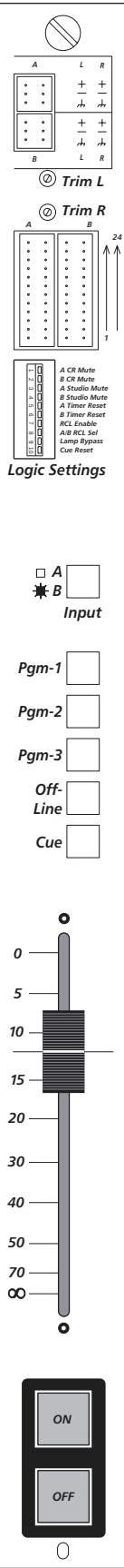


Quick Reference Guide to AirWave Digital Logic Input Module Connections



Logic Settings Switch Definitions

#	Switch Name	ON Function (set to operator's left)	OFF Function (set to right)
1	A CR Mute *	Input A mutes C/R speakers at module On	No monitor muting
2	B CR Mute *	Input B mutes C/R speakers at module On	No monitor muting
3	A Studio Mute *	Input A mutes studio spkrs. at module On	No monitor muting
4	B Studio Mute *	Input B mutes studio spkrs. at module On	No monitor muting
5	A Timer Reset +	Input A resets timer at module On	No timer reset
6	B Timer Reset +	Input B resets timer at module On	No timer reset
7	RCL Enable	Remote control logic is active	Logic inactive
8	A/B RCL Set #	Logic active on input A	Logic active on input B
9	Lamp Bypass	Off lamp turns on at module Off	Off lamp follows ready logic
10	Cue Reset	Cue cancelled at module On	No cue reset at module On

Notes:

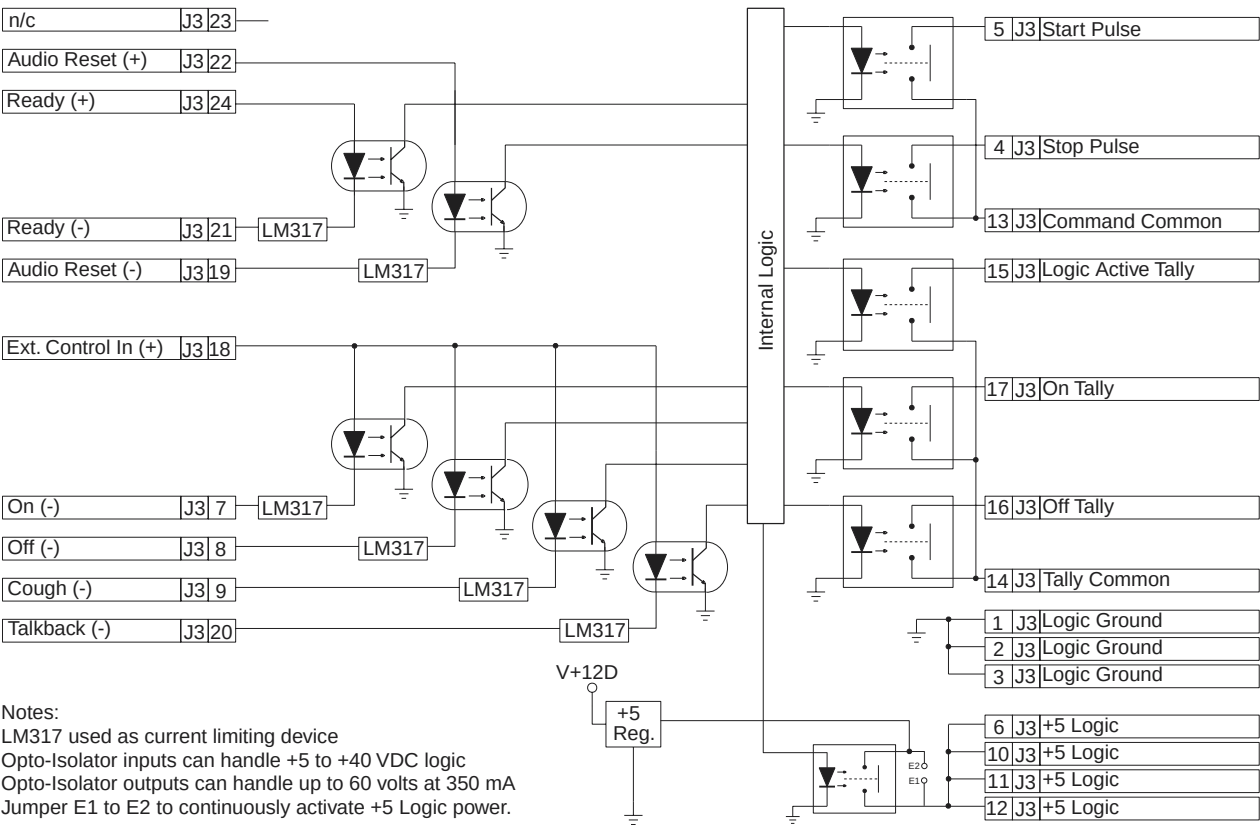
RCL Remote control logic

* Both inputs can mute either or both rooms.

+ Both inputs can reset the timer. Timer reset only occurs when Auto is active on the timer control module.

With the standard single logic connector, only one input (A or B) can be set for external logic. With the "B" logic interface option, switch 8 is not used since both inputs have logic. The left-hand connector carries the "A" logic, the right-hand connector carries the "B" logic.

Simplified Remote Control Logic Interface



Notes:

LM317 used as current limiting device

Opto-Isolator inputs can handle +5 to +40 VDC logic

Opto-Isolator outputs can handle up to 60 volts at 350 mA

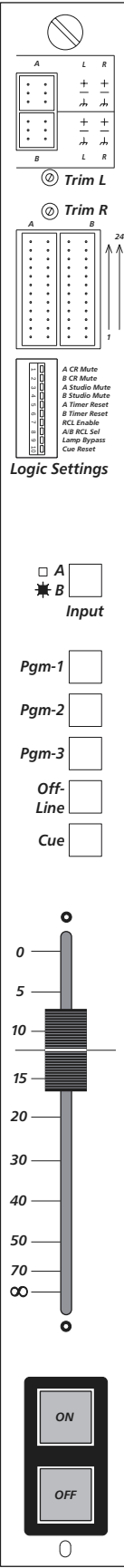
Jumper E1 to E2 to continuously activate +5 Logic power.

AirWave Digital Logic Interface Glossary

REMOTE SIGNAL (connector pin #)	FUNCTIONAL DESCRIPTION OF CONNECTION
START PULSE (pin 5)	Normally Open (N/O) relay contact output. A momentary "contact closure" of 220 ms is generated each time the module On button is pressed. The Common (C) relay contact is the Command Common output. Typically connects to the Remote Start logic input on the peripheral device.
STOP PULSE (pin 4)	Normally Open (N/O) relay contact output. A momentary "contact closure" of 220 ms is generated each time the module Off button is pressed. The Common (C) relay contact is the Command Common output. Typically connects to the Remote Stop or Pause logic input on the peripheral device.
COMMAND COMMON (pin 13)	The Common (C) relay contact output for the Start and Stop Pulse relays. For an active high logic on the pulse outputs, connect Command Common to the logic supply voltage on the peripheral device. For an active low logic on the pulse outputs, connect this pin to logic ground on the peripheral device.
EXT. CONTROL IN (+) (pin 18)	Connecting +5 to +40 VDC to this input enables the active low external control inputs (On, Off, Cough, Talkback). If the control inputs are isolated from other devices (e.g., on a remote mic control panel), the +VDC can come from +5 Logic (jumper pin 18 to pin 6 on the Logic Connector).
ON (-) (pin 7)	From an external On switch. Turns the module On from Off, generating a Start Pulse when pulled low. Input is ignored if the module is already On.
OFF (-) (pin 8)	From an external Off switch. Turns the module Off from On, generating a Stop Pulse, when pulled low. Input is ignored if the module is already Off.
COUGH (-) (pin 9)	From an external Cough switch. The module audio is muted from all assigned buses for as long as the Cough switch is pressed, pulling this pin low.
TALKBACK (-) (pin 20)	From an external Talkback switch. The module audio is routed to the Talkback bus, and muted from all other assigned buses, for as long as the Talkback switch is pressed, pulling this pin low.
TALLYS	Tally outputs are N/O "dry contact" outputs. Typically used to drive indicator lamps, the outputs can sink or source up to 60 volts at 350 mA. The "C" contact for all the tally relays is the Tally Common output.
OFF TALLY (pin 16)	While the module is Off, the Off Tally output is connected to the Tally Common output if the Lamp Bypass is set to off (Logic Settings switch # 9). If Lamp Bypass is on, then the Off Tally illumination is controlled by the Ready input logic while the module is Off.
ON TALLY (pin 17)	While the module is On, the On Tally output is connected to Tally Common.
LOGIC ACTIVE TALLY (pin 15)	Anytime the logic is enabled (Logic Settings switch # 7 is on and switch # 8 is true, or with the B Logic Interface option installed and that input is active), the Logic Active Tally output is connected to Tally Common.
TALLY COMMON (pin 14)	The "C" relay contact for the Off Tally, On Tally and Logic Active Tally relays. Typically, the tally lamps are commoned together to ground and Tally Common is connected to the lamp supply voltage (up to 60 volts). If the tallys use +6.3 volt, 40 mA lamps, and are isolated from peripheral devices as in a remote mic control panel, then the Tally Common can be jumpered to +5 Logic.
READY (+) & (-) AUDIO RESET (+) & (-)	These complementary logic inputs require +5 to +40 VDC on the (+) input and ground on the (-) input for activation. This can be done by connecting an active high logic to the (+) input and grounding the (-) input, or by supplying +5 to +40 VDC to the (+) input and an active low logic to the (-) input.
READY (pins 21 & 24)	When activated while the module is On, the module turns Off without generating a Stop Pulse. While the module is Off (and Logic Settings switch # 7 is On and # 9 is Off), the Ready logic controls the Off lamp illumination to indicate device status. Typically, lamp off indicates the peripheral is not ready to play, lamp on indicates the device is ready, and a flashing lamp indicates the device has already played or is not cued.
AUDIO RESET (pins 19 & 22)	When activated while the module is On, turns the module Off without generating a Stop Pulse. Input is ignored if the module is already Off.
+5 LOGIC (pins 6, 10, 11, 12)	Module logic voltage output source that can deliver up to 200 mA of current. Pins 6, 10 and 12 are opposite likely termination pins to minimize jumper lengths. Pin 11 is an extra power connection pin. Voltage is switched off when the Input logic is not active, unless E1 and E2 are jumpered together.
LOGIC GND (pins 1, 2, 3)	Module logic ground. Pins 1 and 2 are opposite likely termination pins to minimize jumper lengths. Pin 3 is an extra ground connection.

Quick Reference Guide to AirWave Digital Logic

Mic Remote Control Connection Example

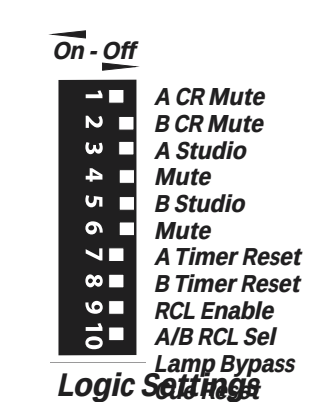


Logic Connector Signal Table

PIN #	SIGNAL	FUNCTION
1	LOGIC GND	Console logic ground
2	LOGIC GND	Console logic ground
3	LOGIC GND	Console logic ground
4	STOP PULSE	Stop command output. "N/O relay contact."
5	START PULSE	Start command output. "N/O relay contact."
6	+5 LOGIC	5 volt source.
7	ON (-)	Remote On switch input (active low).
8	OFF (-)	Remote Off switch input (active low).
9	COUGH (-)	Remote Cough switch input (active low).
10	+5 LOGIC	5 volt source.
11	+5 LOGIC	5 volt source.
12	+5 LOGIC	5 volt source.
13	COMMAND COMMON	Start & Stop commands common. "C relay contact."
14	TALLY COMMON	Tally relays common connection. "C relay contact."
15	LOGIC ACTIVE TALLY	Logic active tally output. "N/O relay contact."
16	OFF TALLY	Off tally output. "N/O relay contact."
17	ON TALLY	On tally output. "N/O relay contact."
18	EXT. CONTROL IN (+)	+VDC to enable external inputs On, Off, Cough, Talkback.
19	AUDIO RESET (-)	Remote Audio Off input (active low).
20	TALKBACK (-)	Remote Talkback input (active low).
21	READY (-)	Remote Ready input (active low).
22	AUDIO RESET (+)	+VDC to enable Audio Reset function (audio off control).
23	spare	no connection
24	READY (+)	+VDC to enable the Ready function (Off lamp control).

Notes: +VDC is between +5 and +40 VDC.
Output relays can switch voltages up to +60 VDC
Bold indicates connection used in this example

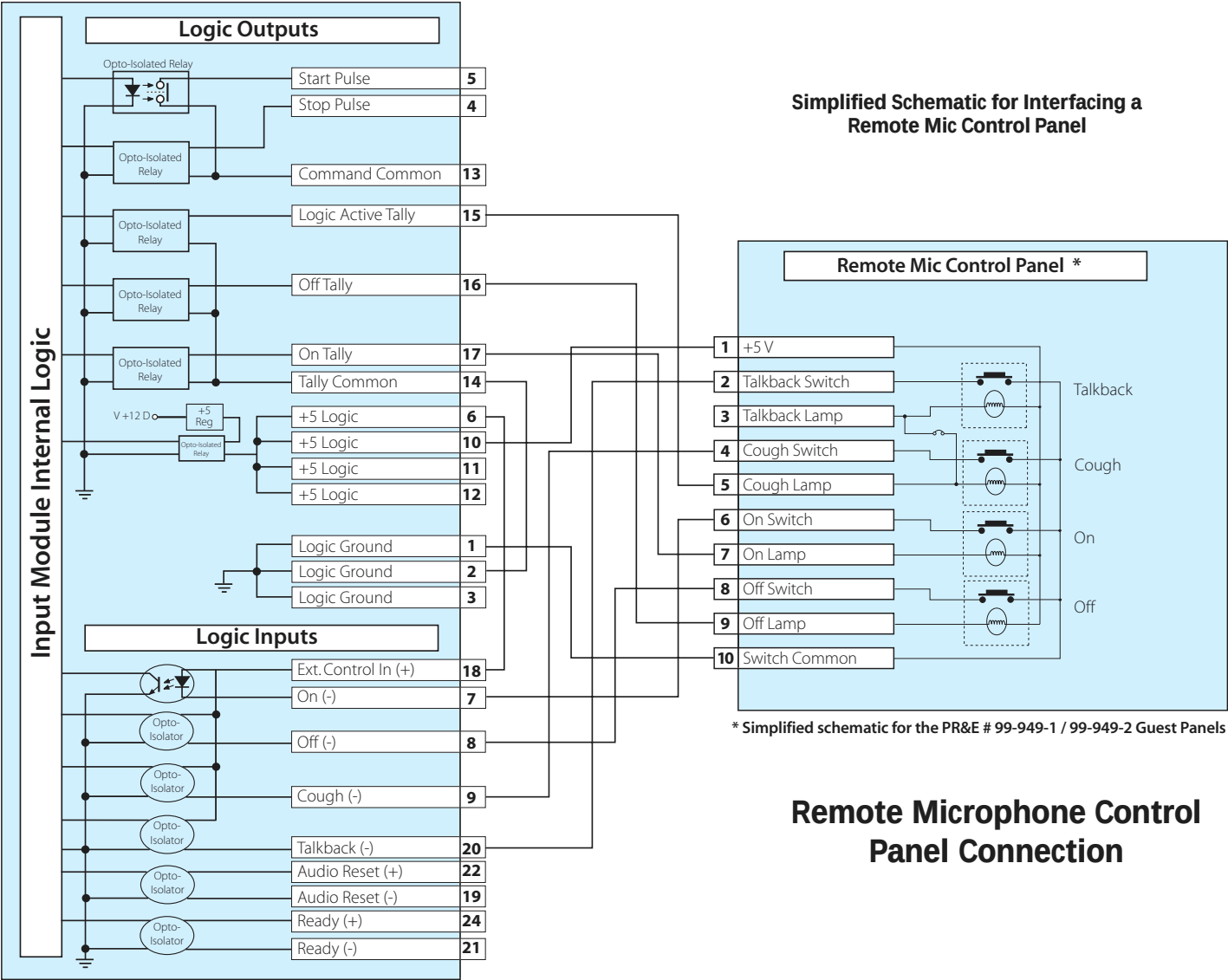
Typical Switch Positions for a CR Microphone on the A Input with a single logic interface



Logic Settings Switch Definitions

#	SWITCH	ON FUNCTION (to left)	OFF FUNCTION (to right)
1	A CR Mute	Input A mutes C/R speakers at On	No monitor muting
2	B CR Mute	Input B mutes C/R speakers at On	No monitor muting
3	A Studio Mute	Input A mutes studio spkrs. at On	No monitor muting
4	B Studio Mute	Input B mutes studio spkrs. at On	No monitor muting
5	A Timer Reset	Input A resets timer at On	No timer reset
6	B Timer Reset	Input B resets timer at On	No timer reset
7	RCL Enable	Logic active (input set by switch 8)	Logic inactive
8	A/B RCL Set *	Logic active on Input A	Logic active on Input B
9	Lamp Bypass	Off lamp follows module On/Off	Off lamp follows Ready
10	Cue Reset	Module On cancels cue function	No cue reset function

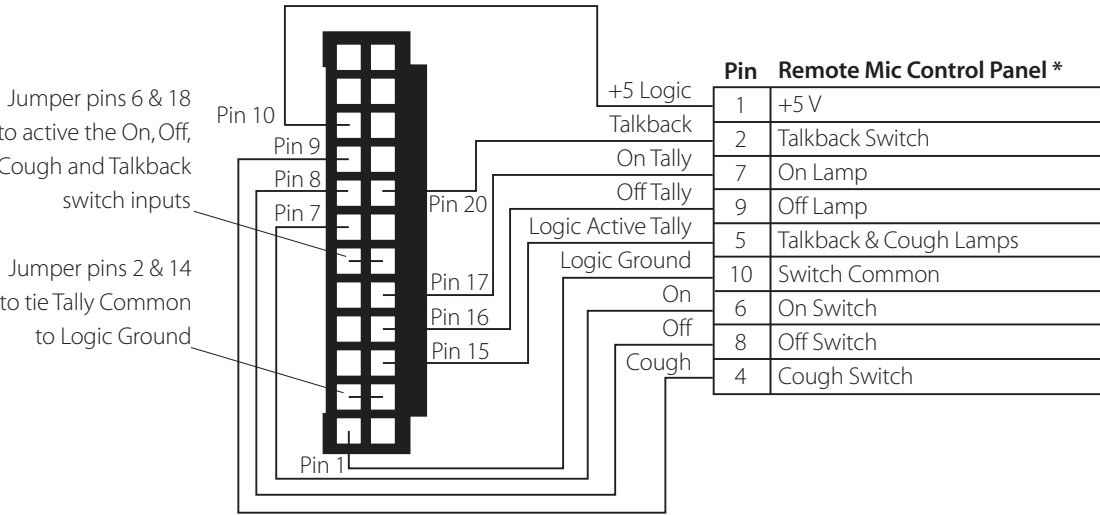
Notes: RCL = Remote Control Logic
Bold indicates switch setting used in this example
* Setting ignored with B Logic Interface option installed



* Simplified schematic for the PR&E # 99-949-1 / 99-949-2 Guest Panels

Remote Microphone Control Panel Connection

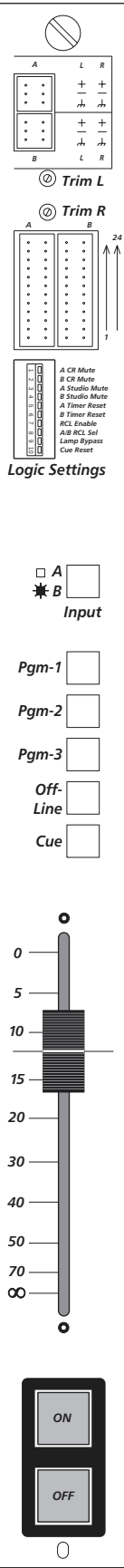
Wiring Diagram for a Remote Mic Control Panel



Pin	Remote Mic Control Panel *
1	+5 V
2	Talkback Switch
7	On Lamp
9	Off Lamp
5	Talkback & Cough Lamps
10	Switch Common
6	On Switch
8	Off Switch
4	Cough Switch

Quick Reference Guide to AirWave Digital Logic

Basic Logic Connection Example



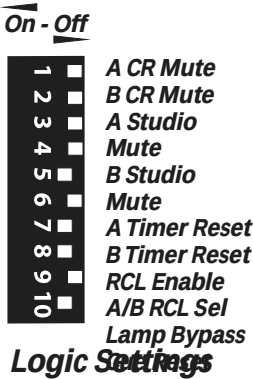
Logic Connector Signal Table

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14	TALLY COMMON	Tally relays common connection. "C relay contact."
15	LOGIC ACTIVE TALLY	Logic active tally output. "N/O relay contact."
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23	spare	no connection
24	READY (+)	+VDC to enable the Ready function (Off lamp control).

(Contact insertion
end view)

Notes: +VDC is between +5 and +40 VDC.
Output relays can switch voltages up to +60 VDC
Bold indicates connection used in this example

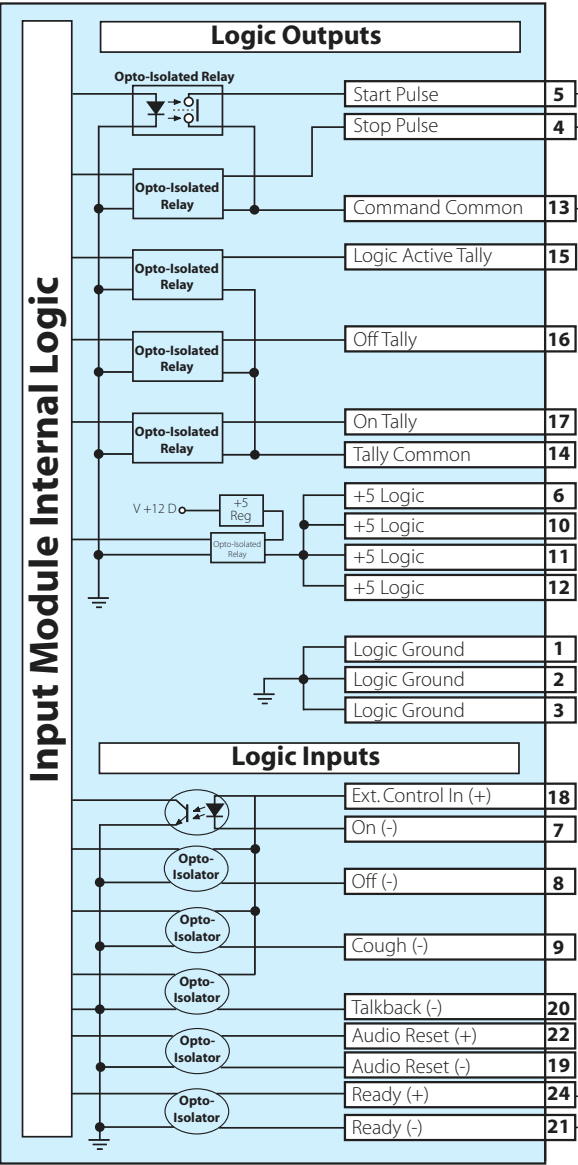
Typical Switch Positions for a
Peripheral Device on the A Input
with a single logic interface



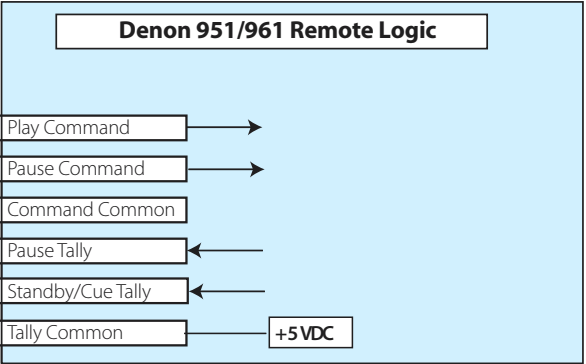
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4	B Studio Mute	Input B mutes studio spkrs. at On	No monitor muting
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6	B Timer Reset	Input B resets timer at On	No timer reset
7	RCL Enable	Logic active (input set by switch 8)	Logic inactive
8	A/B RCL Set *	Logic active on input A	Logic active on input B
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10	Cue Reset	Module On cancels cue function	No cue reset function

Notes: RCL = Remote Control Logic
Bold indicates switch setting used in this example
* Setting ignored with B Logic Interface option installed

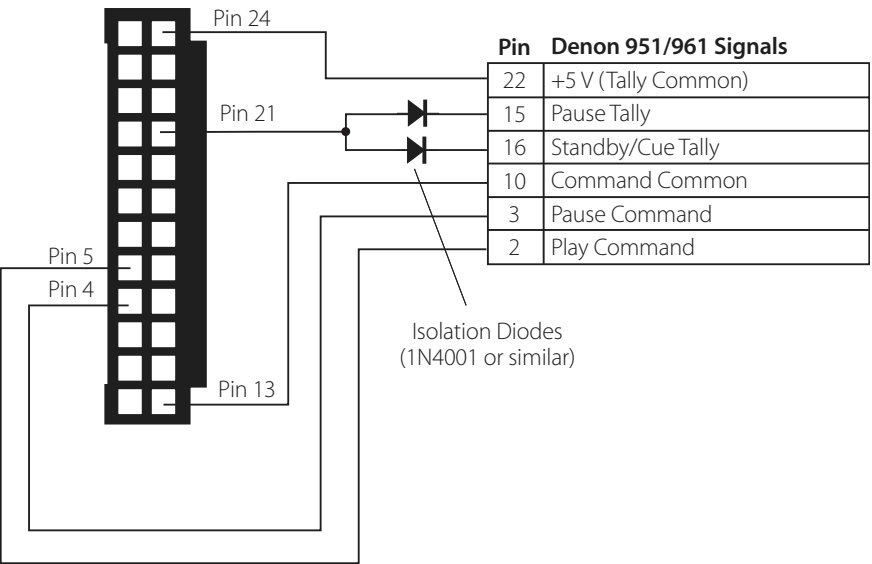


Simplified Schematic for Interfacing the
Denon DN-951/961 CD Player



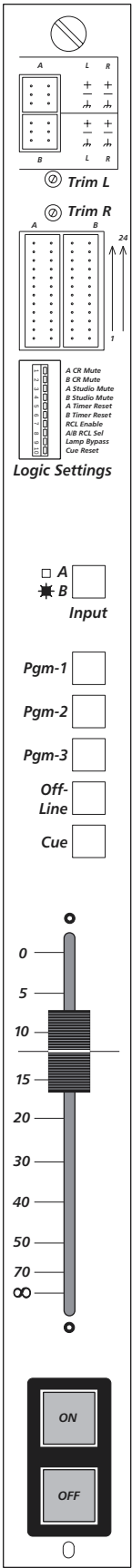
Basic Peripheral Device
Connection

Logic Wiring Diagram for Denon DN-951/961



Quick Reference Guide to AirWave Digital Logic

Complex Logic Connection Example



Logic Connector Signal Table

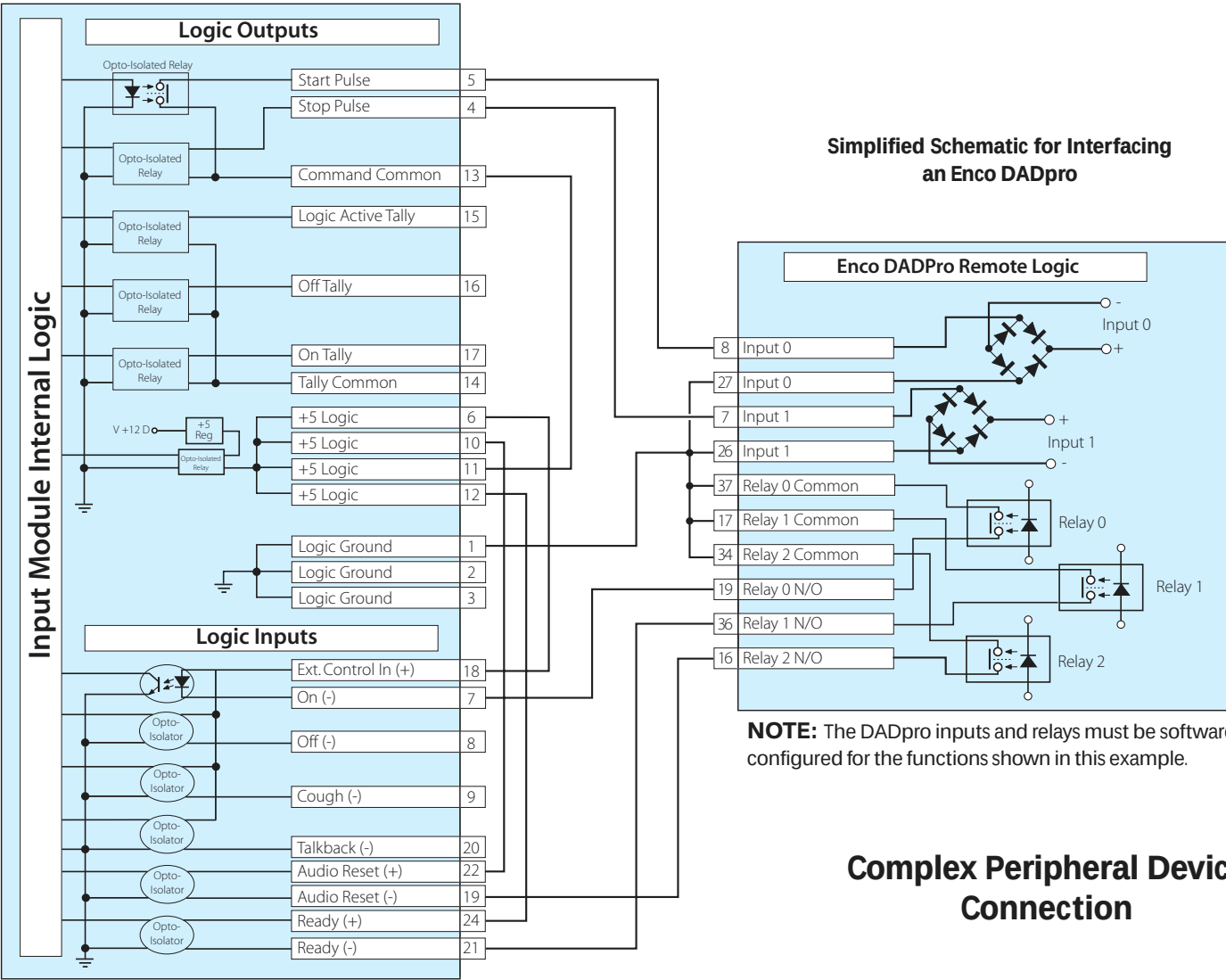
PIN #	SIGNAL	FUNCTION
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Notes: +VDC is between +5 and +40 VDC.
Output relays can switch voltages up to +60 VDC
Bold indicates connection used in this example

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2	B CR Mute	Input B mutes C/R speakers at On	No monitor muting
3	A Studio Mute	Input A mutes studio spkrs. at On	No monitor muting
4	B Studio Mute	Input B mutes studio spkrs. at On	No monitor muting
5	A Timer Reset	Input A resets timer at On	No timer reset
6	B Timer Reset	Input B resets timer at On	No timer reset
7	RCL Enable	Logic Active (input set by switch 8)	Logic inactive
8	A/B RCL Set *	Logic active on Input A	Logic active on input B
9	Lamp Bypass	Off lamp follows module On/Off	Off lamp follows Ready
10	Cue Reset	Module On cancels cue function	No cue reset function

Notes: RCL = Remote Control Logic
Bold indicates switch setting used in this example
* Setting ignored with B Logic Interface option installed

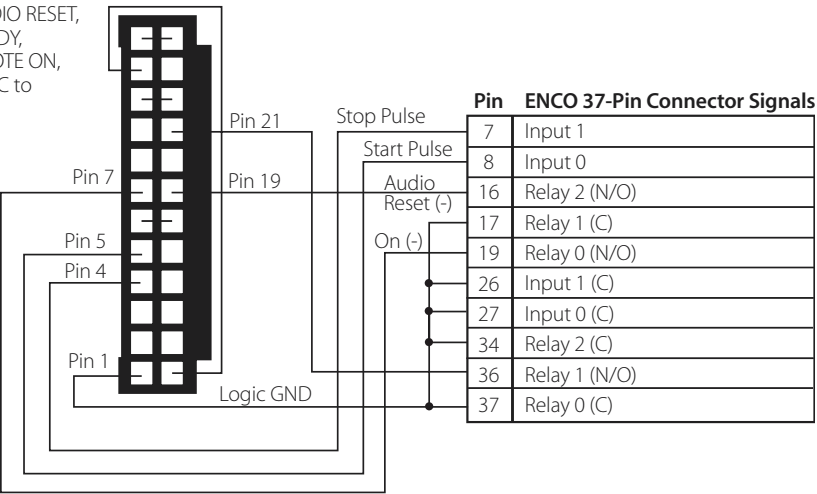


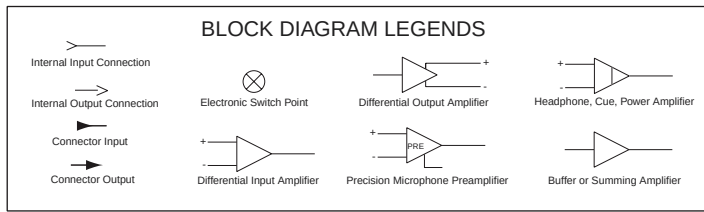
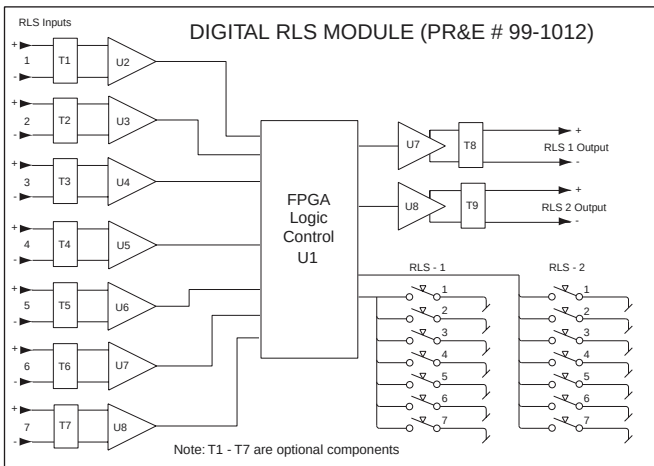
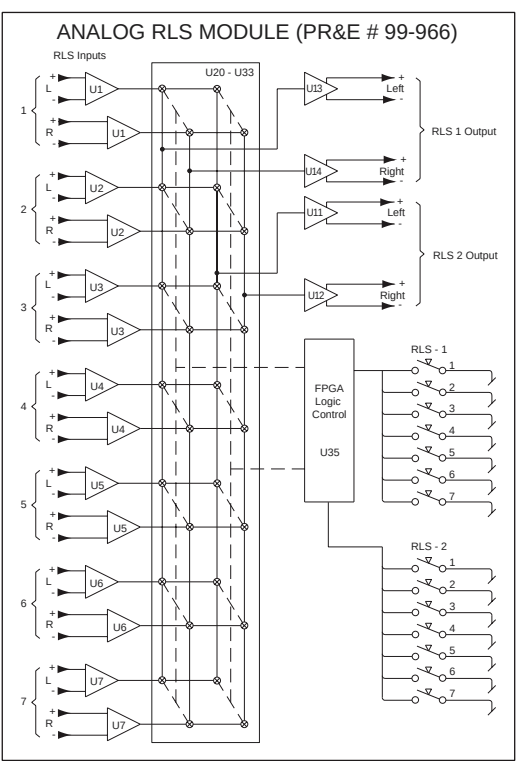
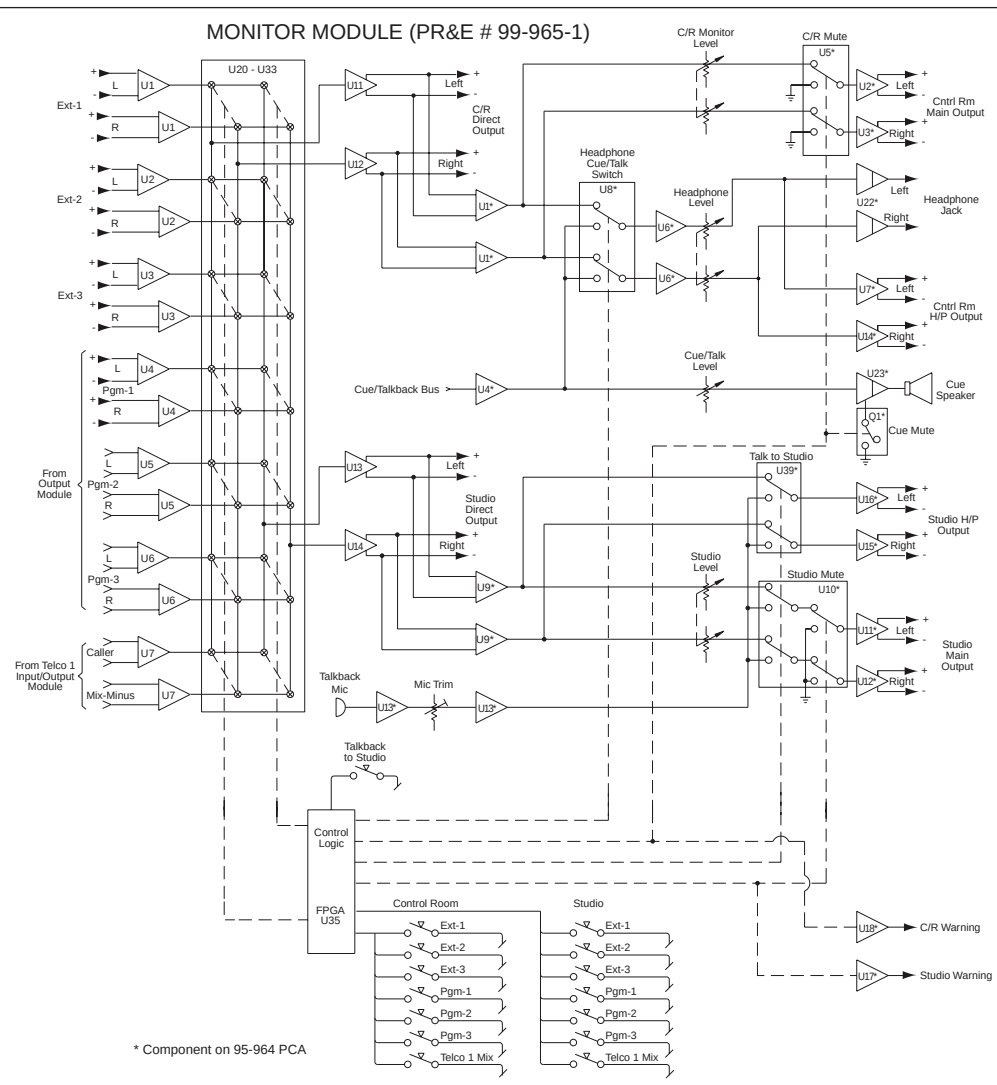
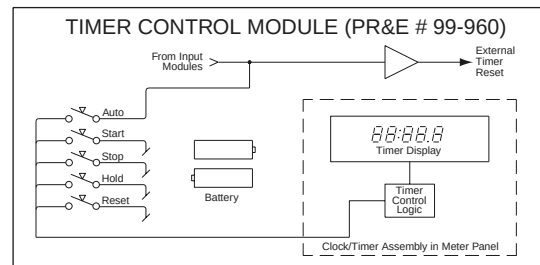
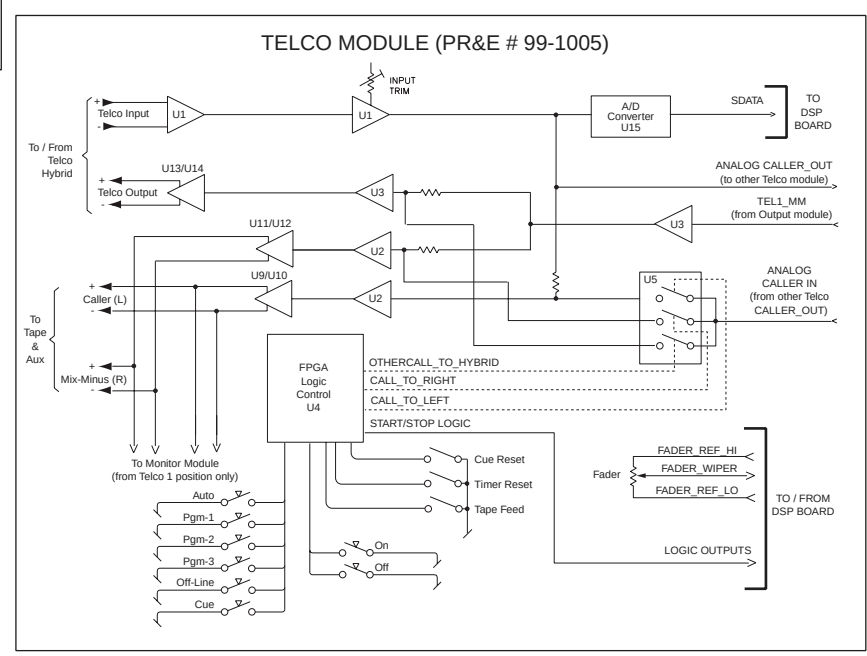
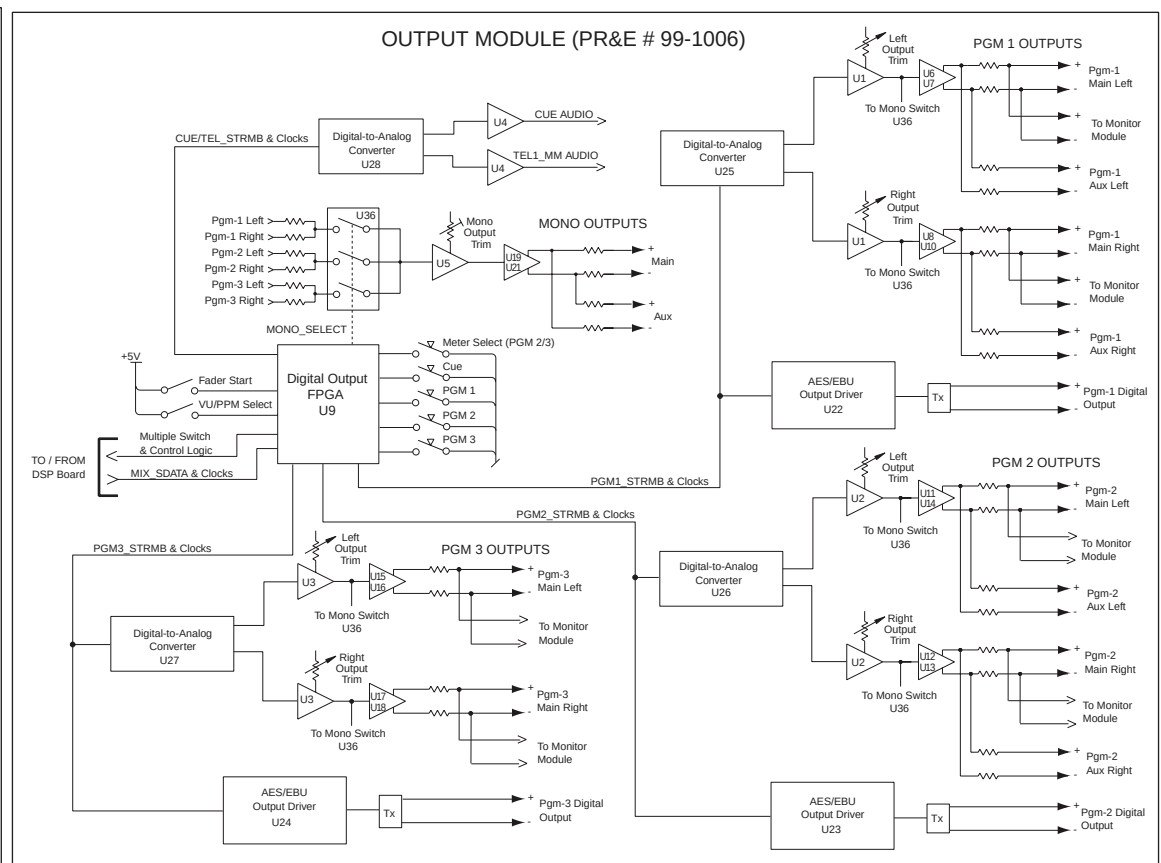
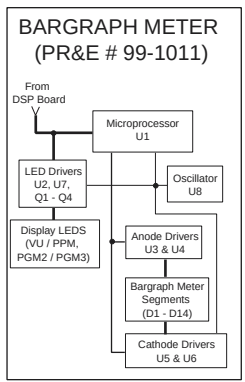
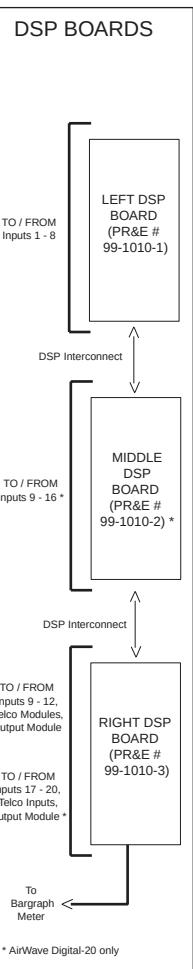
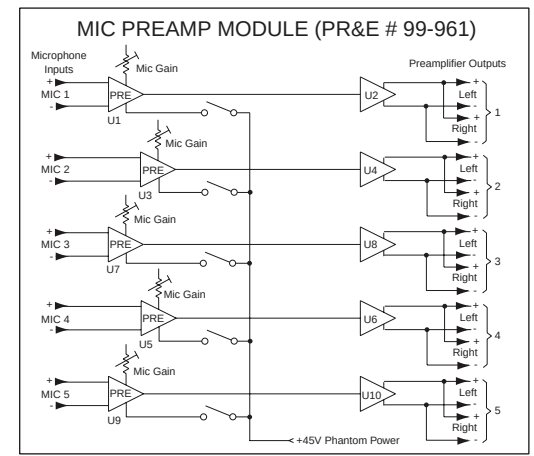
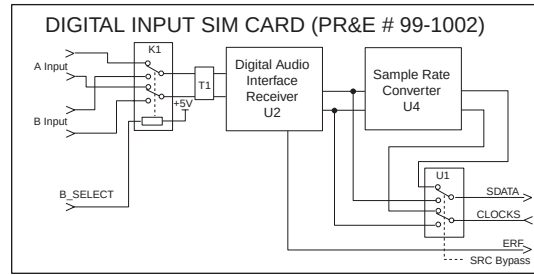
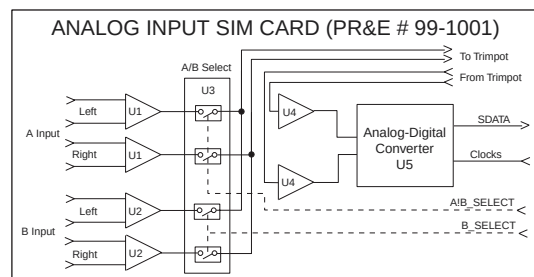
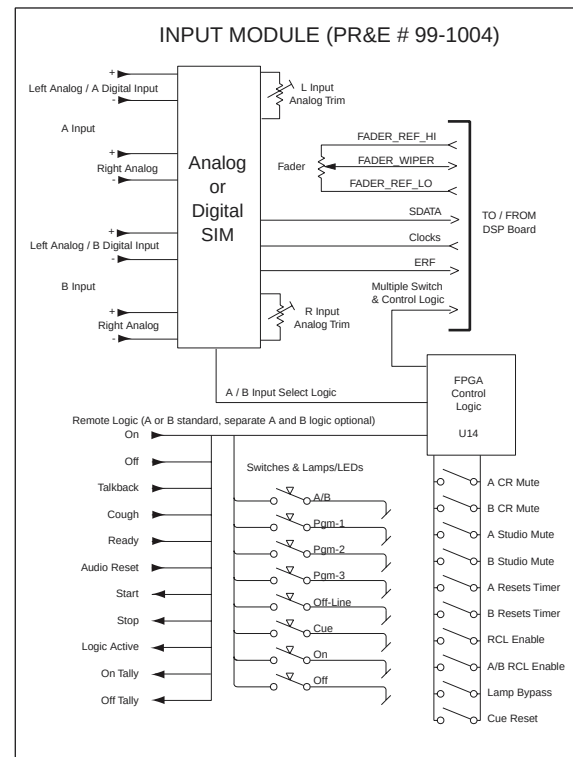
Complex Peripheral Device Connection

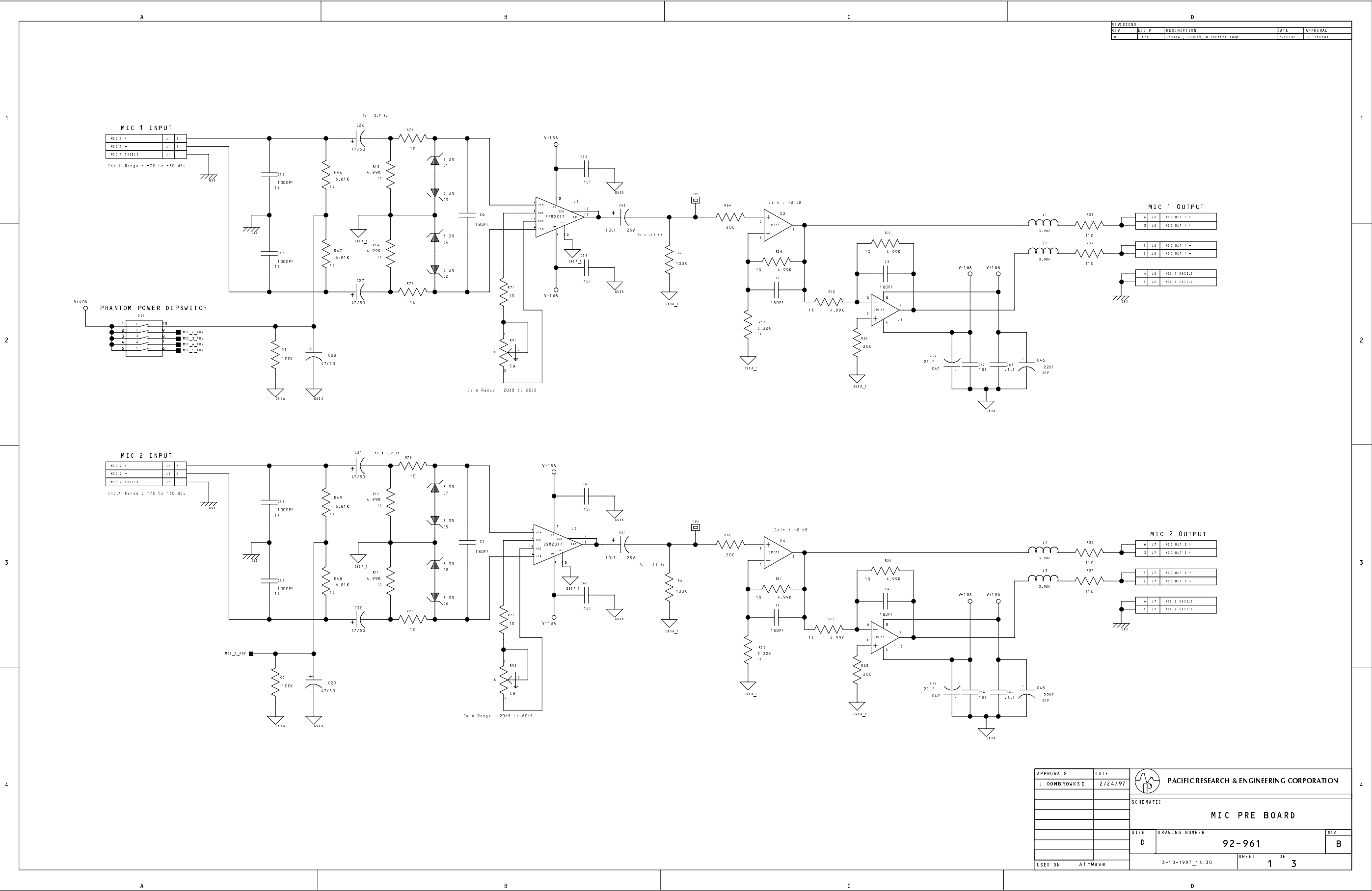
Connector Jumpers:

pin 10 to 22 activates AUDIO RESET,
pin 12 to 24 activates READY,
pin 6 to 18 activates REMOTE ON,
pin 11 to 13 applies +5VDC to
START & STOP PULSE.

Logic Wiring Diagram for Enco DADpro





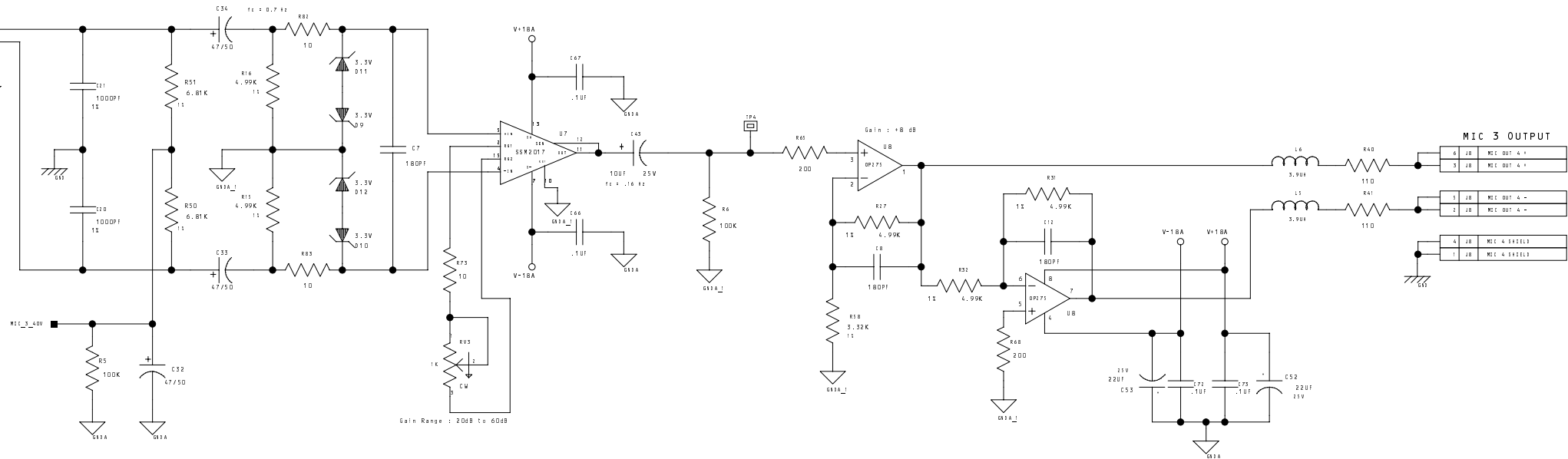


APPROVALS		DATE		PACIFIC RESEARCH & ENGINEERING CORPORATION	
J DOMBROWSKI		2/24/97			
SCHEMATIC					
MIC PRE BOARD					
SIZE		DRAWING NUMBER		REV	
D		92-961		B	
USED ON		3-10-1997_14:30		SHEET 1 OF 3	

MIC 3 INPUT

MIC 4 +	J3	3
MIC 4 -	J3	2
MIC 4 GND	J3	1

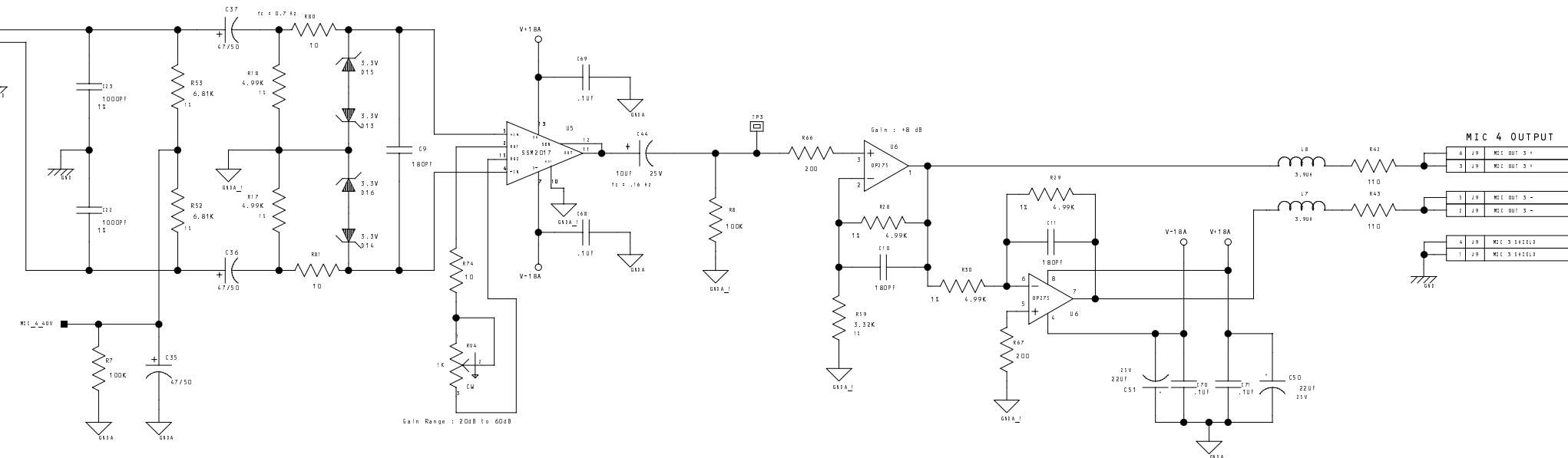
Input Range : -70 to -30 dBu

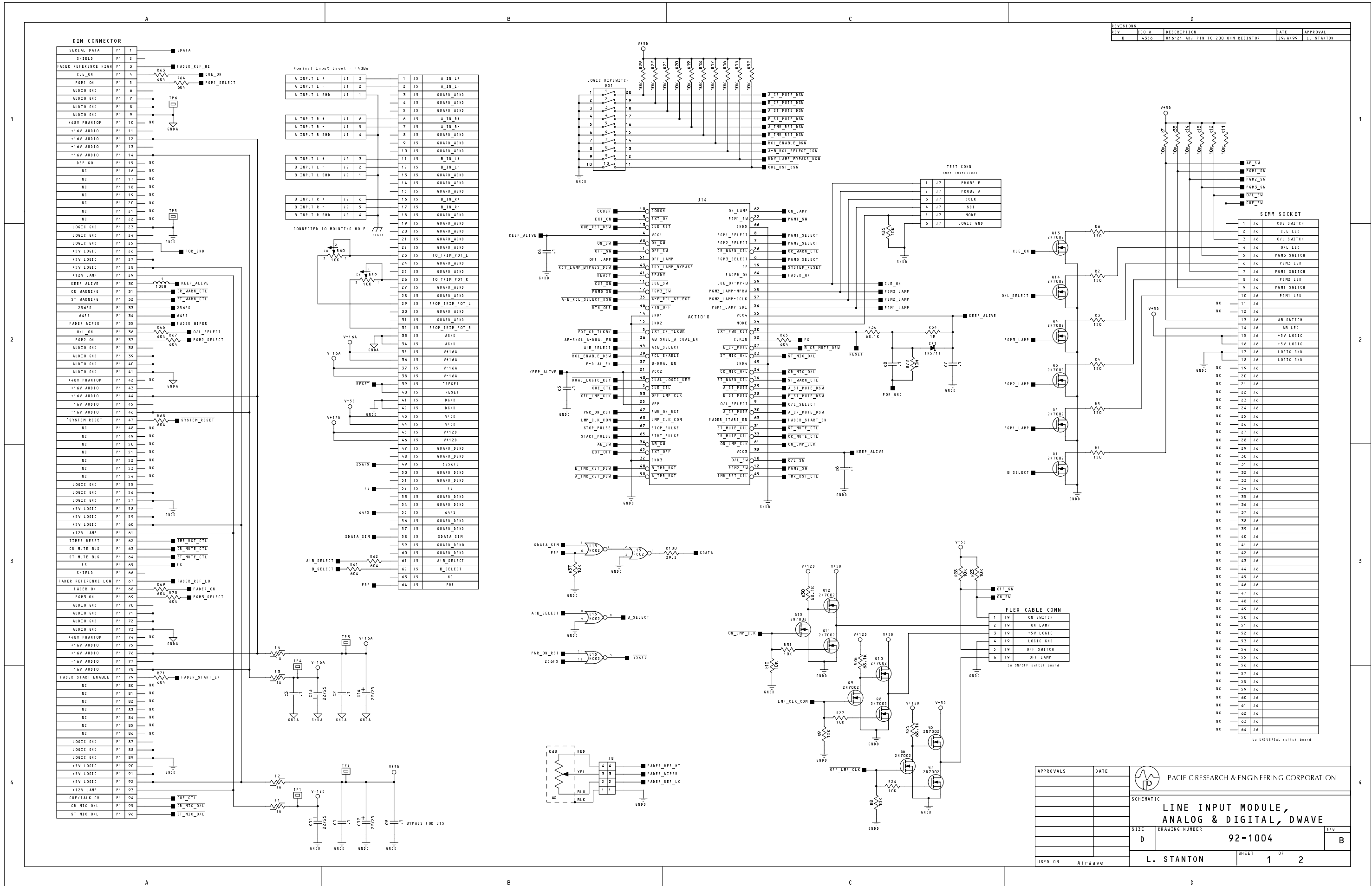


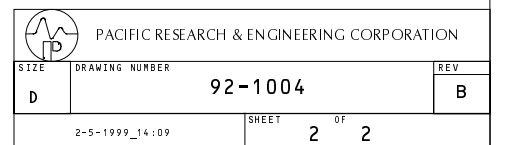
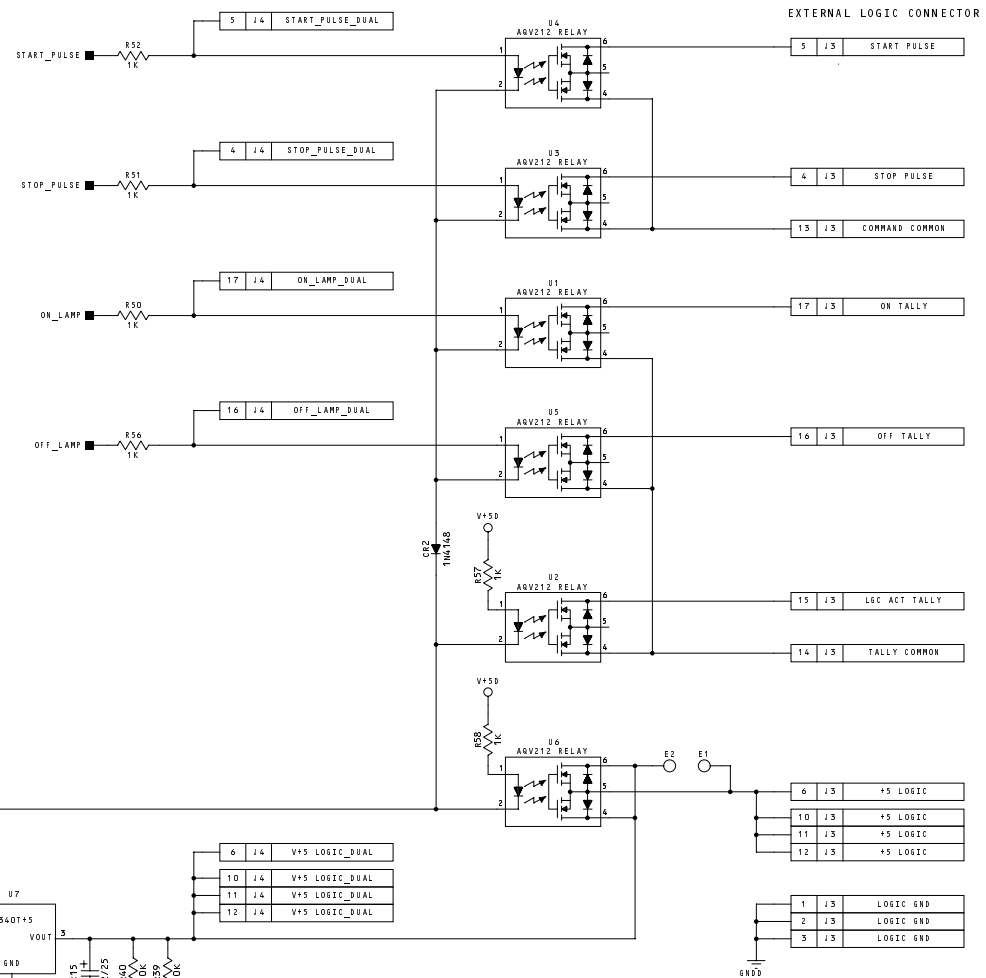
MIC 4 INPUT

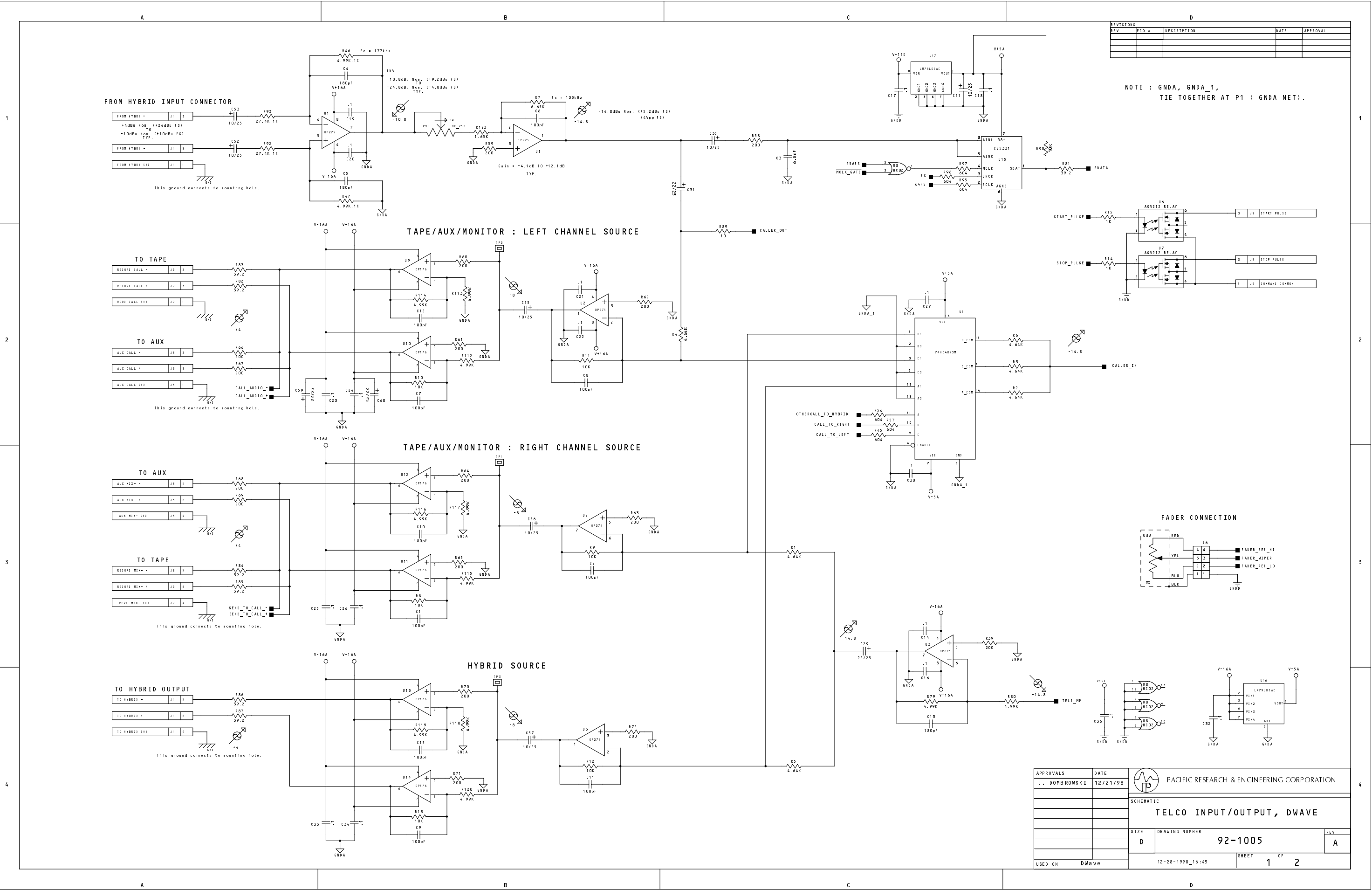
MIC 5 +	J4	3
MIC 5 -	J4	2
MIC 5 GND	J4	1

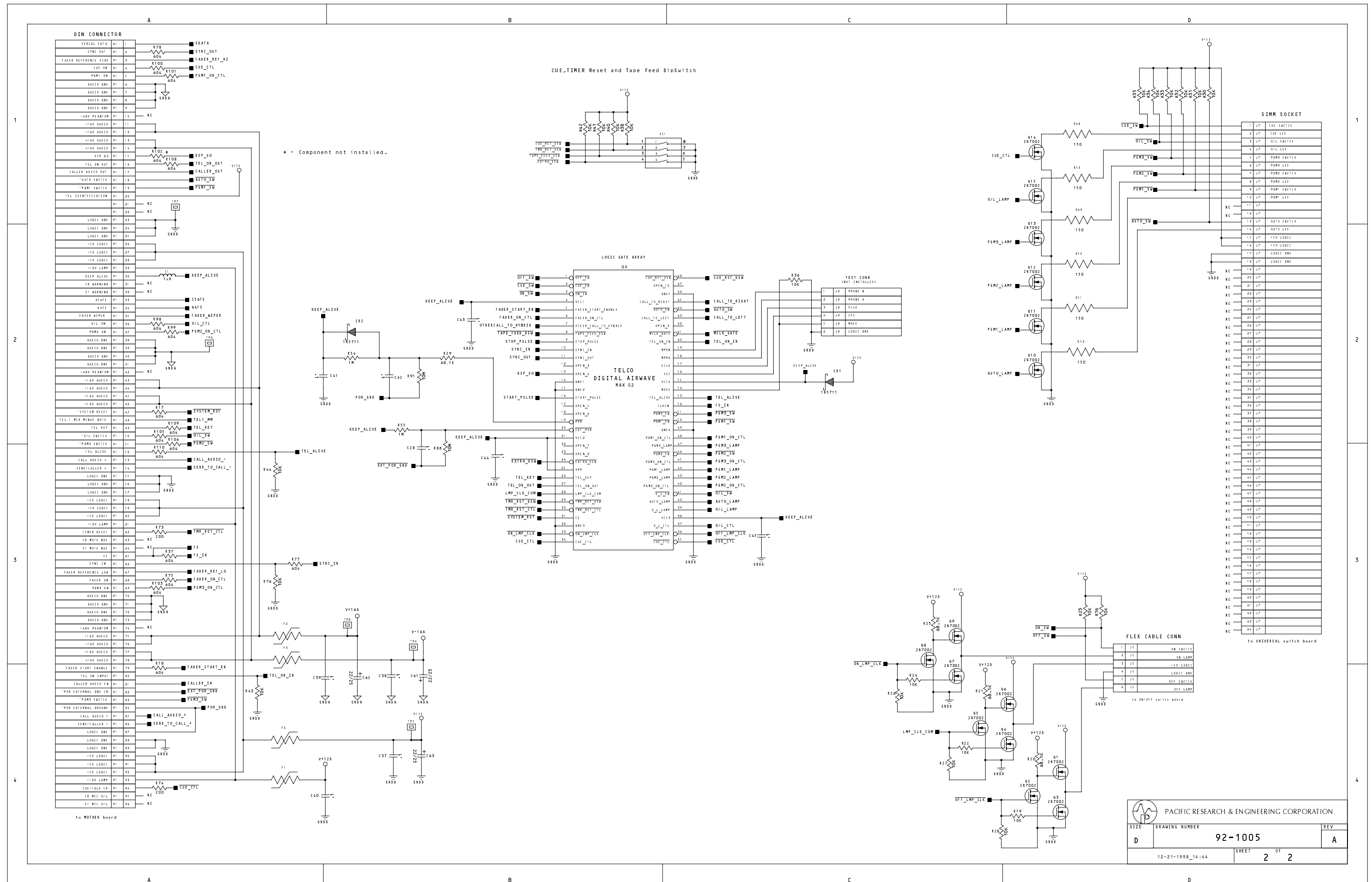
Input Range : -70 to -30 dBu



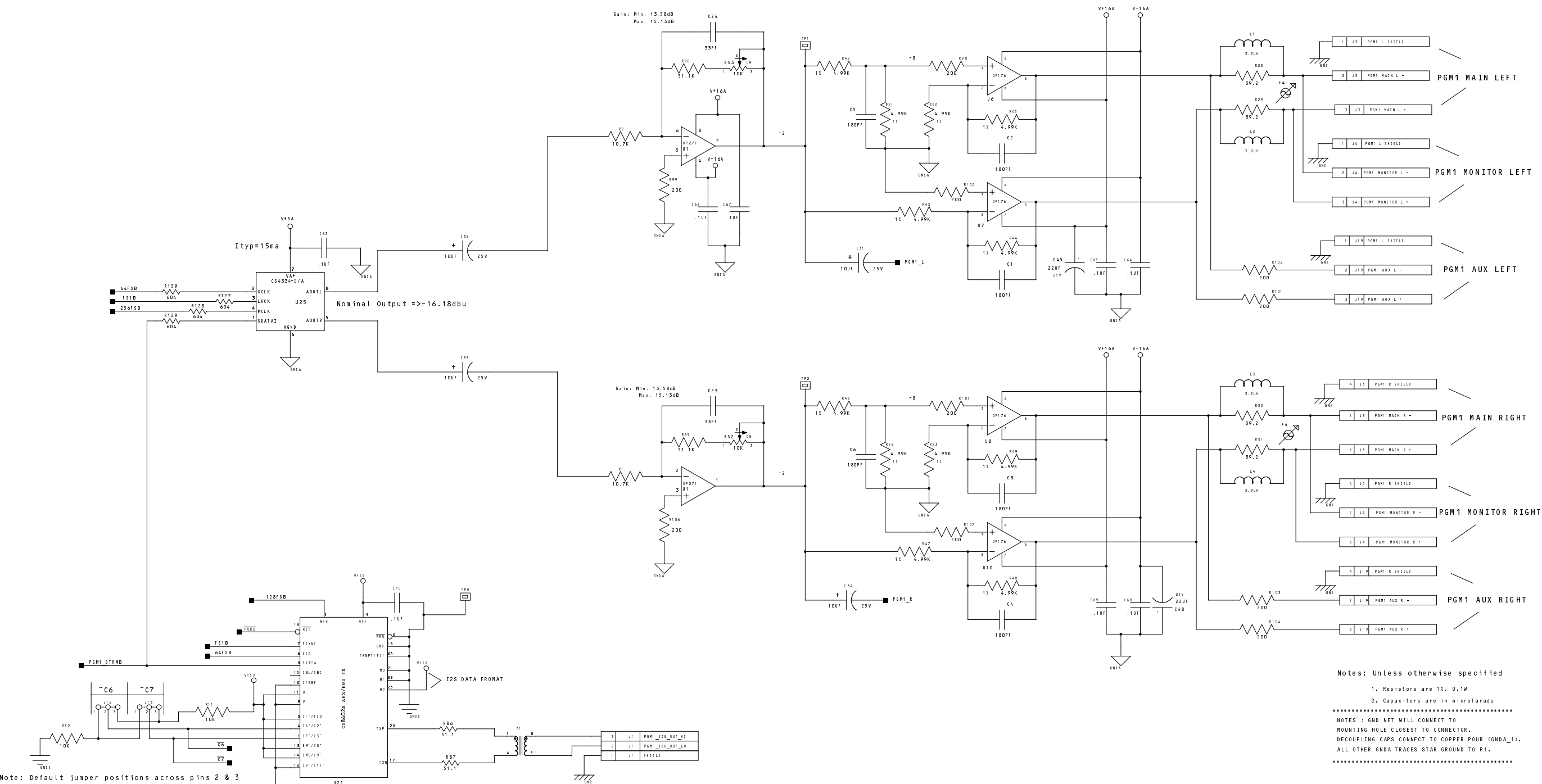








REVISIONS				
REV	ECO #	DESCRIPTION	DATE	APPROVAL
B	4361	Add AC Termination to 265FS,FS & Mix Data	2/22/99	ERIC KING



Note: Default jumper positions across pins 2 & 3

C6	C7	Sample Frequency Information TX
1	1	=> not indicated(Rec. default to 48KHz)
1	0	=> 48KHz Manual override or auto set disabled
0	1	=> 44.1KHz Manual override or auto set disabled

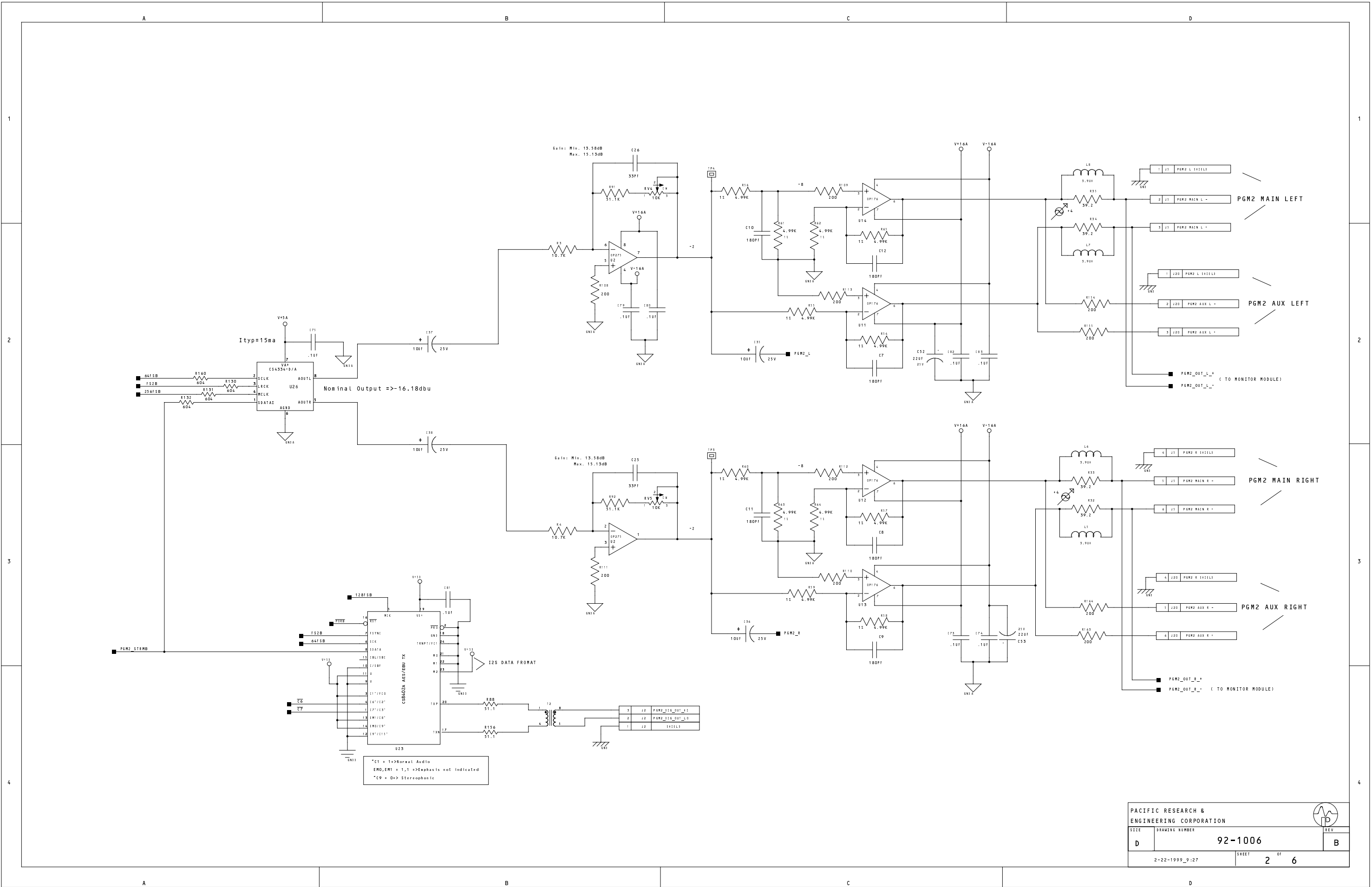
C1	C2	Mode
1	1	=> Mono Audio
1	0	=> Stereo
0	1	=> Stereo
0	0	=> Stereo

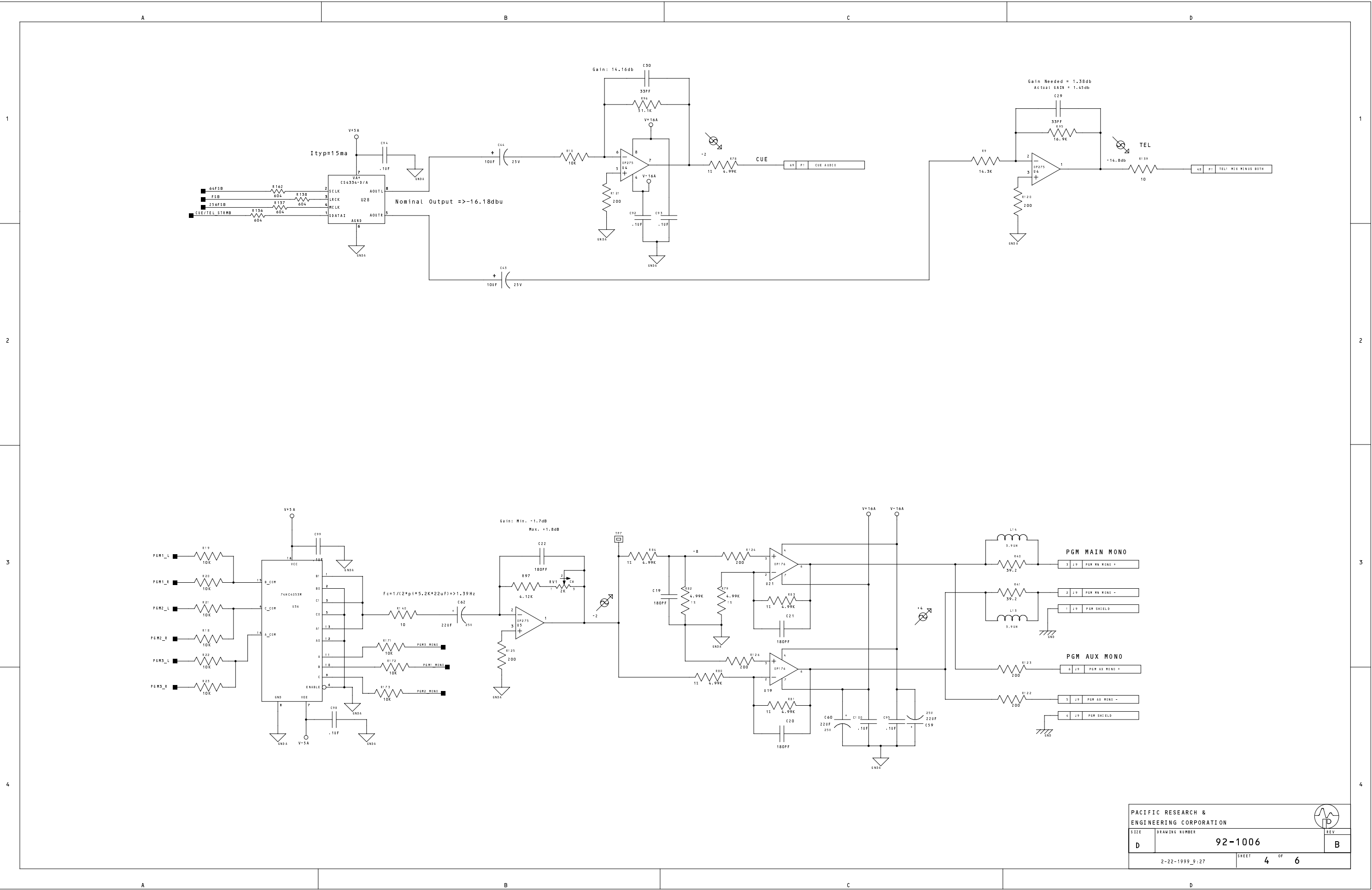
Notes: Unless otherwise specified

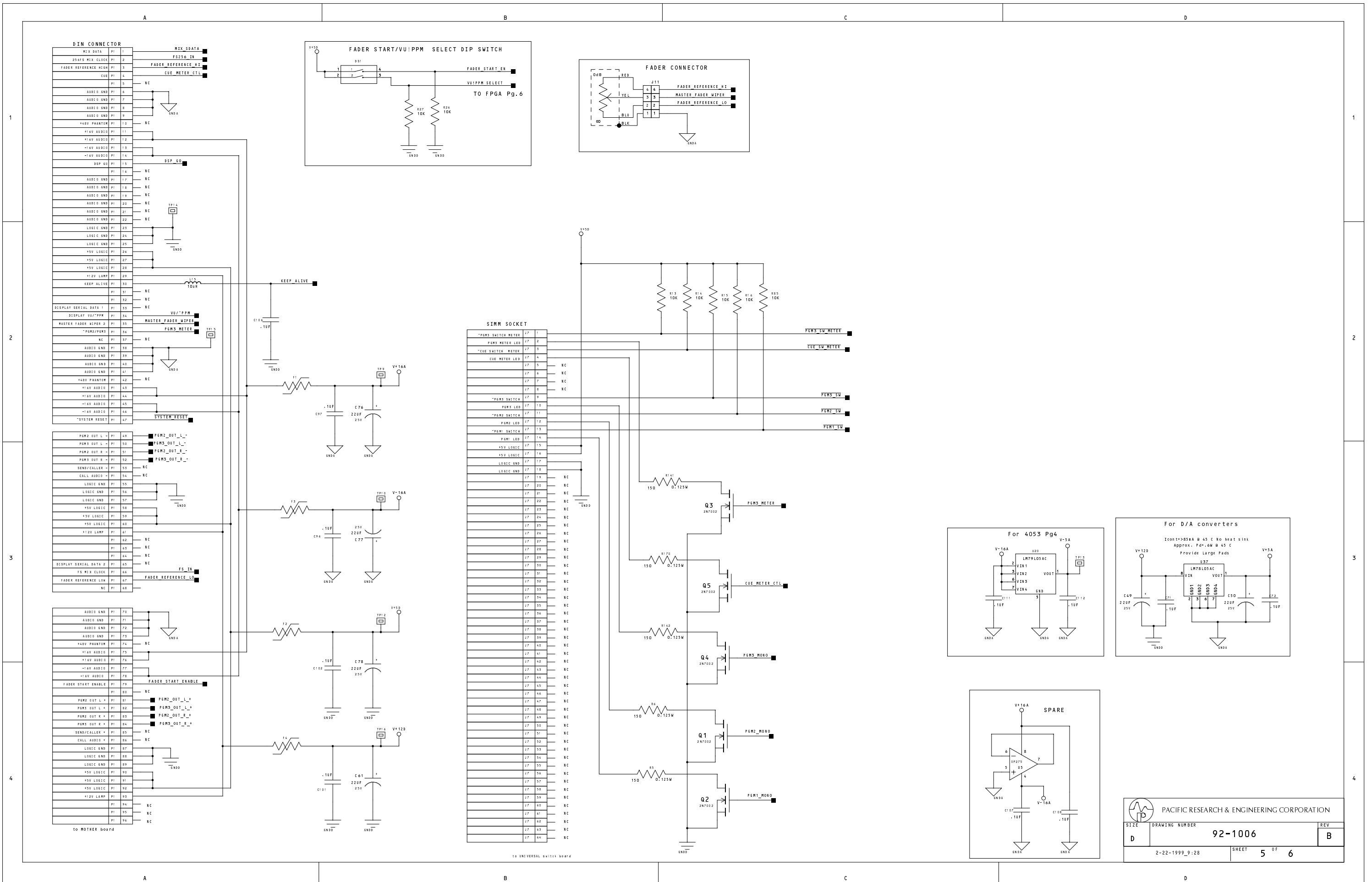
- Resistors are 1%, 0.1W
- Capacitors are in microfarads

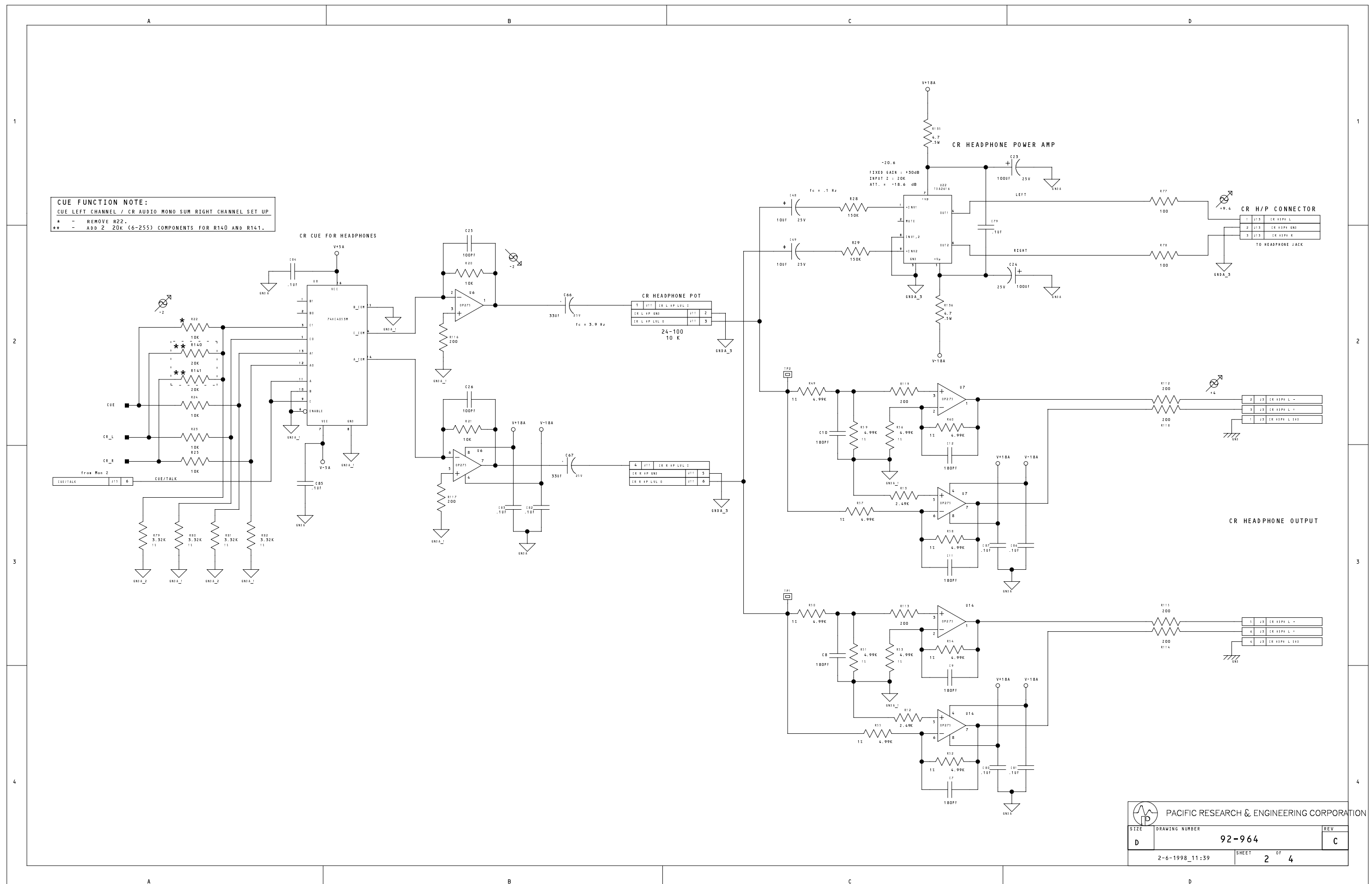
NOTES : GND NET WILL CONNECT TO MOUNTING HOLE CLOSEST TO CONNECTOR. DECOUPLING CAPS CONNECT TO COPPER POUR (GND_1). ALL OTHER GND TRACES STAR GROUND TO P1.

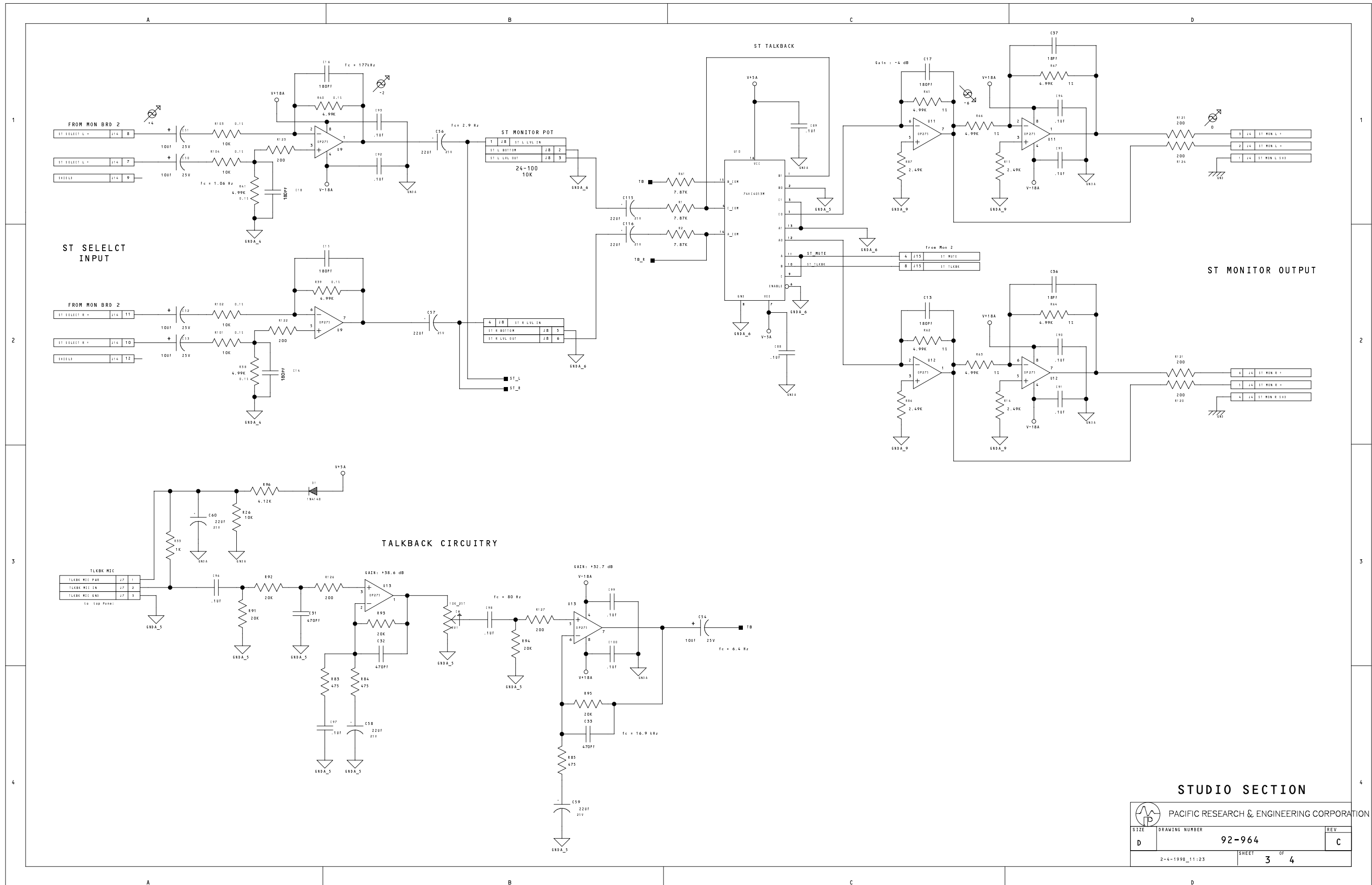
APPROVALS		DATE	
J DOMBROWSKI		x/x/98	





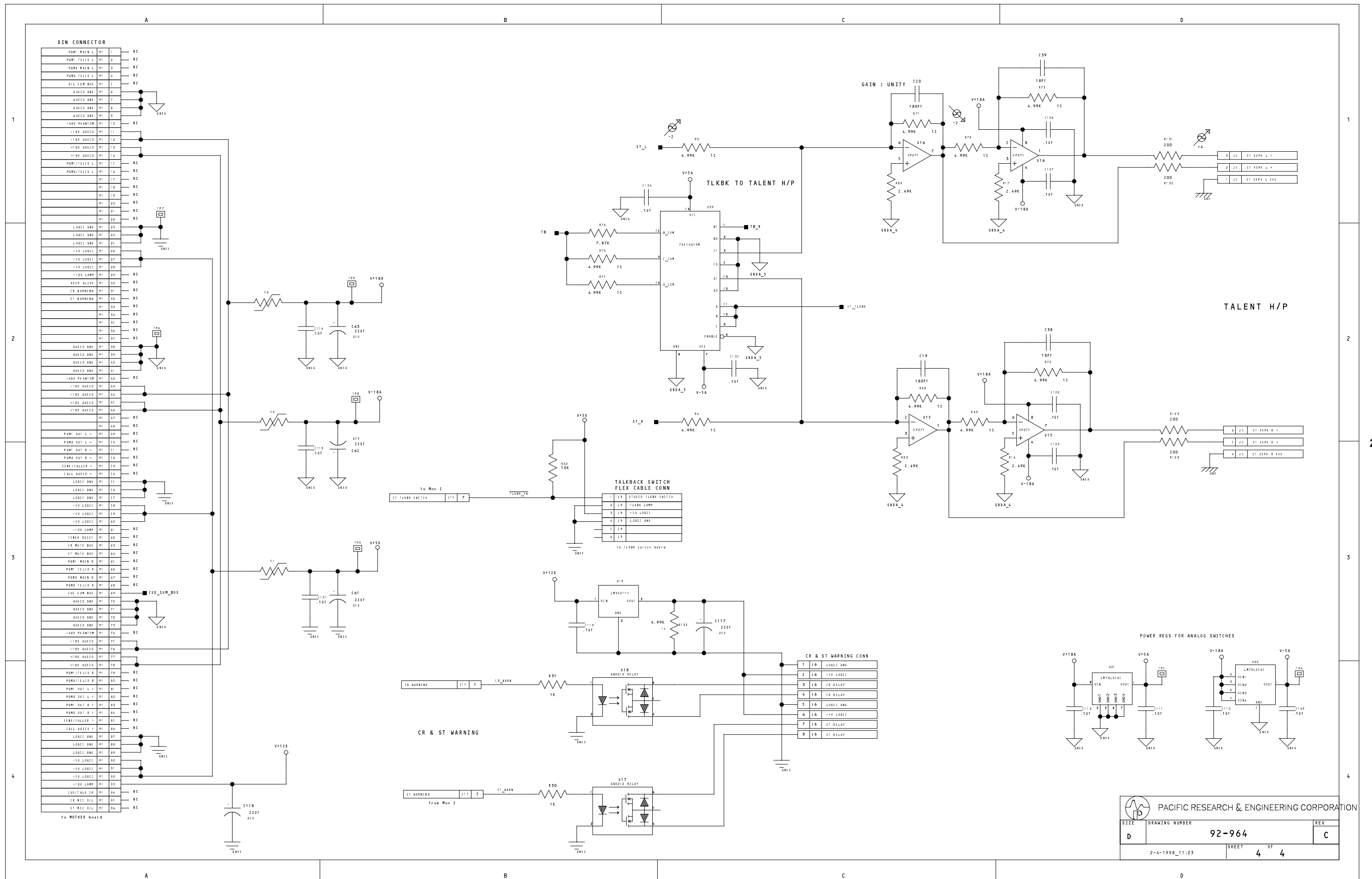


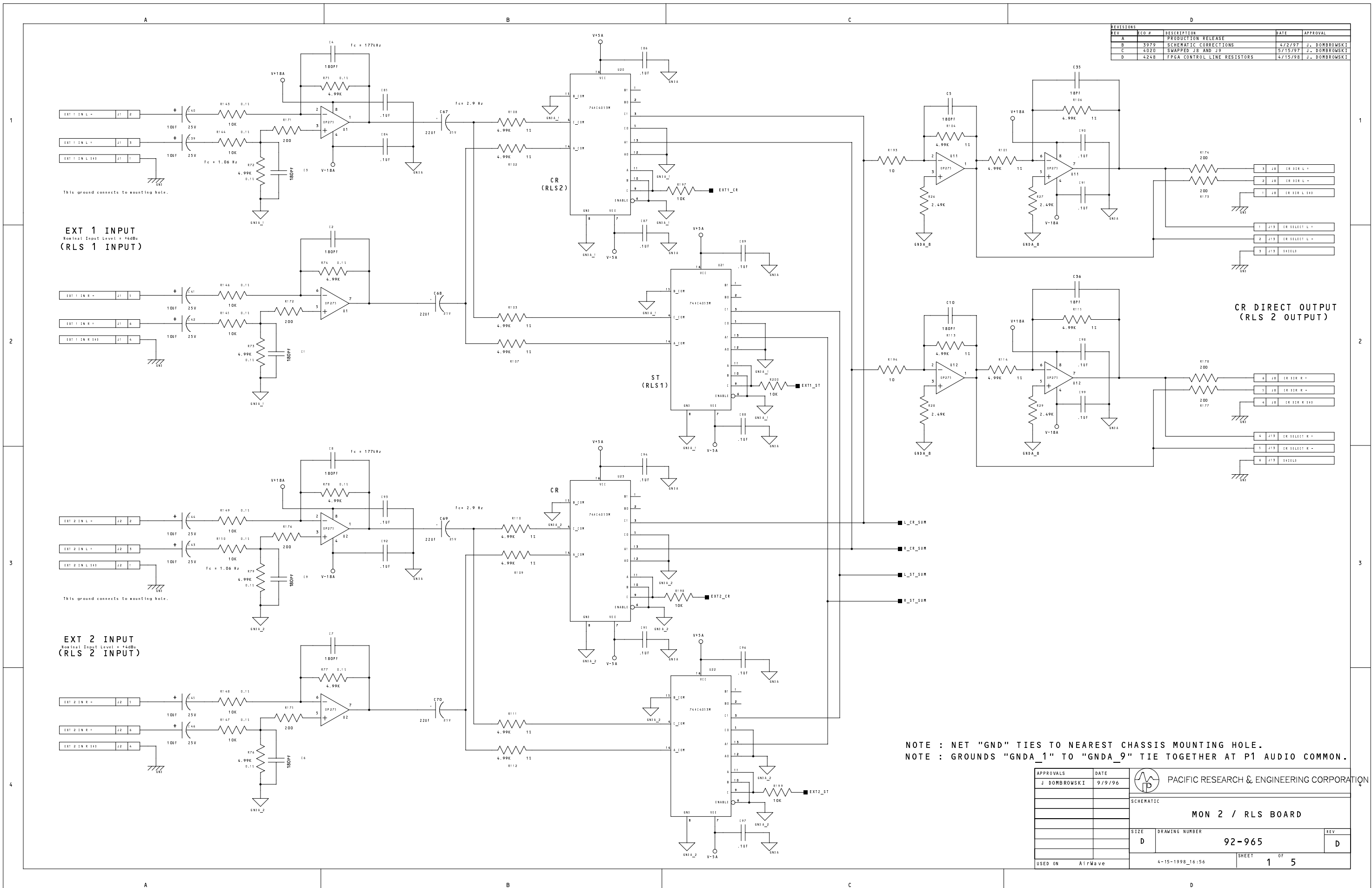




STUDIO SECTION

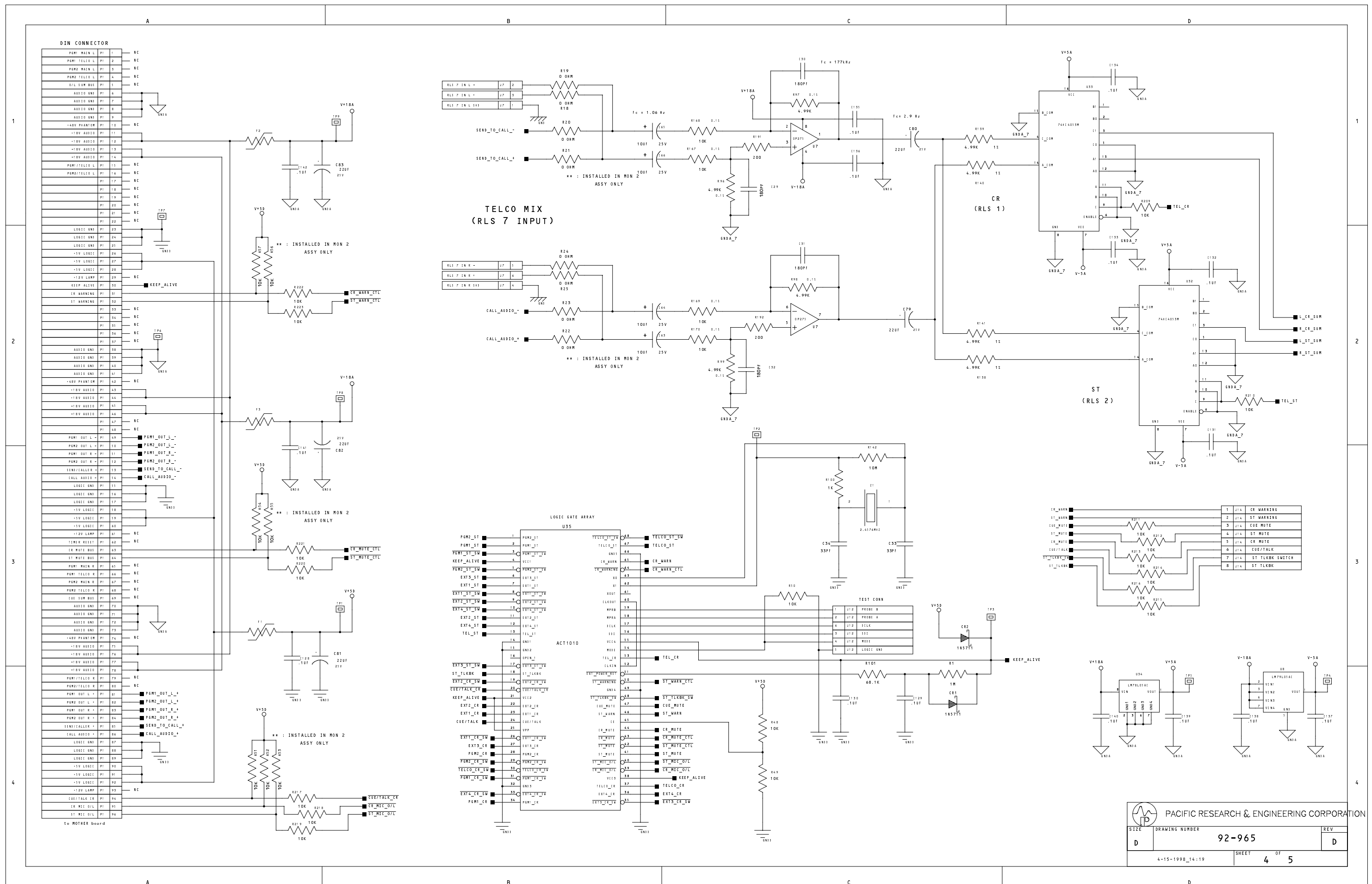
PACIFIC RESEARCH & ENGINEERING CORPORATION		REV	
SIZE	DRAWING NUMBER	C	
D	92-964	SHEET 3 OF 4	
2-4-1998_11:23		REV	

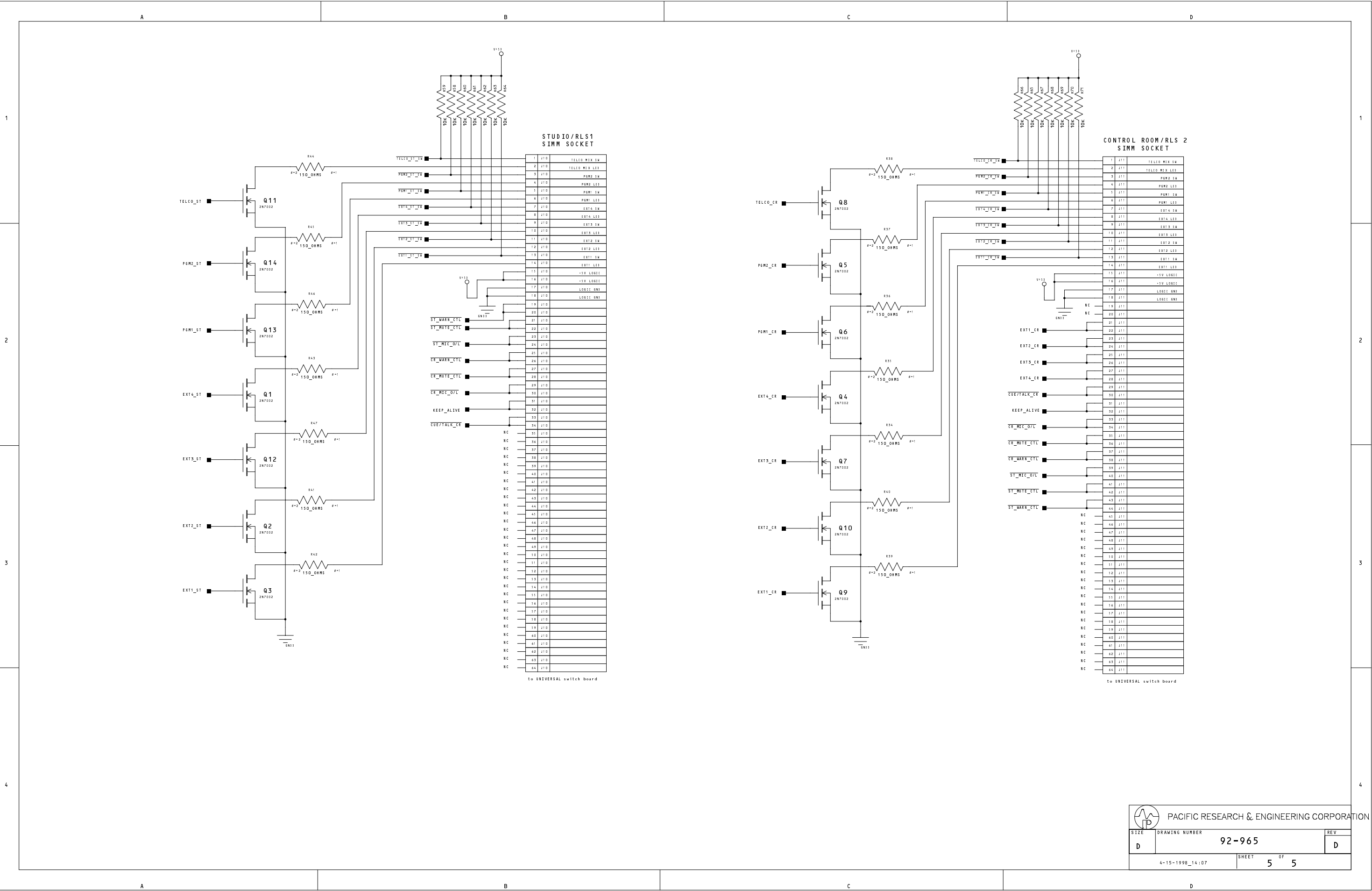


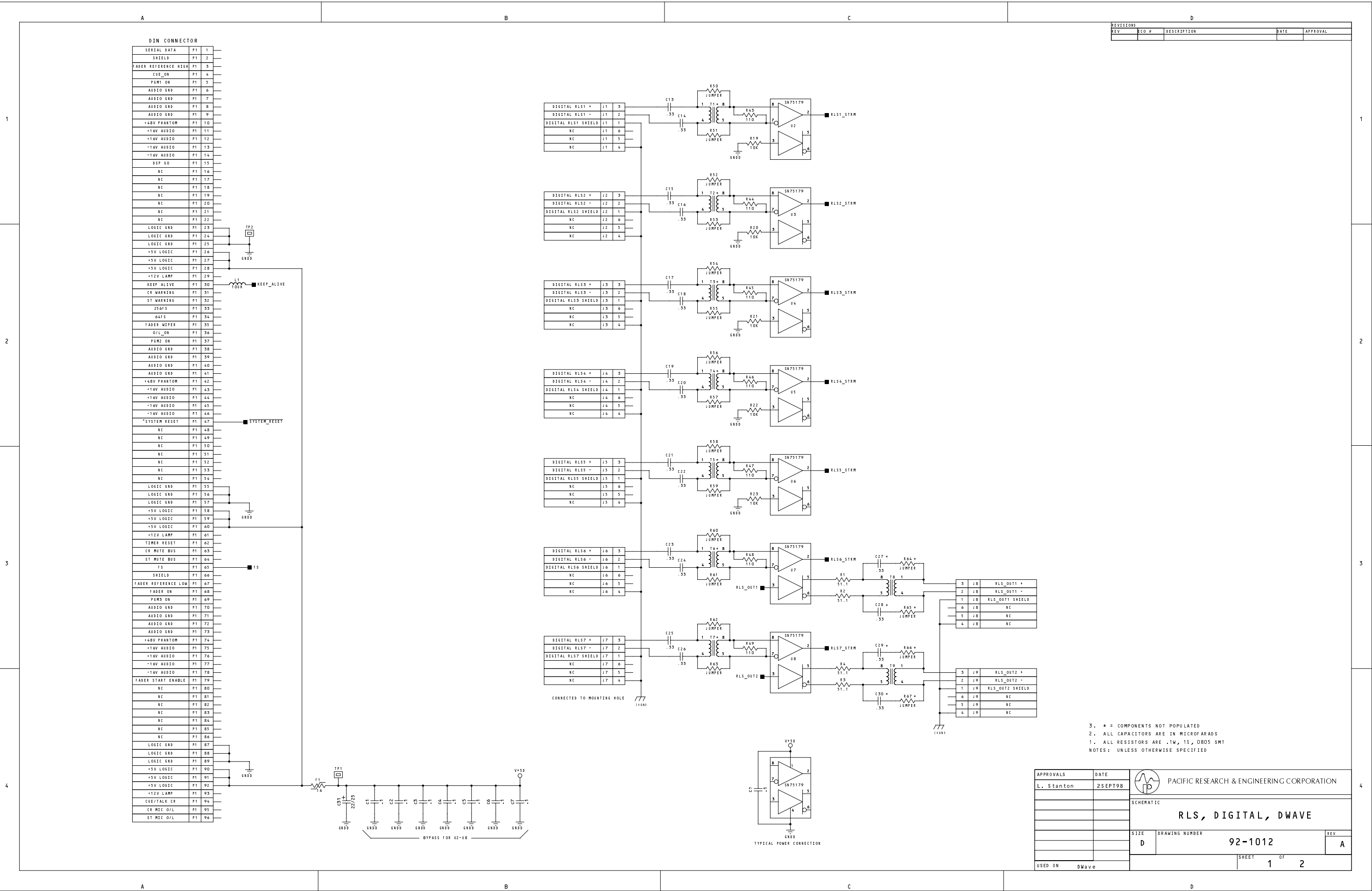


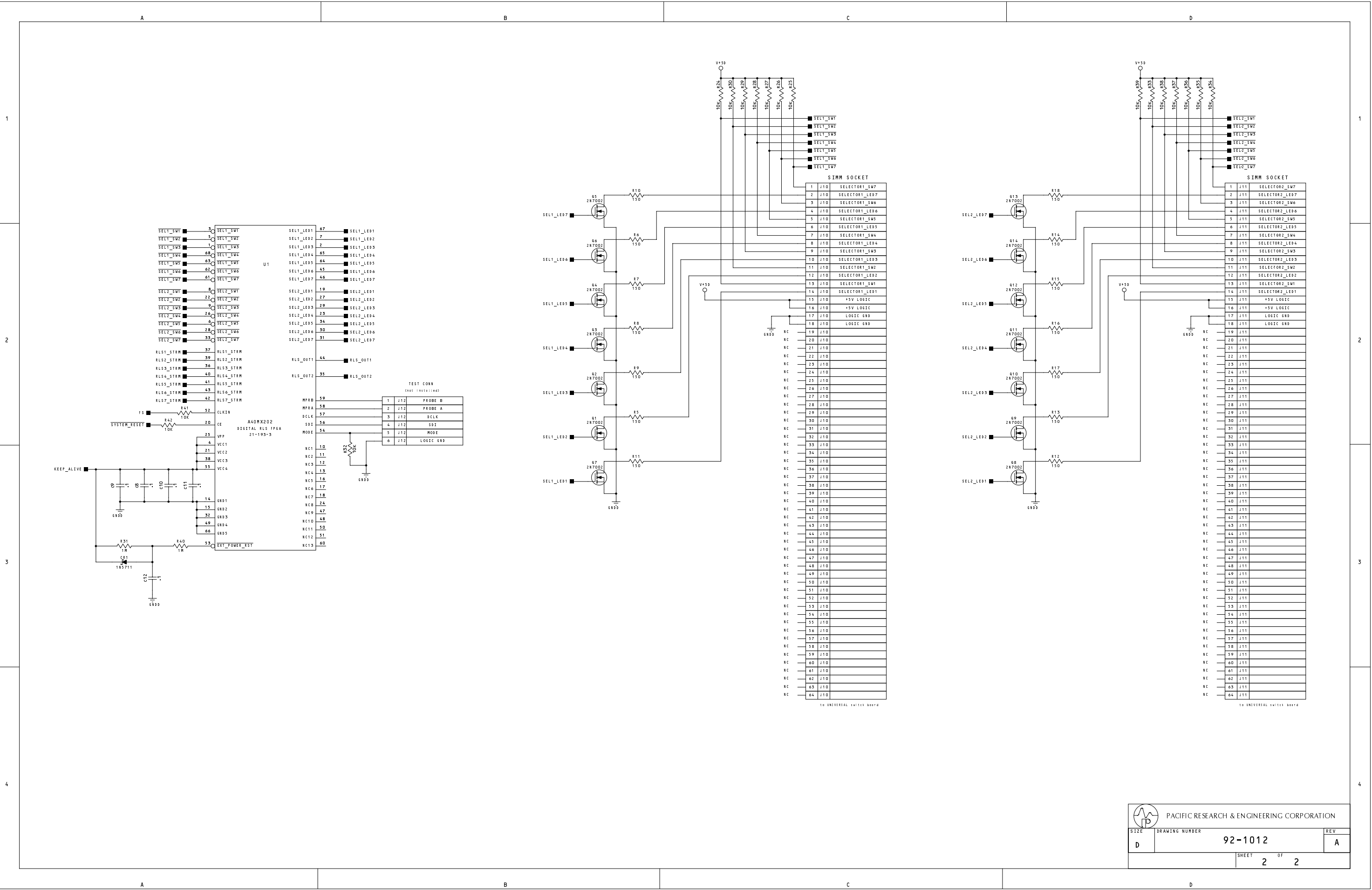
REV	ECO #	DESCRIPTION	DATE	APPROVAL
A		PRODUCTION RELEASE		
B	3979	SCHEMATIC CORRECTIONS	4/2/97	J. DOMBROWSKI
C	4020	SWAPPED J8 AND J9	5/15/97	J. DOMBROWSKI
D	4248	FPGA CONTROL LINE RESISTORS	4/15/98	J. DOMBROWSKI

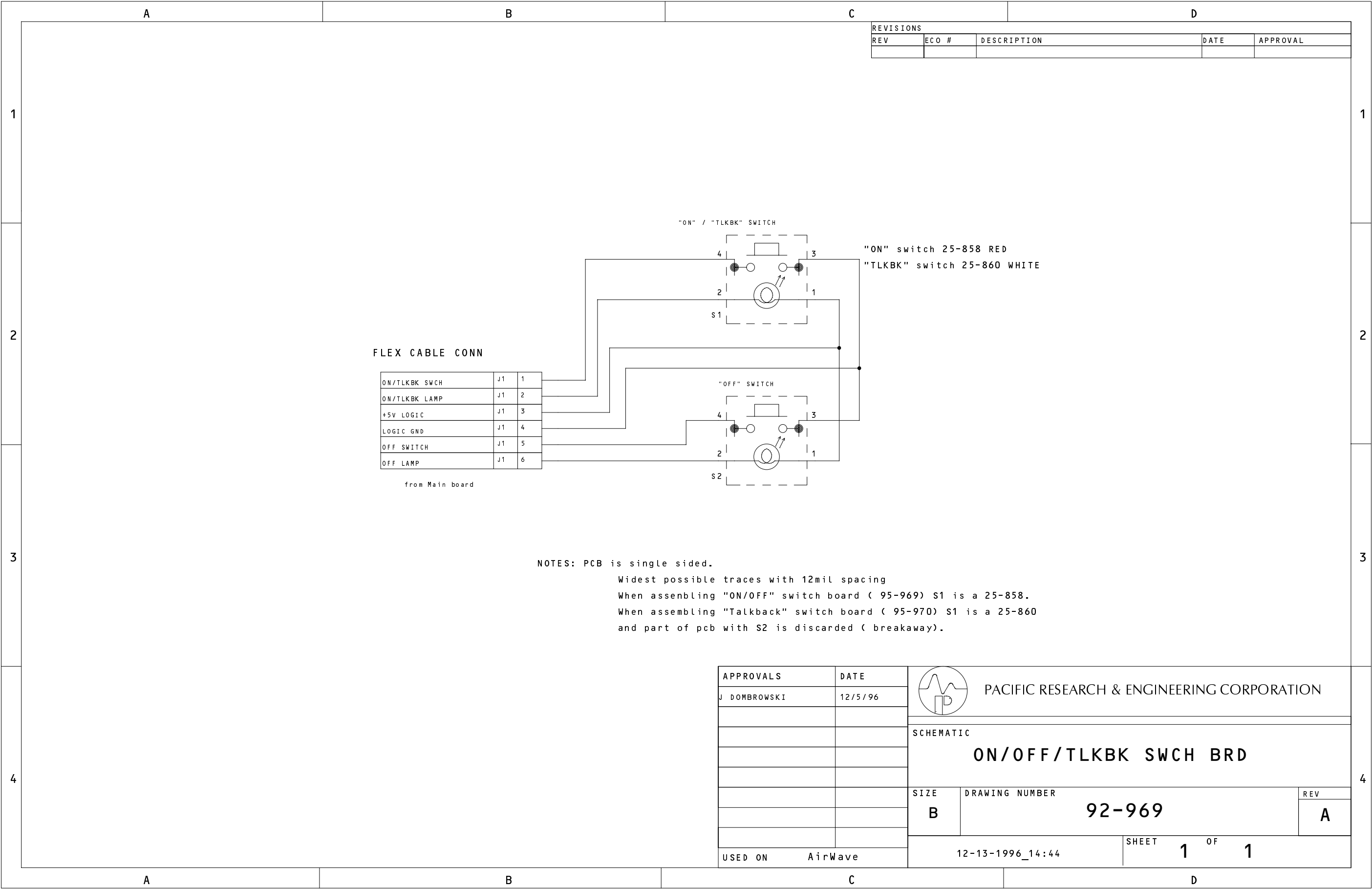
APPROVALS	DATE	PACIFIC RESEARCH & ENGINEERING CORPORATION
J. DOMBROWSKI	9/9/96	
SCHEMATIC		
MON 2 / RLS BOARD		
SIZE	DRAWING NUMBER	REV
D	92-965	D
USED ON	4-15-1998_16:56	SHEET 1 OF 5



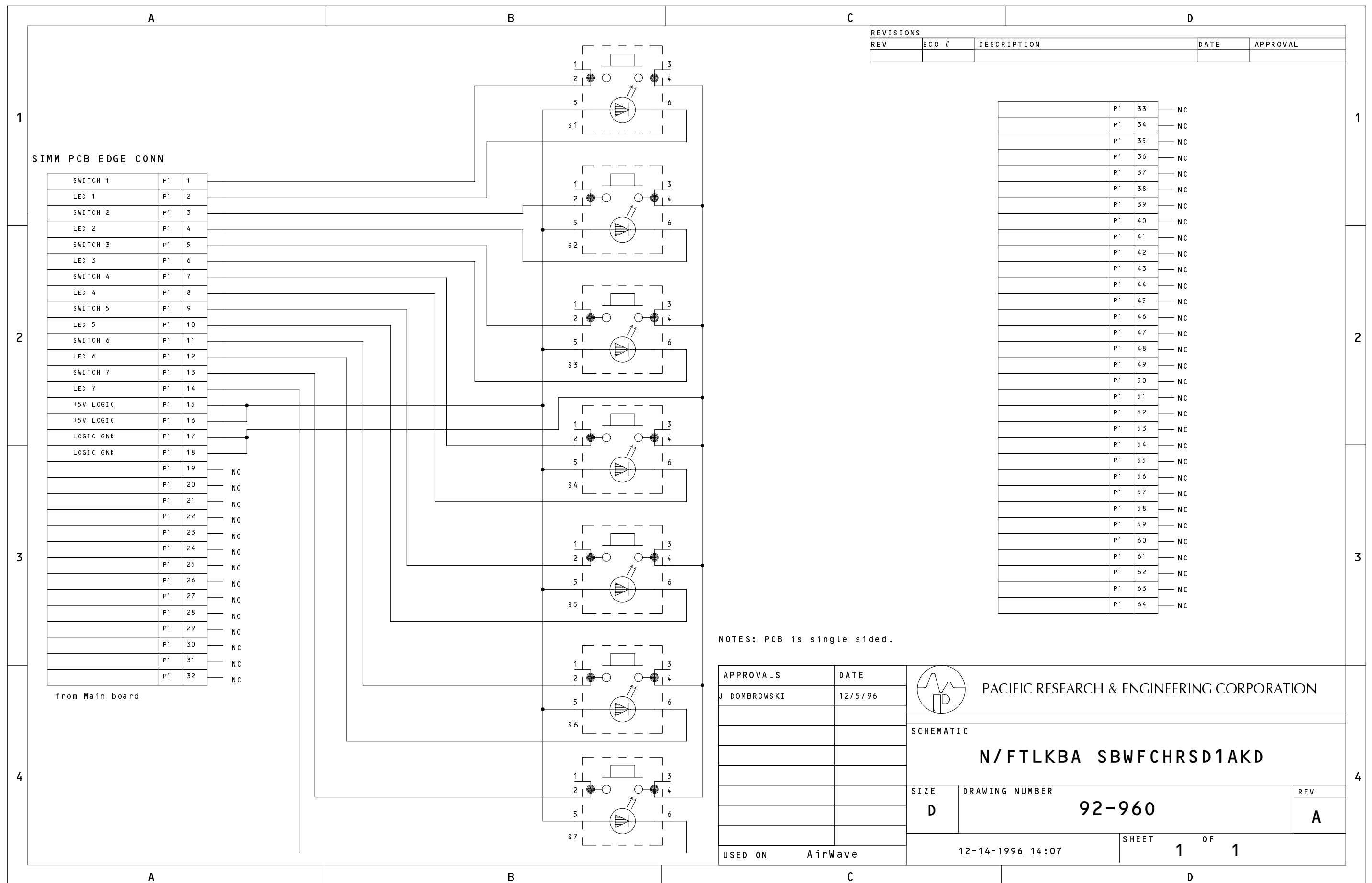


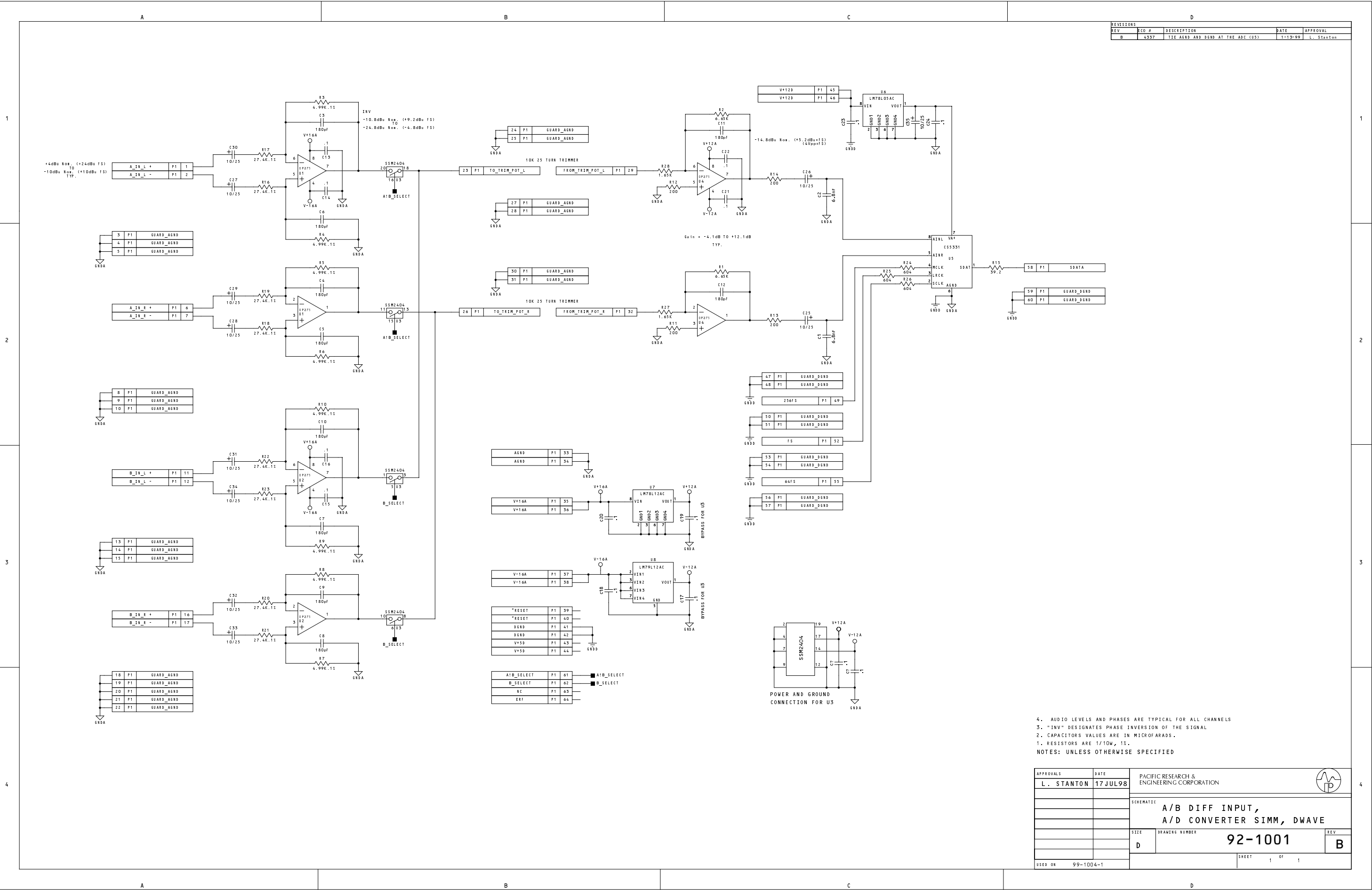






28

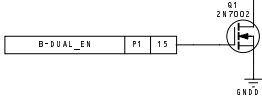
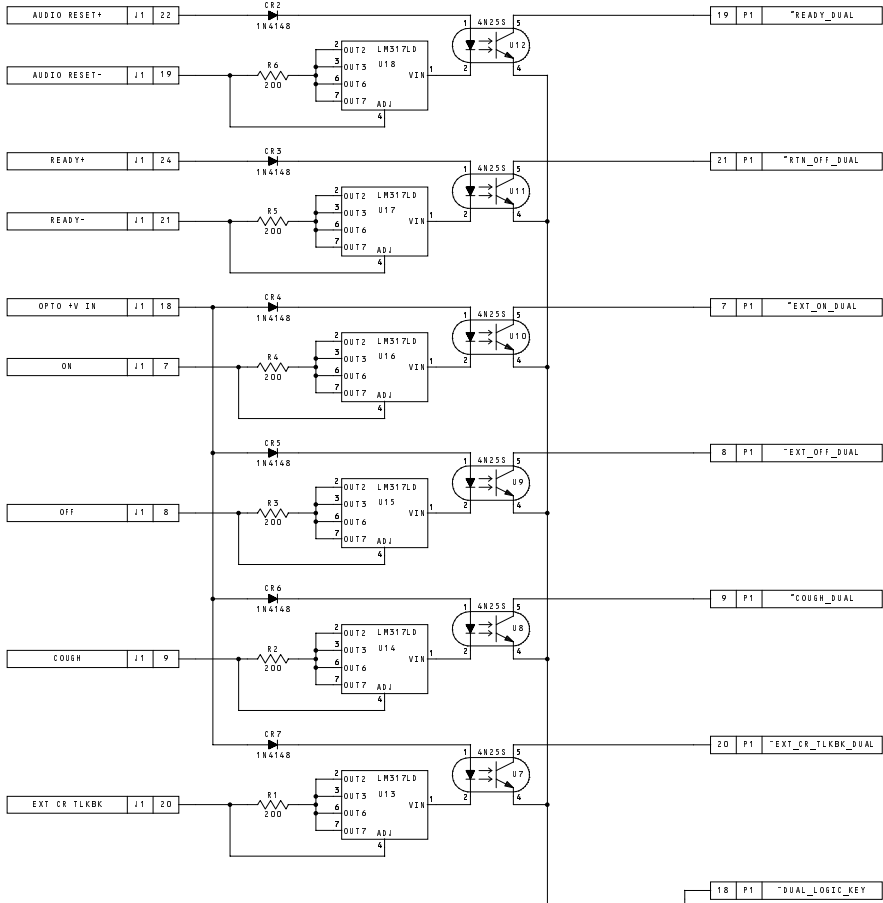




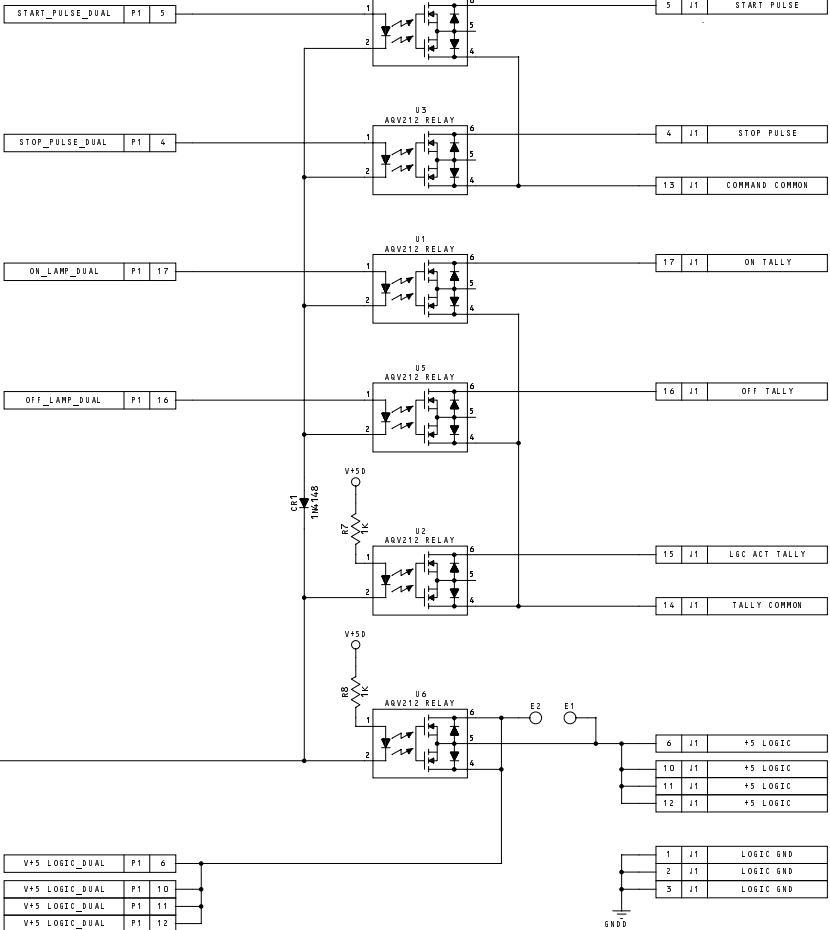
REVISIONS				
REV	ECO #	DESCRIPTION	DATE	APPROVAL
B	4356	U13-U18 ADJ. PIN TO 200 OHM RESISTOR	12/JAN/99	L. STANTON

EXTERNAL LOGIC CONNECTOR

NC	J1	23
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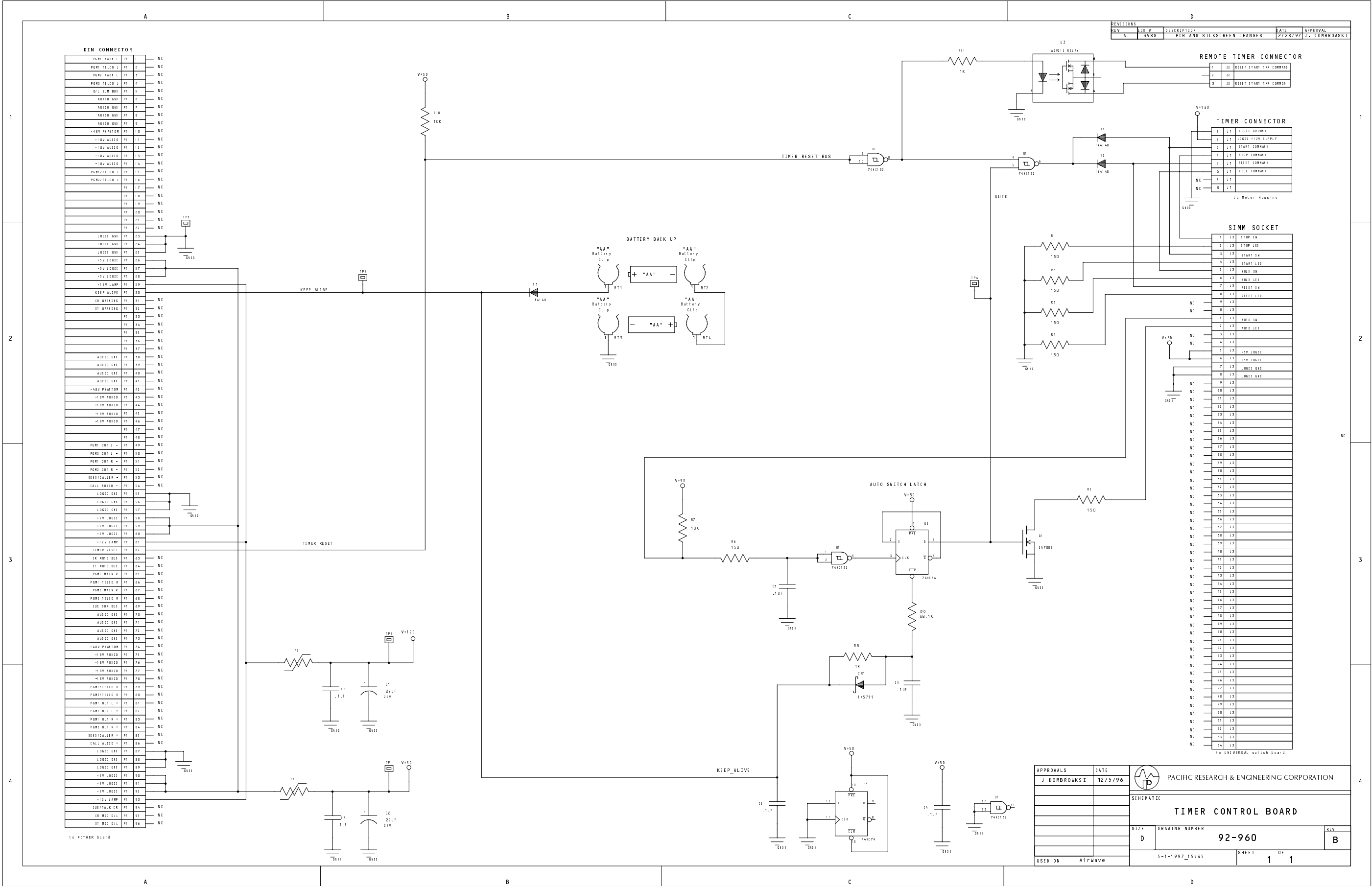
EXTERNAL LOGIC CONNECTOR

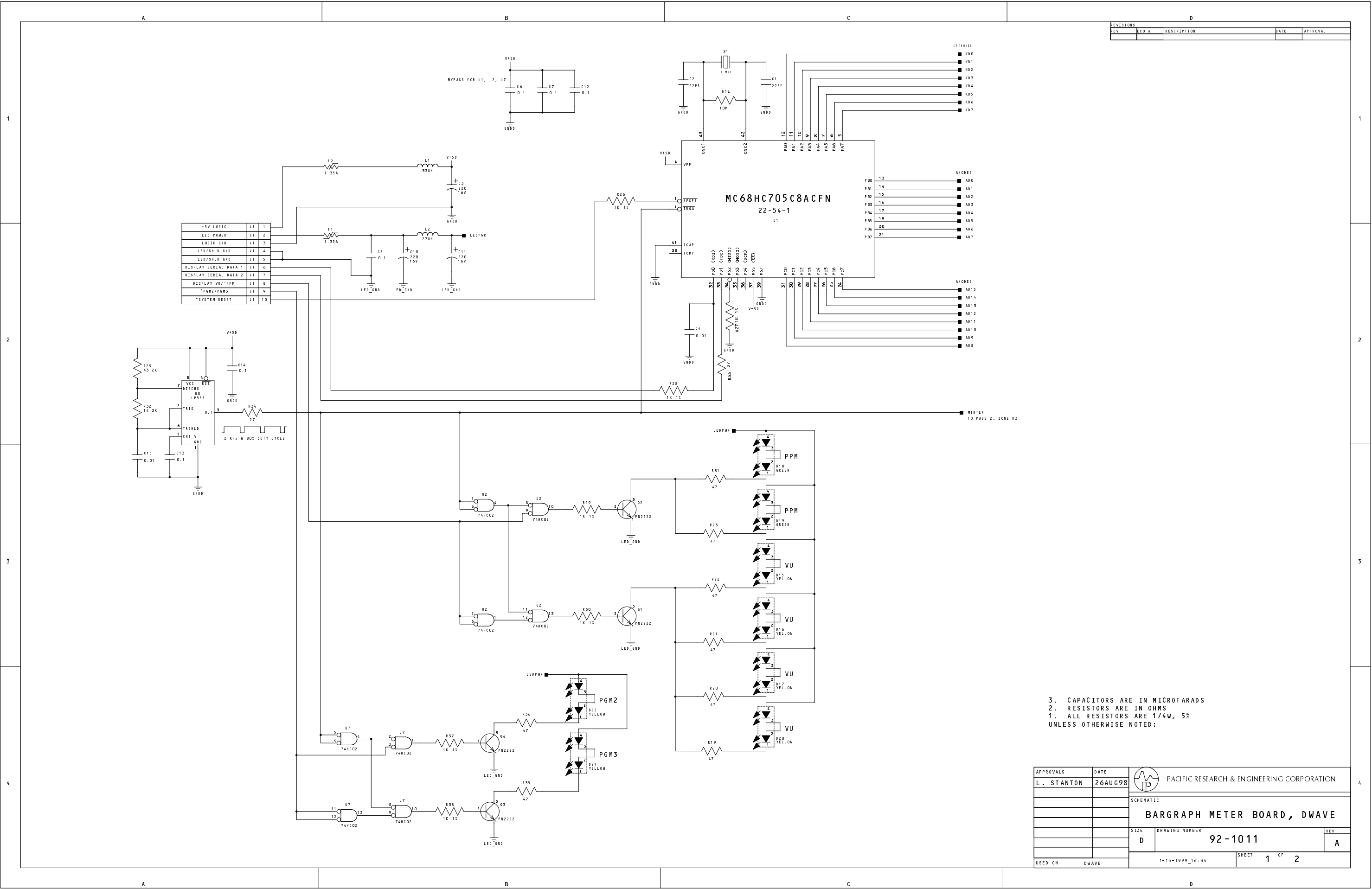


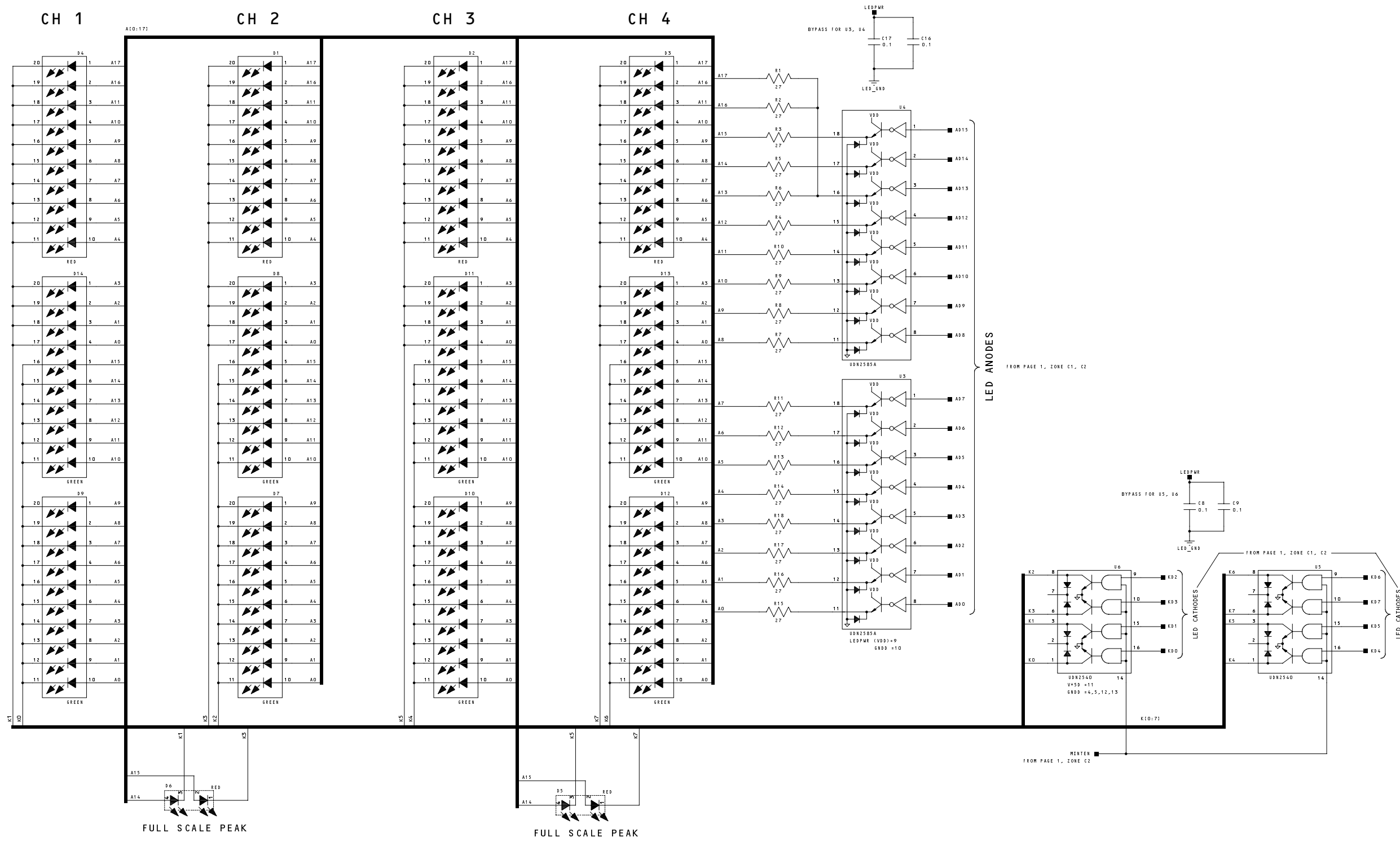
V+5 LOGIC_DUAL	P1	6
V+5 LOGIC_DUAL	P1	10
V+5 LOGIC_DUAL	P1	11
V+5 LOGIC_DUAL	P1	12
LOGIC GND_DUAL	P1	1
LOGIC GND_DUAL	P1	2
LOGIC GND_DUAL	P1	3
V+5	P1	22
V+5	P1	23
V+5	P1	24

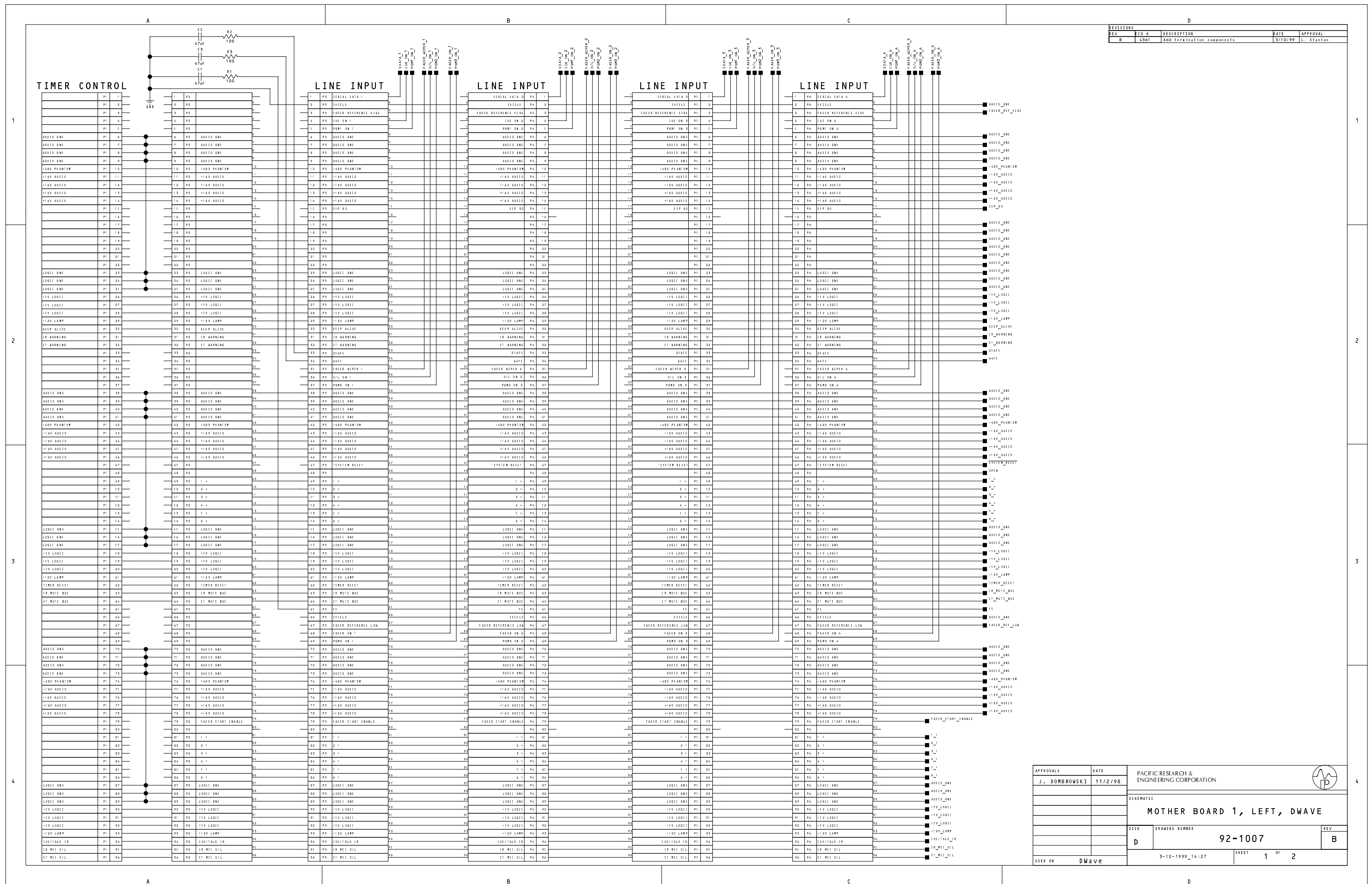
NC	P1	13
NC	P1	14

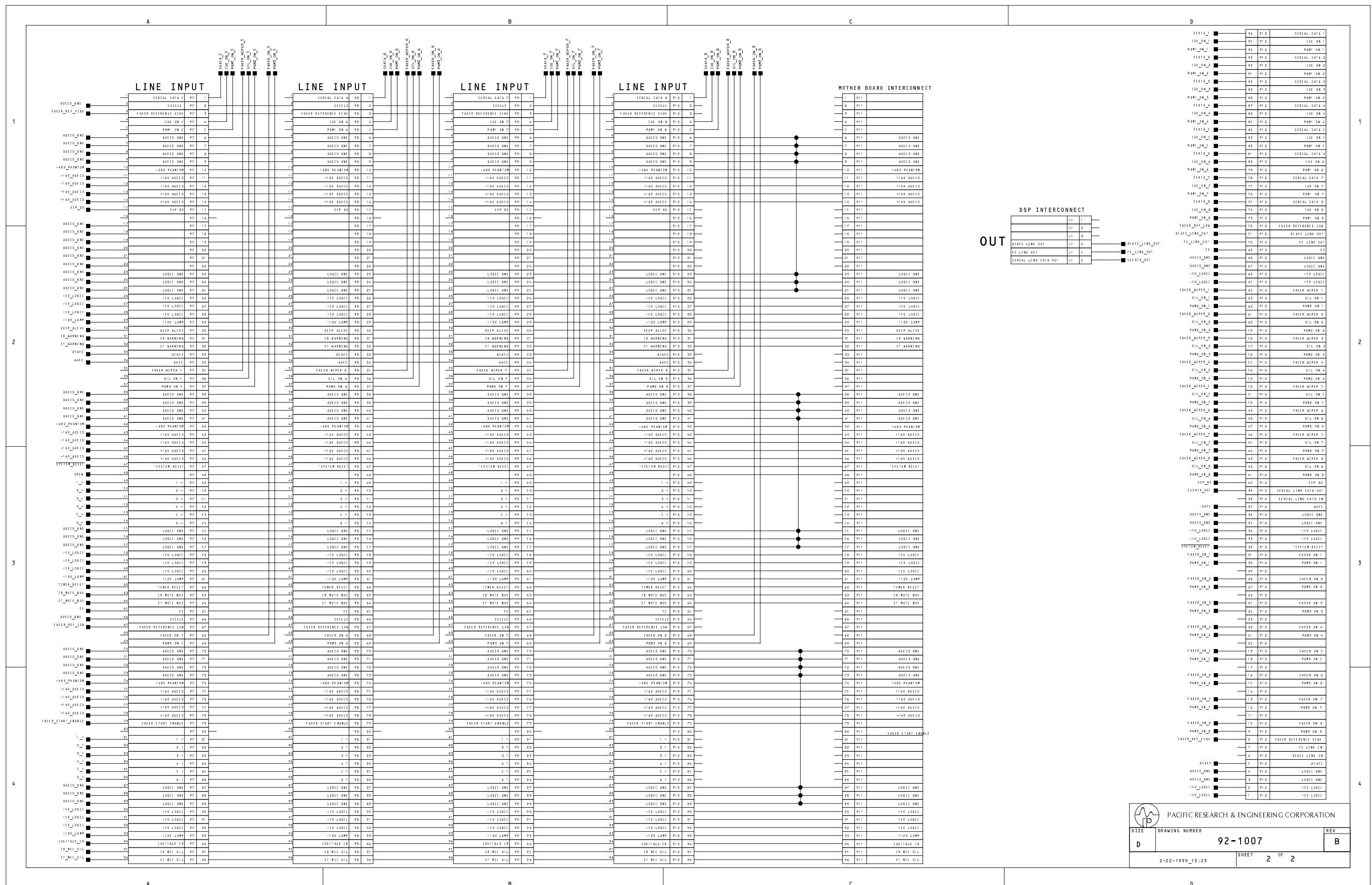
APPROVALS		DATE	PACIFIC RESEARCH & ENGINEERING CORPORATION	
L. Stanton		13JAN99	SCHEMATIC	
			LOGIC INTERFACE, DUAL, DWAVE	
SIZE	D	DRAWING NUMBER	92-1003	REV
				B
USED ON		99-1004-1,2	1-29-1999_8:57	SHEET 1 OF 1

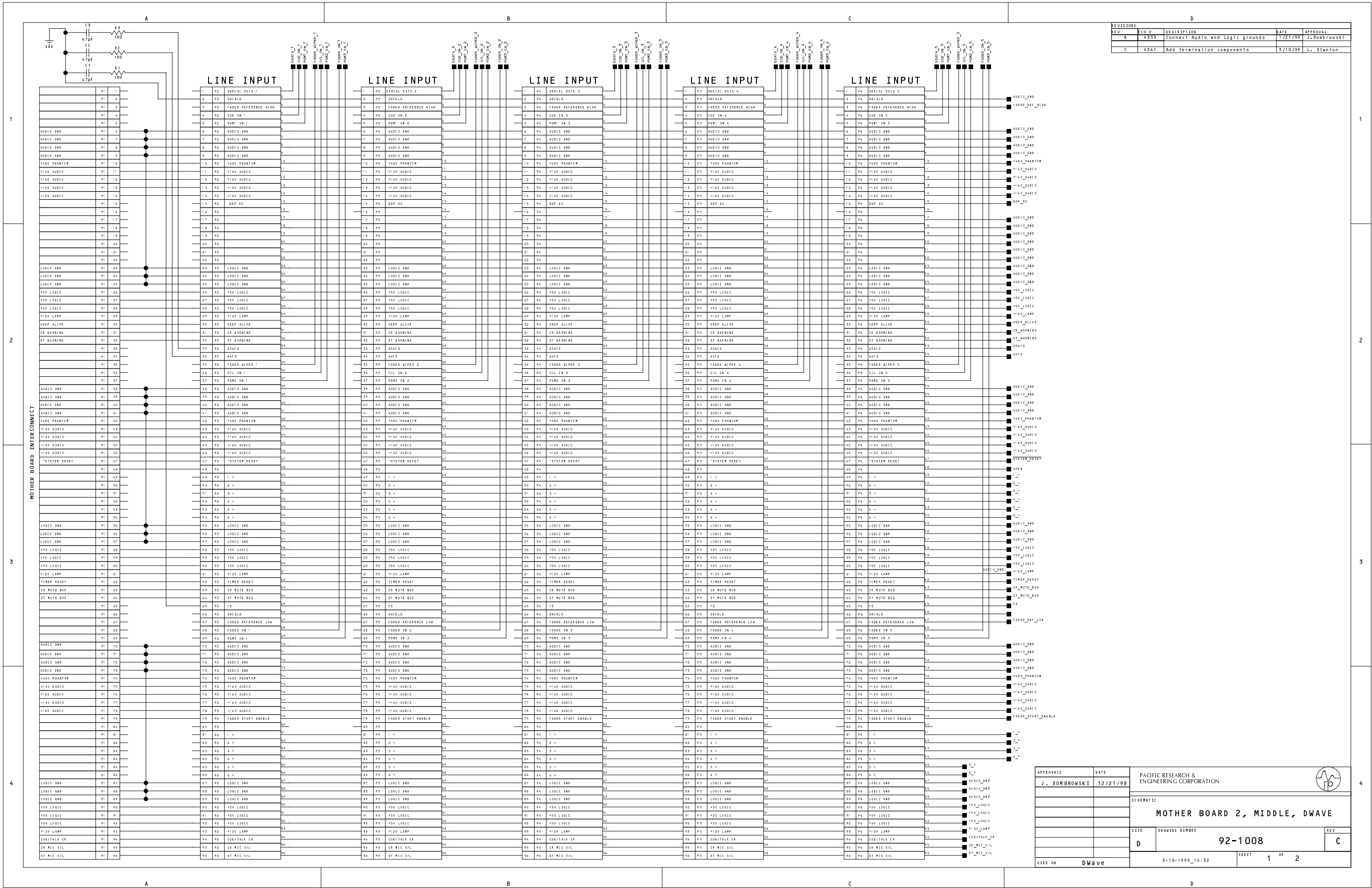


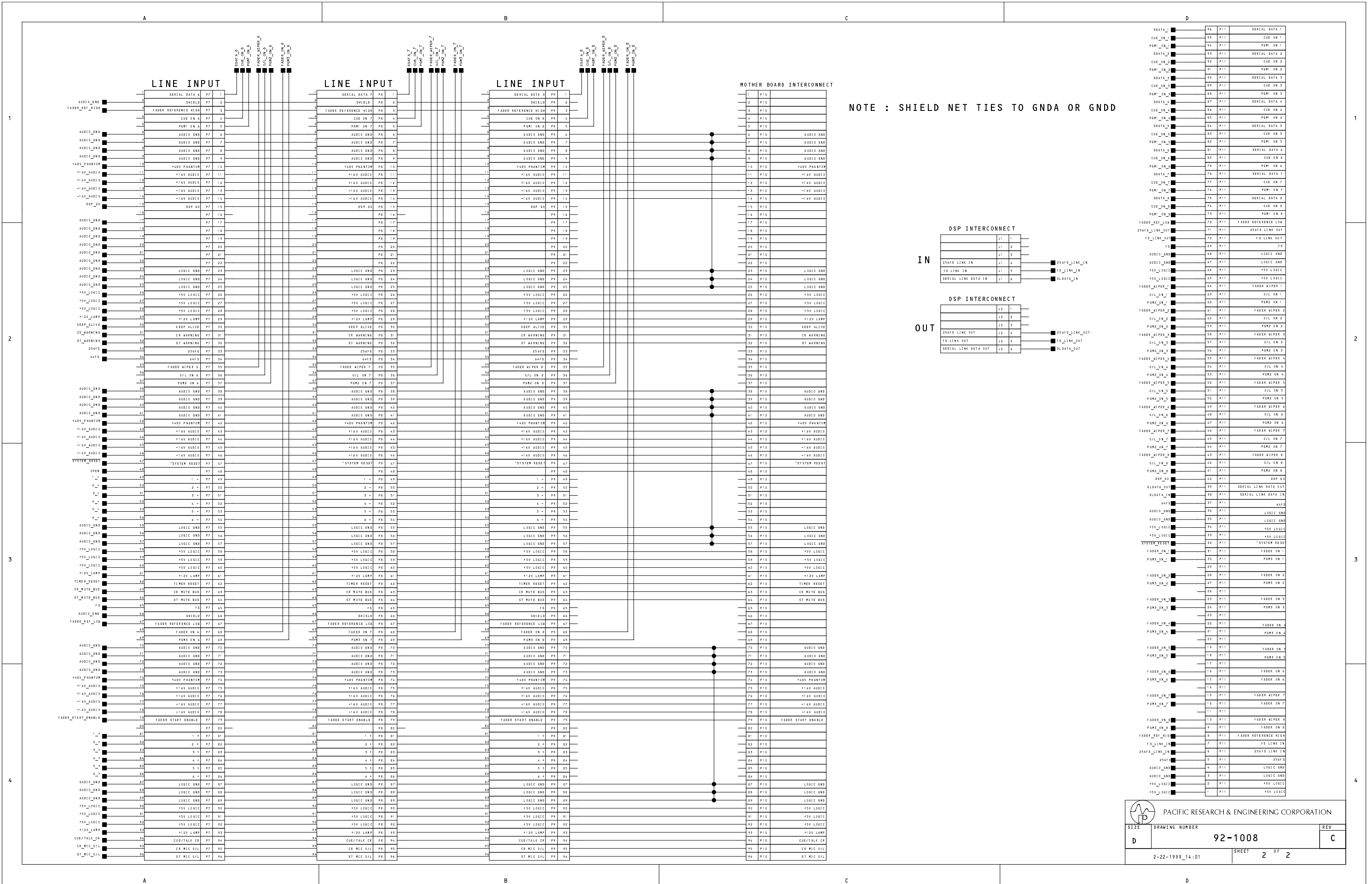


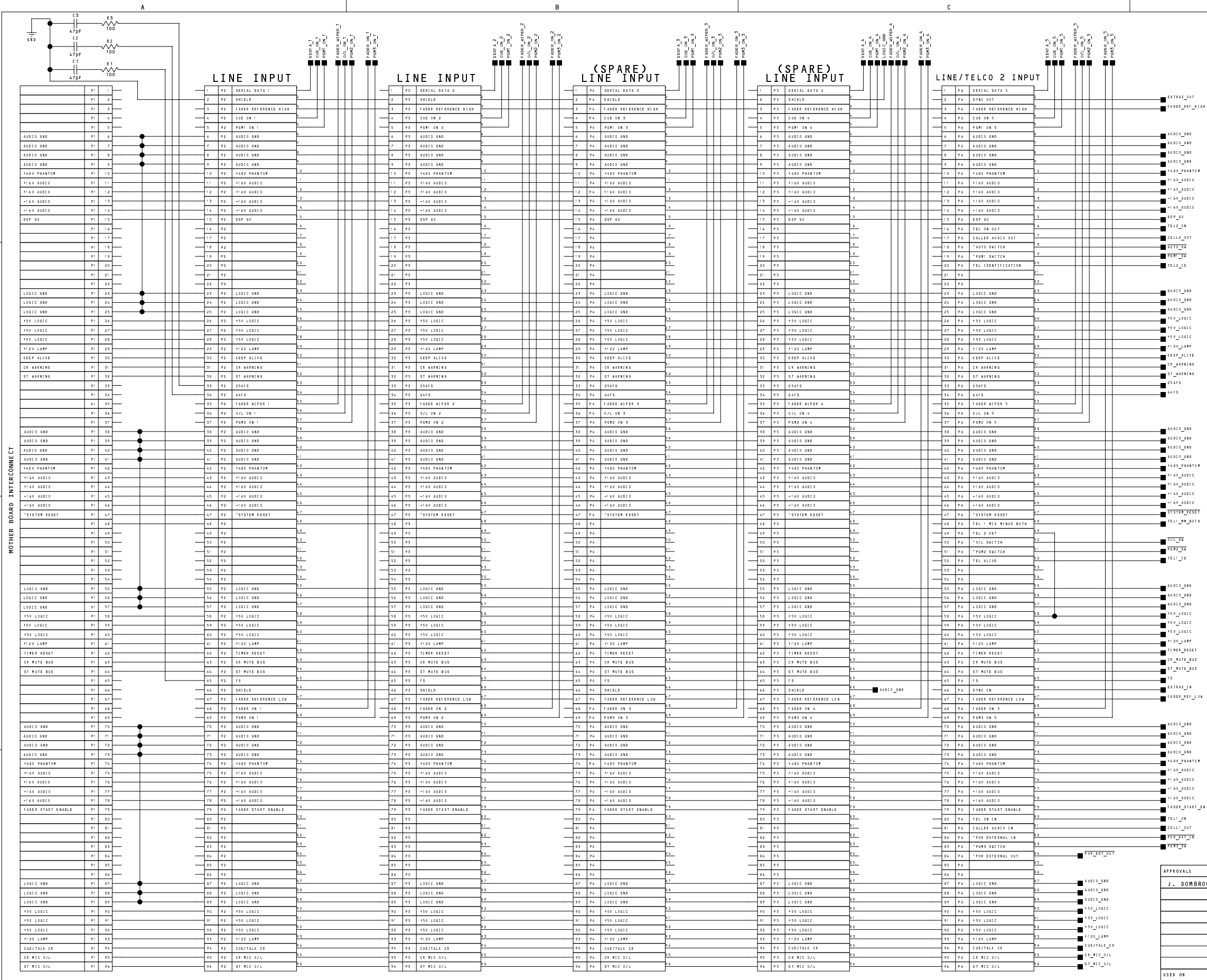












REVISIONS				
REV	ECO #	DESCRIPTION	DATE	APPROVAL
A	4353	Connect Audio and Logic grounds	1/21/99	J. Dombrowski
C	4361	Add termination components	3/10/99	L. Stanton

APPROVALS		DATE		PACIFIC RESEARCH & ENGINEERING CORPORATION	
J. DOMBROWSKI		9/21/98		SCHEMATIC	
				MOTHER BOARD 3, RIGHT, DWAVE	
				SIZE D DRAWING NUMBER 92-1009	
				REV C	
USED ON DWAVE		3-10-1999_14:35		SHEET 1 OF 2	

