

# CYRUS AV5

## DIGITAL PREAMPLIFIER

### SERVICE MANUAL

#### SPECIFICATIONS

Multi-channel decoding systems	Dolby Digital, DTS, PCM linear
Analogue input sensitivity	2V // 47k?
Digital input sensitivity	500mV pk-pk // 75?
Output voltage	3.9V max all channels
Tape output voltage	2V max
Signal to noise ratio	-90dB Awtd vol @ max -117dB Awtd vol @ -28dB to minimum
THD (Digital input)	0.005%
THD (Analogue input)	0.006%
Frequency response	3Hz to 20kHz
Dimensions (HxWxD)	73 x 215 x 360mm
Finish	Black

The Cyrus logo consists of the word "CYRUS" in a bold, sans-serif font. The letters "C" and "Y" are stylized with diagonal lines through them, while the other letters are solid.

## CYRUS AV5 SERVICE CAUTIONS



These two symbols shown are displayed prominently on the Cyrus AV5 base cover label. They indicate that the following cautions must be observed by all personnel-

***CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER OR BACK.***

***THERE ARE NO USER SERVICEABLE PARTS INSIDE THE PRODUCT.***

***ALWAYS REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.***

## CYRUS AV5 TYPE IDENTIFICATION

### **Rating label**

Each Cyrus AV 5 carries a rating label on the rear panel which includes details of the following:

#### **Nominal power voltage**

230V For use on nominal 220V - 240V AC mains supply.

#### **AC fuse rating**

The AC fuse rating is also shown on the label. If replacing the AC fuse it is essential that the replacement fuse is exactly the same specification as the original fuse, supplied by Cyrus. All mains fuses have a 'Timelag' blow characteristic.

#### **Power consumption**

The power consumption figure is indicated under conditions of full power drive into the rated speaker load.

### **Serial number**

Each Cyrus AV 5 carries a serial number code which identifies the following-

- ? Type of product
- ? Market destination
- ? Build number

The serial number is visible on the baseplate. It is therefore important to ensure that a baseplate removed from a product is re-fitted to the same product. In any communications with Cyrus Service or Quality departments it is essential that the full serial number is quoted so that original specification parts and service information may be supplied.

## CYRUS AV5 BLOCK DIAGRAM

## CYRUS AV5 TECHNICAL DESCRIPTION

### Digital/analogue input selection and digital out

The coaxial digital inputs are buffered by differential receivers IC202/401 which convert the input signal level from 0.5V peak to peak (std SPDIF level) to 5V peak to peak. The output from the coaxial receivers and the optical receivers are routed to an 8 way multiplexer IC404 which selects a digital input. The output from the multiplexer is decoded by IC502 and then routed to digital output socket. The analogue inputs are buffered by IC405/6/7 and then selected by IC404.

### Preparation of input signals prior to DSP

Analogue inputs are converted to digital format by the CODEC's 20bit ADC converters. The digital output from the CODEC's ADC is then sent in I2S format to the DSP. When the CODEC is set to decode an analogue input the 12.288MHz clock (pin 28 IC502) comes from the crystal module (X801) via IC804 (which divides clock frequency by 4). When the CODEC is receiving a digital input the clock is derived from the digital input using the CODEC's PLL. The CODEC modes are set by the microprocessor via the SPI bus pins 3,4,5 and 6.

### DSP (digital signal processor).

All signals pass through the DSP (IC802) including stereo, pro-logic, DTS or Dolby Digital. The signal is received from the CODEC into its compressed data interface.

The DSP can :

When receiving stereo PCM

- ? Convert to Pro-Logic
- ? Apply bass management to speakers
- ? Convert to 3 channel stereo
- ? Pass the PCM straight through as stereo

When receiving DTS

- ? Decode DTS stream into 5.1 format (No bass management or down mixing)

When receiving Dolby Digital

- ? Apply bass management to speakers
- ? Convert to 3 channel stereo
- ? Down mix channels
- ? Convert to stereo
- ? Decode as 5.1

The microprocessor will set the DSP to the appropriate mode (stereo/multi-channel) selected by the user. The DSP will also send information to the microprocessor to indicate decoding status e.g. receiving AC3 stream. The DSP is controlled by the microprocessor via the SPI bus pins 7, 19, 6, 18 and 20. The program code for the DSP is stored externally in a memory IC905, connected via IC903/4 acting as address expanders for the memory.

## CYRUS AV5 TECHNICAL DESCRIPTION

### Digital to analogue conversion

The digital audio output from the DSP is routed back to the CODEC via data lines from pins 39-41. Word select pin 42 and bit-clock pin 43 to give 3 stereo signals (5.1 channels). The CODEC contains a six channel DAC. The DAC converts the six digital channels to analogue and the signals are AC coupled to the filter stage. The filter stages take out the high frequency over-sampling noise. All filters are then AC coupled to the volume control stage.

### Volume controls and output buffers

The volume control stage uses two digitally controlled triple volume control IC's. The controls are connected to the control microprocessor via the SPI bus. The volume controls are used to set both the volume and any channel balance offsets applied by the user to level match between speakers. The volume controls run off +/- 6VDC, regulated from the +/-12VDC rails by T601/602. The output is then buffered by IC604/5/6.

### Mute circuit

The output mute circuit T702/7 is connected to the output and short circuits the audio signals. The mute circuit is used during power up/down and standby and is controlled by the control microprocessor and a little hardware based circuit to detect power supply condition T101.

### Tape output

The tape output is only active when set to decode stereo. DTS cannot be down mixed to stereo and hence cannot be recorded via the analogue tape out. The left and right audio outputs from the post DAC analogue filters are connected to the tape output sockets. When set to stereo the tape output sockets are un-muted (T701/19/20) allowing recording to take place. In all other operation modes the tape output is muted.

### Auto calibration microphone

The AV5 includes a facility to allow the automated set-up of channel balance and speaker distance setting. When using auto level the DSP produces noise on each channel in turn, the control microprocessor will adjust the volume automatically to achieve the same reading from the supplied microphone for each speaker channel. The settings are stored in the microprocessor memory and are applied to all volume control settings. The distance setting works in a similar way except the noise is burst and the time taken for the noise burst to reach the speaker allows the microprocessor to calculate the speaker distances. The distance settings are stored in the microprocessor's memory and the appropriate delays are set in the DSP.

The microphone uses a 1.5V button cell, type L1154, AG13, LR44, 157, V13GA, RW82 or A76. It is essential that the battery is removed when the microphone is not being used to prevent the battery from discharging. The battery may discharge over night if left in the microphone.

The output from the microphone is boosted by IC1006, rectified by IC1007B, and averaged by C1025. When measuring the speaker level T1002 is switched on connecting C1026 to increase the averaging time constant. The output from the averaging circuit is buffered and sent to an analogue input on the control microprocessor to analyse level or timing.

## CYRUS AV5 TECHNICAL DESCRIPTION

### Microprocessor

The microprocessor forms the interface between the user controls to the various circuit blocks. At power up and power down the processor is reset by IC1105. The amount of output lines is boosted by IC's IC1205/6 adding an extra 16 control lines.

### Power Supply

The power supply is linear and regulates to:

+5V for miscellaneous digital circuits

+5V for the CODEC

+3.3V for the DSP

+/-12V for the analogue circuits

+/-6V for the volume controls circuits.

All regulators are 78XX series except for the 3.3V design which uses an LM317 adjustable regulator. The transformer includes a re-settable thermal fuse which will trip under short circuit conditions. A separate supply C113 has been included for the muting circuit to prevent power off thumps.

### Display

Display contrast is set by R1313/1314. The back light is turned on/off by T1301/2/3.

# CYRUS AV5 PCB COMPONENTS

## RESISTORS

R101	SMD0805	330R	MF 1/8W 1%	
R102	SMD0805	2.7k	MF 1/8W 1%	
R103	SMD0805	1k	MF 1/8W 1%	
R104	SMD0805	470R	MF 1/8W 1%	
R105	SMD0805	100k	MF 1/8W 1%	
R106	SMD0805	10k	MF 1/8W 1%	
R107	SMD0805	47k	MF 1/8W 1%	
R108	SMD0805	100k	MF 1/8W 1%	
R109	SMD0805	10k	MF 1/8W 1%	
R110	SMD0805	10k	MF 1/8W 1%	
R111	SMD0805	10k	MF 1/8W 1%	
R112	SMD0805	10k	MF 1/8W 1%	
R120	AXIAL0.5	4.7R	MF 1/4W 5%	
R121	AXIAL0.5	4.7R	MF 1/4W 5%	
R122	SMD0805	10k	MF 1/8W 1%	
R123	SMD0805		NOT FITTED	
R124	SMD0805		NOT FITTED	
R125	SMD0805		NOT FITTED	
R126	SMD0805		NOT FITTED	
R201	SMD0805	75R	MF 1/8W 1%	
R202	SMD0805	75R	MF 1/8W 1%	
R214	SMD0805	47R	MF 1/8W 1%	
R401			NOT FITTED	
R402	SMD0805	75R	MF 1/8W 1%	
R403	SMD0805	75R	MF 1/8W 1%	
R404	SMD0805	75R	MF 1/8W 1%	
R405	SMD0805	47R	MF 1/8W 1%	
R406	SMD0805	47R	MF 1/8W 1%	
R407	SMD0805	270R	MF 1/8W 1%	
R408	SMD0805	100R	MF 1/8W 1%	
R409	SMD0805	47R	MF 1/8W 1%	
R410	SMD0805	47R	MF 1/8W 1%	
R411	SMD0805	47R	MF 1/8W 1%	
R412	SMD0805	47k	MF 1/8W 1%	
R413	SMD0805	47k	MF 1/8W 1%	
R414	SMD0805	47k	MF 1/8W 1%	
R415	SMD0805	47k	MF 1/8W 1%	
R416	SMD0805	47k	MF 1/8W 1%	
R417	SMD0805	47k	MF 1/8W 1%	
R422	SMD0805	2.2k	MF 1/8W 1%	
R423	SMD0805	1.4k	MF 1/8W 1%	Was originally 2.2k. Reduced to improve input overload
R428	SMD0805	2.2k	MF 1/8W 1%	
R429	SMD0805	1.4k	MF 1/8W 1%	Was originally 2.2k. Reduced to improve input overload

## CYRUS AV5 PCB COMPONENTS

R434	SMD0805	2.2k	MF 1/8W 1%	
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## CYRUS AV5 PCB COMPONENTS

R435	SMD0805	1.4k	MF 1/8W 1%	Was originally 2.2k. Reduced to improve input overload
R440	SMD0805	2.2k	MF 1/8W 1%	
R441	SMD0805	1.4k	MF 1/8W 1%	Was originally 2.2k. Reduced to improve input overload
R446	SMD0805	2.2k	MF 1/8W 1%	
R447	SMD0805	1.4k	MF 1/8W 1%	Was originally 2.2k. Reduced to improve input overload
R452	SMD0805	2.2k	MF 1/8W 1%	
R453	SMD0805	1.4k	MF 1/8W 1%	Was originally 2.2k. Reduced to improve input overload
R501	SMD0805	47R	MF 1/8W 1%	
R502	SMD0805	100k	MF 1/8W 1%	
R503	SMD0805	5.6k	MF 1/8W 1%	
R504	SMD0805	47R	MF 1/8W 1%	
R505	SMD0805	47R	MF 1/8W 1%	
R506	SMD0805	47R	MF 1/8W 1%	
R601	SMD0805	100k	MF 1/8W 1%	
R602	SMD0805	100k	MF 1/8W 1%	
R603	SMD0805	100k	MF 1/8W 1%	
R604	SMD0805	100k	MF 1/8W 1%	
R605	SMD0805	100k	MF 1/8W 1%	
R606	SMD0805	100k	MF 1/8W 1%	
R607	SMD0805	5.1k	MF 1/8W 1%	
R608	SMD0805	5.1k	MF 1/8W 1%	
R609	SMD0805	5.1k	MF 1/8W 1%	
R610	SMD0805	5.1k	MF 1/8W 1%	
R611	SMD0805	5.1k	MF 1/8W 1%	
R612	SMD0805	3.6k	MF 1/8W 1%	
R613	SMD0805	10k	MF 1/8W 1%	
R614	SMD0805	10k	MF 1/8W 1%	
R615	SMD0805	10k	MF 1/8W 1%	
R616	SMD0805	10k	MF 1/8W 1%	
R617	SMD0805	10k	MF 1/8W 1%	
R618	SMD0805	7.5k	MF 1/8W 1%	
R619	SMD0805	2.2k	MF 1/8W 1%	
R620	SMD0805	2.2k	MF 1/8W 1%	
R621	SMD0805	2.2k	MF 1/8W 1%	
R622	SMD0805	2.2k	MF 1/8W 1%	
R623	SMD0805	2.2k	MF 1/8W 1%	
R624	SMD0805	2.2k	MF 1/8W 1%	
R625	SMD0805	2k	MF 1/8W 1%	
R626	SMD0805	2k	MF 1/8W 1%	
R627	SMD0805	2k	MF 1/8W 1%	
R628	SMD0805	2k	MF 1/8W 1%	
R629	SMD0805	2k	MF 1/8W 1%	
R630	SMD0805	2k	MF 1/8W 1%	

## CYRUS AV5 PCB COMPONENTS

R631	SMD0805	2.4k	MF 1/8W 1%	
R632	SMD0805	2.4k	MF 1/8W 1%	
R633	SMD0805	3k	MF 1/8W 1%	
R634	SMD0805	3k	MF 1/8W 1%	
R635	SMD0805	22k	MF 1/8W 1%	
R636	SMD0805	22k	MF 1/8W 1%	
R637	SMD0805	22k	MF 1/8W 1%	
R638	SMD0805	22k	MF 1/8W 1%	
R639	SMD0805	22k	MF 1/8W 1%	
R640	SMD0805	22k	MF 1/8W 1%	
R641	SMD0805	2.2k	MF 1/8W 1%	
R642	SMD0805	2.2k	MF 1/8W 1%	
R643	SMD0805	2.2k	MF 1/8W 1%	
R644	SMD0805	2.2k	MF 1/8W 1%	
R645	SMD0805	2.2k	MF 1/8W 1%	
R646	SMD0805	2.2k	MF 1/8W 1%	
R647	SMD0805	2.2k	MF 1/8W 1%	
R648	SMD0805	2.2k	MF 1/8W 1%	
R649	SMD0805	2.2k	MF 1/8W 1%	
R650	SMD0805	2.2k	MF 1/8W 1%	
R651	SMD0805	2.2k	MF 1/8W 1%	
R652	SMD0805	2.2k	MF 1/8W 1%	
R701	SMD0805	10k	MF 1/8W 1%	
R702	SMD0805	10k	MF 1/8W 1%	
R703	SMD0805	220R	MF 1/8W 1%	
R704	SMD0805	220R	MF 1/8W 1%	
R705	SMD0805	220R	MF 1/8W 1%	
R706	SMD0805	220R	MF 1/8W 1%	
R707	SMD0805	2.2k	MF 1/8W 1%	
R708	SMD0805	2.2k	MF 1/8W 1%	
R711	SMD0805	2.2k	MF 1/8W 1%	
R712	SMD0805	2.2k	MF 1/8W 1%	
R713	SMD0805	220R	MF 1/8W 1%	
R714	SMD0805	2.2k	MF 1/8W 1%	
R715	SMD0805	220R	MF 1/8W 1%	
R716	SMD0805	2.2k	MF 1/8W 1%	
R719	SMD0805	2.2k	MF 1/8W 1%	
R720	SMD0805	2.2k	MF 1/8W 1%	
R721	SMD0805	560R	MF 1/8W 1%	
R722	SMD0805	560R	MF 1/8W 1%	
R801	SMD0805	4.7k	MF 1/8W 1%	
R802	SMD0805	47R	MF 1/8W 1%	
R803	SMD0805	47R	MF 1/8W 1%	
R804	SMD0805	68k	MF 1/8W 1%	
R805	SMD0805	100k	MF 1/8W 1%	
R806	SMD0805	100k	MF 1/8W 1%	

## CYRUS AV5 PCB COMPONENTS

R807	SMD0805	100k	MF 1/8W 1%	
R808	SMD0805	47R	MF 1/8W 1%	
R809	SMD0805	47R	MF 1/8W 1%	
R810	SMD0805	47R	MF 1/8W 1%	
R811	SMD0805	47R	MF 1/8W 1%	
R812	SMD0805		NOT FITTED	
R813	SMD0805	47R	MF 1/8W 1%	
R814	SMD0805	47R	MF 1/8W 1%	
R815	SMD0805	100k	MF 1/8W 1%	
R816	SMD0805		NOT FITTED	
R817	SMD0805	100k	MF 1/8W 1%	
R818	SMD0805	100k	MF 1/8W 1%	
R819	SMD0805	47R	MF 1/8W 1%	
R820	SMD0805	47R	MF 1/8W 1%	
R821	SMD0805	47R	MF 1/8W 1%	
R901	SMD0805	100k	MF 1/8W 1%	
R1006	AXIAL0.5	4.7R	MF 1/4W 5%	
R1007	AXIAL0.5	4.7R	MF 1/4W 5%	
R1011	SMD0805	47R	MF 1/8W 1%	
R1012	SMD0805	47R	MF 1/8W 1%	
R1013	SMD0805	47R	MF 1/8W 1%	
R1014	SMD0805	1k	MF 1/8W 1%	
R1015	SMD0805	1k	MF 1/8W 1%	
R1016	SMD0805	1k	MF 1/8W 1%	
R1017	SMD0805	47R	MF 1/8W 1%	
R1018	SMD0805	100k	MF 1/8W 1%	
R1019	SMD0805	47R	MF 1/8W 1%	
R1020	SMD0805	47R	MF 1/8W 1%	
R1021	SMD0805	47R	MF 1/8W 1%	
R1022	SMD0805		NOT FITTED	
R1023	SMD0805		NOT FITTED	
R1024	SMD0805	1k	MF 1/8W 1%	
R1027	SMD0805	100k	MF 1/8W 1%	
R1028	SMD0805	100k	MF 1/8W 1%	
R1029	SMD0805	47R	MF 1/8W 1%	
R1030	SMD0805	4.7k	MF 1/8W 1%	
R1031	SMD0805	47R	MF 1/8W 1%	
R1032	SMD0805	4.7k	MF 1/8W 1%	
R1033	SMD0805	10k	MF 1/8W 1%	
R1034	SMD0805	10k	MF 1/8W 1%	
R1035	SMD0805	10k	MF 1/8W 1%	
R1036	SMD0805	100k	MF 1/8W 1%	
R1037	SMD0805	1k	MF 1/8W 1%	
R1038	SMD0805	10k	MF 1/8W 1%	
R1039	SMD0805	470k	MF 1/8W 1%	
R1101	SMD0805	10M	MF 1/8W 1%	

## CYRUS AV5 PCB COMPONENTS

R1102	SMD0805	1k	MF 1/8W 1%	
R1103	SMD0805	47k	MF 1/8W 1%	
R1104	SMD0805	100k	MF 1/8W 1%	
R1201	SMD0805	10k	MF 1/8W 1%	
R1301	AXIAL0.5	1R	MF 1/4W 5%	
R1302	SMD0805	10k	MF 1/8W 1%	
R1303	SMD1206	3.3R	MF 1/8W 1%	
R1304	SMD0805	680R	MF 1/8W 1%	
R1305	SMD0805	10k	MF 1/8W 1%	
R1306	SMD0805	10k	MF 1/8W 1%	
R1307	SMD0805	10k	MF 1/8W 1%	
R1308	SMD0805	10k	MF 1/8W 1%	
R1309	SMD0805	10k	MF 1/8W 1%	
R1310	SMD0805	10k	MF 1/8W 1%	
R1311	SMD0805	47R	MF 1/8W 1%	
R1312	SMD0805	47R	MF 1/8W 1%	
R1313	SMD0805	680R	MF 1/8W 1%	
R1314	SMD0805	270R	MF 1/8W 1%	
R1315	SMD0805	47R	MF 1/8W 1%	
R1316	SMD0805	47R	MF 1/8W 1%	
R1317	SMD0805	47R	MF 1/8W 1%	

Key:

MF = metal film. NFR = non flammable resistor. MRS25 = axial metal film resistor  
 SMD-0805 = refers to surface mount device size profile 0805

### **RESISTOR PACKS**

RP501	RES CAT16..4	47R	4 off resistor pack	
RP502	RES CAT16..4	47R	4 off resistor pack	
RP503	RES CAT16..4	47R	4 off resistor pack	
RP504	RES CAT16..4	47R	4 off resistor pack	
RP801	RES CAT16..4	47R	4 off resistor pack	
RP802	RES CAT16..4	47R	4 off resistor pack	
RP803	RES CAT16..4	47R	4 off resistor pack	
RP804	RES CAT16..4	47R	4 off resistor pack	
RP805	RES CAT16..4	47R	4 off resistor pack	
RP901	RES CAT16..4	47R	4 off resistor pack	
RP902	SIL_9W	100k	8-Commoned resistor pack	
RP1101	RES CAT16..4	47R	4 off resistor pack	
RP1102	RES CAT16..4	47R	4 off resistor pack	
RP1103	RES CAT16..4	47R	4 off resistor pack	
RP1104	RES CAT16..4	47R	4 off resistor pack	
RP1105	RES CAT16..4	47R	4 off resistor pack	
RP1106	RES CAT16..4	47R	4 off resistor pack	
RP1107	RES CAT16..4	47R	4 off resistor pack	

## CYRUS AV5 PCB COMPONENTS

RP1201	RES CAT16..4	47R	4 off resistor pack	
RP1202	RES CAT16..4	47R	4 off resistor pack	
RP1203	RES CAT16..4	47R	4 off resistor pack	
RP1204	RES CAT16..4	47R	4 off resistor pack	
RP1301	RES CAT16..4	47R	4 off resistor pack	
RP1302	RES CAT16..4	47R	4 off resistor pack	
RP1303	RES CAT16..4	47R	4 off resistor pack	

## CYRUS AV5 PCB COMPONENTS

### CAPACITORS

C101	SMD0805	10nF	CP 50V 10%	
C102	SMD0805	10nF	CP 50V 10%	
C103	SMD0805	10nF	CP 50V 10%	
C104	RB.3/.6	4700uF	EL 16V 20%	
C105	RB.3/.6	4700uF	EL 16V 20%	
C106	SMD0805	47nF	CP 50V 10%	
C107	SMD0805	47nF	CP 50V 10%	
C108	CAPSMD5.0	47uF	EL 6.3V 20%	
C109	SMD0805	47nF	CP 50V 10%	
C110	CAPSMD4.0	10uF	EL 16V 20%	
C111	SMD0805	47nF	CP 50V 10%	
C112	CAPSMD5.0	47uF	EL 6.3V 20%	
C113	RB.2/.4	1000uF	EL 16V 20%	
C114	CAPSMD4.0	10uF	EL 16V 20%	
C115	SMD0805	47nF	CP 50V 10%	
C116	SMD0805	47nF	CP 50V 10%	
C117	SMD0805	47nF	CP 50V 10%	
C118	SMD0805	47nF	CP 50V 10%	
C119	CAPSMD6.3	47uF	EL 16V 20%	
C120	CAPSMD6.3	47uF	EL 16V 20%	
C121	SMD0805	10nF	CP 50V 10%	
C122	SMD0805	10nF	CP 50V 10%	
C123	SMD0805	10nF	CP 50V 10%	
C124	SMD0805	10nF	CP 50V 10%	
C125	RB.3/.6	3300uF	EL 25V 20%	
C126	RB.3/.6	3300uF	EL 25V 20%	
C127	SMD0805	47nF	CP 50V 10%	
C128	SMD0805	47nF	CP 50V 10%	
C129	CAPSMD6.3	47uF	EL 16V 20%	
C138	CAPSMD6.3	47uF	EL 16V 20%	
C139	CAPSMD6.3	47uF	EL 16V 20%	
C140	SMD0805	1nF	CP 50V 10%	
C141	SMD0805	1nF	CP 50V 10%	
C142	SMD0805	1nF	CP 50V 10%	
C143	SMD0805	1nF	CP 50V 10%	
C144	SMD0805	1nF	CP 50V 10%	
C201	SMD0805	1nF	CP 50V 10%	
C202	SMD0805	47nF	CP 50V 10%	
C203	SMD0805	47nF	CP 50V 10%	
C214	SMD0805	47nF	CP 50V 10%	
C215	SMD0805	47nF	CP 50V 10%	
C221	SMD0805	390pF	CP 50V 10%	
C401			NOT FITTED	
C402	SMD0805	47nF	CP 50V 10%	

## CYRUS AV5 PCB COMPONENTS

C403	SMD0805	47nF	CP 50V 10%	
C404	SMD0805	47nF	CP 50V 10%	
C405	SMD0805	47nF	CP 50V 10%	
C406	SMD0805	47nF	CP 50V 10%	
C407	SMD0805	47nF	CP 50V 10%	
C408	SMD0805	47nF	CP 50V 10%	
C409	SMD0805	47nF	CP 50V 10%	
C410	SMD0805	47nF	CP 50V 10%	
C411	SMD0805	47nF	CP 50V 10%	
C412	SMD0805	47nF	CP 50V 10%	
C413	SMD0805	47nF	CP 50V 10%	
C414	SMD0805	47nF	CP 50V 10%	
C415	SMD0805	47nF	CP 50V 10%	
C416	SMD0805	47nF	CP 50V 10%	
C417			NOT FITTED	
C418	SMD0805	100pF	CP 50V 10%	
C419	SMD0805	100pF	CP 50V 10%	
C420	SMD0805	100pF	CP 50V 10%	
C421	SMD0805	100pF	CP 50V 10%	
C422	SMD0805	100pF	CP 50V 10%	
C423	SMD0805	100pF	CP 50V 10%	
C436	SMD0805	47nF	CP 50V 10%	
C437	SMD0805	47nF	CP 50V 10%	
C438	SMD0805	47nF	CP 50V 10%	
C439	SMD0805	47nF	CP 50V 10%	
C440	SMD0805	47nF	CP 50V 10%	
C441	SMD0805	47nF	CP 50V 10%	
C442	SMD0805	390pF	CP 50V 10%	
C443	SMD0805	390pF	CP 50V 10%	
C444	SMD0805	390pF	CP 50V 10%	
C445	SMD0805	390pF	CP 50V 10%	
C501	SMD0805	10nF	CP 50V 10%	
C502	SMD0805	10nF	CP 50V 10%	
C503	SMD0805	10nF	CP 50V 10%	
C504	CAPSMD5.0	47uF	EL 6.3V 20%	
C505	SMD0805	10nF	CP 50V 10%	
C506	CAPSMD5.0	47uF	EL 6.3V 20%	
C507	SMD0805	10nF	CP 50V 10%	
C508	SMD0805	10nF	CP 50V 10%	
C509	SMD0805	100nF	CP 50V 10%	
C510	SMD0805	10nF	CP 50V 10%	
C511	CAPSMD4.0	10uF	EL 16V 20%	
C512	SMD0805	100pF	CP 50V 10%	
C513	SMD0805	100pF	CP 50V 10%	
C514	SMD0805	100pF	CP 50V 10%	
C515	SMD0805	100pF	CP 50V 10%	

## CYRUS AV5 PCB COMPONENTS

C516	SMD0805	100pF	CP 50V 10%	
C517	SMD0805	100pF	CP 50V 10%	
C518	SMD0805	100pF	CP 50V 10%	
C519	SMD0805	100pF	CP 50V 10%	
C520	SMD0805	100pF	CP 50V 10%	
C521	SMD0805	100pF	CP 50V 10%	
C522	SMD0805	100pF	CP 50V 10%	
C523	SMD0805	100pF	CP 50V 10%	
C524	CAPSMD4.0	10uF	EL 16V 20%	
C525	CAPSMD4.0	10uF	EL 16V 20%	
C526	CAPSMD4.0	10uF	EL 16V 20%	
C527	CAPSMD4.0	10uF	EL 16V 20%	
C528	CAPSMD4.0	10uF	EL 16V 20%	
C529	CAPSMD4.0	10uF	EL 16V 20%	
C530	CAPSMD4.0	10uF	EL 16V 20%	
C531	CAPSMD4.0	10uF	EL 16V 20%	
C532	CAPSMD4.0	10uF	EL 16V 20%	
C533	CAPSMD4.0	10uF	EL 16V 20%	
C534	CAPSMD4.0	10uF	EL 16V 20%	
C535	CAPSMD4.0	10uF	EL 16V 20%	
C601	CAPSMD4.0	10uF	EL 16V 20%	
C602	CAPSMD4.0	10uF	EL 16V 20%	
C603	CAPSMD4.0	10uF	EL 16V 20%	
C604	CAPSMD4.0	10uF	EL 16V 20%	
C605	CAPSMD4.0	10uF	EL 16V 20%	
C606	CAPSMD4.0	10uF	EL 16V 20%	
C607	SMD0805	470pF	CP 50V 10%	
C608	SMD0805	470pF	CP 50V 10%	
C609	SMD0805	470pF	CP 50V 10%	
C610	SMD0805	470pF	CP 50V 10%	
C611	SMD0805	470pF	CP 50V 10%	
C612	SMD 7.3x6.0	220nF	PE 50V 20%	
C613	SMD0805	470pF	CP 50V 10%	
C614	SMD0805	470pF	CP 50V 10%	
C615	SMD0805	470pF	CP 50V 10%	
C616	SMD0805	470pF	CP 50V 10%	
C617	SMD0805	470pF	CP 50V 10%	
C618	SMD 7.3x6.0	220nF	PE 50V 20%	
C619	CAPSMD4.0	10uF	EL 16V 20%	
C620	CAPSMD4.0	10uF	EL 16V 20%	
C621	CAPSMD4.0	10uF	EL 16V 20%	
C622	CAPSMD4.0	10uF	EL 16V 20%	
C623	CAPSMD4.0	10uF	EL 16V 20%	
C624	CAPSMD4.0	10uF	EL 16V 20%	
C625	SMD0805	47nF	CP 50V 10%	
C626	SMD0805	47nF	CP 50V 10%	

## CYRUS AV5 PCB COMPONENTS

C627	CAPSMD4.0	10uF	EL 16V 20%	
C628	CAPSMD4.0	10uF	EL 16V 20%	
C629	SMD0805	47nF	CP 50V 10%	
C630	SMD0805	47nF	CP 50V 10%	
C631	SMD0805	47nF	CP 50V 10%	
C632	SMD0805	47nF	CP 50V 10%	
C633	SMD0805	47nF	CP 50V 10%	
C634	SMD0805	47nF	CP 50V 10%	
C635	SMD0805	47nF	CP 50V 10%	
C636	SMD0805	47nF	CP 50V 10%	
C637	SMD0805	47nF	CP 50V 10%	
C638	SMD0805	47nF	CP 50V 10%	
C639	SMD0805	47nF	CP 50V 10%	
C640	SMD0805	47nF	CP 50V 10%	
C641	SMD0805	47nF	CP 50V 10%	
C642	SMD0805	47nF	CP 50V 10%	
C643	SMD0805	47nF	CP 50V 10%	
C644	SMD0805	47nF	CP 50V 10%	
C701	SMD0805	100pF	CP 50V 10%	
C702	SMD0805	100pF	CP 50V 10%	
C703	SMD0805	100pF	CP 50V 10%	
C704	SMD0805	100pF	CP 50V 10%	
C705	SMD0805	100pF	CP 50V 10%	
C706	SMD0805	100pF	CP 50V 10%	
C707	SMD0805	100pF	CP 50V 10%	
C708	SMD0805	100pF	CP 50V 10%	
C801	SMD0805	10nF	CP 50V 10%	
C802	SMD0805	47nF	CP 50V 10%	
C803	SMD0805	47nF	CP 50V 10%	
C804	SMD0805	47nF	CP 50V 10%	
C805	SMD0805	100nF	CP 50V 10%	
C806	SMD0805	10nF	CP 50V 10%	
C807	SMD0805	220nF	CP 50V 10%	
C808	SMD0805	10nF	CP 50V 10%	
C809	CAPSMD5.0	47uF	EL 6.3V 20%	
C810	SMD0805	10nF	CP 50V 10%	
C811	SMD0805	10nF	CP 50V 10%	
C812	SMD0805	10nF	CP 50V 10%	
C813	SMD0805	10nF	CP 50V 10%	
C814	SMD0805	10nF	CP 50V 10%	
C815	CAPSMD5.0	47uF	EL 6.3V 20%	
C816	SMD0805	10nF	CP 50V 10%	
C817	CAPSMD5.0	47uF	EL 6.3V 20%	
C818	SMD0805	10nF	CP 50V 10%	
C819	CAPSMD5.0	47uF	EL 6.3V 20%	
C820	SMD0805	47nF	CP 50V 10%	

## CYRUS AV5 PCB COMPONENTS

C821	SMD0805	47nF	CP 50V 10%	
C901	SMD0805	10nF	CP 50V 10%	
C902	SMD0805	10nF	CP 50V 10%	
C903	SMD0805	10nF	CP 50V 10%	
C904	CAPSMD5.0	47uF	EL 6.3V 20%	
C905	SMD0805	10nF	CP 50V 10%	
C906	SMD0805	10nF	CP 50V 10%	
C907	SMD0805	10nF	CP 50V 10%	
C908	SMD0805	10nF	CP 50V 10%	
C909	SMD0805	10nF	CP 50V 10%	
C1004	CAPSMD5.0	47uF	EL 16V 20%	
C1005	CAPSMD5.0	47uF	EL 16V 20%	
C1006	SMD0805	47nF	CP 50V 10%	
C1007	SMD0805	47nF	CP 50V 10%	
C1010	SMD0805	1nF	CP 50V 10%	
C1011	SMD0805	1nF	CP 50V 10%	
C1012	SMD0805	100pF	CP 50V 10%	
C1013	SMD0805	100pF	CP 50V 10%	
C1014	SMD0805	100pF	CP 50V 10%	
C1015	SMD0805	100pF	CP 50V 10%	
C1016	SMD0805	100pF	CP 50V 10%	
C1017	SMD0805	100pF	CP 50V 10%	
C1018	SMD0805	100nF	CP 50V 10%	
C1019	SMD0805	100nF	CP 50V 10%	
C1020	SMD0805	100pF	CP 50V 10%	
C1021	CAPSMD4.0	10uF	EL 16V 20%	
C1022	SMD0805	2.2nF	CP 50V 10%	
C1023	CAPSMD4.0	10uF	EL 16V 20%	
C1024	SMD0805	2.2nF	CP 50V 10%	
C1025	SMD0805	47nF	CP 50V 10%	
C1026	CAPSMD4.0	10uF	EL 16V 20%	
C1101	SMD0805	47nF	CP 50V 10%	
C1102	CAPSMD5.0	47uF	EL 6.3V 20%	
C1103	SMD0805	47nF	CP 50V 10%	
C1104	CAPSMD5.0	47uF	EL 6.3V 20%	
C1105	SMD0805	47nF	CP 50V 10%	
C1106	SMD0805	47nF	CP 50V 10%	
C1107	SMD0805	22pF	CP 50V 10%	
C1108	SMD0805	22pF	CP 50V 10%	
C1109	SMD0805	47nF	CP 50V 10%	
C1110	SMD0805	47nF	CP 50V 10%	
C1111	SMD0805	10nF	CP 50V 10%	
C1201	SMD0805	47nF	CP 50V 10%	
C1202	CAPSMD5.0	47uF	EL 6.3V 20%	
C1204	SMD0805	47nF	CP 50V 10%	
C1205	SMD0805	47nF	CP 50V 10%	

## CYRUS AV5 PCB COMPONENTS

C1206	SMD0805	47nF	CP 50V 10%	
C1207	SMD0805	47nF	CP 50V 10%	
C1208	SMD0805	47nF	CP 50V 10%	
C1209	SMD0805	47nF	CP 50V 10%	
C1210	SMD0805	47nF	CP 50V 10%	
C1302	SMD0805	47nF	CP 50V 10%	
C1303	SMD0805	47nF	CP 50V 10%	
C1304	SMD0805	47nF	CP 50V 10%	
C1305	SMD0805	10nF	CP 50V 10%	
C1306	SMD0805	10nF	CP 50V 10%	
C1307	CAPSMD5.0	47uF	EL 6.3V 20%	
C1308	SMD0805	10nF	CP 50V 10%	
C1309	CAPSMD5.0	47uF	EL 6.3V 20%	

Key:

CP = ceramic plate. EL = electrolytic. PE = polyester. PP = polypropylene. BP = bi-polar.

CAPSMD6.3 refers to surface mount device with 6.3mm pitch pads

SMD-0805 refers to surface mount device size code 0805

### **DIODES**

D101	AXIAL	1N5402	3A Rectifier Diode	
D102	AXIAL	1N5402	3A Rectifier Diode	
D103	DIODE_D1F	1SR154-400	1A Rectifier Diode	
D104	DIODE_D1F	1SR154-400	1A Rectifier Diode	
D105	DIODE_D1F	1SR154-400	1A Rectifier Diode	
D106	SOT23	BAS16	300mA Signal Diode	
D107	DIODE_D1F	1SR154-400	1A Rectifier Diode	
D108	DIODE_D1F	1SR154-400	1A Rectifier Diode	
D109	DIODE_D1F	1SR154-400	1A Rectifier Diode	
D110	DIODE_D1F	1SR154-400	1A Rectifier Diode	
D701	SOT23	BAS16	300mA Signal Diode	
D1001	SOT23	BAS16	300mA Signal Diode	
D1002	SOT23	BAS16	300mA Signal Diode	
D1003	SOT23	BAS16	300mA Signal Diode	
D1004	SOT23	BAS16	300mA Signal Diode	
D1005	SOT23	BAS16	300mA Signal Diode	
D1006	SOT23	BAS16	300mA Signal Diode	
D1007	SOT23	BAS16	300mA Signal Diode	

### **TRANSISTORS**

T101	SOT23	BC856BLT1	PNP Signal Transistor	
T102	SOT23	BC856BLT1	PNP Signal Transistor	
T103	SOT23	BC846BLT1	NPN Signal Transistor	
T104	SOT23	BC846BLT1	NPN Signal Transistor	
T601	SOT-223	PZTA42	NPN 2W SMD transistor	

## CYRUS AV5 PCB COMPONENTS

T602	SOT-223	PZTA92	PNP 2W SMD transistor	
T701	SOT23	BC856BLT1	PNP Signal Transistor	
T702	SOT23	BC818-25	NPN Signal Transistor	
T703	SOT23	BC818-25	NPN Signal Transistor	
T704	SOT23	BC818-25	NPN Signal Transistor	
T705	SOT23	BC818-25	NPN Signal Transistor	
T706	SOT23	BC818-25	NPN Signal Transistor	
T707	SOT23	BC818-25	NPN Signal Transistor	
T708	SOT23	BC818-25	NPN Signal Transistor	
T709	SOT23	BC818-25	NPN Signal Transistor	
T1002	SOT23	BC846BLT1	NPN Signal Transistor	
T1301	SOT23	BC856BLT1	PNP Signal Transistor	
T1302	TO-220H2	TIP32 (A, B or C)	PNP Power Transistor	
T1303	SOT23	BC846BLT1	NPN Signal Transistor	
T1304	SOT23	BC856BLT1	PNP Signal Transistor	
T1305	SOT23	BC856BLT1	PNP Signal Transistor	

### **VOLTAGE REGULATORS**

VR101	TO220	BA05T	1A LDO 5V Voltage Regulator	
VR102	TO220	LM317T	1A Variable Voltage Regulator	
VR103	TO220	LM7812T	1A +12V Voltage Regulator	
VR104	TO220	LM7912T	1A -12V Voltage Regulator	
VR105	TO220	BA05T	1A LDO 5V Voltage Regulator	

### **INTEGRATED CIRCUITS**

IC202	SO-16	DS8922AM	RS422-Drivers	
IC401	SO-16	DS8922AM	RS422-Drivers	
IC402	TOX176	TORX176	Fibre Optic Rx	
IC403	TOX176	TORX176	Fibre Optic Rx	
IC404	SO-16	MC74HC151AD	8 way multiplexer	
IC405	SO-8	BA15532F	SMD Dual OP AMP	
IC406	SO-8	BA15532F	SMD Dual OP AMP	
IC407	SO-8	BA15532F	SMD Dual OP AMP	
IC501	SO-14	MM74HC125M	Quad Buffer	
IC502	PQFP44.8MM	CS4226KQ	6-Channel Codec	
IC601	SO-8	BA15532F	SMD Dual OP AMP	
IC602	SO-8	BA15532F	SMD Dual OP AMP	
IC603	SO-8	BA15532F	SMD Dual OP AMP	
IC604	SO-8	OPA2604	Dual op-amp Hi-i/p Z	
IC605	SO-8	OPA2604	Dual op-amp Hi-i/p Z	
IC606	SO-8	OPA2604	Dual op-amp Hi-i/p Z	
IC608	SOL-20	LM1973M	3 channel volume control	

## CYRUS AV5 PCB COMPONENTS

IC609	SOL-20	LM1973M	3 channel volume control	
IC801	SO-14	MM74LVX125M	LV Quad Buffer	
IC802	PLCC44/SKT	44-pin PLCC socket		
IC803	SO-14	MM74LVX125M	LV Quad Buffer	
IC804	SO-14	MC74HC74AD	Dual D-type flip flop	
IC901	SO-16	74HC4094D	8 bit shift reg.	
IC902	SO-14	MM74HC125M	Quad Buffer	
IC903	SOL-20	MC74HCT574ADW	8-way D-type	
IC904	SOL-20	MC74HCT574ADW	8-way D-type	
IC905	PLCC32/SKT	32-pin PLCC socket		
IC906	SOL-20	MM74LCX245WM	LV 8 way Transceiver	
IC1006	SO-8	BA15532F	SMD Dual OP AMP	
IC1007	SO-8	TL072	SMD Dual FET input OP AMP	
IC1101	SOL-20	MC74HC573ADW	8-way latch	
IC1102	SOL-24	HT6116-70S	2k x 8 (16k) SRAM	
IC1103	DIP28	28-pin 0.6" socket	Turned Pin	
IC1104	PLCC52/SKT	MC68HC11A1	Micro Controller	
IC1105	SOT23	DS1811-15	5V EconoReset 15% Trip	
IC1202	SO-16	MM74HC138M	3-to-8 decoder	
IC1203	SO-14	MC74HC00AD	Quad NAND	
IC1204	SO-14	MC74HC02AD	Quad NOR	
IC1205	SOL-20	MC74HCT574ADW	8-way D-type	
IC1206	SOL-20	MC74HCT574ADW	8-way D-type	
IC1301	SOL-20	MC74HC245ADW	8 way Transceiver	
IC1302	SO-14	MC74HC32AD	Quad 2-input OR	

## CONNECTORS

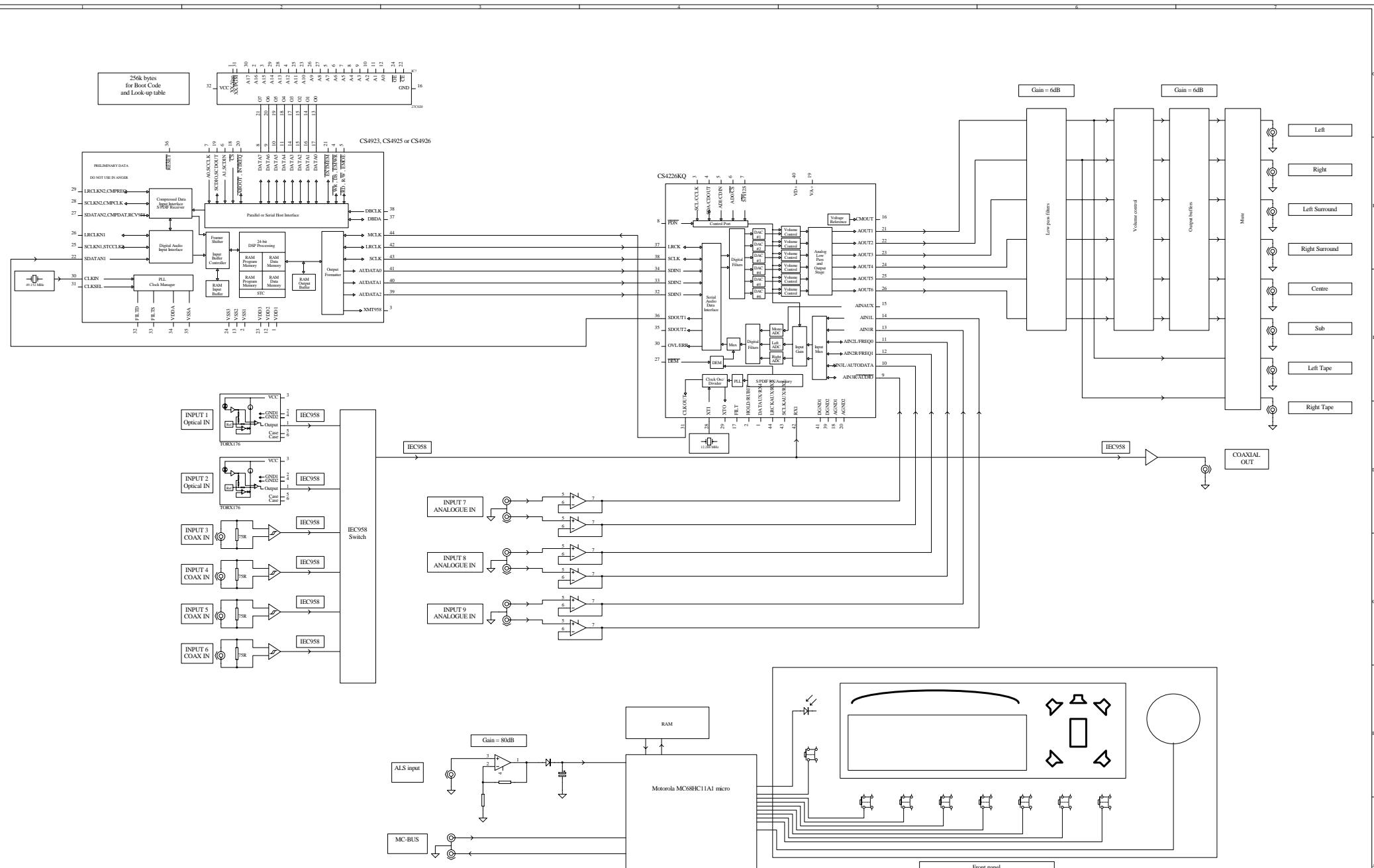
CON101	CONMINIPWR6	39-28-8060	Mini-Fit Jr Header wo/holes	
CON1001	CONLIF10	10FE-BT-VK-N	10-way 1.25mm FFC/FPC	
CON1002	CONLIF10	10FE-BT-VK-N	10-way 1.25mm FFC/FPC	
CON1301	CONLIF25	25FE-BT-VK-N	25-way 1.25mm FFC/FPC	
SK201	PHONOSNGLSTD	T6314-AAAG	Single Phono w/chassis	
SK401	PHONOQUAD	SCJ-1060-4P-CG	Quad Phono, all black sockets	
SK402	PHONOQUAD	SCJ-1060-4P-CG	Quad Phono, all black sockets	
SK701	PHONOQUAD	SCJ-1060-4P-CG	Quad Phono, all black sockets	
SK702	PHONOQUAD	SCJ-1060-4P-CG	Quad Phono, all black sockets	
SK703	PHONOQUAD	SCJ-1060-4P-CG	Quad Phono, all black sockets	
SK1001	SOCKETJACK	M203-02	Stereo 1/4" Jack socket	
SK1002	PHONOTWINT61	T6180-AAAK	Twin Horiz Phono w/chassis	

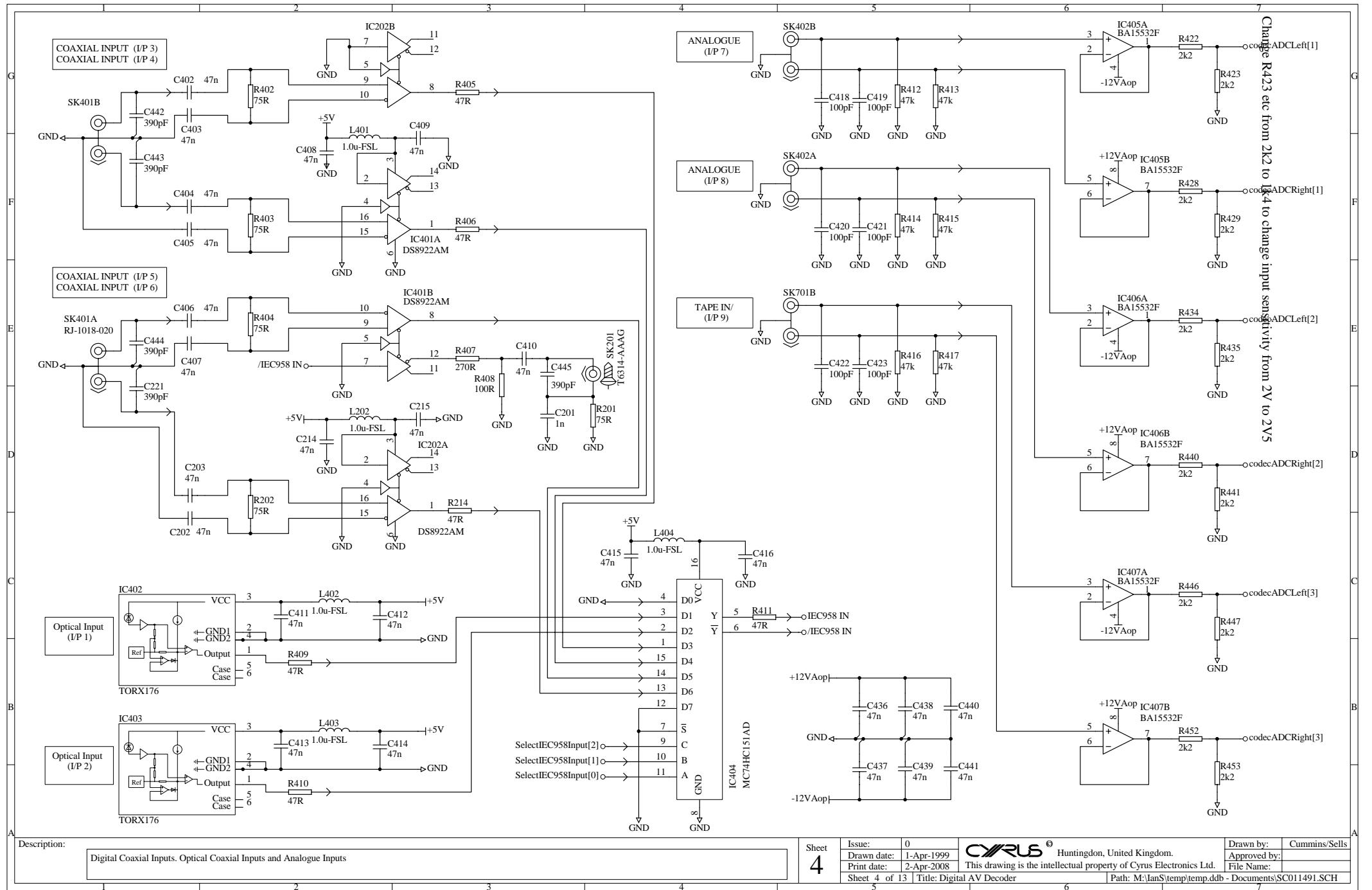
## OTHERS

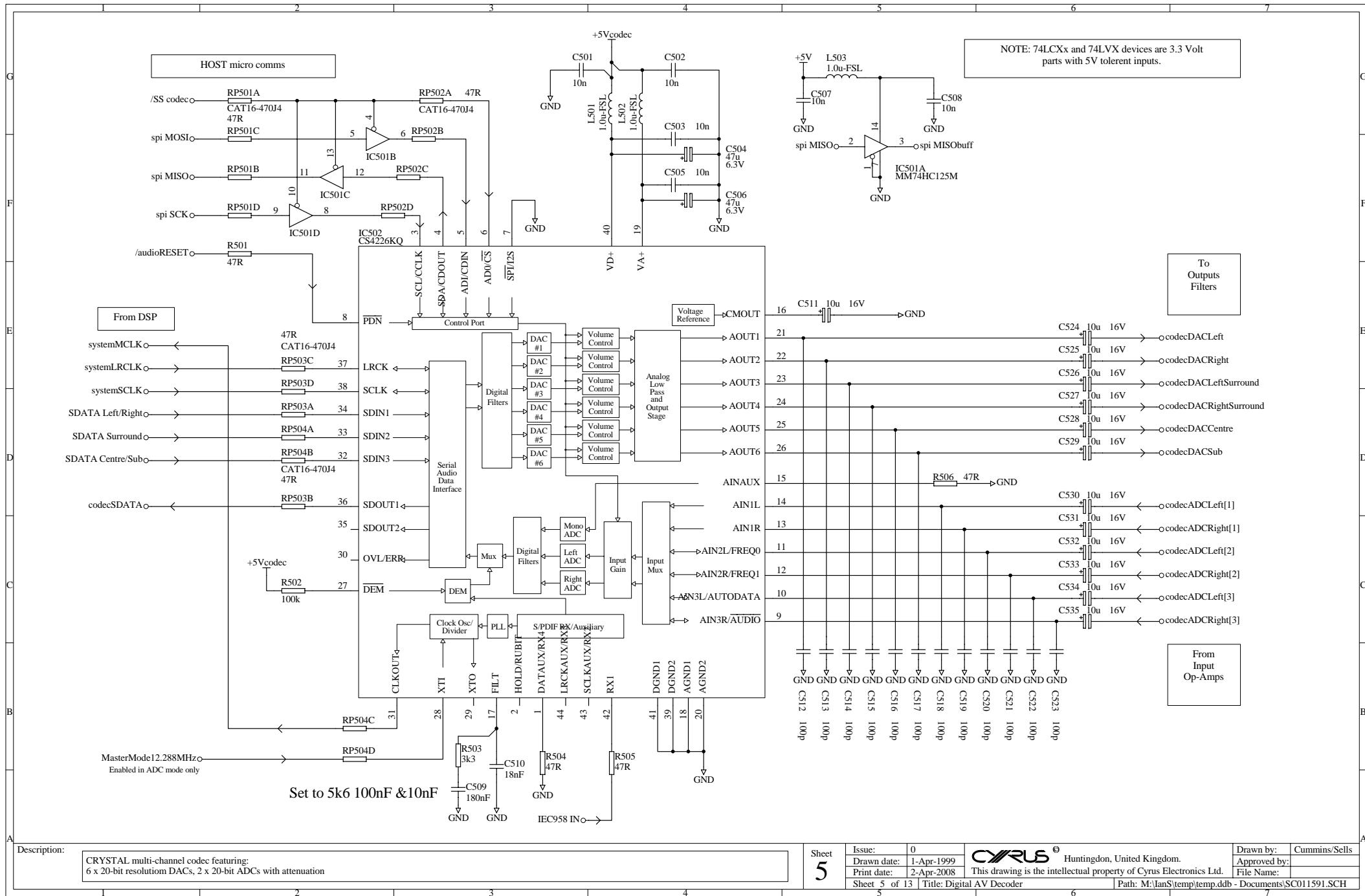
L202	COIL FSL	1.0u-FSL	Fixed Inductor	
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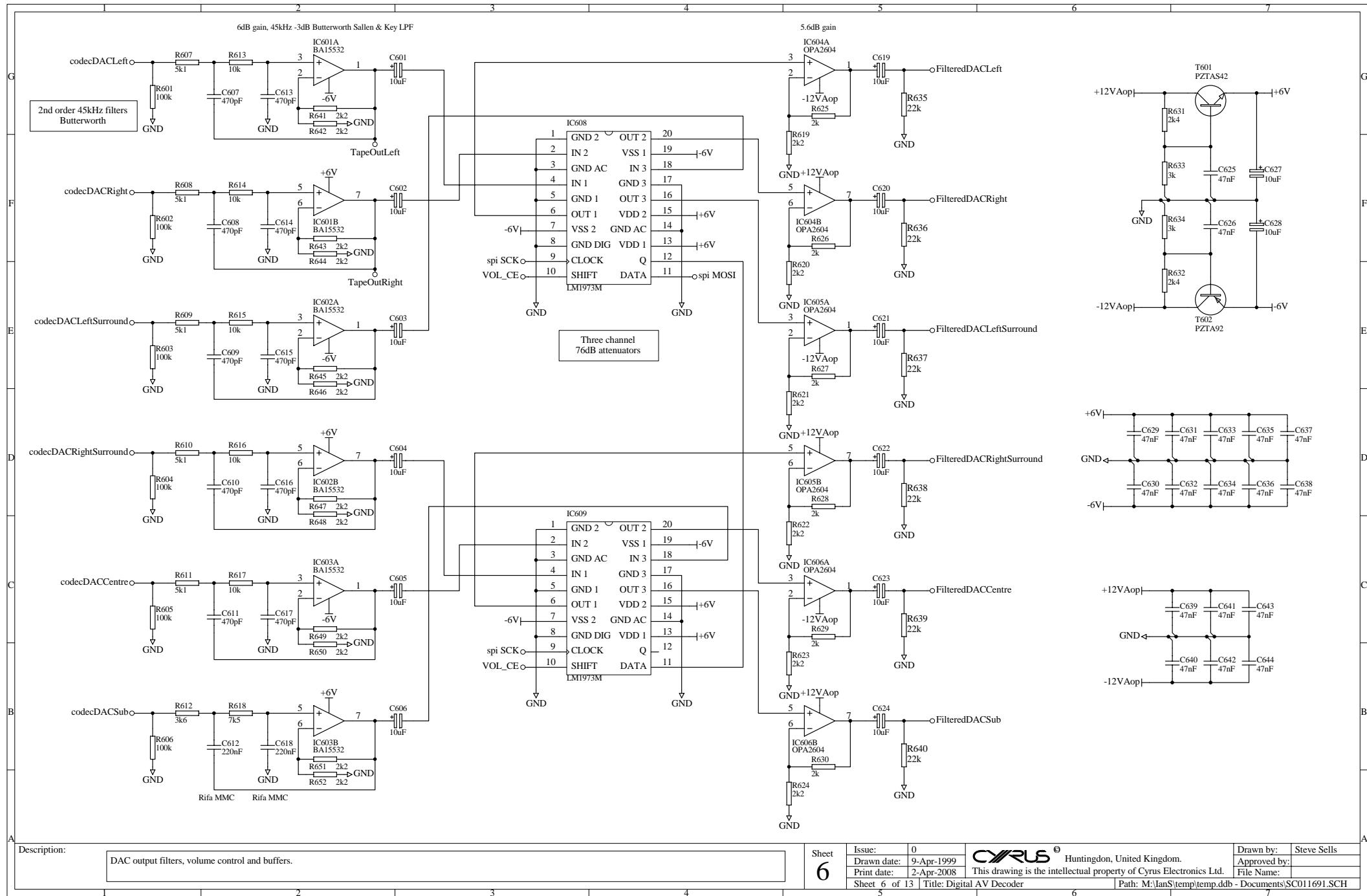
## CYRUS AV5 PCB COMPONENTS

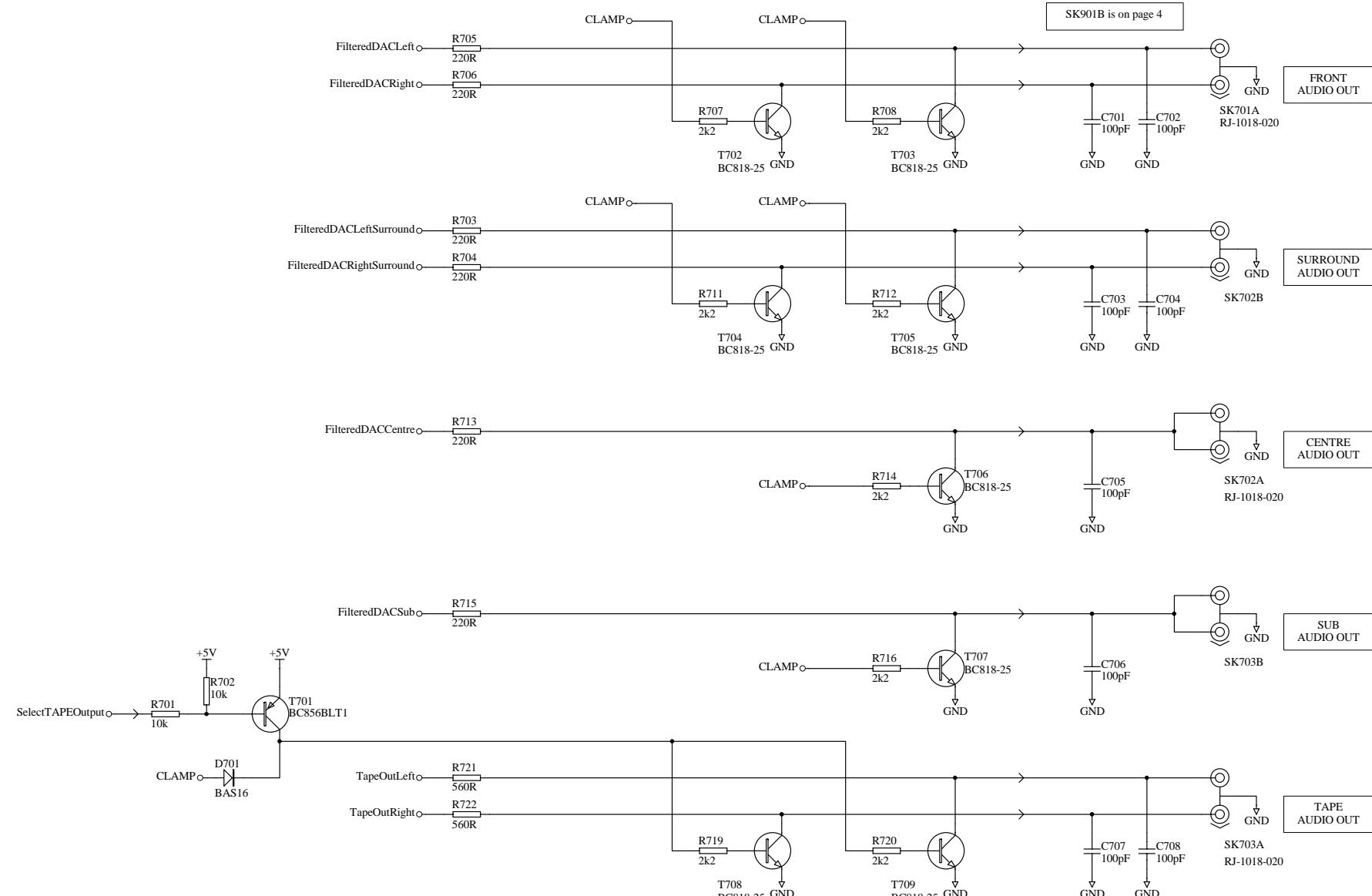
L401	COIL FSL	1.0u-FSL	Fixed Inductor	
L402	COIL FSL	1.0u-FSL	Fixed Inductor	
L403	COIL FSL	1.0u-FSL	Fixed Inductor	
L404	COIL FSL	1.0u-FSL	Fixed Inductor	
L501	COIL FSL	1.0u-FSL	Fixed Inductor	
L502	COIL FSL	1.0u-FSL	Fixed Inductor	
L503	COIL FSL	1.0u-FSL	Fixed Inductor	
L801	COIL FSL	1.0u-FSL	Fixed Inductor	
L802	COIL FSL	1.0u-FSL	Fixed Inductor	
L803	COIL FSL	1.0u-FSL	Fixed Inductor	
L804	COIL FSL	1.0u-FSL	Fixed Inductor	
L805	COIL FSL	1.0u-FSL	Fixed Inductor	
L806	COIL FSL	1.0u-FSL	Fixed Inductor	
L807	COIL FSL	1.0u-FSL	Fixed Inductor	
L808	COIL FSL	1.0u-FSL	Fixed Inductor	
L901	COIL FSL	1.0u-FSL	Fixed Inductor	
L902	COIL FSL	1.0u-FSL	Fixed Inductor	
L1101	COIL FSL	1.0u-FSL	Fixed Inductor	
L1102	COIL FSL	1.0u-FSL	Fixed Inductor	
L1201	COIL FSL	1.0u-FSL	Fixed Inductor	
L1202	COIL FSL	1.0u-FSL	Fixed Inductor	
L1203	COIL FSL	1.0u-FSL	Fixed Inductor	
L1301	COIL FSL	1.0u-FSL	Fixed Inductor	
L1302	COIL FSL	1.0u-FSL	Fixed Inductor	
X801	XTALMODULE8	IQXO-23 C BU 49.152MHz	8 pin oscillator	
X1101	XTAL2	KBR8.0M	8MHz Ceramic Resonator	







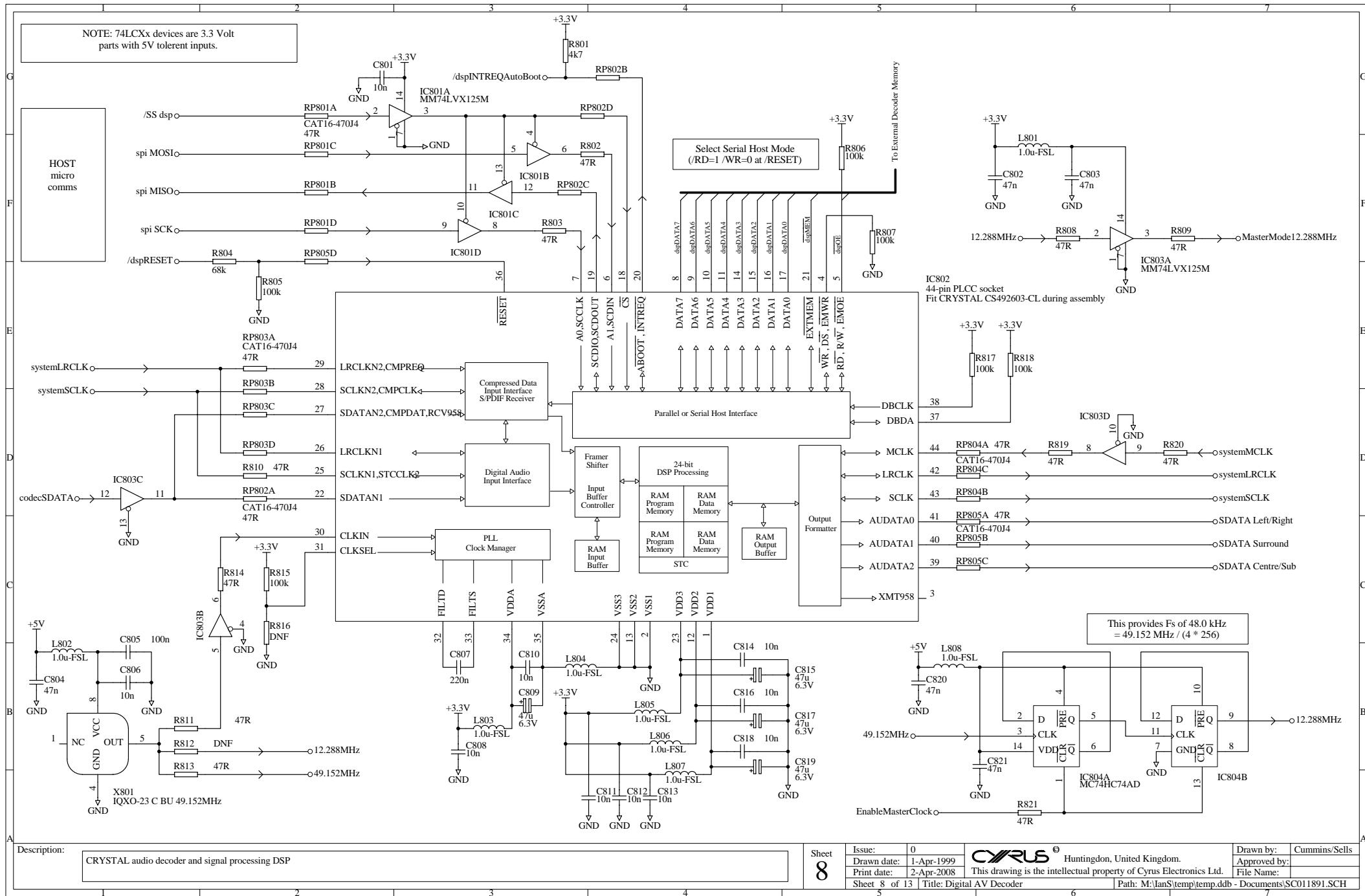


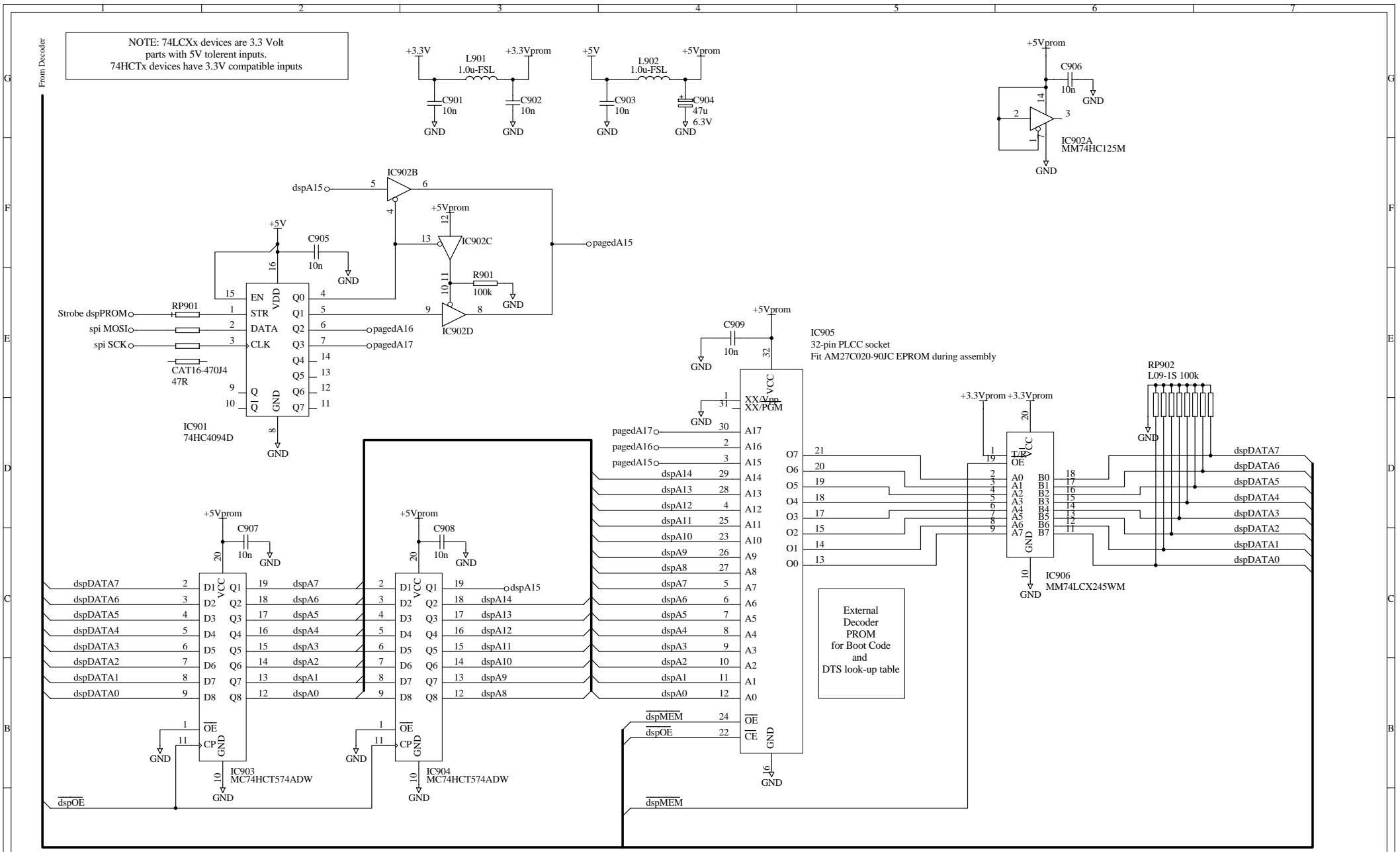


Description:  
Output sockets with TAPE muting  
All outputs have silent clamps

Sheet 7

Issue: 0	CYRUS © Huntingdon, United Kingdom.	Drawn by: Cummins/Sells
Drawn date: 1-Apr-1999	Approved by: _____	
Print date: 2-Apr-2008	File Name: _____	
This drawing is the intellectual property of Cyrus Electronics Ltd.		





Description:  
CRYSTAL Decoder External Memory

Sheet 9

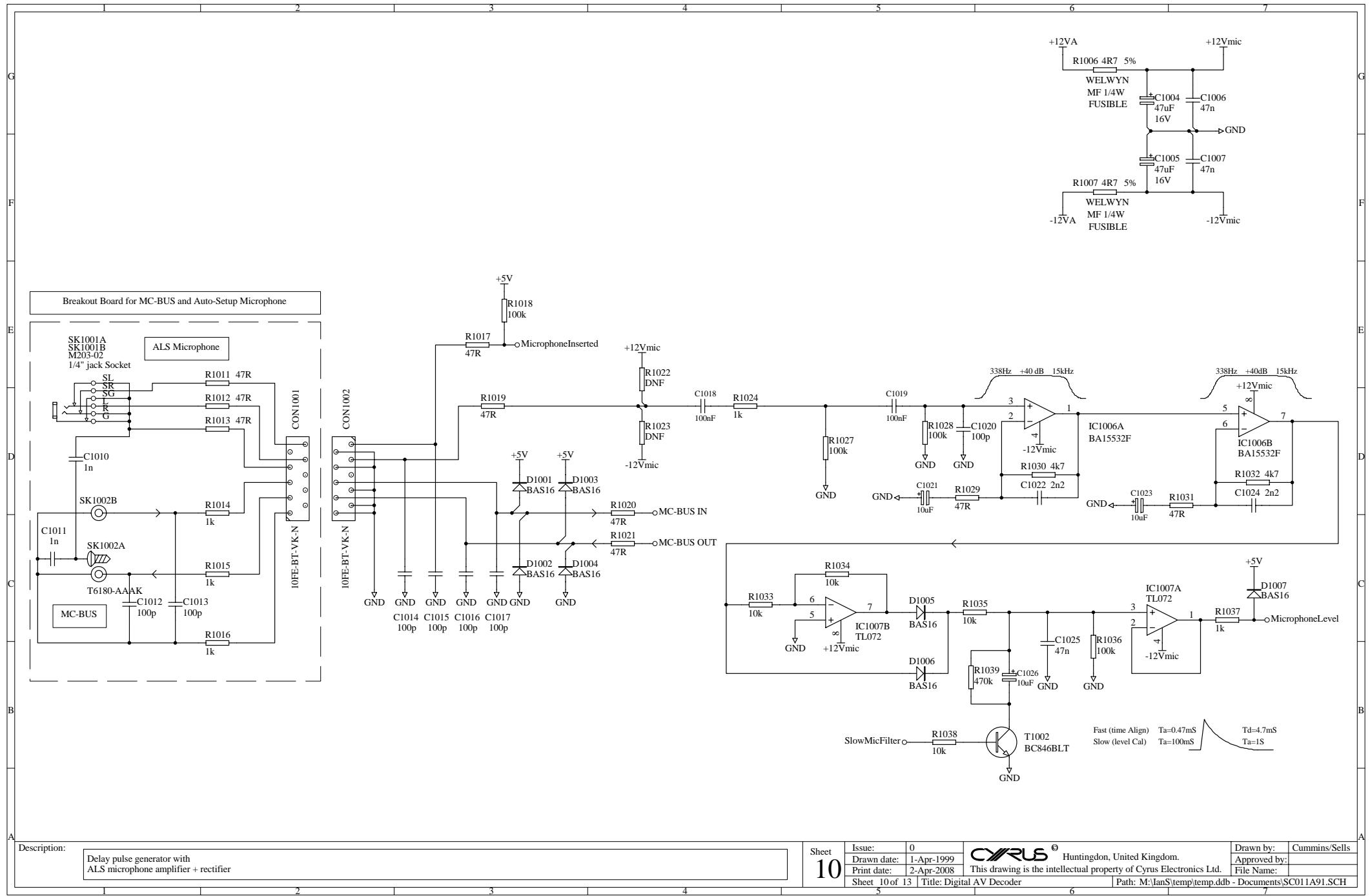
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Print date: 2-Apr-2008  
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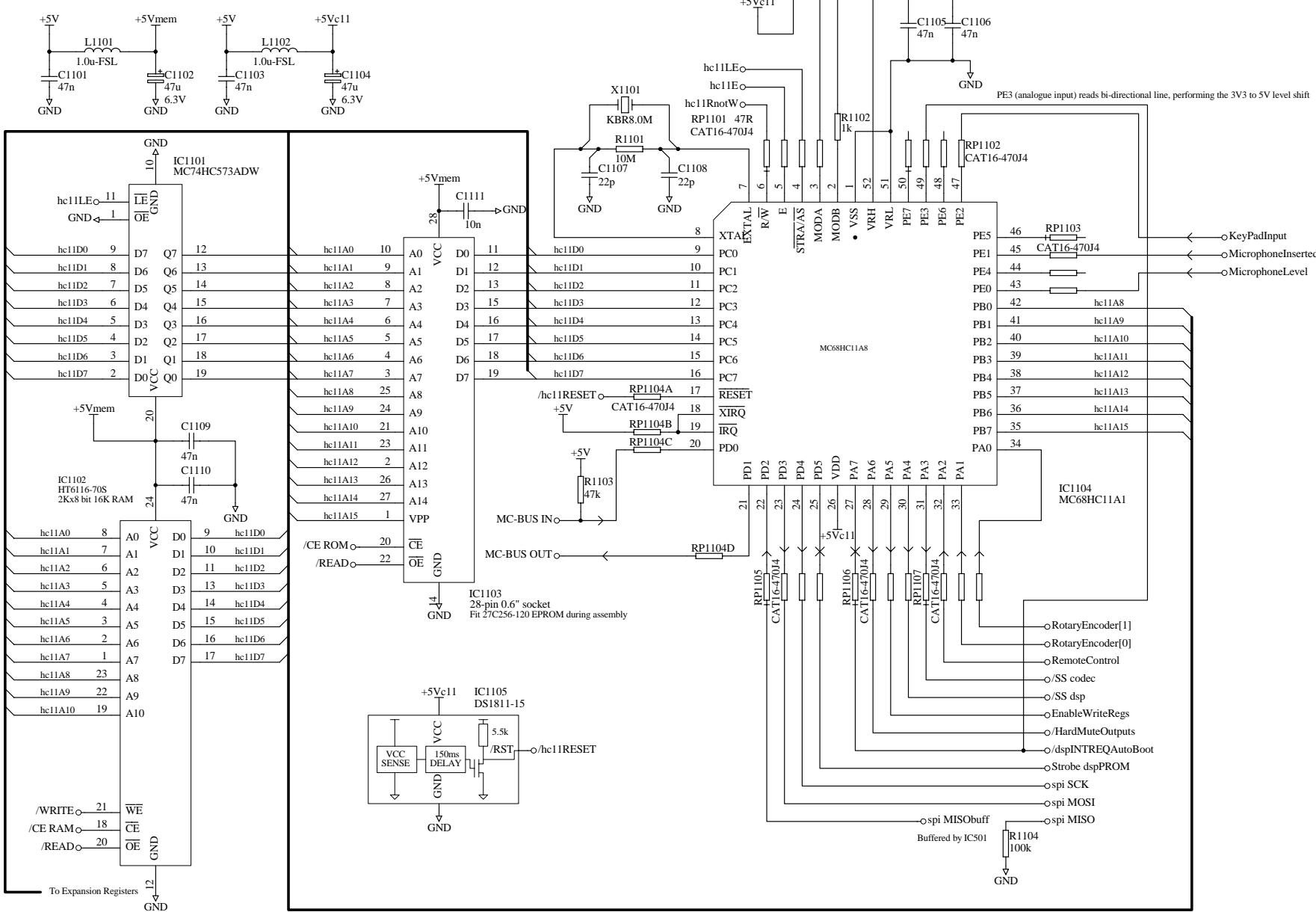
Drawn by: Cummins/Sells  
Approved by:  
File Name:

Sheet 9 of 13

Title: Digital AV Decoder

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Description:

Host Micro-controller

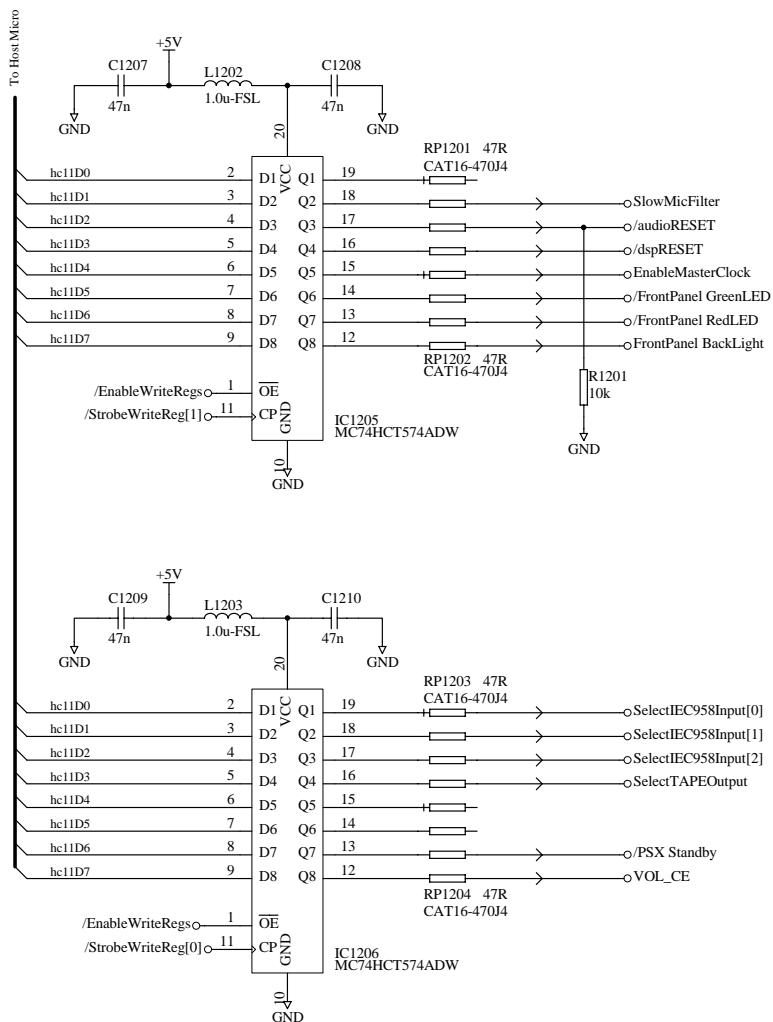
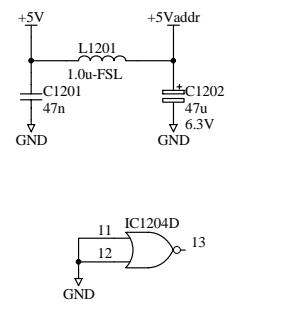
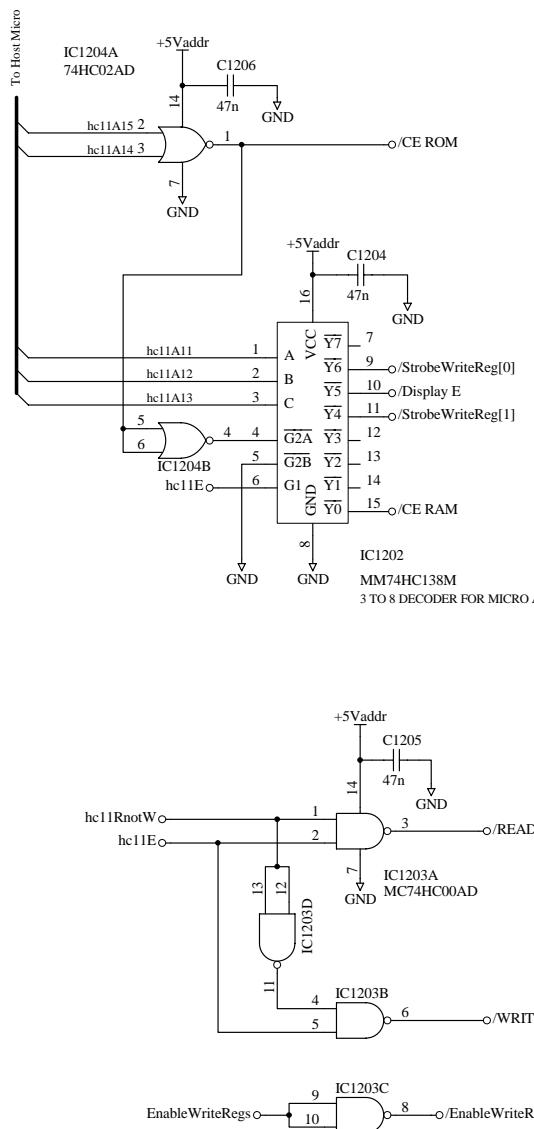
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11Issue:  
0Drawn date:  
1-Apr-1999Print date:  
2-Apr-2008Approved by:  
Cyrus

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File Name:  
SC011B91.SCHDrawn by:  
Cummins/Sells

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Description:

Host Micro-controller Address Decoding and Expansion Registers

Sheet 12

Issue: 0

Drawn date: 1-Apr-1999

Print date: 2-Apr-2008

5

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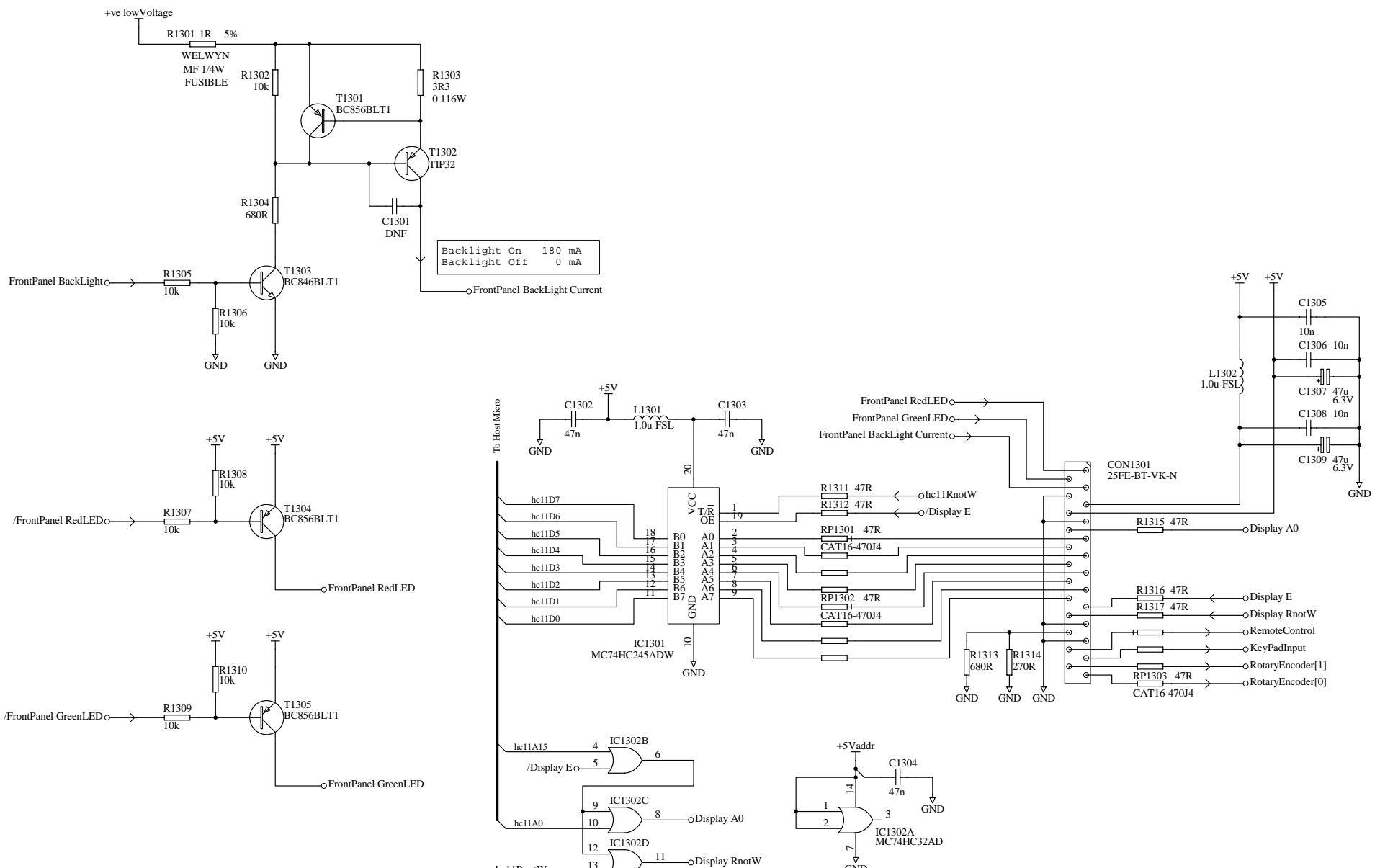
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Sheet 12 of 13 Title: Digital AV Decoder



Description:

Host Micro-controller Front Panel Display Interface

Sheet

13

Issue:

0

Drawn date:

1-Apr-1999

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Sheet 13 of 13 Title: Digital AV Decoder

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