 DECODER	1	EA	U12
81906811080	IC DS1210 NONVOL CNTL CHP	1	EA	U4
81906811100	IC DUAL AUDIO LO PWR	1	EA	U1
81906920030	SWITCH DIP 4 POS GULLWING	1	EA	S4
81906940040	SOCKET 52 PIN PLCC SMT	1	EA	REF: U13
81906950040	BEAD INDUCTOR SMT	2	EA	B1 B2



Output Monitor Control Card - 81906518460 Continued:

CA25-1334	DOC AUDIO OUTPUT MON CTRL	0	EA	
DD52-1334	DOC AUDIO OUTPUT MON CTRL	0	EA	
NOT-PLACED	ITEMS NOT PLACED ON EBOM	0	EA	TP1 TP2
SC33-1334	DOC AUDIO OUTPUT MON CTRL	0	EA	
SP57-0373	DOC PANLZTION AUD OUT MON	0	EA	

Internal PS130 Power Supply Addendum

Introduction

CAUTION

PS130 POWER SUPPLIES CONTAIN ELECTRICAL SHOCK HAZARDS AND SHOULD ONLY BE SERVICED BY QUALIFIED SERVICE PERSONNEL WITH EXPERIENCE IN SERVICING OFF-LINE SWITCHING REGULATORS.

CAUTION

There are no user serviceable parts contained in the PS130 Power Supply. All service performed on the PS130 Power Supply should be accomplished by qualified service personnel. **The internal circuits of the PS130 Power Supply contain dangerous voltage and current levels. Prior to servicing any PS130 Power Supply make absolutely sure that the AC line input is disconnected.**

NOTE

The PS130 Power Supply replaces the power supply formerly used to power the PESA equipment item referenced in the technical manual to which this addendum is attached. This addendum takes precedence over any mention of the former power supply in the technical manual for any PESA equipment items where the PS130 Power Supply is utilized.

This addendum contains the power connection, front door removal and replacement, power supply removal and installation, and fuse replacement instructions for the PS130 Power Supply. The purpose of this addendum is to provide technical information to the customer concerning the operation and servicing of the PS130 Power Supply.

General

CAUTION

HIGH LEAKAGE CURRENT AT 230 VAC

The PS130 Power Supply leakage current exceeds 3.5mA when used at 230VAC because of leakage through emission filter capacitors.

Internal PS130 Power Supply Addendum

The PS130 Video Power Supply is responsible for providing a regulated $\pm 8.9\text{VDC}$ @ 5.5A to the switching frame. The PS130 Power Supply is designed to operate within output specifications with AC line voltages ranges from 105 - 240 VAC and with AC line frequencies of 50/60 Hz automatically. 3.15A 250VAC AC line fuses provide over-load protection.

The PS130 Audio Power Supply is responsible for providing a regulated $\pm 24\text{VDC}$ @ 2.35A to the switching frame. The PS130 Power Supply is designed to operate within output specifications with AC line voltages ranges from 105 - 240 VAC and with AC line frequencies of 50/60 Hz automatically. 3.15A 250VAC AC line fuses provide over-load protection.

CAUTION

Disconnect AC Power Cord Before Removing Power Supply.

In the event of a PS130 Power Supply failure, PESA suggests returning the malfunctioning unit to the PESA Service Department for replacement. **PS130 Power Supplies contain lethal voltages when operating and should only be serviced by technicians qualified to service off-line switching regulators.** Please call the PESA Service Department for a RMA number before returning any units for replacement. The service department's phone number is listed on the Service and Ordering Assistance Page.

Power Connections

CAUTION

PS130 POWER SUPPLIES CONTAIN ELECTRICAL SHOCK HAZARDS AND SHOULD ONLY BE SERVICED BY QUALIFIED SERVICE PERSONNEL AND/OR QUALIFIED TECHNICIANS.

CAUTION

**THIS POWER SUPPLY USES AN INDIVIDUAL AC POWER CORD.
DISCONNECT CORD BEFORE REMOVING SUPPLY.**

Internal PS130 Power Supply Addendum

Power Connect

To power-up a PS130 Power Supply and its associated routing switcher frame take the following steps:

1. Insert the power supply into the frame following the instructions in the Power Removal Section of this addendum.
2. Connect the power supply to the AC line.
3. Repeat steps 1 and 2 for a secondary power supply if applicable.
4. If applicable, connect any DC power looped to and from other frames in the routing switcher system to the unit under test.

Power Disconnect

To power-down a PS130 Power Supply, disconnect the AC power cord from the power supply's AC line input connector. To power-down a PS130 Power Supply and its associated routing switcher frame take the following steps:

1. If applicable, disconnect any DC power looped to and from other frames in the routing switcher system from the unit under test.
2. Disconnect the AC line from the primary PS130 Power Supply.
3. If applicable, disconnect the AC line from the secondary PS130 Power Supply.

Front Door Removal and Replacement

Front Door Removal (Removable Front Doors Only)

To remove the PESA equipment item's front door (cover) take the following steps:

1. Grasp the both the left and right front cover slide locks and push or pull them towards the center of the equipment item's front.
2. Once both slide locks are slide toward the center of the equipment items front, carefully pull the front door off the equipment item.

Internal PS130 Power Supply Addendum

Front Door Installation (Removable Front Doors Only)

To install the PESA equipment item's front door (cover) take the following steps:

1. Align the front door with the front of the PESA equipment item.
2. Once the front door is aligned with the front of the PESA equipment item, slide the front door onto the equipment item until the slide locks snap into the locking provided on the equipment item's chassis.

Power Supply Removal and Replacement

CAUTION

Two AC Power Cords may be connected to this unit.

Power Supply Removal

To remove the PESA equipment item's power supply or power supplies take the following steps:

1. **Disconnect the AC power cord connected to the power supply to be removed.**
2. Remove or open the equipment item's front door.
3. Grasp the power supply slide lock and pull it toward the center of the supply.
4. Once the slide lock is slid toward the center of the supply, carefully pull the power supply out of the equipment chassis.
5. Repeat step 1 and steps 3 and 4 to remove any additional power supplies from the equipment item.

Power Supply Installation

To install the PESA equipment item's power supply or power supplies take the following steps:

1. Align the primary power supply with the primary set of power supply circuit card guides in the equipment item's chassis.

Internal PS130 Power Supply Addendum

2. Carefully push the power supply into the chassis until the power supply connector makes initial contact with the backplane power connector. At this point, firmly but carefully continue pushing the power supply into the equipment chassis while making sure the power connectors are properly aligned. You may have to slide the power supply latch toward the center of the supply in order for the latch to move past the frame's metal work. Continue pushing the power supply until the power supply slide lock clicks into the power supply slide lock hole provided in the equipment chassis and the power connectors are firmly mated.
3. If additional power supplies are to be installed in the equipment chassis, align them with a set of power supply circuit card guides in the equipment item and repeat step 2.

Fuse Replacement

CAUTION

DOUBLE-POLE/NEUTRAL FUSING

To replace the PS130 Power Supply line fuses take the following steps:

1. **Disconnect the AC power cord from the power supply being serviced.**
2. Remove or open the front door of the equipment item containing the PS130 Power Supply needing serviced.
3. Remove the power supply from the equipment item. Refer to the Power Supply Removal Section of this addendum for power supply removal instructions.
4. Carefully pull the AC line fuse holder open. The fuse holder is located adjacent to the PS130 Power Supply AC line input connector.
5. **Replace the fuses with fuses of equal current and voltage rating.**
6. Carefully slide the AC line fuse holder closed.
7. Install the power supply back into the equipment chassis. Refer to the Power Supply Installation Section of this addendum for complete power supply installation instructions.
5. Reconnect the associated AC power cord.