

Cambridge Audio

Service Manual

Stream Magic 6

Page 1 of 2



Specifications

D/A Converters:	Dual Wolfson WM8740 24-bit DACs
Digital filter:	2nd Generation ATF2 up-sampling to 24-bit/384kHz. Linear Phase, Minimum phase or Steep modes.
Analogue filter:	2-Pole Dual Differential Bessel Double Virtual Earth Balanced
Digital Inputs:	S/PDIF 75 ohms or Toslink optical
USB	USB Audio Input USB Type B conforming to Audio profile 1.0 or USB Audio profile 2.0 (user 1.0 or USB Audio profile 2.0 (user selectable) Local USB media 2 x USB 1.1 current limited to 1A each
File systems	FAT32, NTFS
Digital Outputs:	S/PDIF Co-axial and Toslink Optical 16-24 Bits, 32-96kHz
Analogue audio outputs	Balanced XLR and unbalanced RCA analogue audio outputs
THD @ 1KHz 0dBFs:	<0.001% 24bit (at volume set to full)
THD @ 1kHz -10dBFs:	<0.001% (at volume set to full)
THD @ 20kHz 0dBFs:	<0.002% (at volume set to full)
Frequency Response:	20Hz-20kHz +/- 0.1dB *
Signal to Noise Ratio:	-112dB (at volume set to full)
Total correlated jitter:	< 130pS
Crosstalk @ 1kHz:	< -100dB

Stream Magic 6



Specifications

Crosstalk @ 20kHz:	< -90dB
Audio Formats	WAV containing uncompressed PCM 16-24 bit 32-96kHz FLAC containing losslessly compressed PCM 16-24 bit 32-96kHz AIFF containing uncompressed PCM 16 bit 32-48kHz Microsoft® Windows Media™ Audio (WMA 9 Standard) 32-320kbps MP3 (CBR or VBR) 16-320kbps AAC, HE AAC and AAC+ (CBR or VBR) 16-320kbps OGG Vorbis 32-320kbps
Streaming Protocols	RTSP (Real Time Streaming Protocol) MMS (Microsoft Media Server Protocol) HTTP (Hyper Text Transfer Protocol)
Wi-Fi	IEEE 802.11 b/g or n (2.4GHz connection used only)
Wi-Fi Encryption	WEP, WPA, WPA2
Ethernet	IEEE 802.3, 10 Base-T or 100 Base-T
Mains inlet voltage	100-240 VAC (switch mode)
Standby consumption	<0.5W
Max power consumption	30W
Dimensions (H x W x D):	85 x 430 x 305mm (3.4 x 16.9 x 12.2")
Weight:	4 Kg (8.8lbs)

* Steep filter disabled

Contents

Important safety instructions	3
Wi-Fi information	5
Rear panel connections.....	6
Front panel connections	7
Remote control.....	8
Overview	9
Getting connected.....	9
Operating instructions	10
Settings menu	14
Technical specifications.....	18
Troubleshooting.....	18
Packaging exploded diagram	19
Front panel exploded diagram	20
Unit exploded diagram.....	21
Block diagrams.....	22
CBUS encoder and USB PCBs.....	26
Buttons, LEDs and IR PCBs.....	27
Display connections and backlight control PCBs.....	28
Front panel Gerbers	29
Front panel PCB BOM	31
Audio PCB - Power supply	34
Audio PCB - USB circuit power supply.....	35
Audio PCB - SPDIF I/O relay.....	36
Audio PCB - USB streaming PHY	37
Audio PCB - DSP and DIR.....	38
Audio PCB - Masterclocks.....	39
Audio PCB - SRAM	40
Audio PCB - WM8740/1/2 DACs.....	41
Audio PCB - MCU and Flash.....	42
Audio PCB - Ethernet to USB	43
Audio PCB - Stingray.....	44
Audio PCB - USB HUB.....	45
Audio PCB - SPDIF TX, test points and EMC points.....	46
Audio PCB - SPDIF TX clocks and control	47
Audio PCB - Analogue stage.....	48
Main PCB BOM.....	52
SMPS PCB Schematic.....	62
SMPS PCB Gerbers	63
SMPS PCB BOM	64
SMPS PCB BOM	65
RS232 converter schematic.....	66
RS232 converter BOM.....	67

Important safety instructions

For your own safety please read the following important safety instructions carefully before attempting to connect this unit to the mains power supply. They will also enable you to get the best performance from and prolong the life of the unit:

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use with only the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/ apparatus combination to avoid injury from tip-over. 
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as the power-supply cord or plug having been damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

WARNING

- To reduce the risk of fire or electric shock, do not expose this unit to rain or moisture.
- Batteries (battery pack or batteries installed) shall not be exposed to excessive heat such as sunshine, fire or the like.

The unit is of Class 1 construction and must be connected to a mains socket outlet with a protective earthing connection.

The unit must be installed in a manner that makes disconnection of the mains plug from the mains socket outlet (or appliance connector from the rear of the unit) possible. Where the mains plug is used as the disconnect device, the disconnect device shall remain readily operable. Only use the mains cord supplied with this unit.

Please ensure there is ample ventilation (at least 10cm clearance all round). Do not put any objects on top of this unit. Do not situate it on a rug or other soft surface and do not obstruct any air inlets or outlet grilles. Do not cover the ventilation grilles with items such as newspapers, tablecloths, curtains, etc.

This unit must not be used near water or exposed to dripping or splashing water or other liquids. No objects filled with liquid, such as vases, shall be placed on the unit.



The lightning flash with the arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of un-insulated 'dangerous voltage' within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance instructions in the service literature relevant to this appliance.



WEEE symbol

The crossed-out wheeled bin is the European Union symbol for indicating separate collection for electrical and electronic equipment. This product contains electrical and electronic equipment which should be reused, recycled or recovered and should not be disposed of with unsorted regular waste. Please return the unit or contact the authorised dealer from whom you purchased this product for more information.



CE mark

This product complies with European Low Voltage (2006/95/EC), Electromagnetic Compatibility (2004/108/EC) and Environmentally-friendly design of Energy-related Products (2009/125/EC) Directives when used and installed according to this instruction manual. For continued compliance only Cambridge Audio accessories should be used with this product and servicing must be referred to qualified service personnel.



C-Tick mark

This product meets the Australian Communications Authority's Radio communications and EMC requirements.



Gost-R Mark

This product meets Russian electronic safety approvals.

Ventilation

IMPORTANT – The unit will become hot when in use. Do not stack multiple units on top of each other. Do not place in an enclosed area such as a bookcase or in a cabinet without sufficient ventilation.

Ensure that small objects do not fall through any ventilation grille. If this happens, switch off immediately, disconnect from the mains supply and contact your dealer for advice.

Positioning

Choose the installation location carefully. Avoid placing it in direct sunlight or close to a source of heat. No naked flame sources, such as lighted candles, should be placed on the unit. Also avoid locations subject to vibration and excessive dust, cold or moisture. The unit can be used in a moderate climate.

This unit must be installed on a sturdy, level surface. Do not place in a sealed area such as a bookcase or in a cabinet. Do not place the unit on an unstable surface or shelf. The unit may fall, causing serious injury to a child or adult as well as serious damage to the product. Do not place other equipment on top of the unit.

Due to stray magnetic fields, turntables or CRT TVs should not be located nearby due to possible interference.

Electronic audio components have a running in period of around a week (if used several hours per day). This will allow the new components to settle down and the sonic properties will improve over this time.

Power sources

the marking label. If you are not sure of the type of power-supply to your home, consult your product dealer or local power company.

This unit can be left in Standby mode when not in use and will draw <0.5W in this state. To turn the unit off, switch off at the rear panel. If you do not intend to use this unit for a long period of time, unplug it from the mains socket.

Overloading

Do not overload wall outlets or extension cords as this can result in a risk of fire or electric shock. Overloaded AC outlets, extension cords, frayed power cords, damaged or cracked wire insulation and broken plugs are dangerous. They may result in a shock or fire hazard.

Be sure to insert each power cord securely. To prevent hum and noise, do not bundle the interconnect leads with the power cord or speaker leads.

Cleaning

To clean the unit, wipe its case with a dry, lint-free cloth. Do not use any cleaning fluids containing alcohol, ammonia or abrasives. Do not spray an aerosol at or near the unit.

Battery disposal

Batteries may contain substances harmful to the environment. Please dispose of any discharged batteries with due consideration and in accordance with local environmental/electronic recycling guidelines.

Loudspeakers

Before making any connections to loudspeakers, make sure all power is turned off and only use suitable interconnects.

Servicing

These units are not user serviceable. Never attempt to repair, disassemble or reconstruct the unit if there seems to be a problem. A serious electric shock could result if this precautionary measure is ignored. In the event of a problem or failure, please contact your dealer.

Wi-Fi information

FCC Statement

DECLARATION OF CONFORMITY WITH FCC RULES FOR ELECTROMAGNETIC COMPATIBILITY

We, Cambridge Audio, of Gallery Court, Hankey Place, London SE1 4BB, declare under our sole responsibility that this device,

Stream Magic 6 with Wi-Fi module

to which this declaration relates, complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution: Exposure to Radio Frequency Radiation.

The device shall be used in such a manner that the potential for human contact during normal operation is minimized.

When connecting an external antenna to the device, the antenna shall be placed in such a manner to minimize the potential for human contact during normal operation. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Federal Communications Commission Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the distance between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

2.4GHz operation of this product in the USA is firmware-limited to channels 1 through 11.

Modifications

The FCC requires the user to be notified that any changes or modifications to this device that are not expressly approved by Cambridge Audio, may void the user's authority to operate the equipment.

Canada-Industry Canada (IC)

This Class B digital apparatus complies with Canadian ICES-003

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

This radio transmitter 9095A-651N01 has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

C059-510137-A; Antenna+RG-178 Cable+SMA Plug Reverse, 3.0dBi, 50Ω

This equipment complies with RSS-102 limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.

Cet appareil numérique de Classe B est conforme à la norme Canadienne ICES-003

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut

fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour

l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Le présent émetteur radio 9095A-651N01 a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

C059-510137-A; Antenna+RG-178 Cable+SMA Plug Reverse, 3.0dBi, 50Ω

Cet équipement est conforme à RSS-102 limites énoncées pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec une distance minimale de 20 cm entre le radiateur et votre corps.

IMPORTANT NOTE:

IC Radiation Exposure Statement:

This equipment complies with Canada radiation exposure limits set forth for uncontrolled environments. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet appareil numérique de la classe B conforme à la norme NMB-003 du Canada.

Europe-European Union Notice

Radio products with the CE 0889 or CE alert marking comply with the R&TTE Directive (1995/5/EC) issued by the Commission of the European Community.

Compliance with this directive implies conformity to the following European Norms.

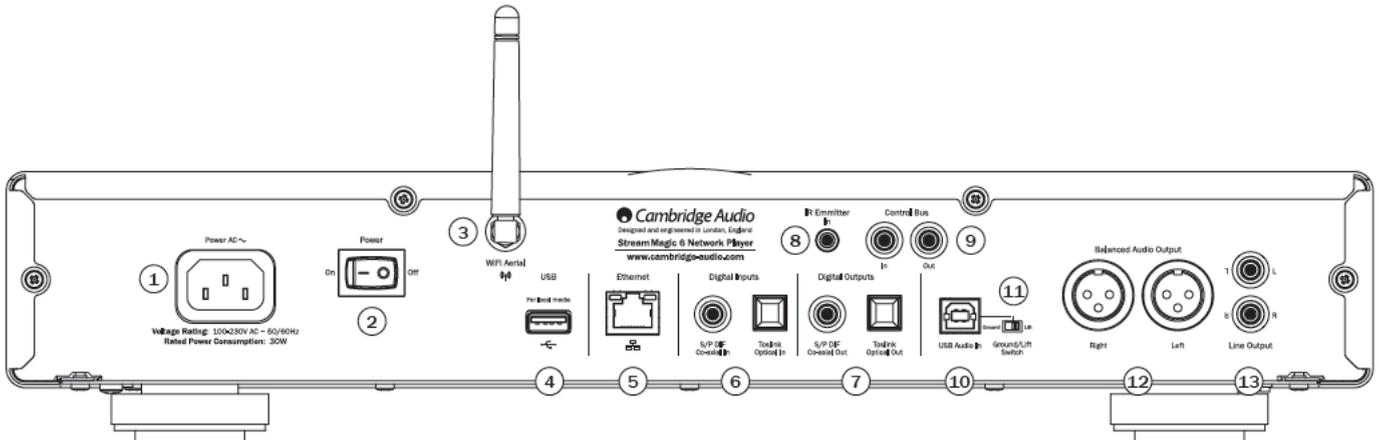
- EN 60065 – Product Safety.
- EN 300 328 – Technical requirement for radio equipment.
- EN 301 489 – General EMC requirements for radio equipment.

To determine the type of transmitter, check the identification label on your Cambridge Audio product.

Products with the CE marking comply with European Low Voltage (2006/95/EC), Electromagnetic Compatibility (2004/108/EC) and Environmentally-friendly design of Energy-related Products (2009/125/EC) Directives issued by the Commission of the European Community. Compliance with these directives implies conformity to the following European Norms.

- EN 55022 – Electromagnetic Interference.
- EN 55024 – Electromagnetic Immunity.
- EN 61000-3-2 – Power Line Harmonics.
- EN 61000-3-3 – Power Line Flicker.
- EN 60065 – Product Safety. Products that contain the radio transmitter are labeled with CE 0889 or CE alert marking and may also carry the CE logo.
- EN 62301:2005 - Household electrical appliances. Measurement of standby power.
- 1275/2008 - Implementing EuP Directive for Standby Power Consumption.

Rear panel connections



① Power Socket

Once all other connections are made, connect the supplied power cable to the Stream Magic 6 power socket and to an appropriate mains socket. The Stream Magic 6 is now ready for use.

② Power On/Off

Switches the Stream Magic 6 on and off.

③ Wireless antenna

Should be in the upright position as shown. Allows connection to 802.11b/g or n networks (2.4 GHz will only be used for n networks).

④ USB

Use to connect a USB storage device or another portable device that is USB HD/flashdisk compatible containing music files. 1A maximum current capability.

Alternatively an optional Cambridge Audio BT100 Bluetooth Adaptor can be plugged in here adding wireless streaming audio capability directly from most phones, tablets and laptops. See later section for details.

⑤ Ethernet

Ethernet port for connecting to a 10/100BASE-T local area network (LAN).

⑥ Digital Inputs

The Stream Magic 6 has two digital inputs in total featuring both S/PDIF co-axial and Toslink optical sockets.

For each input you can use whichever is most convenient, but not both at the same time.

Coaxial – Use a high quality 75 ohm digital RCA Phono interconnect cable (not one designed for normal audio use). This input is suitable for 16-24 bit content up to 192kHz.

Toslink Optical – Use a high quality TOSLINK fibre optic interconnect cable designed specifically for audio use. This input is suitable for 16-24 bit content up to 96kHz (Toslink is not recommended at 192kHz sampling rates).

⑦ Digital Outputs

The Stream Magic 6 digital outputs enable a separate DAC (digital to analogue converter) or digital recording device to be connected. Refer to the 'Operating instructions' section for more information.

Two concurrent digital outputs are available. Note that these outputs pass through the currently selected audio source un-processed, i.e. no volume control or up-sampling is performed on the digital outputs.

Coaxial – To obtain best results, use a high quality 75 ohm digital RCA interconnect cable (not one designed for normal audio use).

Toslink Optical – Use a high quality TOSLINK fibre optic interconnect cable designed specifically for audio use.

⑧ IR (Infra Red) Emitter In

A 3.5mm mini-jack socket that enables modulated IR commands from multi-room or IR repeater systems to be received by the Stream Magic 6.

Note: Commands received by the IR Emitter In socket are not looped out of the Control Bus. Refer to the 'Custom Installation' section for more information.

⑨ Control Bus

In – An RCA phono socket that enables un-modulated commands from multi-rooms systems or other components to be received by the Stream Magic 6.

Out – An RCA phono socket that provides control bus output commands for further downstream units. This can be useful if using the iPhone app to control the volume on an azur amplifier.

⑩ USB Audio In

A USB B type socket is fitted to the Stream Magic 6 to enable the playback of audio from a personal computer running either Microsoft Windows or Apple Mac OS X operating systems, most Linux distributions are also suitable.

Note: Always use a high quality USB connection cable certified as USB Hi-Speed. USB cable connections longer than 3m may result in inconsistent audio performance.



Always turn the Volume to minimum, switch to another input or turn the Stream Magic 6 off before plugging/unplugging cables to the USB input or whilst booting up/shutting down your PC/Mac.

⑪ Ground Lift Switch

The Ground Lift Switch enables the USB interface earth to be disconnected from the Stream Magic 6 chassis earth. Disconnecting (lifting) the earth can be useful if electronic hum is heard through the speakers when the USB input is selected. The switch should otherwise be left in the Ground position.

⑫ Balanced Audio Output

The Stream Magic 6 features balanced outputs on two XLR sockets. Balanced outputs provide slightly better audio performance and can reject cable-borne noise and interference when used with equipment with balanced inputs.

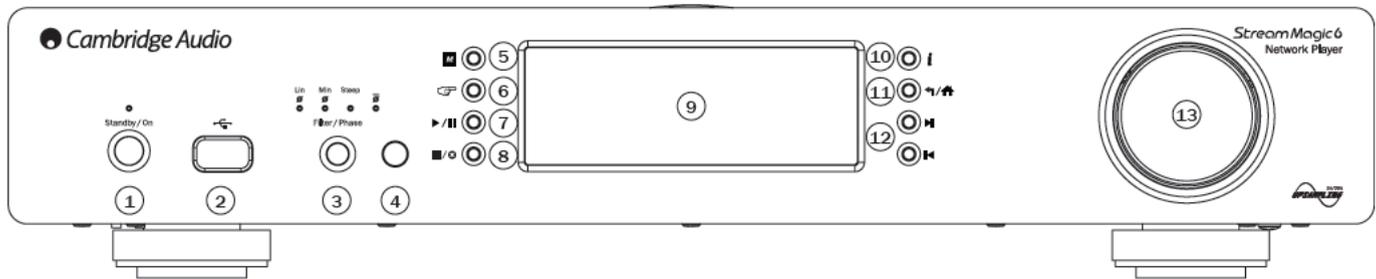
Note: XLR connectors should be wired as follows:

- Pin 1: Ground
- Pin 2: Hot (in-phase)
- Pin 3: Cold (phase-inverted)

⑬ Unbalanced Audio Output

A conventional RCA phono stereo output for connection to the line-level inputs of an amplifier. Use a high quality stereo RCA phono interconnect cable intended for analogue audio signals.

Front panel connections



① Standby/On

When powering up from standby the Standby/On, LED will flash approximately once a second as the unit boots up, the display will initially be blank before 'StreamMagic' appears.

Note that the full startup sequence can take approximately 30 seconds to complete.

Idle mode

To enable Idle mode, it must first be activated within the setup menus. Go to Settings -> Advanced -> Idle Mode" and set to "On".

Idle mode, when enabled, allows Stream Magic 6 to enter a lower power suspended state using the Standby/On button. The display is turned off and many of the internal processes and circuits are disabled to reduce power consumption. However the difference between Idle and Standby is that in Idle mode, power remains connected to the main controller, Ethernet and Wi-Fi sections.

In Idle mode, networking functionality remains alive in the background. This means that Stream Magic 6 can be quickly woken up out of the suspended state into an operational state using not only the front panel, the infra-red remote and the control bus, but also the iOS app running on the iPhone or iPad. This is not possible when the unit is in full Standby mode.

Short presses of the Standby/On button then toggle the Stream Magic 6 between On and Idle.

Note: after putting the unit into Idle mode, you will not be able to wake the unit into full On mode until 5 seconds have elapsed.

Full standby can still be activated by keeping the Standby/On button pressed for more than two seconds. A subsequent press of Standby/On turns the unit fully on, but remember that this can't be done over the network (i.e. from the iOS app) and that it takes longer to reach the full operational state.

② USB

Use to connect a USB storage device or another portable device containing music files. 1A maximum current consumption.

③ Filter

Press to toggle through three alternative digital filter characteristics: Linear Phase, Minimum Phase or Steep. Alternative digital filters can offer subtly different sound quality characteristics. The currently selected filter is displayed by the indicators just above the button.

Note: The Filter indicator will flash if Mute is engaged via the remote handset.

④ Infrared sensor

Receive IR commands from the supplied remote control. A clear unobstructed line of sight between the remote control and the sensor is required.

⑤ (Memory)

Press to access the Memory features for preset recall and storage.

The Stream Magic 6 can store presets which can be Internet Radio stations, Streams from Streaming Services or your own choice of Internet Radio URL. See later section.

⑥ (Reply)

This is the reply/interactive button. Press when listening to an Internet Radio station or Streaming Service that has some form of interaction with the user. This function will bring up an interactive menu (where available). This feature is commonly used allow indication that you like or don't like the current stream so the service can tailor the music served to your personal taste.

For Media playback (UPnP or Local) this button will toggle between the 'Now Playing' display and the 'Queue' display.

⑦ Play/Pause

Plays and pauses playback.

⑧ Stop/Delete

Press during playback to stop or press in various menus to delete the present item.

⑨ Display

Displays the status of the unit.

⑩ (i) Info

Pressing this button toggles between Menu position and the 'Now Playing' screen.

⑪ Return/Home

Short press to return to the previous menu. Long press takes you to Home screen.

⑫ Skip

Press once to skip forwards or backwards one track.

⑬ Navigation/Select (rotary dial)

Rotate to scroll and navigate around the menus. Pressing the rotary dial in perform the 'Select' function to accept the item/function shown on the display.

Fast Scroll feature

When scrolling through lists of tracks or stations, normally each click of the rotary encoder or press of the remote control navigator button steps to the next item in the list. For long lists this can become tiresome.

The Fast Scroll feature, which is always enabled, detects how fast the front panel rotary encoder is being rotated or how long the remote control navigator buttons have been pressed. The faster the encoder rotation or the longer the button press, the bigger the jump up or down the list with each step.

If navigating using the front panel rotary encoder, reducing the speed of rotation then decreases the step size again.

If navigating using the remote control, you need to release the button to stop the scroll and press-and-hold the button again to begin the scroll speed ramp-up, or single-press the button to step one item in the list at a time.

Scroll Stop feature

When scrolling through a lists of tracks or stations one line at a time, the list "wraps around". For example, if scrolling down a list and you reach the end, the next step down actually displays the top of the list, making it easier to go quickly from Z to A.

The Scroll Stop feature operates in conjunction with Fast Scroll (described above) to prevent you accidentally over-shooting the end of the list and wrapping round to the top of the list again in a continuous loop.

If you are Fast Scrolling up or down and you reach the bottom/top of the list, Stream Magic 6 stops scrolling at the end. To scroll back or to wrap around, you need to briefly stop turning the rotary encoder, or if using the remote control, lift off and repress the navigation button.

Remote control

Important!

The default mode for the remote allows combined control of the Stream Magic 6 and Cambridge Audio Azur stereo amplifiers.

The remote can be set to control the Cambridge Audio Azur amplifier or Cambridge Audio A/V Receivers instead. See later section on this page.

Display

Alters the brightness of the Stream Magic 6 display backlight. There are three brightness levels; off, dim, bright and an option to switch-off the backlight.

When the display is set to OFF, nothing will be displayed onscreen until a selection is made via the front panel or remote control. The display will then re-activate allowing you to browse the menu and make your selection. The display will then automatically switch back off after a few seconds if no further selections are made.

Standby/On

Switches the Stream Magic 6 between On and low power eco-friendly Standby mode. If enabled, you can also switch the unit into Idle mode.

Note: The Stream Magic 6 takes approximately 30 seconds to come out of Standby, during this time the front panel Standby/On LED will flash but nothing will be shown on the display.

0 - 9 numeric buttons

Press to recall stored presets.

Numerical select

To recall a preset number greater than ten, press -/-- followed by the required preset number.

(Memory)

Press to access the Memory features for preset recall and storage.

The Stream Magic 6 can store presets which can be Internet Radio stations, Streams from Streaming Services or your own choice of Internet Radio URL. See later section.

Filter

Press to toggle through the three digital filter options.

Digital Inputs

Press to select the digital input source.

Home

Go directly to the top Home Menu.

Return

Press to return to the previous menu.

Navigation

Press to navigate around the main menus.

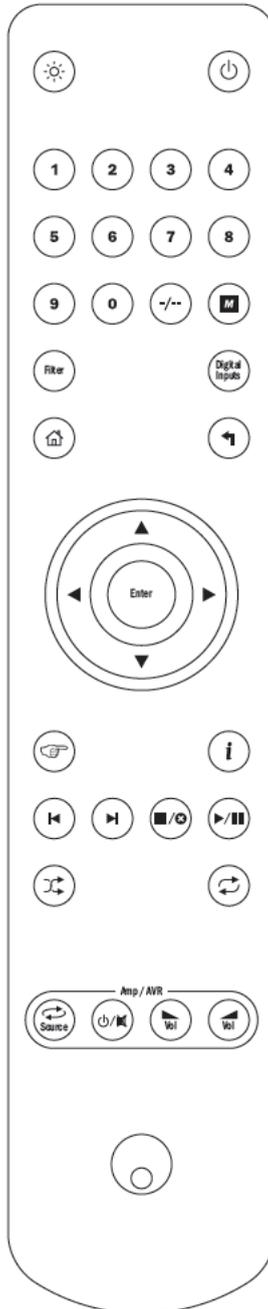
Enter

Press to accept the item/function highlighted in the display menu. In tuner mode, press and hold to store the current station in the preset bank.

(Reply)

This is the reply/interactive button. Press when listening to an Internet Radio station or Streaming Service that has some form of interaction with the user. This function will bring up an interactive menu (where available). This feature is commonly used to allow indication that you like or don't like the current stream so the service can tailor the music served to your personal taste.

For Media Play back (UPnP or Local) this button will toggle between the 'Now Playing' display and the 'Queue' display.



i (info)

Pressing this button toggles between Menu position and Now Playing screen.

⏮ ⏭ Skip

Press once to skip forwards or backwards one track.

⏏ Stop/Delete

Press once to stop media playback. Also used to delete items where appropriate (press and hold).

▶⏸ Play/Pause

Press once to start media playback. Press and hold to pause media playback.

🔀 Shuffle

Press to turn the random/shuffle playback function on and off.

🔁 Repeat

Press to turn repeat playback function (media play back only) on and off.

The following buttons control the function of Cambridge Audio Azur Amplifiers/Receivers.

Note: By default, these buttons will control an Azur stereo amplifier. To change the functions of these buttons from Amplifier to AV Receiver, press and hold down the 'Source' button whilst inserting the batteries into the back of the remote.

📶 Source

Scrolls through the available sources.

⏻ Standby/Mute

Press to switch the Amplifier/Receiver between On and low power eco-friendly Standby mode. Press and hold to mute the audio.

🔊 Volume

Increases or decreases the volume.

Overview

The Stream Magic 6 is able to receive and play back media from several distinct types of source. Here we have attempted to give an overview of the various types of service available and the terminology you may encounter.

Internet Radio

These are 'radio' stations broadcast over the internet. Currently the StreamMagic range can access about 20,000 internet radio stations all sorted by us into Location, Language and Genre. The list of available stations is constantly maintained and automatically updated to your unit via the internet. If you register on the StreamMagic website (www.stream-magic.com) you will also be able to browse the stations and set presets on your units from your PC.

You can also add stations to your units that are currently not in the Stream Magic's Radio database, suggest new stations to us and more. There are also links and help for setting up third-party Streaming Services from a wide variety of other suppliers. Other Stream Magic features will be launched in the future, check the website from time to time to see the latest developments.

Streaming Services

Streaming Services are similar to Internet Radio but come from other suppliers and often have an element of interaction with the user. Because Streaming Services generally allow the user some choice over the content they listen to, they are also licensed differently to iRadio by the music companies and often each service only has arrangements in certain countries and may also charge a subscription for membership.

Examples of such services are Aupeol, Pandora, Rhapsody, SIRIUS/XM, Live365 and others. All allow some control of the content from 'play me something that sounds like U2' to the ability to select and play whole albums of your choice. Some also offer the ability to download content for use off-line as well.

The Stream Magic 6 supports many of these services, navigate to Streaming Services on the unit for a list or even better check out our website at www.stream-magic.com for more details of which services are available in your area, what they do and how to sign up. These services come from third parties and although we support connections to them they do not come from us and we are not responsible for their service in any way. Your account will be with the service, we are merely acting as a website to make the connection simpler and more convenient plus we support the correct software on our unit to allow playback and browsing of their content.

Network Media

The Stream Magic 6 supports a wide range of compressed formats; MP3, AAC, WMA and Ogg Vorbis CODEC types are all supported, plus for true audiophile use it also supports either uncompressed PCM (in a WAV container) or losslessly compressed FLAC, both can contain from 16-bits/44.1kHz from CDs right up to 24-bit/96kHz for better than CD quality from suitable download sites.

Note: For this to work your server will also need to support the CODEC you wish to play as some have limitations and may not serve FLAC for instance. Always check that the server you wish to use also supports your favoured CODECs.

Also for lossless/uncompressed formats both the server and network connection will need to sustain the high bitrate necessary.

Note: It is not recommended to use Wi-Fi connections for content above 16 bits 44.1/48kHz if lossless/uncompressed.

USB Media

The Stream Magic 6 also supports USB Media from USB Flash-disks or USB hard-drives and has two USB1.1 ports for this purpose. Here the Stream Magic 6 simply browses the folders present on the media attached and displays them. Only content that the Stream Magic 6 can play will be shown. This feature is provided for convenient access to temporary storage devices.

It is however highly recommended that UPnP is used for continued use of stored media as the UPnP system is able to support album art, sophisticated content browsing and filtering and other features not possible with simple folder browsing.

Note: Currently only the FAT32 file system is supported.

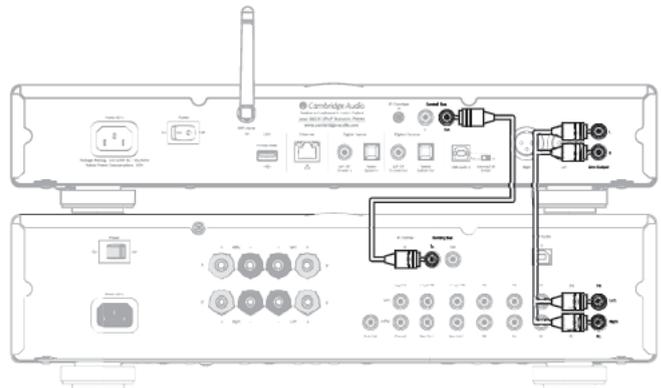
Podcasts

Podcasts are archived audio recordings downloadable over the internet. Often podcasts are recordings of previous live broadcasts or episodic content.

The Stream Magic 6 supports various third party podcast services, navigate to Podcasts on the unit for the list available in your area. In addition the Stream Magic 6 supports your own personal choice of podcasts where you know its URL (weblink) via the Stream Magic website, see later section.

Getting connected

Basic connections



Network connections

Before you can use your Stream Magic 6 for iRadio/Streaming you must have the following:

- A broadband internet connection (such as ADSL) to a suitable internet service provider (ISP).
- A network connection either wirelessly via 802.11b/g or n Wi-Fi or wired Ethernet connection (10 or 100 M bits/sec via an RJ45 connection).

Note: If you wish to play 24-bit/48kHz or 24-bit/96kHz content from a UPnP server, a wired Ethernet connection will be required as the high data rate of these files is beyond most Wi-Fi networks capability.

In many cases the broadband modem, router and wireless access point will be a single combined unit supplied by your Internet Service Provider or bought from a computer store.

If your wireless network is configured to use Wired Equivalent Privacy (WEP) or Wi-Fi Protected Access (WPA) data encryption then you will need to know your WEP or WPA key so you can get the Stream Magic 6 to communicate with the network.

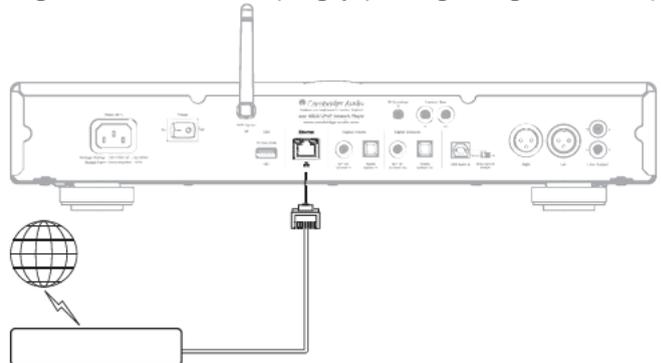
IMPORTANT:

Before you continue, make sure that your wireless access point or router is powered up and working with your broadband internet service (use your computer to verify this). To get this part of the system working you must read the instructions supplied with the wireless access point or router.

The Stream Magic 6 can be configured to connect to a Wired or Wireless network or has an (default) Auto setting. In Auto the Stream Magic 6 looks for a each connection type and selects whichever is present. You can also force the unit to one or the other connection type, see later Settings section.

Connecting to a wired network

Plug one end of a network cable (Category 5/5E straight through Ethernet cable)

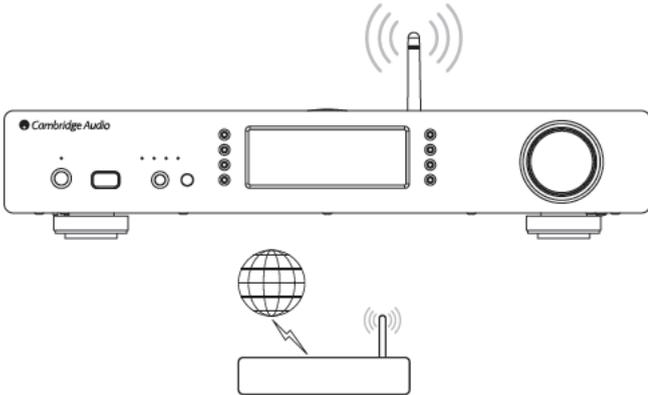


into the LAN port on the back of the unit.

Note: Only connect the LAN port of the player to an Ethernet port that supports 10BASE-T or 100BASE-TX. Connecting to any other ports or jacks, such as a phone jack, can damage the unit

The Stream Magic 6 should automatically connect to your network as below via DHCP; this means it will be given an IP address by your router automatically.

Connecting to a wireless network

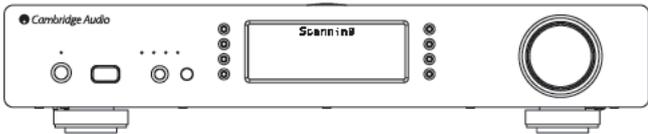


Place the Stream Magic 6 in range of your wireless network (usually 10-30m of a suitable wireless transmitter, although this is affected by walls and the construction of your building) and turn it on, via the back panel switch and then on the front panel.

The Stream Magic 6 will automatically connect and obtain an IP address from your wireless network. For advanced users, if you would like to give your Stream Magic 6 a static IP address, then see the 'Network config' section of the manual.

Note: If you make a mistake at any point, you can always press the button to go back to the previous screen.

The unit will now scan for all available wireless networks and will display "Scanning".



If it can't find one then the display will say: "No Wireless Networks Found". If this happens then you need to either move the Stream Magic 6 nearer your wireless access point or investigate any issues with your wireless network.

When the Stream Magic 6 finds your wireless network, it displays the broadcast name (ESSID) for the access point – this is a name allocated to the access point by whoever set up the network, it may either be a default name for your router/wireless or may be a more familiar name such as "Johns Wi-Fi" etc. If your Stream Magic 6 finds more than one wireless network you can simply choose which one you want to connect to. Turn the rotary dial to see the ESSID for each wireless network.



When the ESSID for the wireless network you want to connect to is displayed on the screen, press the SELECT button. If your network is not configured with an encryption code, the screen should say "Connecting to network" then "Network OK".

If the screen displays either "Enter WEP key" or "Enter WPA key", then the network is using one of the supported encryption systems: Wired Equivalent Privacy (WEP) or Wi-Fi Protected Access (WPA). You now need to enter your correct WEP or WPA code. The person who set up the wireless network in the first place will know what this code is (or be able to reset it to a new known code); if that person is not you, then you need to find out what it is.

After 3 seconds, the display goes into the code entry mode. To enter the code, use the rotary dial to select each character of the code in turn, pressing the SELECT button after entering each character.

Note: The WEP and WPA codes are case sensitive, so you must enter them exactly.

After entering the final character, use the rotary dial to select the character and press the SELECT button. It's a little fiddly but you will only need to do this once. The Stream Magic 6 will remember this code and use it automatically from now on.

The unit should now be able to connect to the network.

Note: We recommend rebooting your Stream Magic 6 to search for any firmware updates, as new firmware may have been released since your unit was manufactured.

Operating instructions

The Stream Magic 6 home menu consists of 6 items:

- Internet Radio
- Streaming Services
- Media
- Podcasts
- Digital Inputs
- Settings

These allow access to the four basic types of media choice plus a Settings menu for the unit.

You can return to this menu at any time by pressing and holding the button.

Simply scroll through the items with the scroll wheel or navigator buttons on the remote control and press in the scroll wheel or use the select button on the remote to select the item you want.

Internet Radio

The Stream Magic Internet Radio service brings thousands of internet radio stations to you. The sheer choice available on the internet allows you to find new music, listen to stations in your native language (or perhaps if you are learning another one), from your home town or by your Genre of choice.

It has to be said that the audio quality of internet radio varies greatly dependant on the bitrate and compression technology used by the broadcaster, but the choice more than makes up for this. Internet Radio allows you to explore and find new music from all over the world.

Note: As an 'aggregator' service we are simply organising the browsing and connection process for these stations so that you don't have to manually search for them or type in any URLs (web links) etc to access them. Whilst we regularly check the stations to make sure they are still transmitting reliably and in reasonable quality we are not responsible for their content in any way.

As well as the thousands of stations we offer if you want to listen to a particular station that is not included in our service you can add it via the Stream Magic website at www.stream-magic.com, see later section. You can also visit the www.stream-magic.com website and put in a request suggesting new stations for us to add to the service. We welcome your feedback.

It is not necessary to register your Stream Magic 6 to use the free Stream Magic Internet Radio service but by registering you will be able to edit settings on your Stream Magic 6 via the website, manage your presets, set up new 3rd party Streaming Services and more.

How to use Internet Radio



Press and hold the button to return to the top-level menu.

Select Internet Radio from the list using the rotary dial then press the rotary dial to select it. The Stream Magic 6 displays the following submenu.

Internet Radio

- Location
- Genre
- Search

You can now turn the rotary dial to choose from Location, Genre or Search.

Location – Enables you to choose from the stations in any of the countries which you choose from a list.

Genre – Enables you to choose radio stations according to their declared content, for example Classic Rock, Sport, News, etc.

Search– Enables you to search for a station you know the name of. Enter the full name or first part of the name for your desired station. The Stream Magic 6 will bring up a list of all stations that contain a word that starts with your search term.

Note: Although we check the stations for continuity of service, some radio stations do not broadcast 24 hours per day, and some stations may not always be on-line.

Registering your Stream Magic 6 with the Stream Magic website

To access extra features on your Stream Magic 6 such as linking premium streaming services to your Stream Magic 6, adding non-Stream Magic internet radio stations or simply editing, copying, re-ordering or deleting presets first you will need to set up a free account with Stream Magic.

Open www.stream-magic.com from an Internet browser. Click on the 'Register' link and follow the on-screen instructions to set up an account and to link your Stream Magic 6 to this new account by entering your Stream Magic 6s seven digit registration code, which can be found in the 'Settings > Register Unit' menu of the Stream Magic 6 itself.

This is a unique key code generated by the unit during the registration process.

Note: The key lasts for about 10 minutes, if you don't use it in that time you will need to exit and re-enter this menu to get a new key.

Your Stream Magic 6 is now registered and you can use the website to manage your presets, Podcasts and more. You can also suggest new stations to us, setup 3rd party Streaming Services and view information from us on new products.

After creating and logging into your new account, you can now add, remove or re-order presets on your Stream Magic 6 from the 'Presets' tab.

There is also an enhanced internet radio station search facility, allowing you to search for stations by minimum bit rate, etc and also the facility to add non-Stream Magic internet radio stations as presets if you know the station's URL.

To add further Stream Magic products to your existing Stream Magic account (perhaps you want a second or third Stream Magic in a different room) then this can be done by accessing the 'Players' tab in Stream Magic and clicking on the 'Add a player' link.

You can then choose to copy all or some of the existing presets from your current Stream Magic to the new one.

Note: You can register as many products as you like and manage the presets etc. across several products which could be in different parts of the world all seamlessly from your Stream Magic website.

Streaming Services



The Stream Magic 6 supports a range of streaming services from other suppliers that often have an element of interaction with the user. The Stream Magic 6 displays the following submenus.

Streaming Services

- Aupeo!
- Live365
- MP3tunes
- Etc.

Note: The services available vary depending on your geographical location.

Because Streaming Services generally allow the user some choice over the content they listen to they are licensed differently to iRadio by the music companies and often each service only has arrangements in certain countries.

A subscription fee service might be applicable.

Examples of such services are Pandora, Rhapsody, Live365, SIRIUS/XM, Mp3Tunes and others.

When you enter this menu the ones that are available to you in your country will be shown. Those that are free to use or have a free to use version will work 'straight out of the box' Others will guide you to the relevant sign up page, should you so wish.

For more details on what these services offer, please go to our www.stream-magic.com website, links to each service can also be found here.

Also via the website you can prevent services appearing in this menu that you do not wish to sign up to.

Media



The Stream Magic 6 can access media from UPnP/DLNA Servers or USB Media connected via USB. The Stream Magic 6 displays the following submenus:

Media

- UPnP Servers
- USB Media
- Queue

UPnP is by far the preferred method as it allows for browsing by artist, album and other methods, has support for control from Wi-Fi controller and the media can be shared amongst several devices.

UPnP servers



Your Stream Magic 6 can connect with Computers or Network Attached Storage devices that feature a Universal Plug and Play (UPnP) AV Server.

When using a UPnP server to share your media, the search and selection criteria are determined by the server and not the Stream Magic 6, but typically include Album, Artist and additional options such as Genre.

As long as the Stream Magic 6 is correctly configured for your Network it will automatically discover and connect to UPnP servers it finds when you go into the UPnP playback menu. It will then allow navigation of the menu structure coming from that server.

There are many suitable UPnP server software packages available for PC and Mac. Stand-alone servers and Network Attached Storage (NAS) devices with built in UPnP server capabilities are also available. Please see the set-up guides on our website at <http://support.cambridgeaudio.com/>.

Once you have setup a suitable server, navigate to the Media/UPnP Servers menu within the Stream Magic 6 and press Select.

The Stream Magic 6 will perform a scan of your network and report any UPnP Servers it finds. If none are found it will display "No Servers Found" on the display. If a server or servers are found their names will be displayed and you can select which one you'd like to get content from.

Select the server you want and the Stream Magic 6 will then load the appropriate menu structure from that server. These typically allow you browse your content by Album, Artist, Genre etc. It is important to understand that the menu structure here is coming from the Server not the Stream Magic 6.

You can now browse and select any music content in a format the Stream Magic 6 supports (currently AAC, MP3, WMA, AIFF, FLAC, WAV and Ogg Vorbis).

Note: Not all servers support serving of all these formats. Always make sure the server you choose also supports your formats of choice. For example, Windows Media Server does not currently serve FLAC format.

Alphanumeric Search



This is a search function menu inserted by the Stream Magic 6 into the browse tree of UPnP servers that support an external search function.

Where available you can select Alphanumeric search and then enter the name or partial name of an album or track you wish to find.

Simply select each character in order using the *Navigation/Select* dial, rotate to each character and then press in to select. You can also use the Skip buttons to move forward/back a character, ▶/◀ to enter a character and ■/⊗ to delete a character.

Once finished either press the ◀ button or navigate to the ◀ symbol and press the Enter button on the remote or press the *Navigation/Select* dial.

The Stream Magic 6 then displays all Album names or Track names it can find that matches your chosen text.

You can then simply select your chosen item and press the Enter or ▶/◀ button on the remote to start it playing.

The 'Now Playing' screen

Selecting a new Station, Stream or Media item will start playback and display the 'Now Playing' screen.

The current Artist/Album and Track or Station name will be shown with the relevant CODEC details (i.e. audio file type and bitrate/samplerate.)

For Media files, the Stream Magic 6 also shows the incremental track playback time.



You can also display the now playing screen at any time by pressing *i* on the remote control or front panel.

Shuffle

Accessed via the remote or Stream Magic app only. Press the button to toggle Shuffle On or Off.

The Stream Magic 6 displays a in the 'Now Playing' screen when Shuffle is On.



If the currently selected media item/folder contains fewer than 1000 tracks the Stream Magic 6 generates a true random shuffle of those tracks and starts playback such that all are played once in a random order and then playback stops.

If more than 1000 tracks are contained the Stream Magic 6 will instead pick a track at random for playback then pick another one randomly (and without reference to what has gone before) once the current one has finished.

This continues until Shuffle is turned Off. Thus for >1000 tracks the playback of any track may be repeated randomly.

Repeat

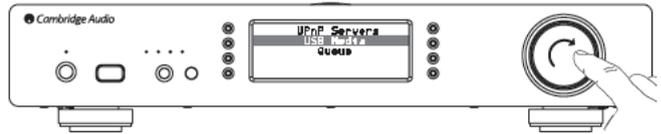
Accessed via the remote or Stream Magic app only. Press the button to toggle Repeat On or Off.

If the currently selected media item is a track the Stream Magic 6 will repeat that track, if it is an album or artist etc. the Stream Magic 6 will repeat all tracks in that item.

The Stream Magic 6 displays a in the 'Now Playing' screen when Repeat is On.



USB Media



The Stream Magic 6 can also playback audio content from standard USB hard-drives and thumb drives. Simply copy your media files onto your USB drive and then connect it to the front or back USB socket of the unit.

Press the button to get to the top menu. Select the 'Media' menu and then the 'USB Media' item.

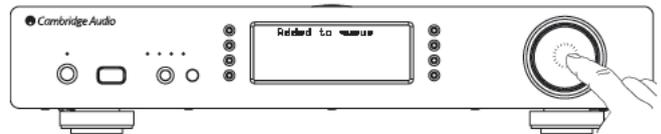
The Stream Magic 6 will now scan the thumb drive for media files. Once the scan is completed, you will then be able to browse the files by selecting 'By Album' or 'By Artist'.

Queue



The Stream Magic 6 features a queue function that allows you to select multiple albums and/or tracks you'd like to be played in order.

When in the UPnP or USB Media selection menus, if you highlight a track/artist or album name etc and press and hold the *Navigation/Select* dial (or Enter on the remote handset), the Stream Magic 6 will add the current item to the Queue. If it is the first item to be queued playback will start. If it is an additional item 'Added to queue' will be displayed and that item will be appended to the queue.



All component parts of that media item will be added, if the item is a track then only that track will be added but if the item is an album or an artist then all that albums or artists tracks will be added.

To view the Queue simply navigate back to Queue item in the Media menu or press the Reply button whilst a queue is playing. Tracks that are a component part of a media item will be shown indented by a ■ below their parent media item as below.



The displayed menu shows the queued content for playback, you can navigate to any item and select it (via Enter or ▶/◀) to jump to playing that item. ■/⊗ can also be used to delete items from the Queue. The currently playing item will have a ▶ next to it.

At the bottom of the Queue a Clear Queue command is available for deleting the whole queue.

During Queue playback the Stream Magic 6 displays a in the 'Now Playing' screen.



Pressing stop will stop the Queue playing but not delete it. Putting the Stream Magic 6 into standby will delete the Queue. Putting the Stream Magic 6 into Idle mode will not delete the Queue.

To view the Queue at any time simply navigate back to Queue item in the Media menu or press the button whilst a queue is playing.

Playlists

The Stream Magic 6 also supports various playlist formats. For permanent storage of favourite media selections it is recommended to use suitable software to create playlists.

These can then be accessed by the Stream Magic 6 from USB Media or UPnP servers that support Playlist serving.

Podcasts



The podcast services in your area will be shown.

These typically allow you to choose different types of podcast by subject, date or perhaps popularity etc. It is important to understand that the menu structure here is coming from that service and is controlled by them. It may therefore change as the service updates its features etc. The Stream Magic 6 displays the following submenus.

Podcasts

- BBC Podcasts
- BlogTalkRadio
- Personal Podcasts

Note: The services available vary depending on your geographical location.

There is also a menu item for your own choice of podcasts called Personal Podcasts. This allows access to podcast links that can input via the www.stream-magic.com website.

To use Personal Podcasts sign up at www.stream-magic.com and enter the URLs of podcasts you'd like the Stream Magic 6 to automatically sync to.

My Podcasts

This feature allows you to access podcast on the Stream Magic 6 that are not available in the Podcasts services we support.

This is done by entering the URL for the podcast you want via the Stream Magic website. To do this you need to be registered as per the section under Stream Magic.

Simply login to your account and then click on the 'My Podcasts' link. From your 'My Podcasts' section, you can add your chosen podcast by entering in the podcast's name and its URL as prompted by the website. Please note, the podcast URL will have to be a direct RSS feed which will end with the '.xml' extension e.g. <http://someurl.com/podcast.xml>. Once you have podcasts available in your 'My Podcasts' list, you may access these feeds from your Stream Magic 6. These podcasts will be available from the menu item: 'Podcasts > My Podcasts'.

Please note, the podcasts are pushed to your Stream Magic 6 at turn on when the unit updates stations list and at intervals thereafter.

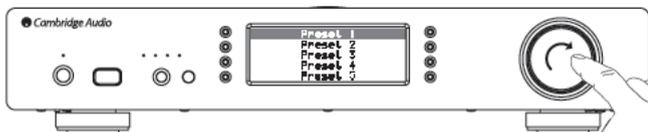
To cause the radio to download Podcasts and new stations list immediately, turn on and off your Stream Magic 6 from the front panel or when coming out of Idle mode.

Presets

The Stream Magic 6 supports presets. These can be Internet Radio stations or streams from most Streaming Services. UPnP/USB Media cannot be set as a preset. To add a station/stream to a preset first select that stream for playback in the normal way. Now press the **M** button this will bring up the presets menu.

Select the preset location you require and press and hold in the *Navigation/Select* dial to save the current station/stream to that preset.

Note: Empty presets are not displayed. To save a presets to an empty location, select 'Set Preset' and all slots will be displayed.



Recalling presets is done simply by pressing the **M** button and selecting the preset you want with a brief push of the *Navigation/Select* dial.

Note:

- The Stream Magic 6 loads the presets for display from our Stream Magic servers over the internet, thus they can take a few seconds to appear.
- All saved Presets will be deleted when a unit is registered/re-registered online.

Digital Inputs



Digital Inputs

- USB Audio
- S/PDIF Coax
- Toslink Optical
- BT100 (if fitted)

The Stream Magic 6 has 3 digital inputs, USB Audio, S/P DIF co-axial and Toslink optical. The digital inputs allow you to play audio sent from a separate digital audio source such as a PC or CD player with digital outputs. This can optimise sound quality, for example where the Stream Magic 6 USB Audio is used instead of the PC soundcard or the upsampled and re-clocked low jitter DACs of the Stream Magic 6 are used instead of a CD player DACs.

The USB Audio input directly connects to a PC or Mac computer. The Stream Magic 6 can be setup to stream via the simple setup USB1.1 or the high sample rate 24-bit/192kHz via USB2.0. Also note that the SP DIF co-axial and TOSLink inputs are capable of high sample rates up to 24-bit/192kHz, but your source equipment and interconnect cables must be capable of this sample rate to achieve this.

Advanced USB audio

The Stream Magic 6 is both USB 2.0 (Hi-Speed) and USB 1.1 (Full-speed) USB port compatible.

It should also work with the new USB 3.0 ports where the PC will simply treat the Stream Magic 6 as if it were a USB 2.0 or 1.1 device.

The Stream Magic 6 also supports two USB Audio protocols (not the same as the port types themselves) USB Audio 1.0 (which works over USB 1.1 ports and supports up to 24-bit/96kHz) or USB Audio 2.0 (which requires a USB 2.0 port and can support up to 24-bit/192kHz).

The default configuration is USB 1.1 and USB Audio 1.0 which works with nearly all common operating systems and computer types without drivers and supports up to 24-bit/96kHz audio, simply plug in and play.

In this configuration the Stream Magic 6 is able to work at up to 24-bit/96kHz by declaring to your computer that it can handle any sample rate from 32kHz to 96kHz.

However in some Windows/Mac operating system variants the operating system itself may restrict or fix the output sample rate or re-sample the audio.

See our online guide at www.cambridge-audio.com/StreamMagic6Support on USB Audio for more details on this. With careful choice of playback software and settings many pitfalls can be avoided.

In particular our free Windows USB Audio 2.0 driver (available from our website) supports up to 24-bit/192kHz audio and WASAPI Exclusive or ASIO modes that can give enhanced performance.

A brief explanation of your choices are below:

Use with PCs

With the Stream Magic 6 switched to USB Audio 1.0 (this is the default setting) the Stream Magic 6 will work with the native Windows XP, Vista or 7 Audio 1.0 driver (no need to load any new driver) and accept audio up to 24-bit/96kHz.

With the Stream Magic 6 switched to USB Audio 2.0 the Stream Magic 6 needs the Cambridge Audio USB Audio 2.0 Driver to be loaded and can then accept up to 24-bit/192kHz (and support ASIO and WASAPI Exclusive if required).

The driver is available from www.cambridge-audio.com/StreamMagic6Support.

Use with Macs

No extra drivers are required. With the Stream Magic 6 switched to USB Audio 1.0 the Stream Magic 6 will work with the native Mac OS-X 10.5 (Leopard) or above Audio 1.0 driver and accept audio up to 24-bit/96kHz.

With the Stream Magic 6 switched to USB Audio 2.0 the Stream Magic 6 works with the native Mac OS-X 10.5 (Leopard) or above Audio 2.0 driver and can accept audio up to 24-bit/192kHz.

Use with Linux

In USB Audio 1.0 mode the Stream Magic 6 will work with most Linux distributions, allowing the playback of audio up to 24-bit/96kHz.

Newer Linux distributions (e.g. Ubuntu 10.04) support USB Audio 2.0 for which the Stream Magic 6 should be switched to USB Audio 2.0 to accept audio up to 24-bit/192kHz.

For both cases because Linux distributions vary according to their creators' choice of software components, including drivers, it is not possible to guarantee operation and Audio drivers may need to be loaded.

'Class drivers' for generic support of USB Audio Class 1.0 or USB Audio Class 2.0 devices may be available from the Linux community, we do not supply these.

Bit perfect transfer – ASIO and WASAPI Exclusive mode

The Stream Magic 6 USB interface hardware and software support bit perfect transfer.

Whether or not the audio sent to the Stream Magic 6 is bitperfect (i.e. not resampled or mixed etc. by the PC) is actually a function of the playback application and the operating systems audio engine.

By default the standard windows audio drivers (often called WDM drivers) included in Windows XP support MME or DirectSound transfer, both of which include a kernel mixer and re-sampler stage.

One way round this is to use ASIO to bypass this. Another is to use a playback application that supports its own form of kernel streaming, i.e. it has its own way of outputting the audio without invoking the kernel mixer.

For Windows Vista and Windows 7 a new method of audio transfer is supported called WASAPI. This has two modes; Shared and Exclusive. Shared mode is similar to MME or DirectSound but in Exclusive mode the kernel mixer/re-sampler is bypassed and bit perfect transfer is possible with only one audio playback program directed to the soundcard at a time (for instance system sounds are not mixed in).

To ensure bit perfect transfer use a playback application that supports ASIO, WASAPI in Exclusive mode (if you have Windows Vista or Windows 7) or some form of kernel streaming.

This is a fast moving area so we would encourage you to check the web for the latest media players to support these more audiophile playback options.

To use ASIO you will need the Cambridge Audio Sound Driver installed and the Stream Magic 6 switched to USB Audio 2.0.

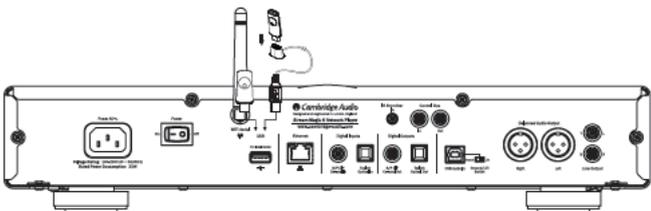
No further settings are required as the driver automatically supports ASIO transfer, all that is required is to load and setup suitable ASIO enabled playback software.

ASIO (Audio Stream Input/Output) is a non Microsoft audio driver protocol for Windows originally invented by Steinberg ltd ASIO bypasses some of the normal audio path from the playback application through the Windows audio system (including the Kernel Mixer) for a more direct path to the Stream Magic 6.

You will need to install and use a suitable playback application that supports ASIO output either natively or via a plugin. One example of such an application with a suitable plugin is Foobar, see <http://www.foobar2000.org> for more details.

BT100 and Bluetooth Audio streaming

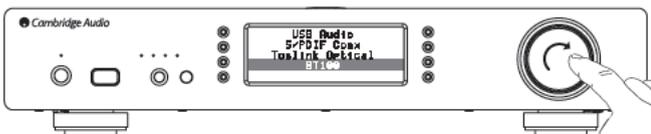
The StreamMagic 6 is compatible with the optional BT100 Bluetooth adaptor from Cambridge Audio.



When a BT100 is plugged into the rear USB socket an extra menu item called Bluetooth appears in the Digital Inputs menu.

Selecting this allows the StreamMagic 6 to receive wireless Bluetooth audio from most phones/tablets and laptops.

Both the standard SBC CODEC and newer high quality AptX CODEC are supported (if the sending device supports it).



Contact your dealer for details.

Settings menu

This menu contains various setup/configuration menus as shown below.

Settings

- Register Unit
- Network
- Firmware
- Stream Magic 6 Name
- Advanced
- Factory Reset

Register Unit

This will display a key that can be used to register your Stream Magic 6 on the Stream Magic website at www.stream-magic.com. First you will need to set up an account on Stream Magic. Open www.stream-magic.com from your Internet browser. See the section earlier on Stream Magic registration.

Note:

- The generated key lasts for about 10 minutes, if you don't use it in that time you will need to exit and re-enter this menu to get a new key.
- All saved Presets will be deleted when a unit is registered/re-registered.

Network

This menu enables you to set your Stream Magic 6's network settings, scan again for a connection to another wireless network, or to manually configure the network parameters. This is useful if you move your Stream Magic 6 to a new location for instance.

By default the Stream Magic 6 will be set for Automatic wired/wireless detection and automatic IP addressing (DHCP) which will work without setup in most circumstances (for Wi-Fi you will need to enter your WEP/WPA key if you have one).

In Auto mode the Stream Magic 6 will look for a wired connection first and then scan for wireless connections if it doesn't find one. It will also try to obtain an IP address automatically from your router/DHCP server.

If you wish to make changes to your setup the Stream Magic 6 displays the following submenus.

Network

- Scan for networks
- Enter network name
- View Config
- Edit Config
- WiFi Strength
- Signal Warning
- WiFi Region
- Wired/Wireless

Scan for networks



This option scans all available Wi-Fi frequencies for wireless networks and allows you to connect to them.

The Stream Magic 6 can connect to 802.11b/g or n networks (2.4GHz frequency range only for n networks).

A list of available networks will be presented. If a particular network requires an encryption key, a symbol will be seen at the end of the network name.

Select your local network using the Navigation/Select dial and press it in for enter.



The Stream Magic 6 will then connect to the network using a saved key (if you have previously set one) or present you with an alphanumeric entry menu. Here you can enter the network key you set up when setting up your wireless network.

Select each character in turn using the Navigation/Select dial and then press  or navigate to the  symbol and press Navigation/Select dial to enter that key. If you make a mistake, press  to go back one character.

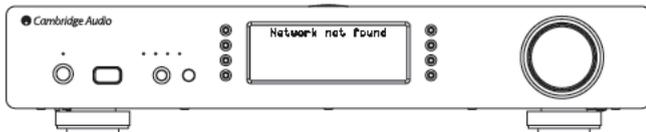
The Stream Magic 6 can handle keys in WEP, WPA and WPA2 formats (the choice of format is made by appropriate settings on your router) and automatically generates the right format from your text according to the router request.

Enter the network name

This option allows the Stream Magic 6 to search for and connect to a particular network name only.

Type your network name in using the alphanumeric entry screen.

If no matching network is found 'Network not found' will be displayed.



View Config

This menu firstly displays the IP mode (static or dynamic). This will be Auto/DHCP (i.e. dynamic, this is the default) or alternatively Static IP.

For either mode by turning the Navigation/Select dial the Stream Magic 6 will scroll through the various current IP parameters, for instance the ESSID of the current wireless network, Wired and Wireless MAC addresses, current IP address, (Sub) Netmask, Gateway address etc.

Edit Config

This menu allows the selection of IP mode between static or dynamic (Auto/DHCP). Auto/DHCP is recommended for most people in most circumstances. Static IP requires quite a bit of knowledge about IP networks, and is for advanced users only.

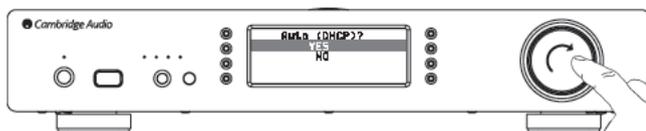
The default setting is thus Auto/DHCP, here the Stream Magic 6 obtains its IP address each time you switch in on by a process called DHCP which means it is different each time it is acquired. This process is completely automatic and much simpler than implementing Static IP.

However sometimes it is useful (especially in large networks) to know the exact IP address of each device, this can only be done by using static IP.

When using Static IP you will also need to enter the network mask you wish to use and the addresses of your gateway and DNS service, note there is no way for Cambridge Audio to know what these are in your network. Only select static IP if you know exactly what you are doing!

To set static IP, select the 'Settings > Network config > Edit Config' menu and then press SELECT.

The Stream Magic 6 will now display 'Auto (DHCP)? YES/NO'. Turn the Stream Magic 6's rotary dial to select 'NO' and then press SELECT.



You will now be able to enter the fixed IP address you wish to give your Stream Magic 6 by using the rotary dial to select the desired numbers followed by pressing Navigation/Select dial to end inputting the address.

The Stream Magic 6 will now prompt you to enter the required network mask for the network. You will be able to enter this in the same way as before for entering the IP address.

You will now need to enter the default gateway's IP address used by the Stream Magic 6 on the network.

Finally, you will need to enter the DNS IP address for the Stream Magic 6. On some networks, you may need to enter your ISP's DNS IP address, which should be available on your ISP's support page on their website.

After entering the above information, the Stream Magic 6 will now try to connect to your network. If you wish to use DHCP again simply select 'Settings > Network config > Edit Config' and then set 'Auto (DHCP)? YES/NO' to 'YES'.

WiFi Strength

Displays the strength of the received WiFi Signal.

Note: If WiFi has been turned off (Ethernet mode only) the signal strength will show as 0%.

Signal warning

The Stream Magic 6 can display a warning if the Wi-Fi signal strength is low enough to be causing reduced throughput. The options for the Signal Warning are simply Yes or No.

Wi-Fi Region

Different parts of the world use slightly different frequencies for Wi-Fi. For best performance you should set the Stream Magic 6 to the region you live in, the current options are US, Spain, Europe (i.e. other than Spain), Japan.

Wired/Wireless connection

It is possible to connect your Stream Magic 6 to your network via an available Ethernet connection (RJ45) or via a Wi-Fi router. By default the unit is in AUTO mode, each time you turn the unit it looks for the presence of a wired connection, and tries to use this, if none is present or it cannot connect it then tries to use the wireless connection and so on. In Auto mode once the Stream Magic 6 has established a certain type of connection to the network, then this type of connection will remain in use while the Stream Magic 6 is on.

You can alternatively configure the Stream Magic 6 to permanently only use the wired or wireless connection. From the Stream Magic 6's 'Network config' menu, select 'Wired/Wireless'. This menu will present you with three options: 'Auto', 'Wired Only' and 'Wireless Only'.



Selecting 'Wired Only' will cause the Stream Magic 6 to reboot and then only use its Ethernet connection to communicate with the network. Selecting the 'Wireless Only' will cause the Stream Magic 6 to reboot and only use its Wi-Fi connection. Selecting the 'Auto' option means the Stream Magic 6 will try both and settle on the one it can make work as described above.

Firmware

This menu item displays some hardware/software version numbers for your Stream Magic 6. Turn the rotary dial to scroll through the various items.

The Service Pack is the currently loaded firmware software. It's a good idea to note this down if you need to contact our technical support people as they may request it.

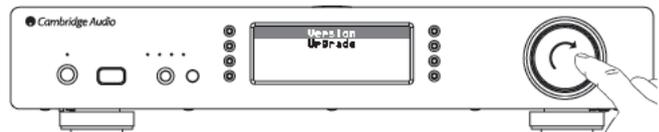
The Serial Number and Product Code are not normally required by the technical support team.

Note: This Serial Number is not the same as the physical serial number on the back of the product itself.

Firmware

- Version
- Upgrade

Version



This menu item displays some hardware/software version numbers for your Stream Magic 6. Turn the rotary dial to scroll through the various items.

The Service Pack is the currently loaded firmware software. It's a good idea to note this down if you need to contact our technical support people as they may request it.

Upgrade Firmware

Use this option to download new firmware for the Stream Magic 6 from Cambridge Audio over the Internet.

If you select this item the Stream Magic 6 will contact our server and see if a newer version of software is available ('Checking for updates' will be shown in the display).

If new software is found the Stream Magic 6 will prompt you and ask if you want to download it or not. It is a good idea to update the firmware from time to time to take advantage of any bug fixes or new features. At this stage, you can press the Stream Magic 6's **↵** button to cancel the firmware upgrade. A Firmware upgrade may take several minutes.

Note:

- It is very important that once the Firmware upgrade has started you do not switch off the power to the Stream Magic 6 until the operation is complete otherwise the Stream Magic 6 may become permanently damaged.
- Also do not interrupt the network or internet connection by removing the Ethernet lead or switching off your router etc.

Stream Magic 6 Name

This menu allows the setting of the declared UPnP Client name for your Stream Magic 6.

This is the name other UPnP devices (such as control points and remote Apps etc.) will display when they see the Stream Magic 6.

The default name will be 'Stream Magic 6' but can be changed to any name you can easily recall such as 'Dads Stream Magic 6' or 'Kitchen' etc.

Advanced

This menu contains advanced setup/configuration as shown below.

Advanced

- Digital Pre-amp Mode
- Balance (only available if Digital Pre-amp mode is enabled)
- USB Audio Class
- Remote Code
- Language
- Idle Mode
- Edit Digital Input Names

Digital Pre-Amp Mode



Digital Pre-amp mode, when enabled, allows volume adjustment to be performed within the up-sampling Digital Signal Processor (DSP) before being converted to an analogue audio signal for connection to a power amp.

Normally, the output of Stream Magic 6 (and most other source components) is output at 'full-scale' (i.e. maximum volume). This signal is then fed into a pre-amp which is used to control the volume of all audio sources connected to it.

To enable Digital Pre-Amp mode it must first be activated within the setup menus. Go to Settings -> Advanced -> Digital Pre-amp Mode" and set to "On". Stream Magic 6 will then respond to the vol+ and vol- buttons on the remote control at any time.

It is also possible to adjust the volume using the rotary controller knob on the front of the unit.

Whenever the StreamMagic 6 is showing its 'Now playing' screen turning the rotary controller knob will adjust the volume. Pressing back or home etc. to access the menu system allows the use of the rotary controller for menu browsing. If you are in a menu and need to adjust the volume immediately simply press the 'i' button to go straight to 'Now playing' and then use the rotary controller.

Maximum volume is shown as '0dB" on the display. Reductions in volume away from maximum are shown in the form of negative numbers i.e. '-12dB". The larger the negative number, the larger the signal reduction so the quieter it will be. A muted or silent output is shown as 'MUTE". The volume screen is shown briefly when the volume is changed, after which it times-out to the previously displayed screen.

The last used volume setting is memorised when the unit powered off.

Balance control

Balance control allows the sound to be panned slightly to the left or the right and is sometimes used to compensate for channel imbalance found with recordings transferred from vinyl records etc. or to compensate for offset loudspeaker positions relative to the listener.

Balance is only available if Digital Pre-Amp mode (described above) is enabled.

The function can be found in the menu under: to Settings -> Advanced -> Balance" (only when Digital Pre-Amp is enabled)

The last used balance setting is memorised when the unit powered off.

USB Audio Class

USB Class options enable Stream Magic 6 compatibility with both USB Audio 1.0 and USB Audio 2.0 interface formats. The default setting is USB Audio 1.0 which will work driverlessly with most operating systems for 16-24 bit content at 32-96kHz. Note USB Audio 2.0 requires a driver to be loaded for Windows. Without this selecting USB Audio 2.0 will normally give no output. See earlier section on USB Audio for advanced users.

Remote Code

There are two Options:

Option 1 - is the default and works with the Stream Magic 6 remote control when also in its default mode.

Option 2 - gives a secondary code set in cases where the remote codes are found to clash with another remote handset.

If Option 2 is selected on the Stream Magic 6 then the remote handset must also be set to Option 2 remote codes as well as follows:

Press and hold down the **⏪** button whilst inserting the batteries to switch to Option 2.

By inserting the batteries without the **⏪** button held down will default to Option1.

Language

Allows you to change the display language used.

A list of the currently supported languages will be shown. Select your preferred one and press enter.

Note: The Stream Magic 6 will then restart in order to start again in the new language, this will take approximately 30 seconds.

Idle Mode

Idle mode, when enabled, allows Stream Magic 6 to enter a lower power suspended state using the Standby/On button. The display is turned off and many of the internal processes and circuits are disabled to reduce power consumption. However the difference between Idle and Standby is that in Idle mode, power remains connected to the main controller, Ethernet and Wi-Fi sections.

In Idle mode, networking functionality remains alive in the background. This means that Stream Magic 6 can be quickly woken up out of the suspended state into an operational state using not only the front panel, the infra-red remote and the control bus, but also the iOS app running on the iPhone or iPad. This is not possible when the unit is in full Standby mode.

To enable Idle mode using the Standby/On button, it must first be activated within the setup menus. Go to Settings -> Advanced -> Idle Mode" and set to "On".

Short presses of the Standby/On button then toggle between On and Idle modes.

Note: after putting the unit into Idle mode, you will not be able to wake the unit into full On mode until 5 seconds have elapsed.

Full low power standby can still be activated by keeping the Standby/On button pressed for more than two seconds. A subsequent press of Standby/On turns the unit fully on, but remember that this can't be done over the network (i.e. from the iOS app) and that it takes longer to reach the full operational state.

Edit Digital Input Names



This allows you to customise the names associated with each digital input so that they correspond to the actual device names connected to them.

There are three digital inputs:

- USB Audio:
- S/PDIF Coax:
- Toslink Optical:

Each input is named as default by its input type. To rename an input, go to Settings -> Advanced -> Edit Digital Input Names, highlight the desired input and select it to rename. The screen changes to a list of letters, with the current name displayed at the top. To delete existing letters press the Stop/Delete button at the bottom left of the display. Navigate through the letters and select each letter in turn to rename the input. When finished, select the Return symbol at the end of the letter list (you can press the Home button on the right hand side of the display to jump to it). The name is then saved and the display returns to the Edit Digital Input Names menu screen.

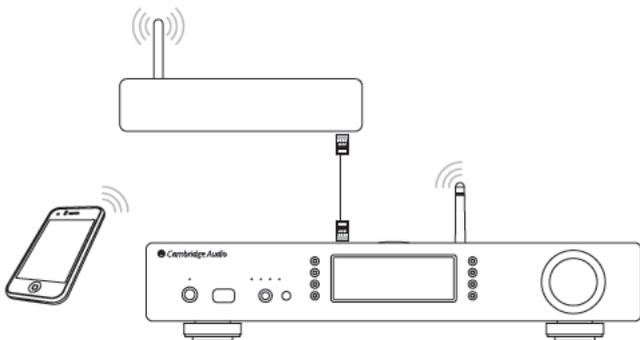
Factory Reset

Put all the settings back to their defaults as they were when they left the factory.

The Stream Magic 6 will ask you if you are sure you want to proceed before performing a reset.

Note: If you perform a factory reset, you will lose any saved WEP/WPA keys for your wireless network connection.

Stream Magic Remote



Stream Magic remote is a free iPhone/iPod Touch/iPad application that allows wireless control of the Stream Magic 6 or other Stream Magic powered Cambridge Audio products.

The application allows full control of the Stream Magic 6 including Stream Magic Radio, Streaming Services, UPnP Media, Presets, Queuing and more.

It also supports display of Album artwork and Station logos (where available).

To use Stream Magic Remote you will need a Wi-Fi network or Access point for the application to connect to, the connection from your router to the Stream Magic 6 can then be either Wi-Fi or Ethernet.

Search for Stream Magic Remote on the Apple App Store or browse www.stream-magic.com for further details on this and other Apps and features as they become available.

The Stream Magic 6 allows the user to control playback volume via the Stream Magic mobile application by either:

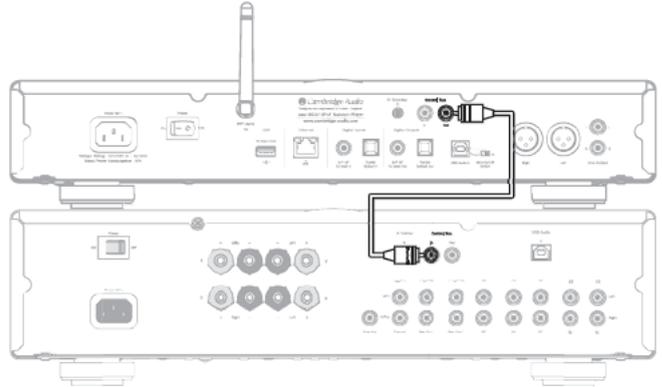
- Using the digital pre-amp inside the StreamMagic 6, or
- Using a Cambridge Audio Azur amplifier or AV Receiver connected to the StreamMagic 6 via the Control Bus.

Digital Pre-amp

When the digital pre-amp mode is enabled on the StreamMagic 6, the mobile application allows direct manipulation of playback volume via a slider located on the Now Playing screen.

Connected Azur Amplifier/AV Receiver

Users can enable Azur Mode in the Settings screen on the application when using the StreamMagic 6 in conjunction with a Cambridge Audio Azur amplifier/AV Receiver. Users should then select whether they are using a Cambridge Audio Azur amplifier or an AV Receiver. If the Stream Magic 6 and the Amp/AV Receiver are connected using the supplied orange Control Bus cable as shown below.



Volume control is now possible via the 'Now Playing' screen volume-up and volume down buttons.

Technical specifications

D/A Converters	Dual Wolfson WM8740 24-bit DACs
Analogue filter	2-Pole Dual Differential Bessel Double Virtual Earth Balanced
THD @ 1kHz 0dBFs	<0.001% 24-bit (at volume set to full)
THD @ 1kHz -10dBFs	<0.001% (at volume set to full)
THD @ 20kHz 0dBFs	<0.002% (at volume set to full)
Frequency Response	20Hz-20kHz +/- 0.1dB *
Signal to Noise ratio	-112dB (at volume set to full)
Total correlated jitter	< 130pS
Crosstalk @ 1kHz	< -100dB
Crosstalk @ 20kHz	< -90dB
Digital outputs	S/PDIF Co-axial and Toslink Optical 16/24-bit, 32-96kHz
Audio Formats	WAV containing uncompressed PCM 16/24-bit 32-96kHz FLAC containing losslessly compressed PCM 16/24-bit 32-96kHz AIFF containing uncompressed PCM 16-bit 32-48kHz Microsoft® Windows Media™ Audio (WMA 9 Standard) 32-320kbps MP3 (CBR or VBR) 16-320kbps AAC, HE AAC and AAC+ (CBR or VBR) 16-320kbps OGG Vorbis 32-320kbps
Streaming Protocols	RTSP (Real Time Streaming Protocol) MMS (Microsoft Media Server Protocol) HTTP (Hyper Text Transfer Protocol)
Playlists	ASX (Microsoft® playlist format) M3U, PLS
Wi-Fi	IEEE 802.11 b/g or n (2.4GHz connection used only)
Wi-Fi Encryption	WEP, WPA, WPA2
Ethernet	IEEE 802.3, 10 Base-T or 100 Base-T
USB	2 x USB 1.1 current limited to 1A each
File systems	FAT32, NTFS
Mains inlet voltage	100-240 VAC (switch mode)
Standby consumption	<0.5W
Max power consumption	30W
Dimensions	85 x 430 x 305mm (3.4 x 16.9 x 12.2")
Weight	4 Kg(8.8lbs)

* Steep filter disabled

* iRadio/Streaming Services are output as 16-bit data at the appropriate sample rate for the decompressed data. The sample rate will be 32kHz, 44.1kHz or 48kHz depending on the streams sample rate.

Incoming streams of less than 32kHz sample rate cannot be output over S/P DIF /Toslink.

For compressed streams the true resolution of the audio is of course limited by the encoding.

For Media content from local drives or UPnP this outputs in its native resolution of 16/24-bit, 32kHz 44.1kHz 48kHz or 96kHz with bit for bit transfer.

Troubleshooting

If you experience any trouble with your Stream Magic 6, then you may find it useful to visit the help section on our webpage at <http://support.cambridgeaudio.com/>.

If you have trouble with the Stream Magic service then you may also find it useful to visit the help section at www.stream-magic.com.

General Help guidelines:

If you have trouble connecting the Stream Magic 6 to your network, these steps may help to resolve the problem:

- Confirm that a connected computer can access the Internet (i.e. can browse the web) using the same network.
- Check that a DHCP server is available, or that you have configured a static IP address on the Stream Magic 6. You can configure a static IP address on the Stream Magic 6 using the menu item 'Settings -> Network Config -> Edit Config', and then select 'No' for 'Auto (DHCP)'. DHCP is however the recommended method.
- Check that your network's firewall is not blocking any outgoing ports. As a minimum, the radio needs access to UDP and TCP ports 80, 554, 1755, 5000, 6000 and 7070.
- Check your access point does not restrict connections to a particular MAC addresses. You can view the radio's MAC address using the menu item 'Settings -> Network Config -> View Config -> MAC address'.
- If you have an encrypted Wi-Fi network, check that you have entered the correct key or passphrase into the Stream Magic 6. Remember that text-format keys are case sensitive. If, when attempting to connect to an encrypted network, your Stream Magic 6 displays: 'Wireless error' followed by a 5-digit number, then please ensure that you enter the correct passphrase for the network. If the problem persists, then you may need to consult your network configuration.

If your Stream Magic 6 can connect to the network successfully, but is unable to play particular Stream Magic stations, it may be due to one of the following causes:

- The station is not broadcasting at this time of the day (remember it may be located in a different time zone).
- The station has reached the maximum allowed number of simultaneous listeners.
- The station is not broadcasting anymore.
- The link in our database is simply out of date.
- The Internet connection between the server (often located in a different country) and you is slow.
- Try using a computer to play back the stream via the broadcaster's web site.

If you can play back the station with a computer, you can use the form at www.stream-magic.com to notify us so that we can investigate.

If you have problems with UPnP playback always check the following:

- Ensure your chosen UPnP server software is capable of serving the file type you are trying to access. Some servers do not serve FLAC for instance.
- The Stream Magic 6 can only play non DRM files. Files that have DRM controls cannot be played by the Stream Magic 6. Some servers may be able to authorise and de-crypt Microsoft Playsforsure before then serving the content to the Stream Magic 6 but this operation is not guaranteed as it is purely a function of the server.
- If attempting to play 24-bit WAV or FLAC content note a wired Ethernet connection is normally required for reliable operation due to bandwidth considerations.
- Check the Stream Magic 6 is capable of playing back the file type you are trying to access. WMA, AAC, MP3, Vorbis, FLAC and WAV can currently be played. The Stream Magic 6 does not support ALAC, WMA Pro, WMA lossless, RAW, AU or other file types not mentioned.

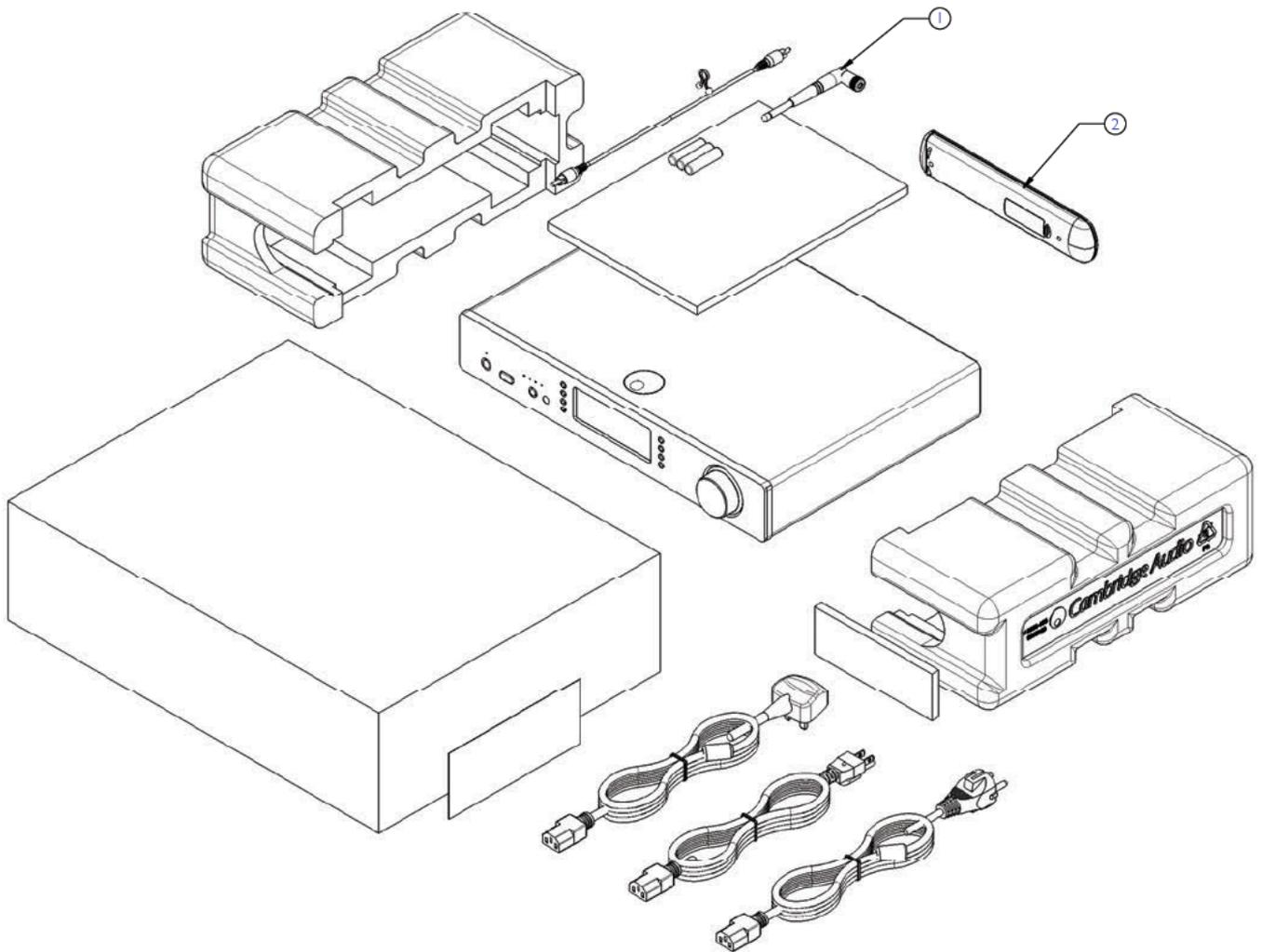
If you have problems with USB Media playback always check the following:

- Check the Stream Magic 6 is capable of playing back the file type you are trying to access. WMA, AAC, MP3, Vorbis, FLAC and WAV can currently be played.
- The Stream Magic 6 does not support ALAC, WMA Pro, WMA lossless, RAW, AU or other file types not mentioned.
- For USB Media the Stream Magic 6 can only play non DRM files. Files that have DRM controls cannot be played.
- Check that your device does not require more than 1A if it is powered from the USB socket itself.
- Check your device is formatted in FAT32 format.
- The way you organise your USB media affects the size of internal database the Stream Magic 6 needs to build dynamically as you browse content. Good practice is to create folders for Artists within which you should have a sub folders for each Album which then containing the tracks for that Album. Libraries with thousands of tracks in one folder will progressively slow down the Stream Magic 6s media browsing.

For all servicing, in or out of warranty, please contact your dealer.

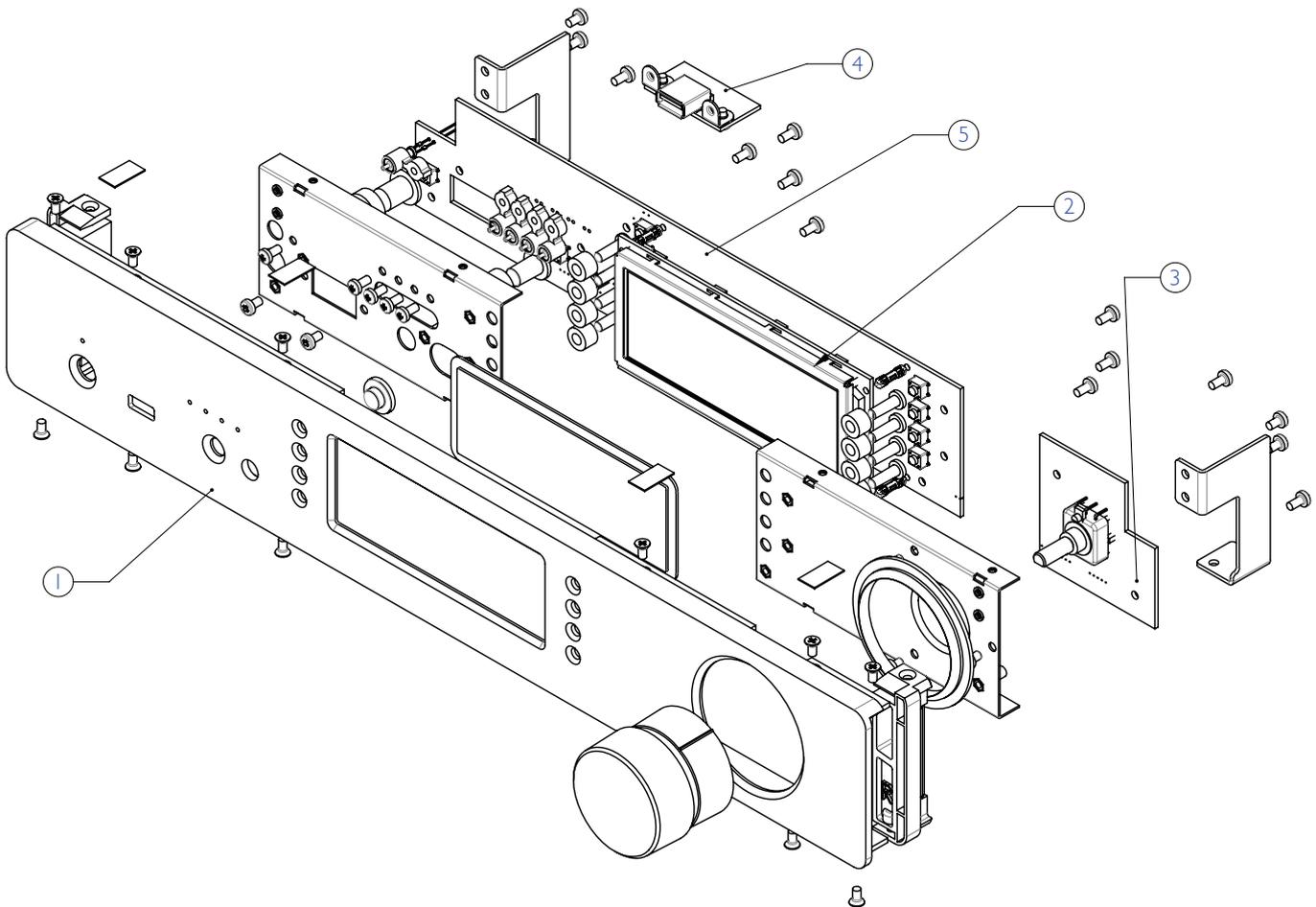
Packaging exploded diagram

Drawing ref	Part numbers	Description
1	PF418	Wi-Fi antenna
2	PF511	Remote control



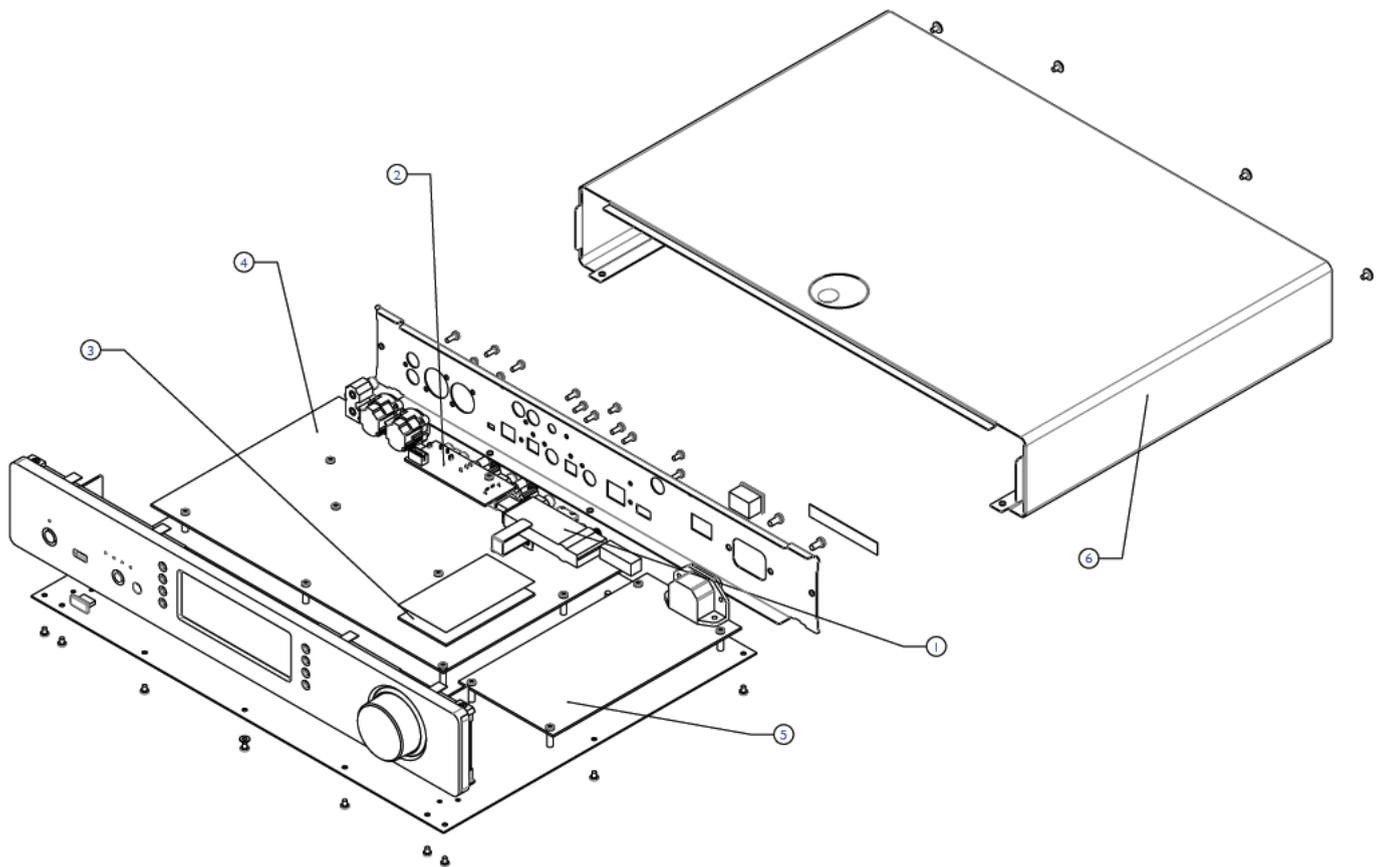
Front panel exploded diagram

Drawing ref	Part numbers	Description
1	PZ714	Front panel black colour
1	PZ715	Front panel silver colour
2	PZ659	Display assy
3	PF503	Encoder PCB assy
4	PF501	USB PCB assy
5	PF500	Front panel PCB assy

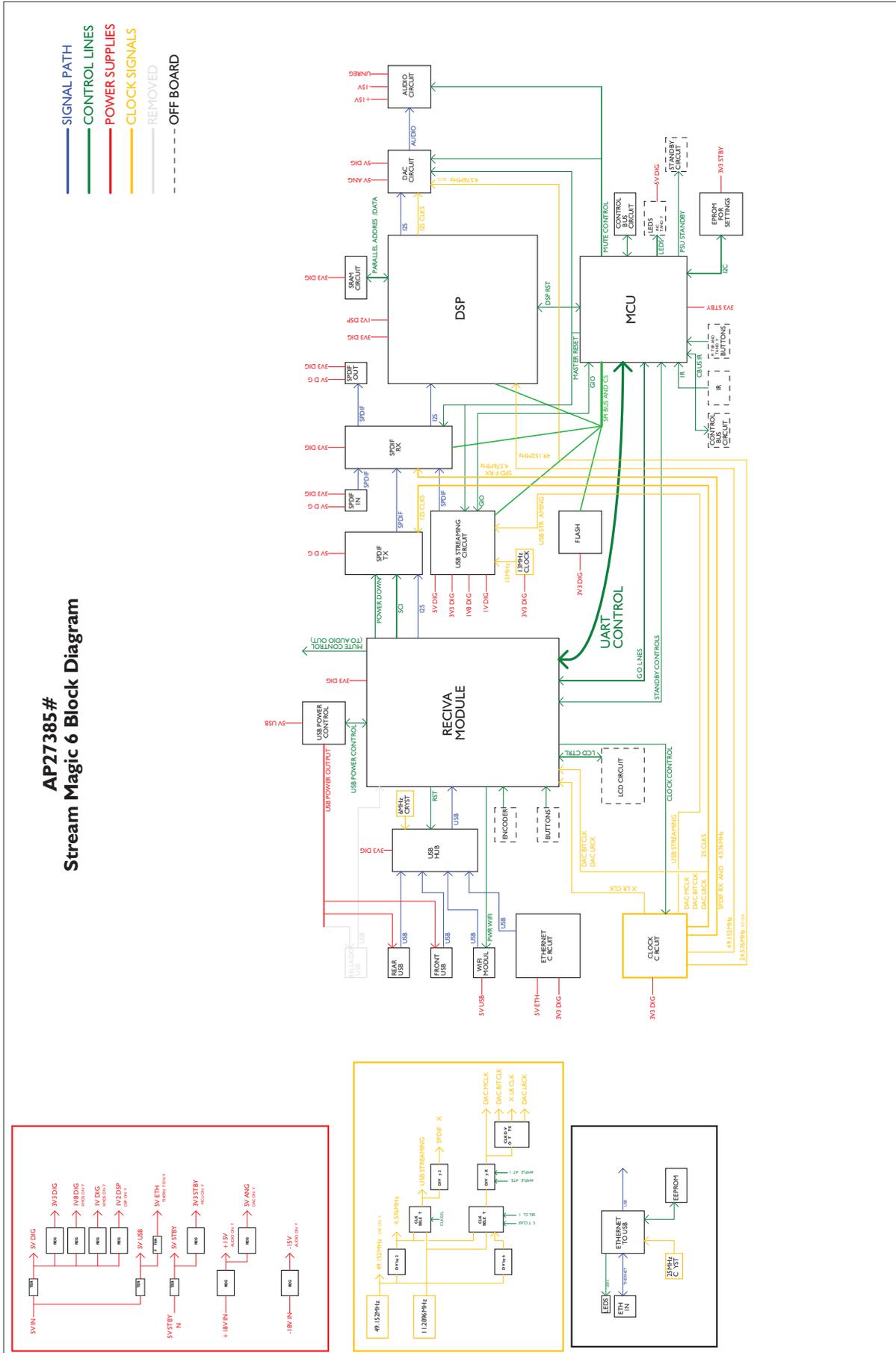


Unit exploded diagram

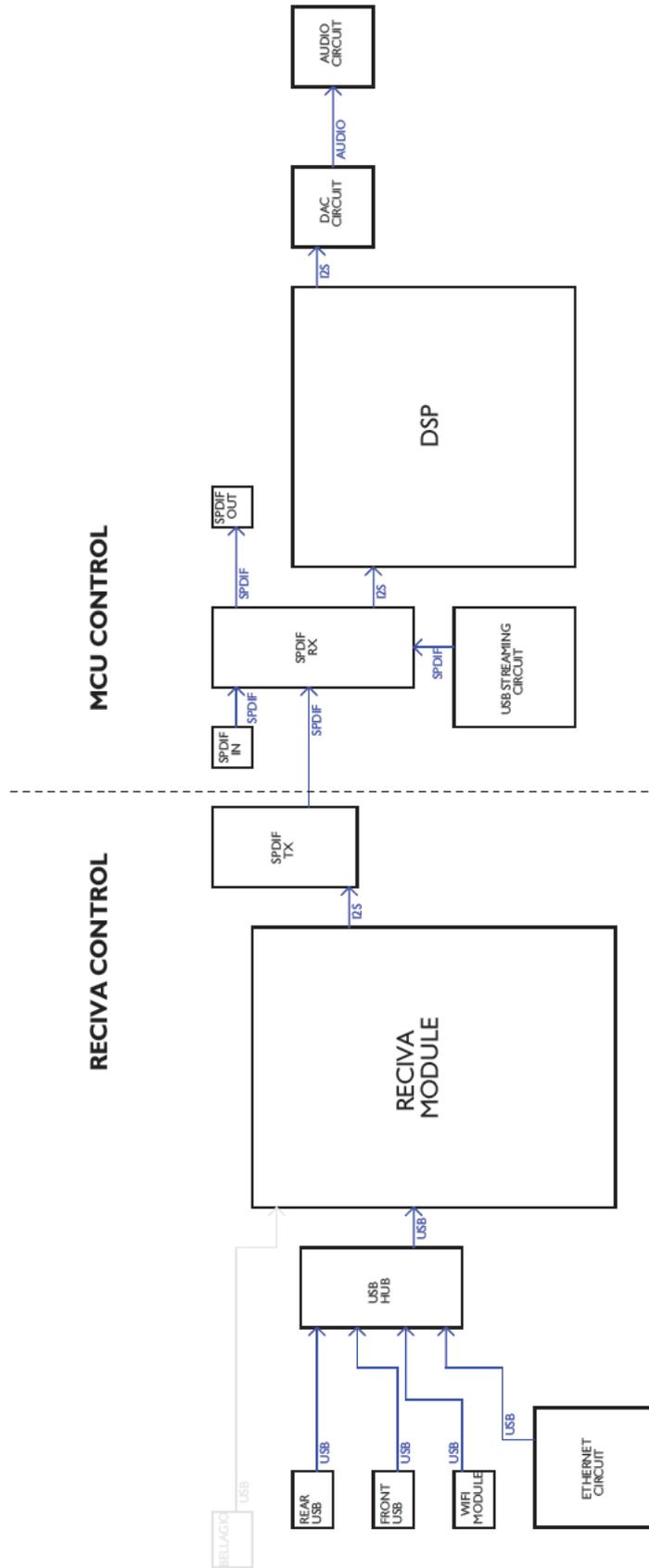
Drawing ref	Part numbers	Description
1	PF506	Wi-Fi module
2	PF502	Control bus PCB assy
3	PF356	Stingray module (same as NP30)
4	PF504	Audio PCB assy
5	PF505	SMPS PCB assy
6	PY1612	Top cover black
6	PY1614	Top cover silver



Block diagrams



Stream Magic 6 Signal Path Block Diagram



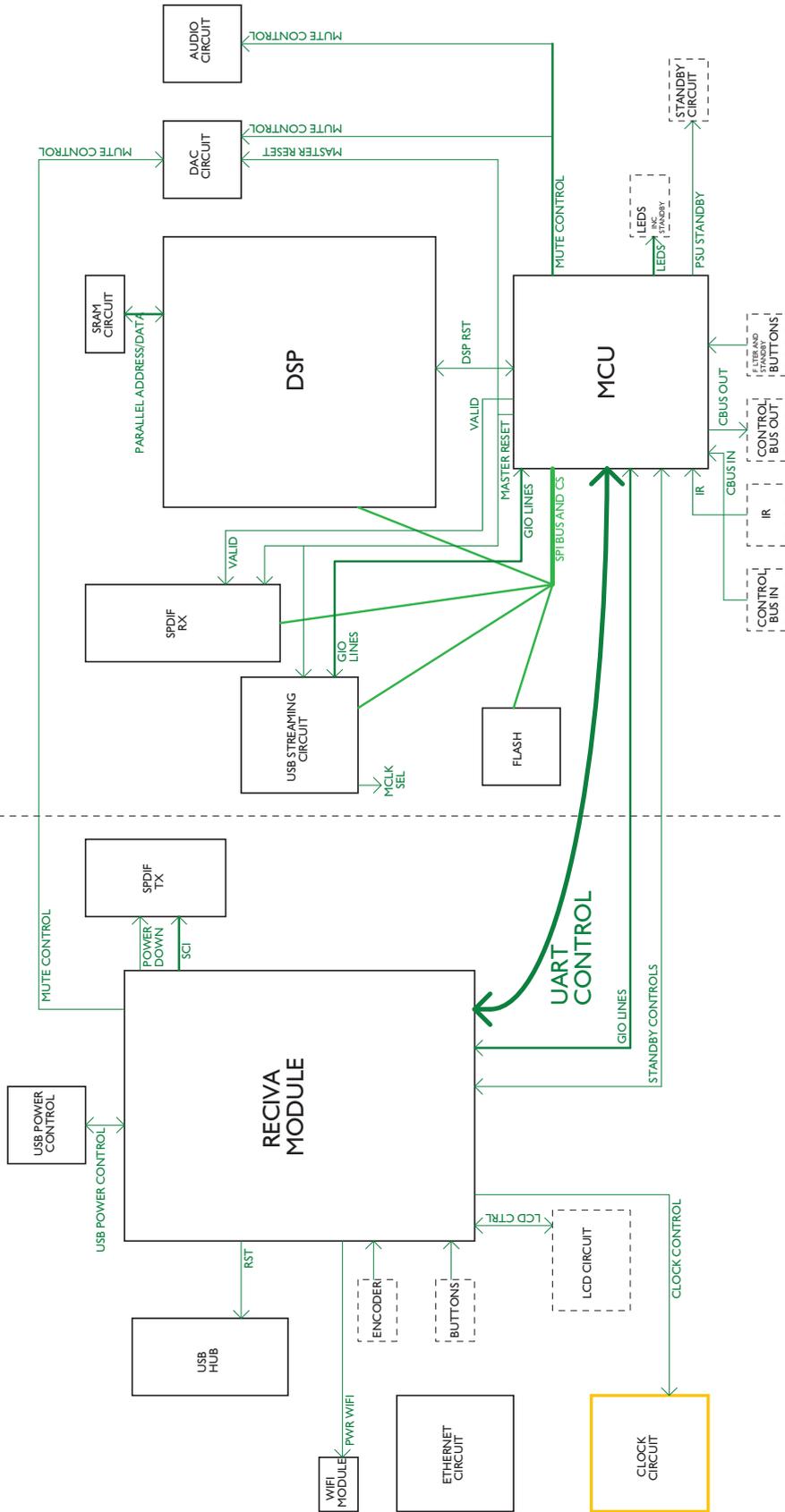
NOTES

RECIVA MODULE HAS DIRECT CONTROL OF SPDIF TX
 MCU HAS DIRECT CONTROL OF SPDIF RX AND MUTE
 HOWEVER MCU IS TO BE SLAVE TO RECIVA
 SO RECIVA CONTROLS THE WHOLE ROUTING
 OF SIGNAL PATH

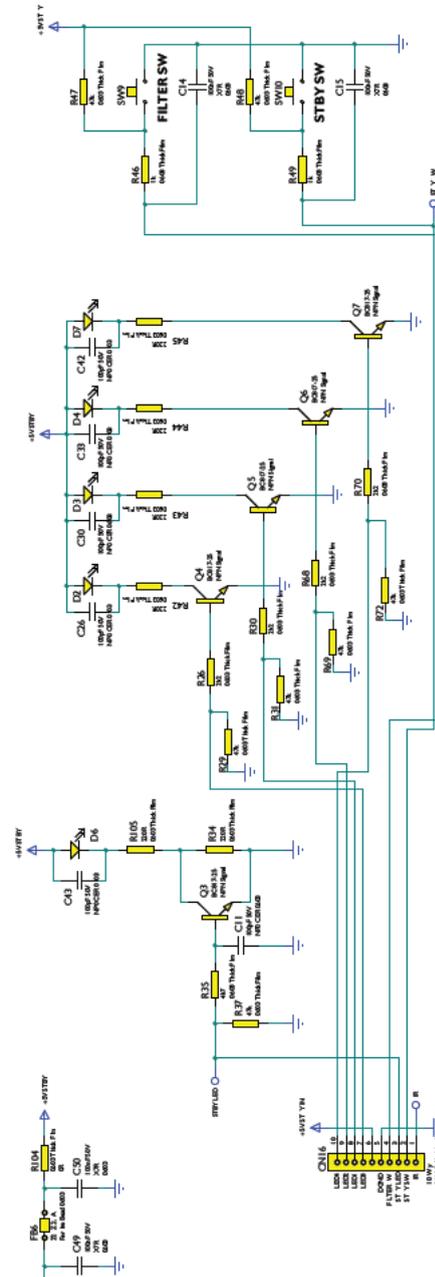
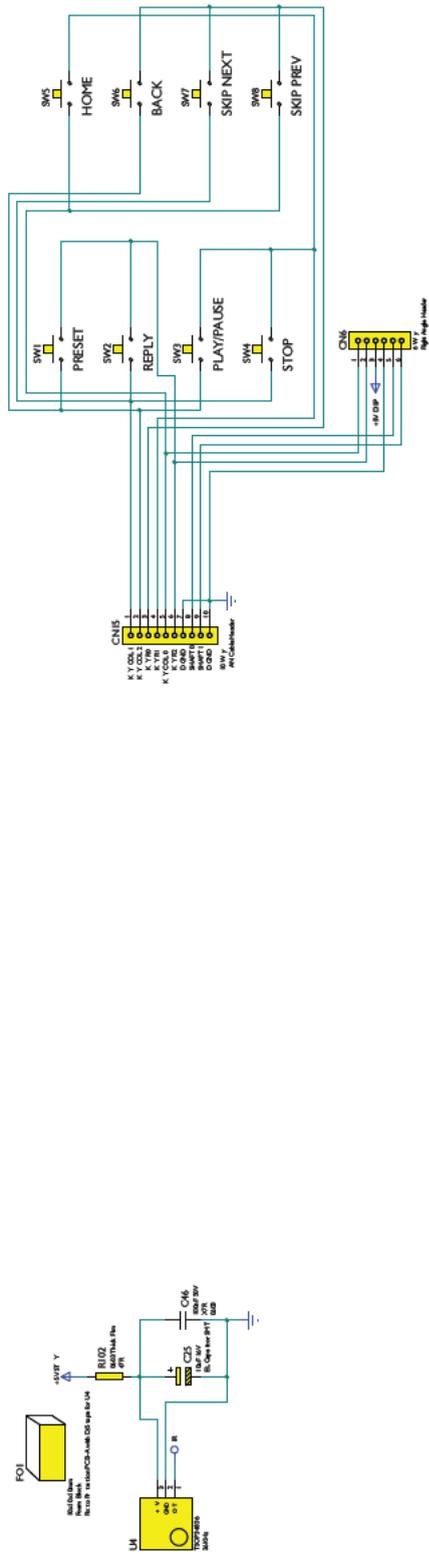
Stream Magic 6 Control Lines Block Diagram

RECIVA CONTROL

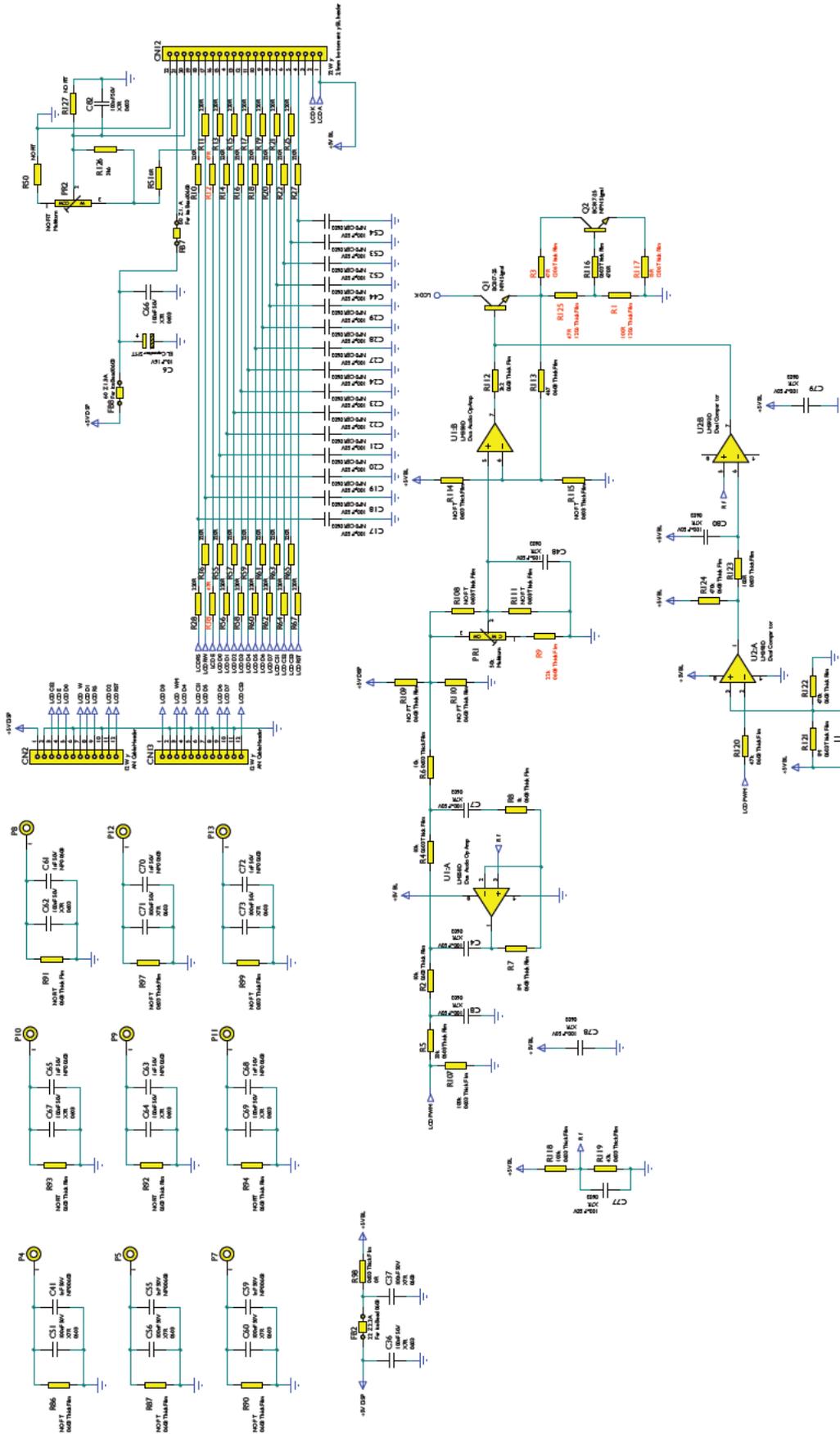
MCU CONTROL



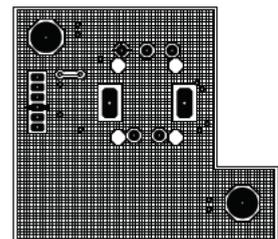
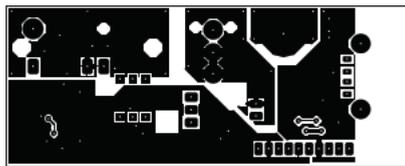
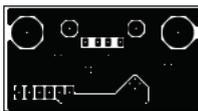
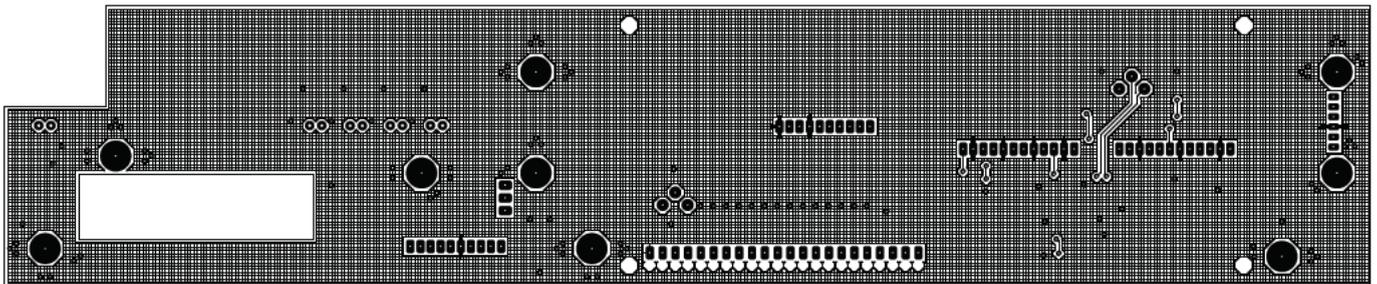
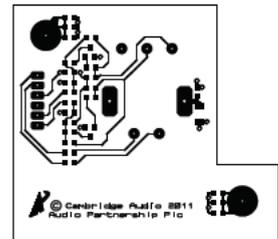
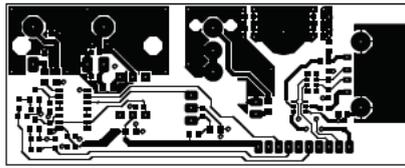
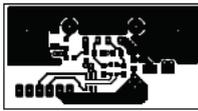
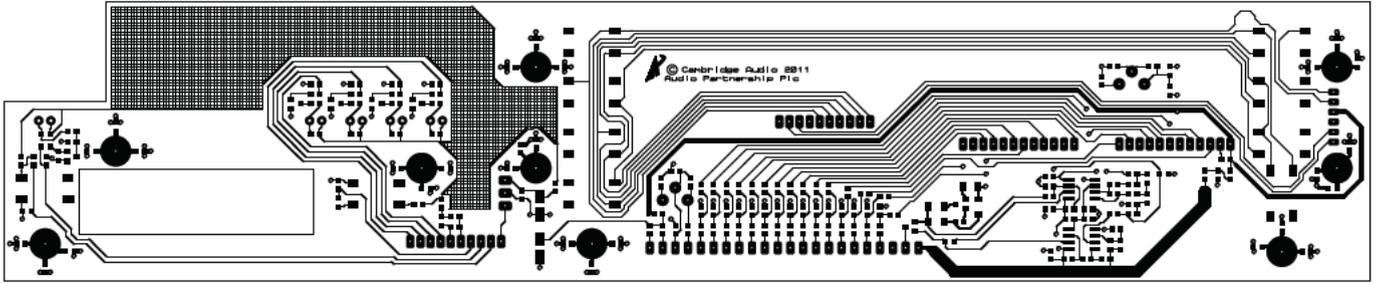
Buttons, LEDs and IR PCBs



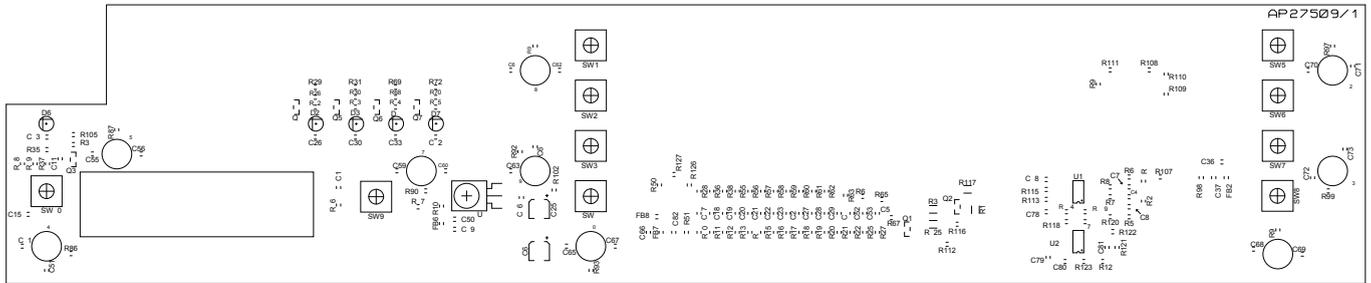
Display connections and backlight control PCBs



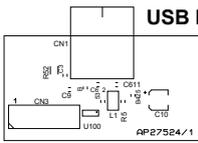
Front panel Gerbers



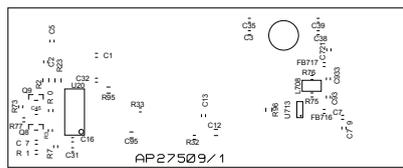
FRONT PANEL PCB



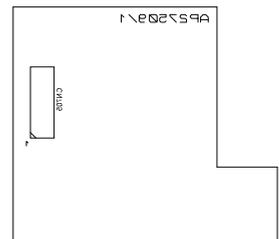
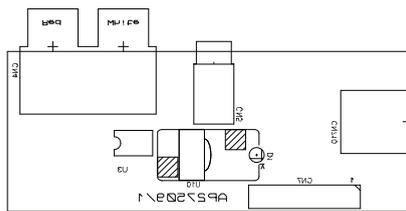
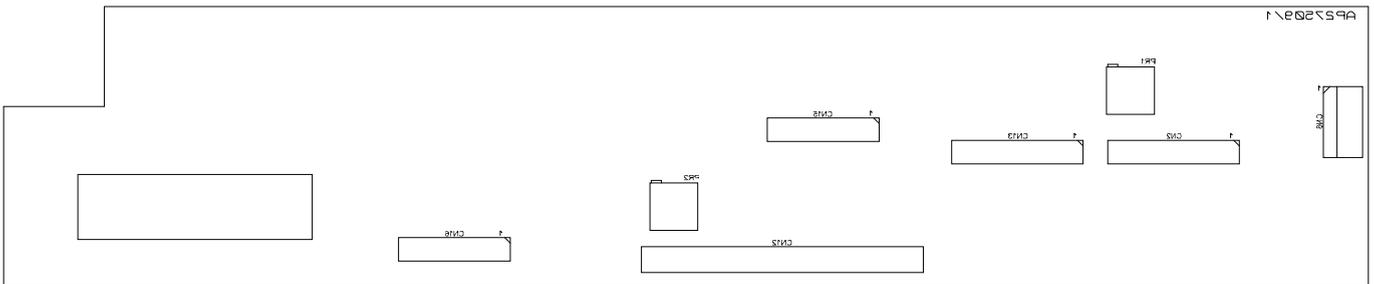
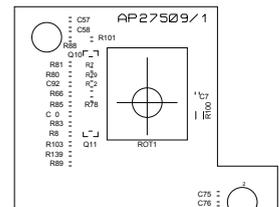
USB PCB



CONTROL BUS PCB



ENCODER PCB



Front panel PCB BOM

RESISTORS

	Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackageInfo		Part numbers
1	NO FIT		21	R50, R86-R88, R90-R94, R97, R99, R101, R103, R106, R108-R111, R114, R115, R127					
2	OR	0603 Thick Film	7	R51, R53, R54, R75, R76, R98, R104		1%	0603		
3	NO FIT		1	R100					
4	2R2	0805 Thick Film	1	R23		1%	0805		
5	10R	0603 Thick Film	2	R89, R139		1%	0603		
6	15R	1206 Thick Film	1	R117		1%	1206		
7	47R	1206 Thick Film	3	R3, R52, R125		1%	1206		
8	47R	0603 Thick Film	6	R12, R32, R38, R81, R84, R102		1%	0603		
9	100R	1206 Thick Film	1	R1		1%	1206		
10	100R	0805 Thick Film	1	R24		1%	0805		
11	100R	0603 Thick Film	3	R66, R85, R123		1%	0603		
12	220R	0603 Thick Film	34	R10, R11, R13-R22, R25, R27, R28, R34, R36, R42-R45, R55-R65, R67, R105		1%	0603		
13	220R	0805 Thick Film	2	R95, R96		1%	0805		
14	470R	0603 Thick Film	1	R116		1%	0603		
15	1k	0603 Thick Film	3	R8, R46, R49		1%	0603		
16	2k2	0603 Thick Film	5	R26, R30, R68, R70, R112		1%	0603		
17	3k6	0603 Thick Film	1	R126		1%	0603		
18	4k7	0603 Thick Film	4	R35, R39, R40, R113		1%	0603		
19	10k	0603 Thick Film	8	R2, R4, R6, R33, R41, R73, R80, R83		1%	0603		
20	22k	0603 Thick Film	1	R9		1%	0603		
21	33k	0603 Thick Film	1	R5		1%	0603		
22	47k	0603 Thick Film	11	R29, R31, R37, R47, R48, R69, R72, R74, R77, R119, R120		1%	0603		
23	100k	0603 Thick Film	6	R71, R78, R79, R82, R107, R118		1%	0603		
24	470k	0603 Thick Film	2	R122, R124		1%	0603		
25	1M	0603 Thick Film	2	R7, R121		1%	0603		

RESISTORS VARIABLE

	Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackageInfo		Part numbers
26	NO FIT		1	PR2					
27	50k	Multiturn	1	PR1	3296P	10%	Through Hole		Bourns Equivalent use 50kR resistance

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

CAPACITORS

	Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackageInfo		Part numbers
28	10pF 50V	NPO CER 0603	4	C611, C612, C933, C934		10%	0603		
29	100pF 50V	NPO CER 0603	23	C11, C17-C24, C26-C30, C33, C42-C45, C47, C52-C54		10%	0603		
30	1nF 50V	NPO 0603	14	C1, C2, C32, C41, C55, C57, C59, C61, C63, C65, C68, C70, C72, C75		10%	0603		
31	10nF 50V	X7R 0603	3	C5, C34, C39		10%	0603		
32	100nF 50V	X7R	42	C3, C4, C7-C9, C13-C16, C31, C35-C38, C40, C46, C48-C51, C56, C58, C60, C62, C64, C66, C67, C69, C71, C73, C74, C76-C82, C92, C721, C744, C749		10%	0603		
33	10uF 16V	EL Capacitor SMT	3	C6, C10, C25		10%	SMT Electrolytic 4mm dia		
34	10uF 10V	X5R CER 0805	2	C12, C95		10%	0805		

CONNECTORS

	Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackageInfo		Part numbers
35	Type A	USB	2	CN1, CN710	18004-X11X102N		Horizontal PCB Mount		
36	12 Way	SAN Cable Header	2	CN2, CN13	12P-SAN		2mm Pitch		USE CABLE ASSEMBLY AP27529/#
37	6 Way SJN	SJN Cable Header	1	CN3	6P-SAN		2mm Pitch		USE CABLE ASSEMBLY AP27531/#
38	2 Way	Horizontal Gold Plated RCA	1	CN4	AV2-8.4-14/EC		Through Hole	2330-004911E004	Orange Inserts with EMC tab
39	Mono 3.5mm	3.5mm Jack	1	CN5	CKX-3.5-12		Through Hole	2320-003911E007	
40	6 Way	Right Angle Header	1	CN6	S6B-PH-KS		2mm Pitch	2300-006010-000	
41	10 Way	SAN Cable Header	1	CN7	10P-SAN		2mm Pitch		USE CABLE ASSEMBLY AP27532/#
42	22 Way	2.5mm bottom entry SIL header	1	CN12	205-A-1X22-G				
43	10 Way	SAN Cable Header	2	CN15, CN16	10P-SAN		2mm Pitch		USE CABLE ASSEMBLY AP27528/#
44	6 Way SJN	SJN Cable Header	1	CN705	6P-SAN		2mm Pitch		USE CABLE ASSEMBLY AP27530/#

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

DIODES

	Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackageInfo		Part numbers
45	3mm Red LED	IR Demodulator	1	D1	MV50640				IR Housing (AP17339/3) PY962
46	Blue Azur LED	3mm	5	D2-D4, D6, D7	HFB963M-130			3100-000030-003	H= 6MM (LEG ONLY) PY064
	INDUCTORS								
47	120Z 3A	Ferrite Bead 0603	2	FB1, FB425	BLM18KG121TN1D		0603		120Z @100MHz
48	220Z 2.2A	Ferrite Bead 0603	4	FB2, FB6, FB716, FB717	BLM18KG221SN1D		0603		220Z @100MHz
49	600Z 1.3A	Ferrite Bead 0603	2	FB7, FB8	BLM18KG601SN1D		0603		600Z @100MHz
50	COMMON MODE CHOKE	300mA 900HM@100MHz	2	L1, L708	ACM2012H-900				

INTEGRATED CIRCUITS

	Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackageInfo		Part numbers
51	LM358	Dual Audio Op Amp	1	U1	LM358D		S08		
52	LM393	Dual Comparator	1	U2	LM393D		S08		PY1405
53	Opto IC	Opto Isolator	1	U3	4N25		DIL06	4142-500050-001	PY1144
54	36KHz	IR Receiver	1	U4	TSOP34836		Through Hole	3001-348360-000	PY755
55	36KHz	IR Receiver	1	U10	TSOP34836		Through Hole	3001-348360-000	PY755
56	74HC00	NAND Gate	1	U20	SN74HC00D		SMD S014		CD4011BCM Fairchild / MC14011BD ON / Philips HEF4011BT
57	IP4220	USB ESD Protection	2	U100, U713	IP4220CZ6		SOT457		
	SWITCHES								
58		Surface Mount Tactile	10	SW1-SW10	TD-03XA				PY1821

TRANSISTORS

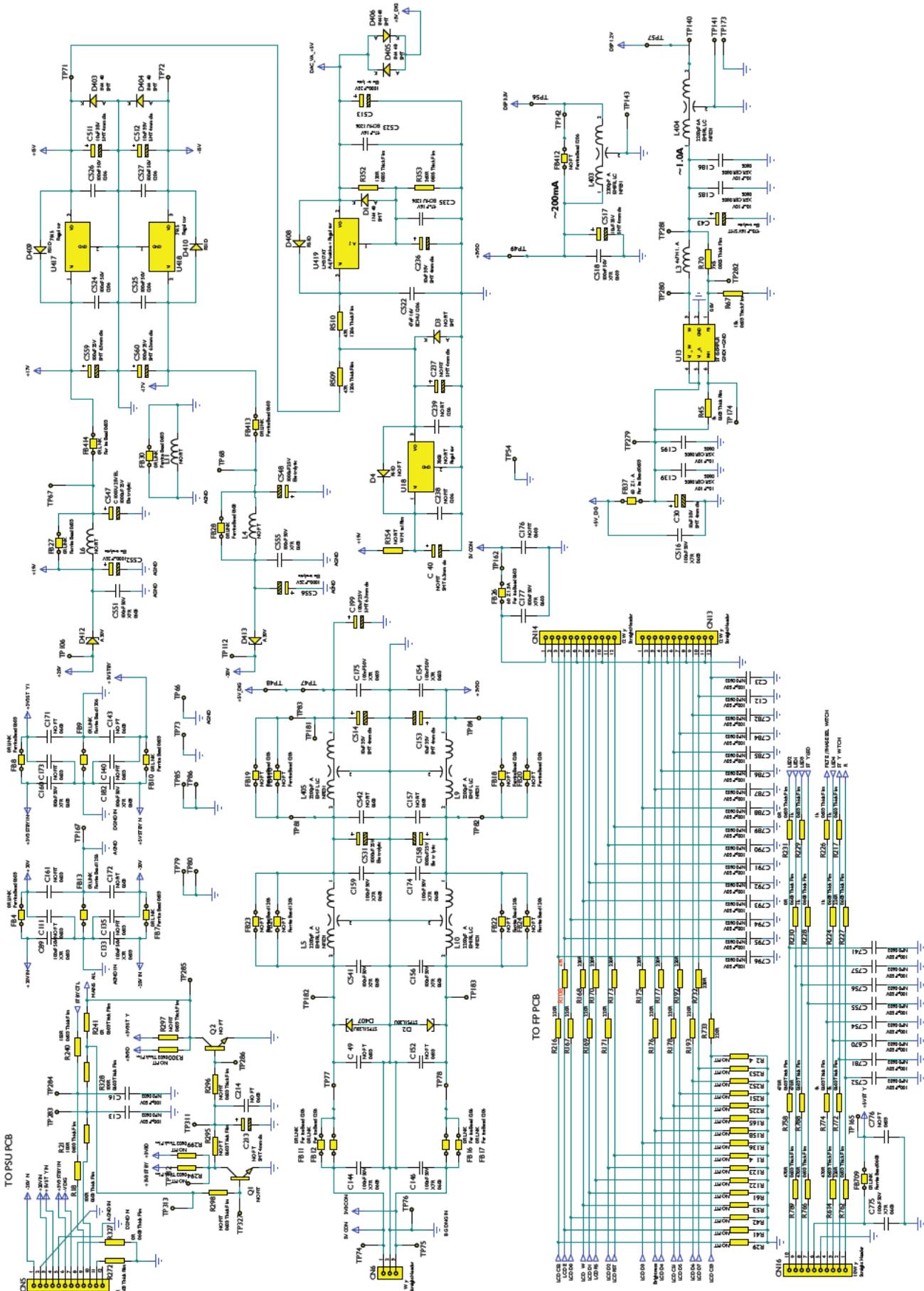
	Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackageInfo		Part numbers
59	45V 500mA	NPN Signal	11	Q1-Q11	BC817-25		SOT23	1300-817000-500	PY1847

MISCELLANEOUS

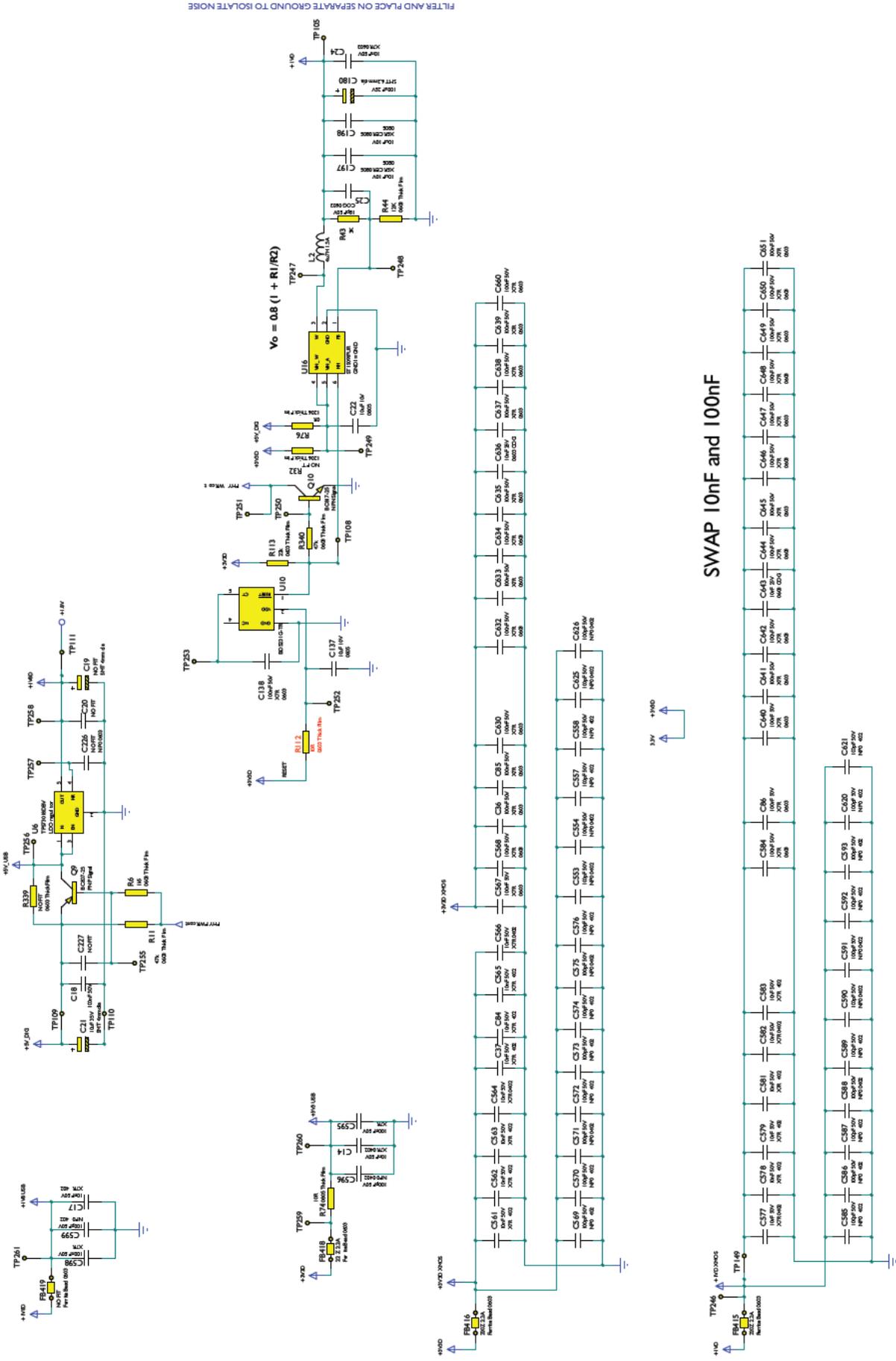
	Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackageInfo		Part numbers
60	9mm x 9mm	ALTO right-angle bracket	3	BRK1-BRK3	AP10911/2				
61	10x10x10mm	Foam Block	1	F01					Fix to Protection PCB-A with D/S tape for U4
62		Rotary Encoder	1	ROT1	REB162_9x5				PMA095
63	M3x6mm MC	P/H Metal plated Screw	3	SC1-SC3					Screw PCB to Alto Bracket

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

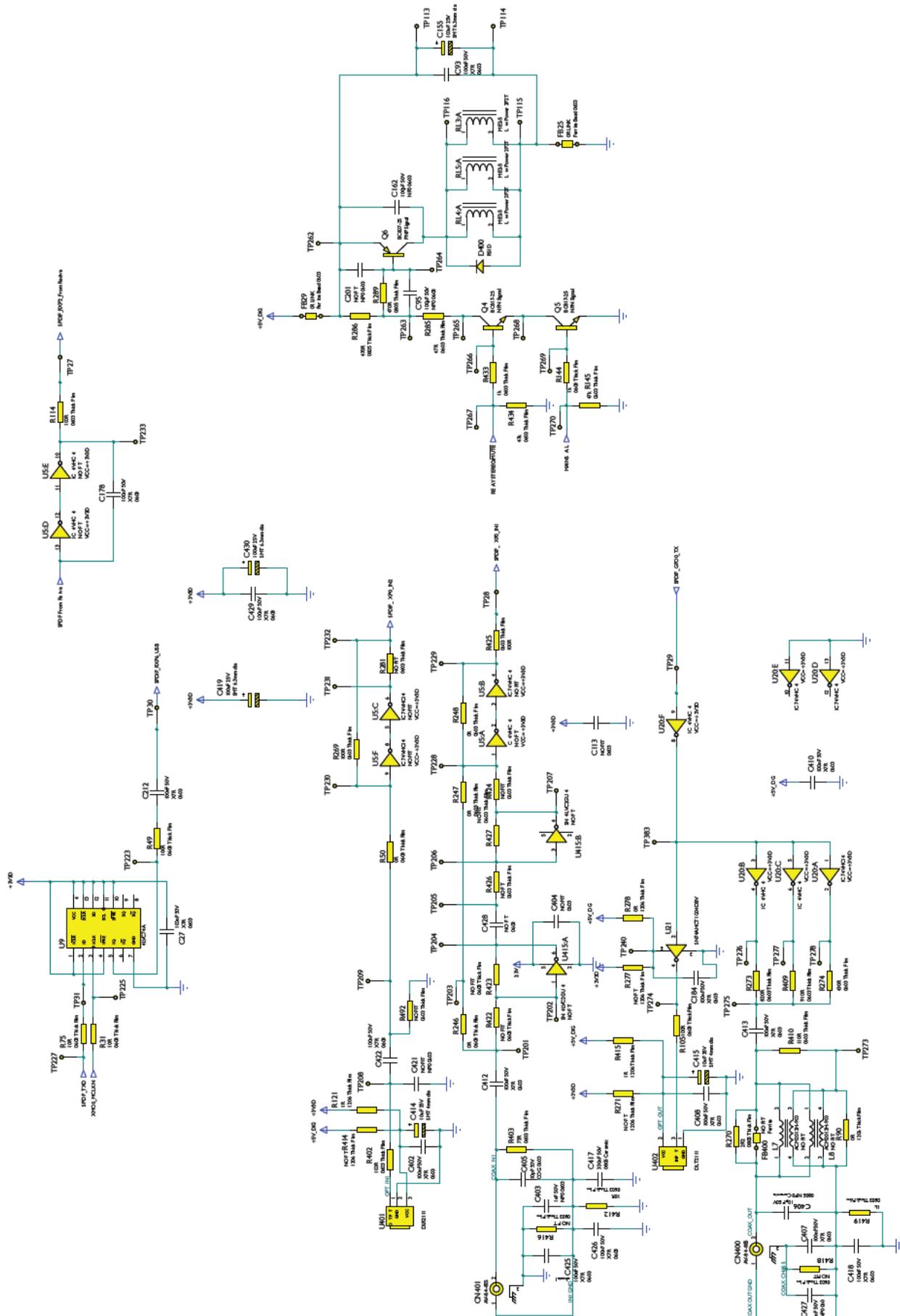
Audio PCB - Power supply



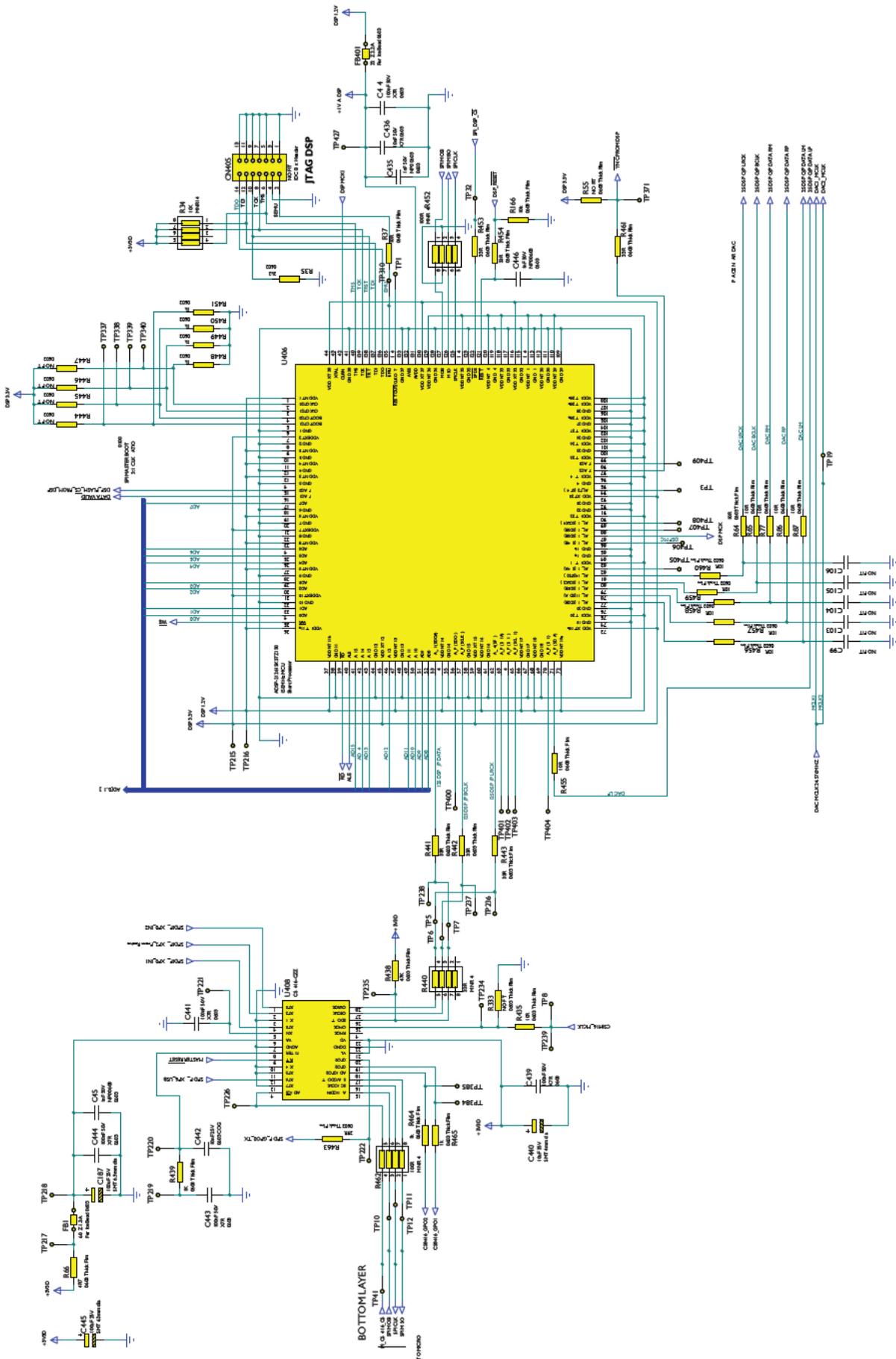
Audio PCB - USB circuit power supply



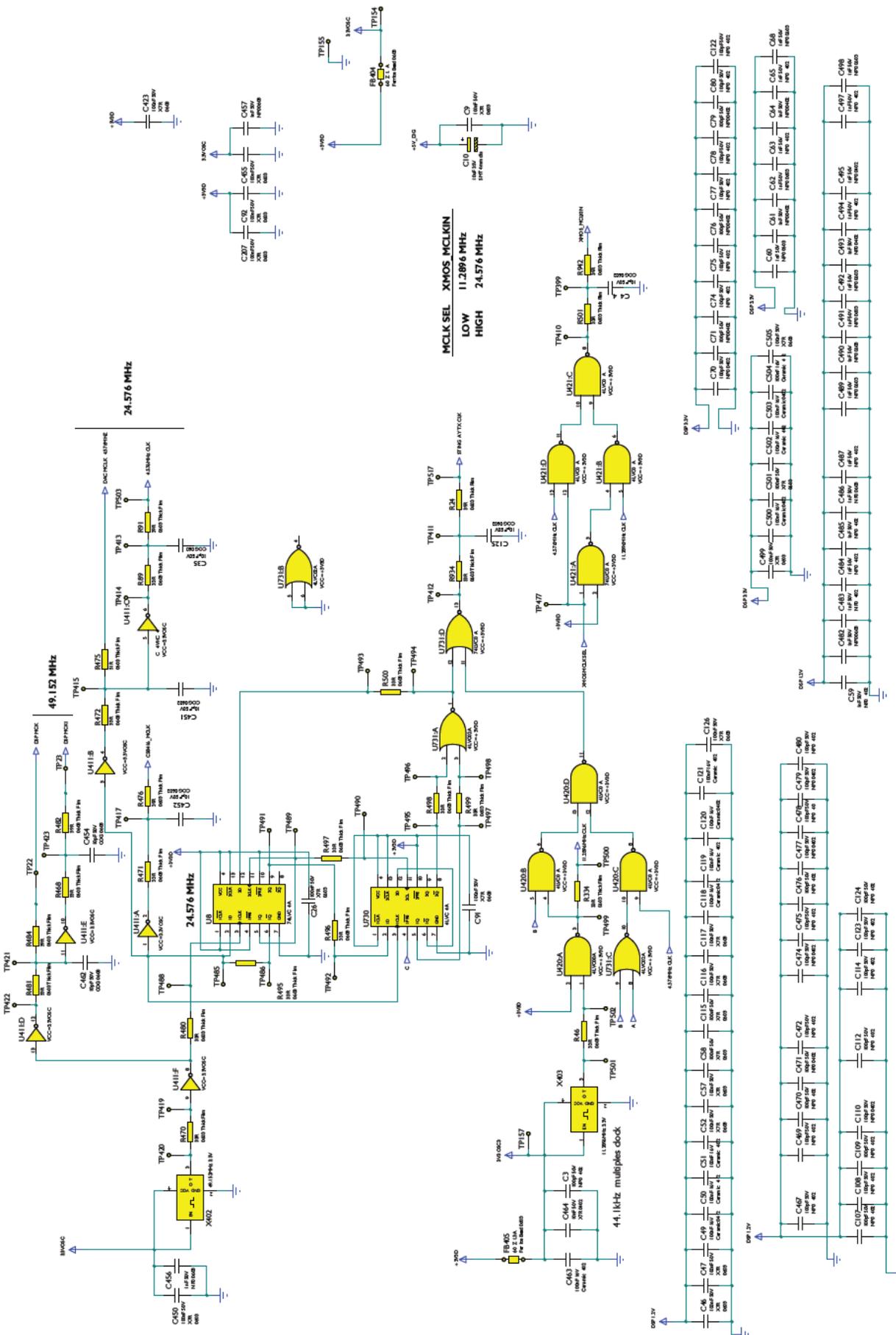
Audio PCB - SPDIF I/O relay



Audio PCB - DSP and DIR

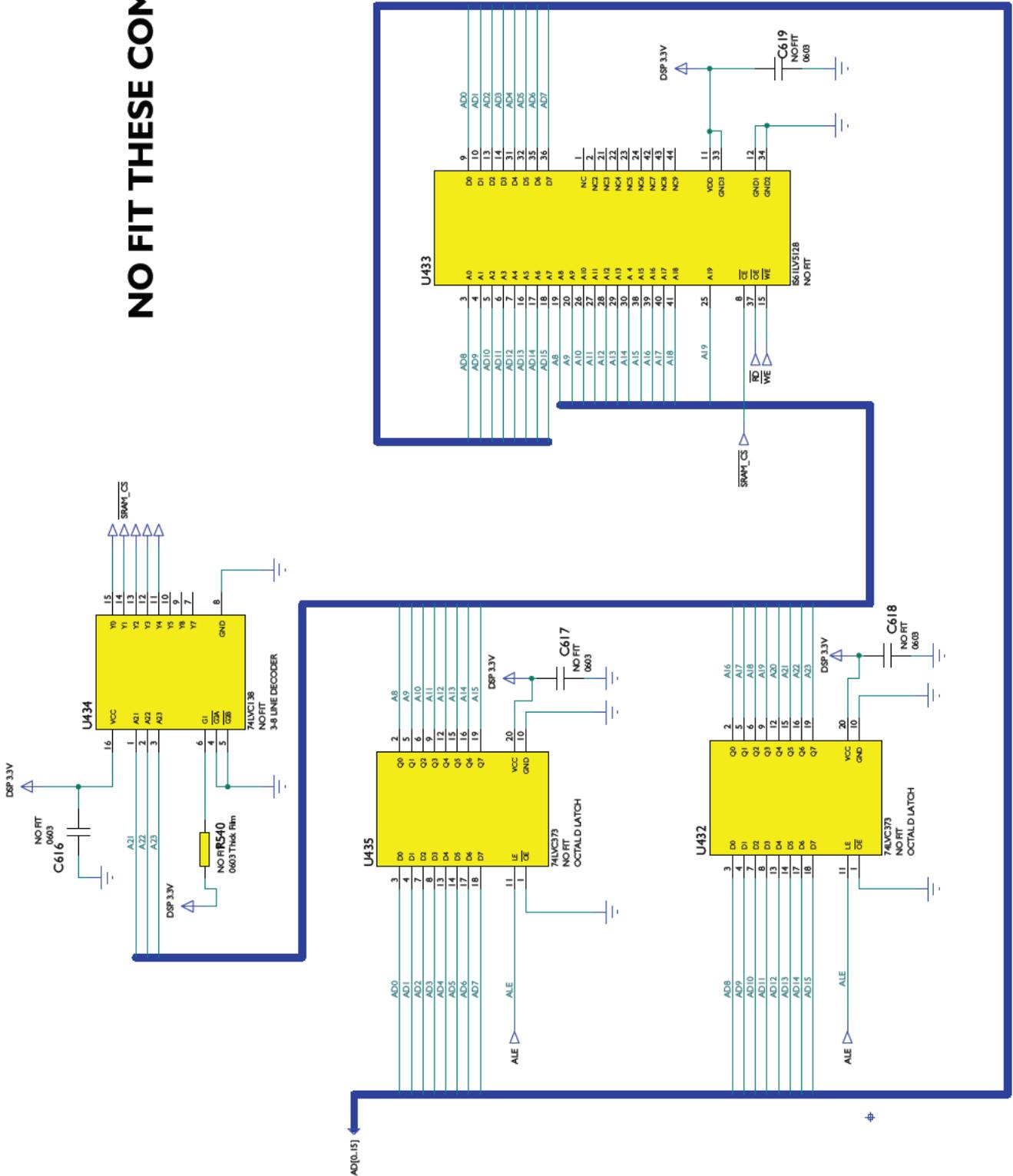


Audio PCB - Masterclocks



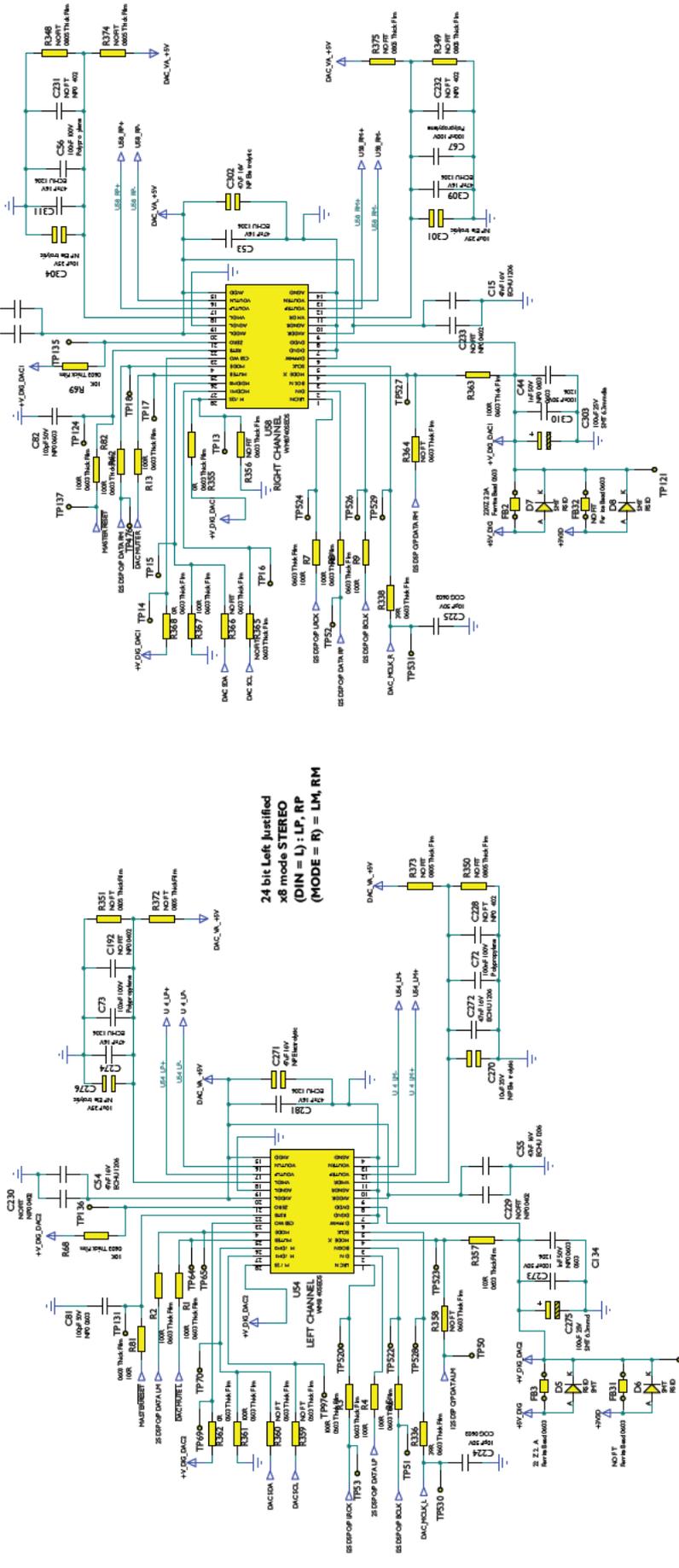
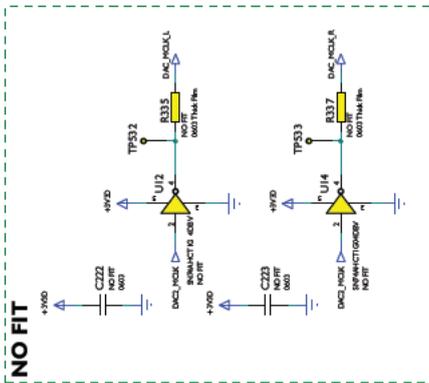
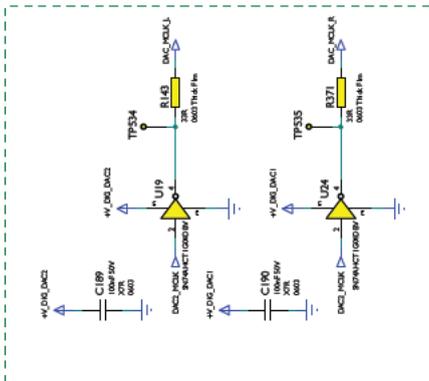
Audio PCB - SRAM

NO FIT THESE COMPONENTS



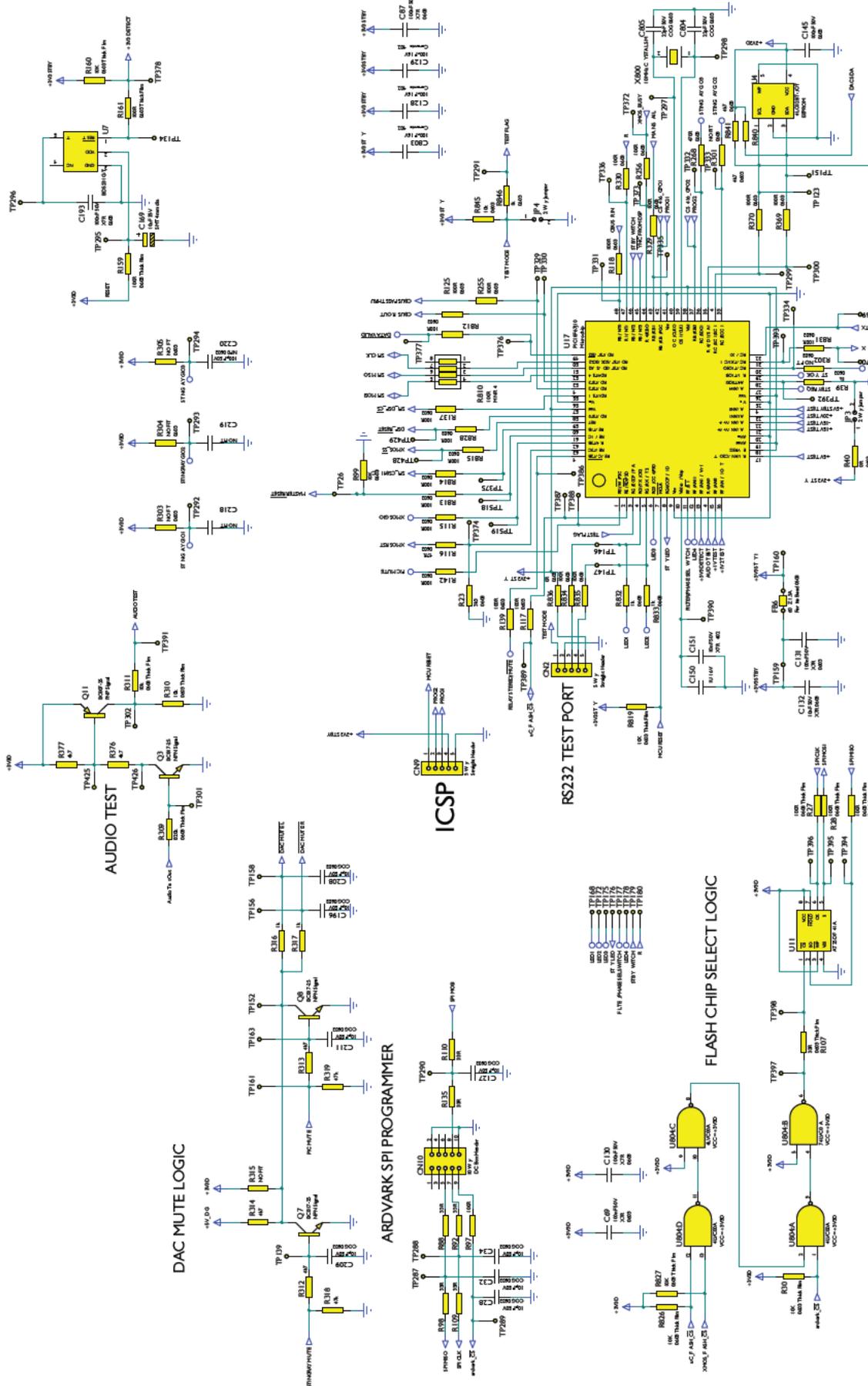
Audio PCB - WM8740/1/2 DACs

POPULATED ONE OR THE OTHER
ONE CONNECTS TO 3V3, OTHER CONNECTS TO DAC SUPPLY



24 bit Left Justified
x8 mode STEREO
(DIN = L) : LP, RP
(MODE = R) = LM, RM

Audio PCB - MCU and Flash

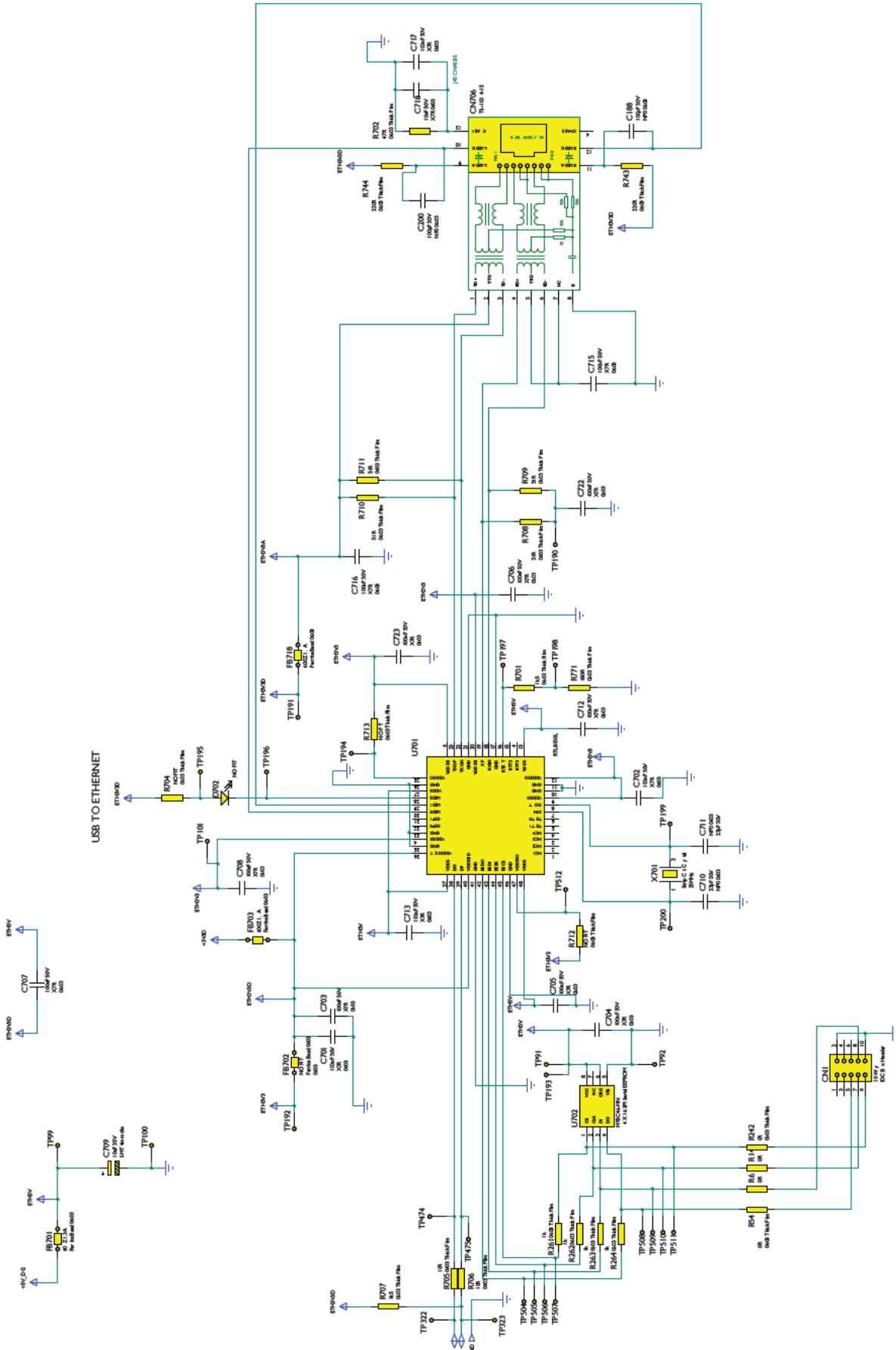


BE CAREFUL WHICH PINS ARE BUFFERED WHEN IN STANDBY
 PUT IN PROVISION FOR ICSP TO POWER UP WHEN ALL ELSE IS NOT POWERED

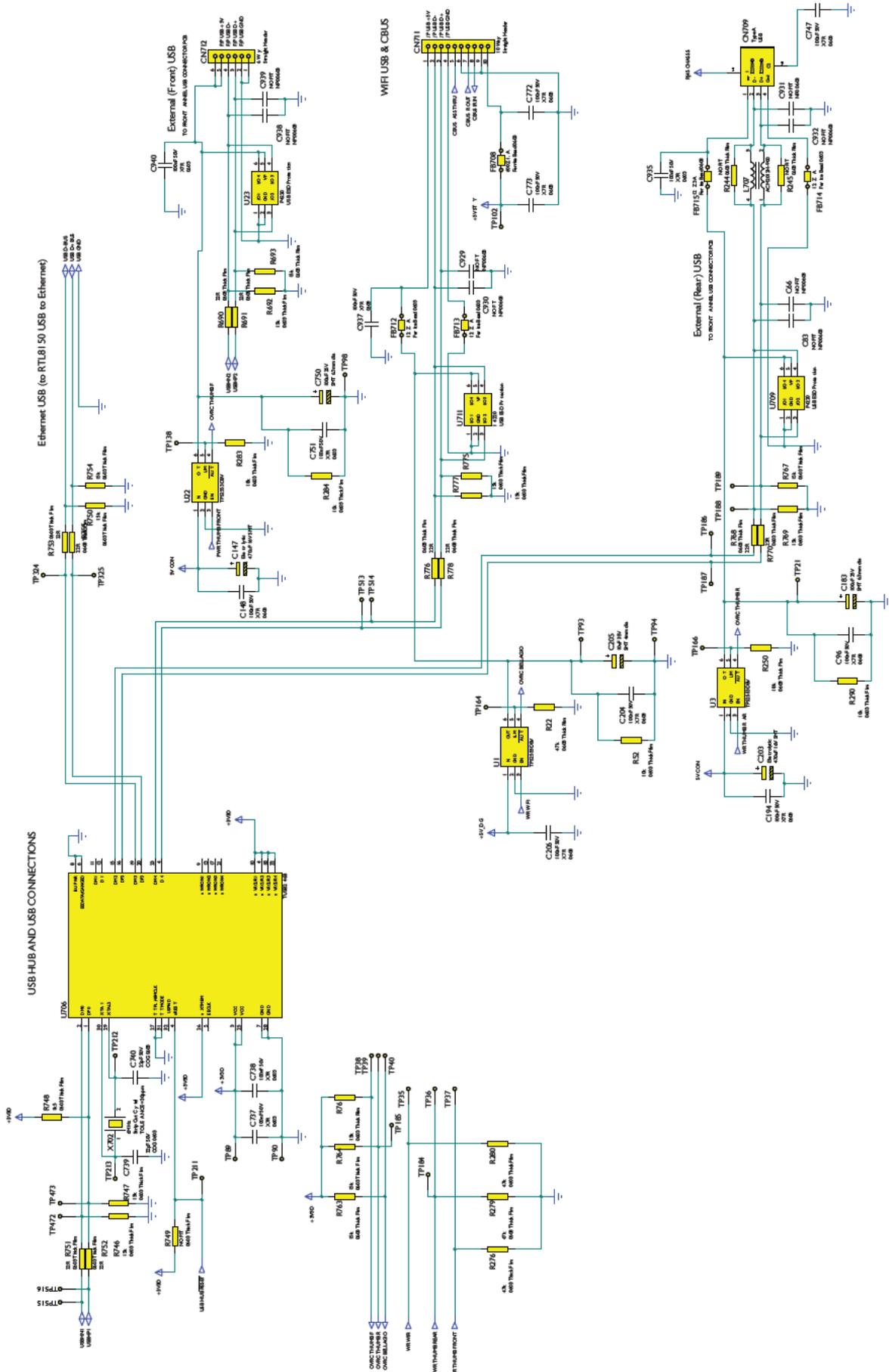
PUT CORRECT FILTER ON 3V3 STANDBY CIRCUIT

RS96-98 are high values to protect against bus contention when XMOS is functioning as a master PUT CORRECT FILTER ON 3V3 STANDBY CIRCUIT

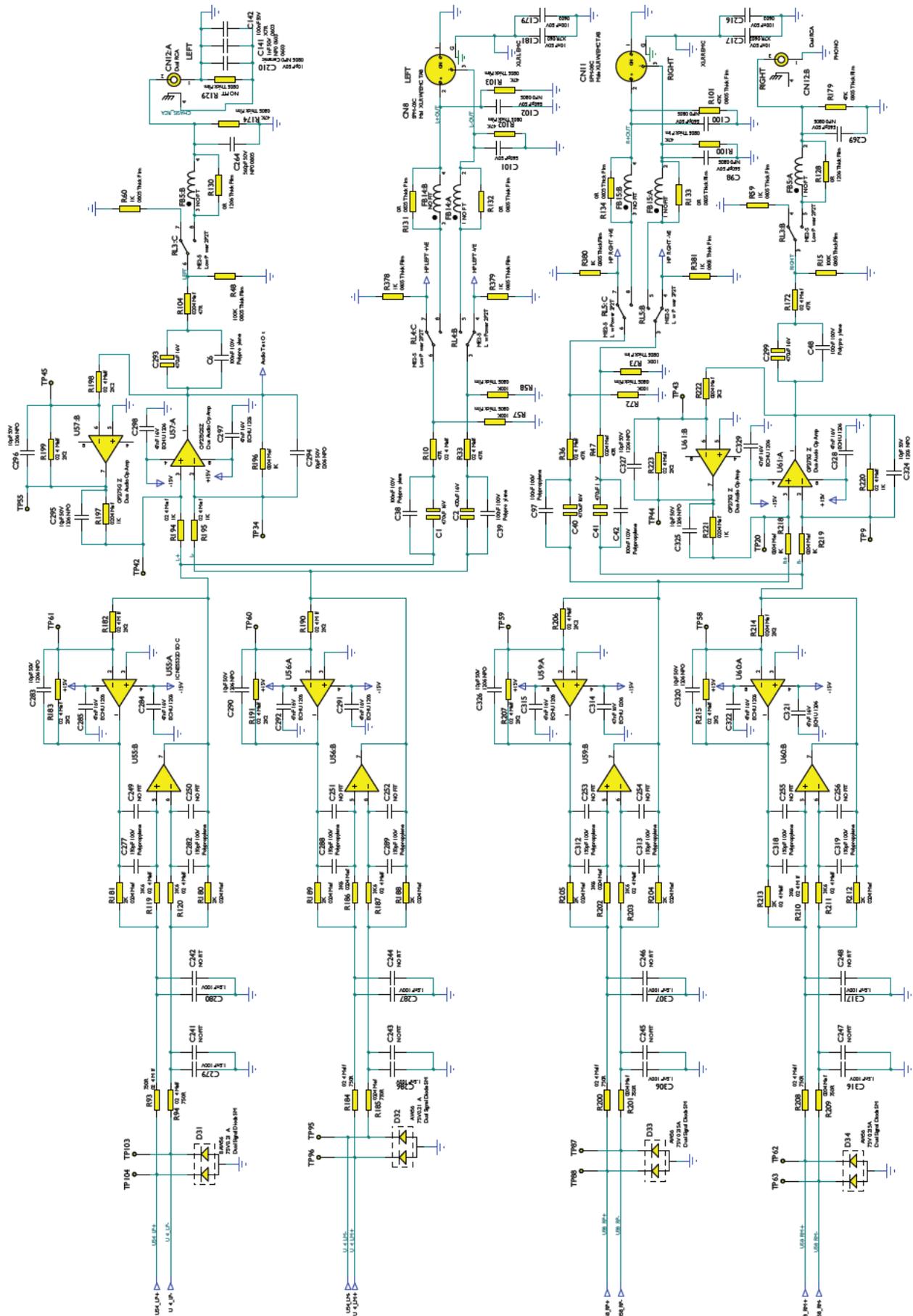
Audio PCB - Ethernet to USB



Audio PCB - USB HUB

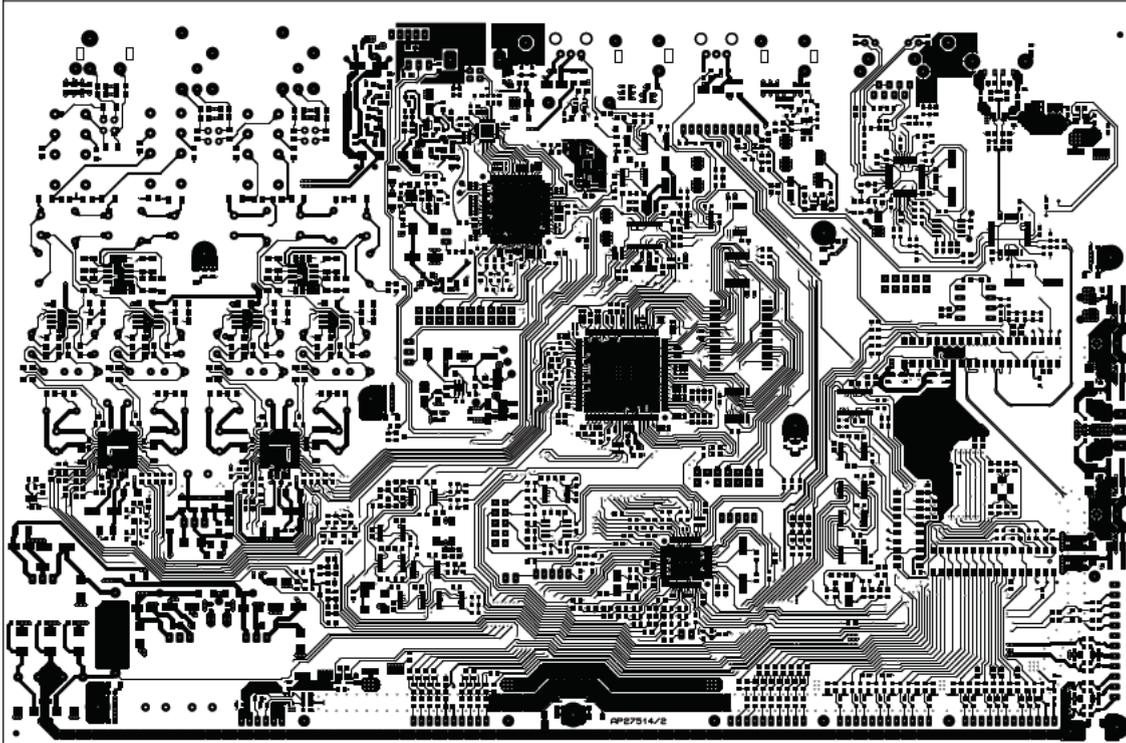


Audio PCB - Analogue stage

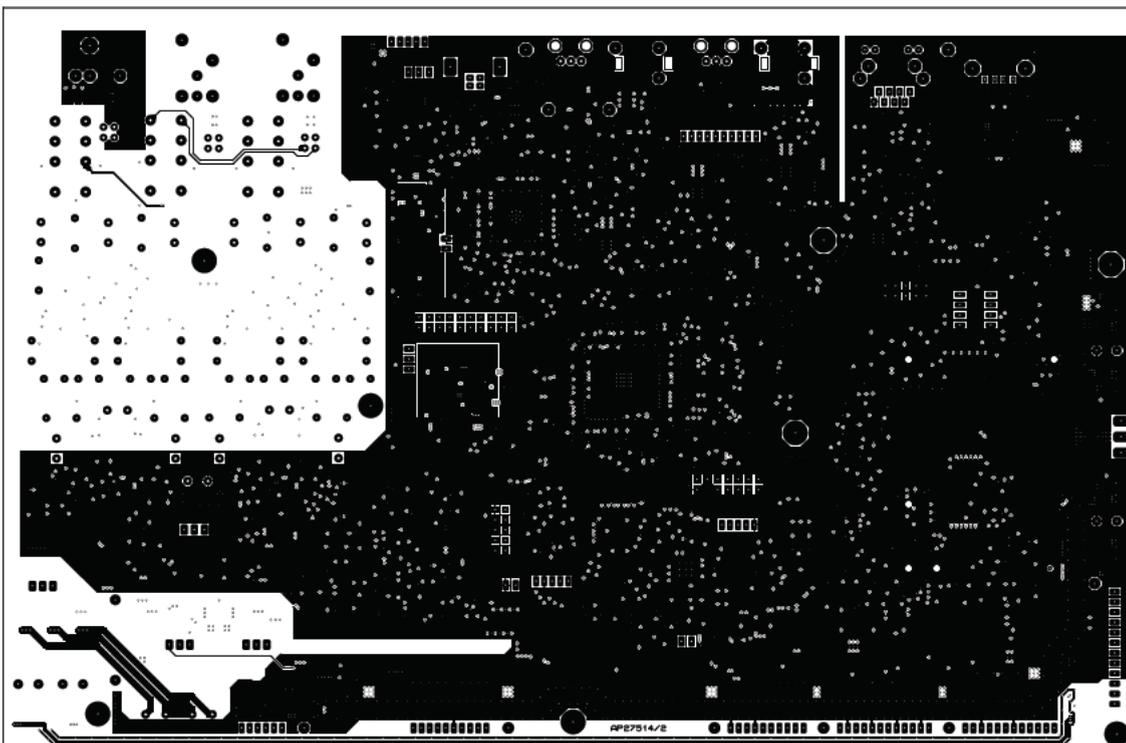


Audio PCB - Gerbers

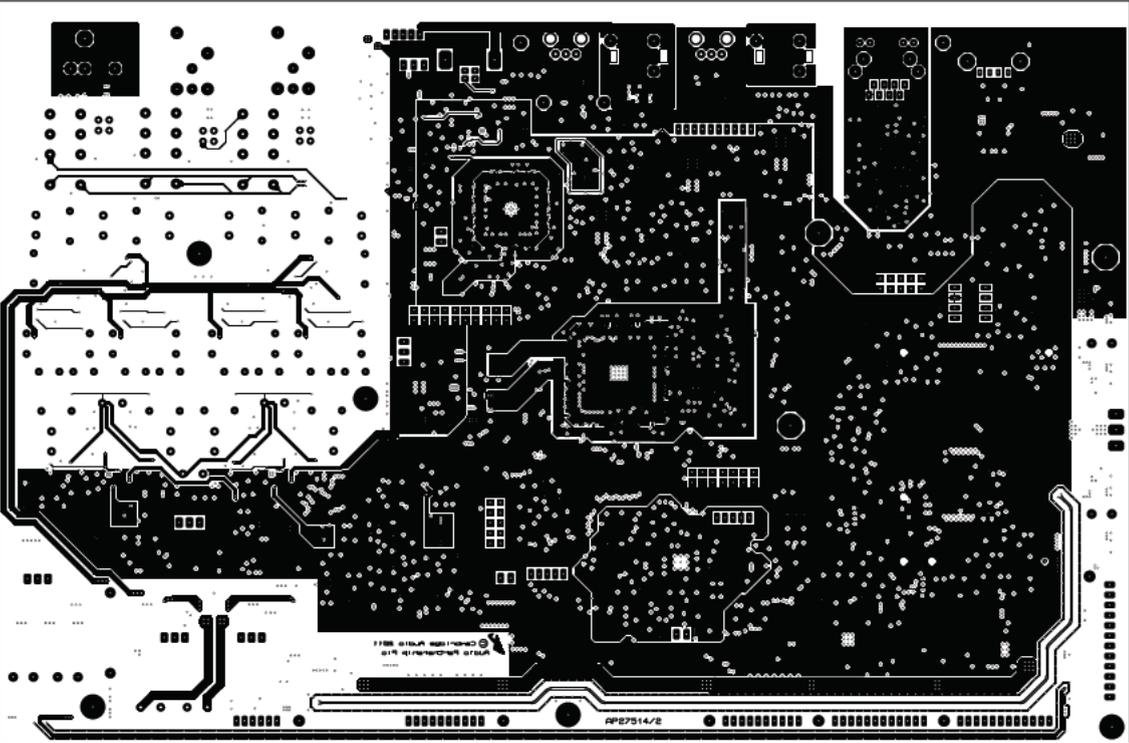
TOP COPPER LAYER



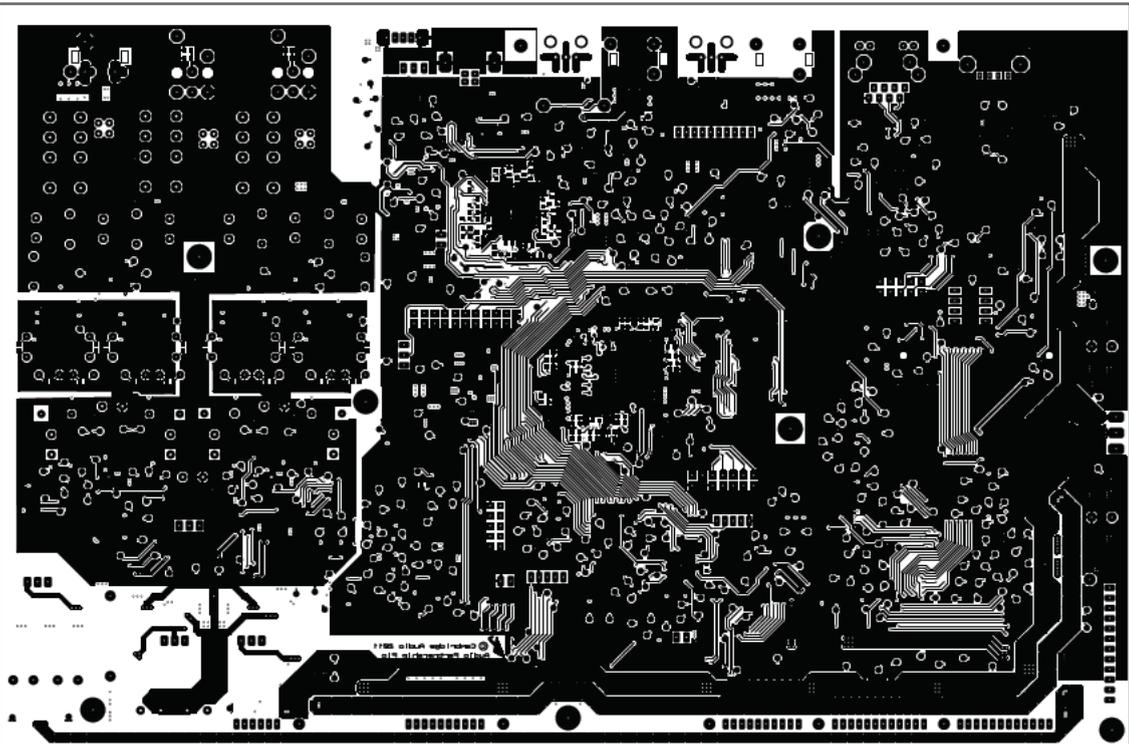
TOP INNER LAYER

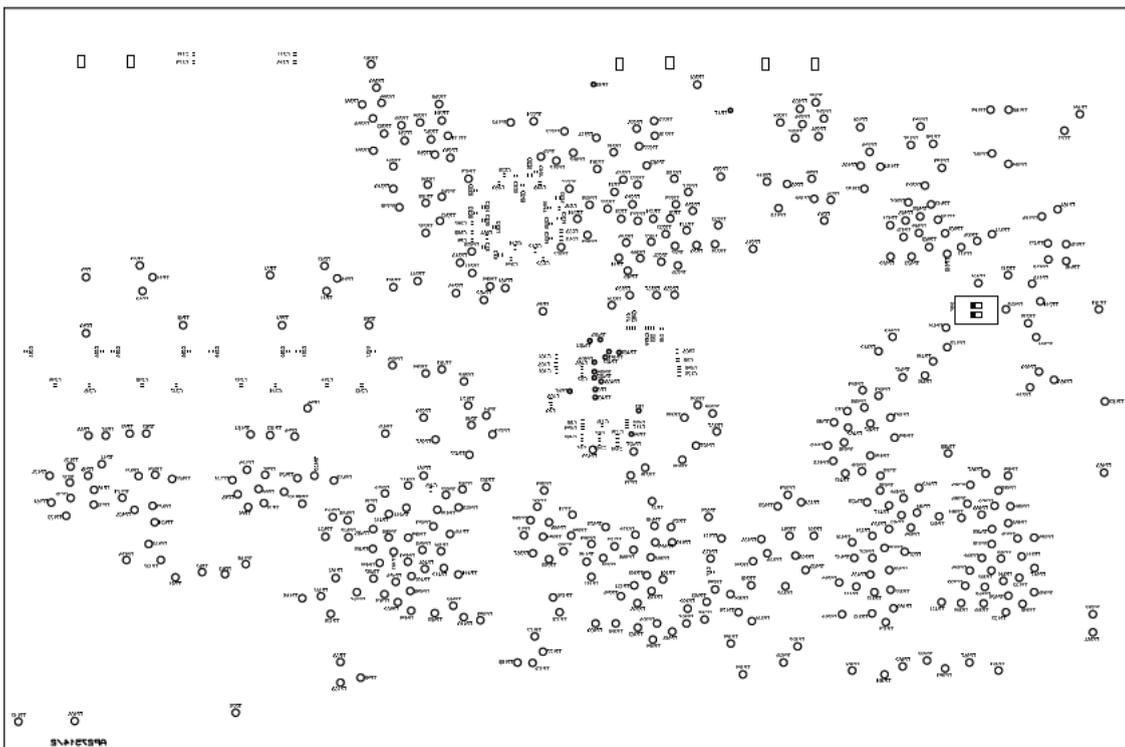
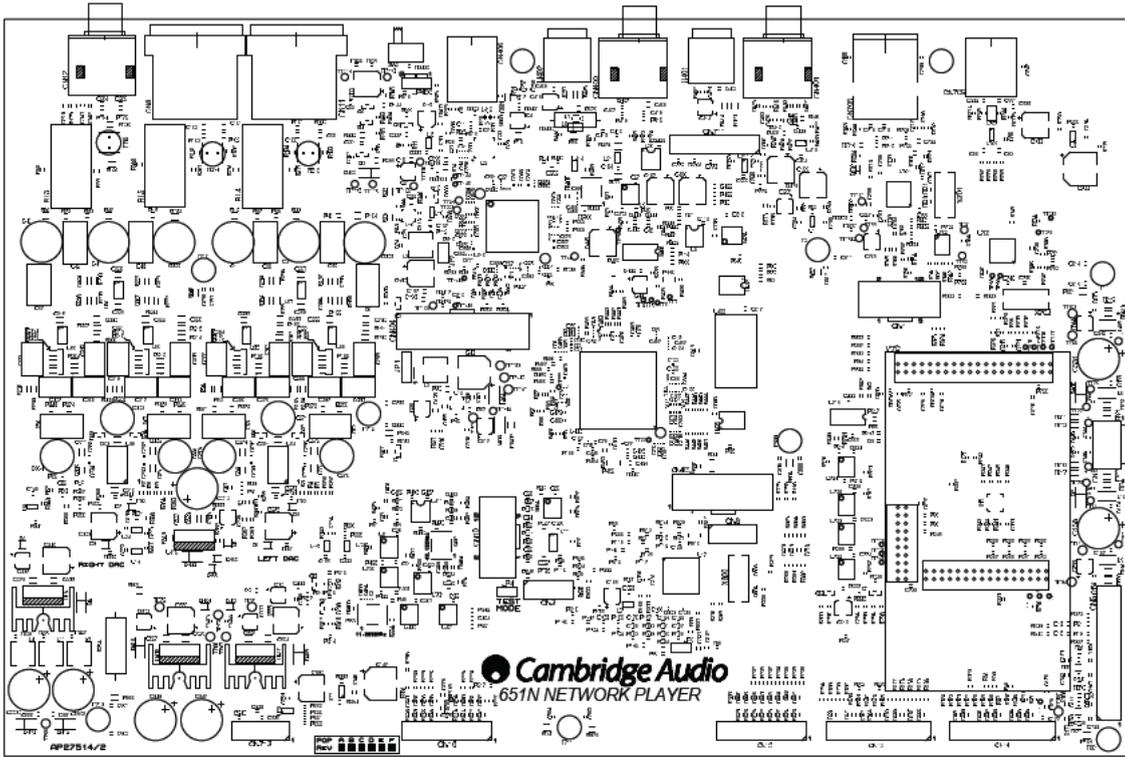


BOTTOM INNER LAYER



BOTTOM COPPER LAYER





Main PCB BOM

RESISTORS

	Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackagelInfo		Part numbers
1	OR	0603 Thick Film	24	R17, R19, R20, R38, R40, R50, R54, R62, R140, R230, R231, R241, R242, R246-R248, R272, R327, R355, R362, R368, R742, R836, R917		1%	0603		
2	NO FIT		83	R29, R41, R42, R53, R55, R61, R78-R80, R83, R84, R106, R122-R124, R126, R136, R138, R147-R149, R158, R163, R165, R225, R244, R245, R251-R254, R275, R281, R294-R305, R315, R326, R333, R335, R337, R339, R341-R347, R356, R358-R360, R364-R366, R416, R418, R422-R424, R426, R427, R444-R447, R492, R540, R704, R712, R713, R717, R749					
3	NO FIT		13	R32, R51, R141, R154, R271, R277, R414, R804, R848-R850, R852, R909					
4	OR	1206 Thick Film	5	R76, R90, R128, R130, R278		1%	1206		
5	NO FIT		9	R129, R348-R351, R372-R375					
6	OR	0805 Thick Film	4	R131-R134		1%	0805		
7	NO FIT		1	R354					
8	1R	1206 Thick Film	2	R121, R415		1%	1206		
9	2R2	0805 Thick Film	1	R270		1%	0805		
10	4R7	0603 Thick Film	2	R66, R603		1%	0603		
11	10R	0603 Thick Film	25	R25, R31, R37, R64, R65, R75, R77, R86, R87, R112, R232, R233, R412, R435, R455-R460, R489, R610, R705, R706, R720		1%	0603		
12	10R	0805 Thick Film	1	R74		1%	0805		
13	22R	0603 Thick Film	10	R690, R691, R751-R753, R755, R768, R770, R776, R778		1%	0603		

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

14	33R	0603 Thick Film	39	R46, R88, R89, R92, R98, R107, R109, R110, R135, R143, R306-R308, R334, R371, R441-R443, R453, R454, R461, R468, R470-R472, R480, R481, R490, R495-R501, R611-R613, R934		1%	0603		
15	33R	MNR14	1	R440		10%	MNR14		
16	39R	0603 Thick Film	20	R14, R24, R63, R85, R91, R95, R96, R249, R282, R287, R288, R336, R338, R463, R476, R482, R484, R608, R609, R942		1%	0603		
17	47R	0204 Melf	6	R10, R33, R36, R47, R104, R172		1%	204		
18	47R	0603 Thick Film	5	R108, R116, R285, R293, R702		1%	0603		
19	47R	1206 Thick Film	3	R509, R510, R851		1%	1206		
20	51R	0603 Thick Film	5	R475, R708-R711		1%	0603		
21	75R	0603 Thick Film	1	R403		1%	0603		
22	100R	0603 Thick Film	65	R1-R5, R7-R9, R12, R13, R18, R21, R26-R28, R49, R81, R82, R97, R105, R111, R114, R115, R117, R118, R125, R137, R139, R142, R159, R161, R240, R255-R260, R269, R328-R330, R357, R361, R363, R367, R369, R370, R402, R425, R515, R516, R790, R812-R815, R828, R831, R834, R835, R918-R921		1%	0603		
23	100R	MNR14	3	R452, R462, R810		10%	MNR14		
24	110R	0603 Thick Film	1	R410		1%	0603		
25	120R	0805 Thick Film	1	R352		1%	0805		
26	180R	0603 Thick Film	1	R771		1%	0603		
27	220R	0603 Thick Film	19	R167-R171, R173, R175-R178, R192, R193, R216, R227, R732, R733, R743, R744, R762		1%	0603		
28	360R	0805 Thick Film	1	R353		1%	0805		
29	430R	0603 Thick Film	1	R274		1%	0603		

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

Service Manual | Stream Magic 6

30	470R	0603 Thick Film	7	R267, R268, R614, R758, R766, R788, R789		1%	0603		
31	470R	0805 Thick Film	2	R286, R289		1%	0805		
32	750R	0204 Melf	8	R93, R94, R184, R185, R200, R201, R208, R209		1%	204		
33	820R	0603 Thick Film	1	R273		1%	0603		
34	910R	0603 Thick Film	1	R409		1%	0603		
35	1k	0603 Thick Film	47	R39, R45, R144, R217, R224, R226, R228, R229, R234-R239, R261-R264, R316, R317, R320, R331, R332, R419, R433, R439, R448-R451, R464, R465, R606, R721-R729, R772, R774, R832, R833, R846		1%	0603		
36	1K	0805 Thick Film	6	R59, R60, R378-R381		1%	0805		
37	1K	0204 Melf	8	R194-R197, R218-R221		1%	204		
38	1k5	0603 Thick Film	4	R6, R701, R707, R748		1%	0603		
39	2K	0204 Melf	8	R180, R181, R188, R189, R204, R205, R212, R213		1%	204		
40	2K2	0204 Melf	12	R182, R183, R190, R191, R198, R199, R206, R207, R214, R215, R222, R223		1%	204		
41	3K	0603 Thick Film	1	R43		1%	0603		
42	3k3	0603 Thick Film	3	R23, R35, R322		1%	0603		
43	3K6	0204 Melf	8	R119, R120, R186, R187, R202, R203, R210, R211		1%	204		
44	4k7	0603 Thick Film	7	R312-R314, R376, R377, R840, R841		1%	0603		
45	6k8	0603 Thick Film	1	R56		1%	0603		
46	7K5	0805 Thick Film	1	R70		1%	0805		
47	8K06	0603 Thick Film	1	R519		1%	0603		
48	10K	0603 Thick Film	23	R30, R52, R68, R69, R99, R127, R146, R151, R157, R160, R162, R166, R243, R284, R290, R310, R311, R607, R703, R819, R826, R827, R845		1%	0603		
49	10K	MNR14	1	R34		10%	MNR14		
50	12K	0603 Thick Film	1	R44		1%	0603		

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

51	15k	0603 Thick Film	14	R67, R692, R693, R746, R747, R750, R754, R763-R765, R767, R769, R775, R777		1%	0603		
52	18k	0603 Thick Film	2	R250, R283		1%	0603		
53	20K	1206 Thick Film	1	R16		1%	1206		
54	22k	0603 Thick Film	6	R113, R152, R153, R155, R164, R323		1%	0603		
55	27k	0603 Thick Film	1	R718		1%	0603		
56	33k	0603 Thick Film	2	R325, R719		1%	0603		
57	47k	0603 Thick Film	20	R11, R22, R145, R156, R265, R266, R276, R279, R280, R291, R292, R318, R319, R324, R340, R434, R438, R518, R741, R916		1%	0603		
58	47K	0805 Thick Film	6	R100-R103, R174, R179		1%	0805		
59	68k	0603 Thick Film	1	R150		1%	0603		
60	100K	0805 Thick Film	6	R15, R48, R57, R58, R72, R73		1%	0805		
61	820k	0603 Thick Film	3	R71, R309, R321		1%	0603		

CAPACITORS

	Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackageInfo		Part numbers
62	NO FIT		3	C19, C213, C237					
63	NO FIT		69	C20, C66, C83, C99, C103-C106, C111, C113, C135, C140, C143, C149, C152, C157, C161, C171-C173, C176, C191, C201, C214, C215, C218, C219, C221-C223, C226, C227, C241-C258, C404, C421, C428, C542, C602, C603, C616-C619, C776, C797, C798, C929-C932, C938, C939					
64	NO FIT		8	C192, C228-C234					
65	NO FIT		2	C238, C239					
66	NO FIT		1	C240					
67	10pF 50V	COG 0603	22	C28, C32, C34, C35, C90, C94, C125, C127, C136, C196, C202, C208, C209, C211, C224, C225, C405, C424, C451, C452, C454, C462		10%	0603		

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

Service Manual | Stream Magic 6

68	10pF 50V	0805 NPO Ceramic	2	C210, C406		5%	0805		
69	10pF 50V	1206 NPO	10	C283, C290, C294-C296, C320, C324-C327		5%	1206		
70	18pF 50V	COG 0603	1	C25		5%	0603		
71	22pF 50V	COG 0603	4	C739, C740, C804, C805		10%	0603		
72	27pF 50V	NPO 0603	2	C710, C711		10%	0603		
73	100pF 50V	NPO 0402	60	C3, C33, C70, C71, C74-C80, C88, C107-C110, C112, C114, C122-C124, C467, C469-C472, C474-C480, C553, C554, C557, C558, C569-C576, C585-C593, C596, C599, C620, C621, C625, C626		10%	0402		
74	100pF 50V	NPO 0603	42	C12, C13, C16, C23, C81, C82, C95, C162, C188, C200, C220, C604, C661-C668, C670, C741, C752, C754-C757, C781, C782, C784-C796		10%	0603		
75	150pF 100V	Polypropylene	8	C277, C282, C288, C289, C312, C313, C318, C319	FKP2	5%	5mm Pitch Box		
76	560pF 50V	NPO 0805	6	C98, C100-C102, C264, C269		5%	0805		
77	1nF 50V	NPO 0603	34	C5, C44, C45, C60, C62, C68, C134, C141, C163-C168, C170, C403, C427, C435, C446, C456, C457, C482, C486, C489-C492, C498, C799, C811, C813, C816, C901, C903		5%	0603		
78	1nF 50V	NPO 0402	13	C59, C61, C63-C65, C483-C485, C487, C493-C495, C497			0402		
79	1.5nF 100V	Polypropylene	8	C279, C280, C286, C287, C306, C307, C316, C317	FKP2	5%	5mm Pitch Box	1114-H52062E001	
80	10nF 50V	X7R 0402	21	C14, C17, C29, C37, C84, C151, C464, C466, C561-C566, C577-C579, C581-C583, C597		10%	0402		
81	10nF 50V	X7R 0603	6	C24, C132, C181, C217, C436, C718		10%	0603		

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

82	10nF 25V	0603 COG	3	C442, C636, C643		5%	0603		
83	47nF 16V	ECHU 1206	25	C15, C53-C55, C235, C272, C274, C281, C284, C285, C291, C292, C297, C298, C308, C309, C311, C314, C315, C321, C322, C328, C329, C522, C523	ECHU1C473GX5	2%	1206		
84	100nF 100V	Polypropylene	10	C6, C38, C39, C42, C48, C56, C67, C72, C73, C97	MKP4	10%	7.5mm Pitch Box		
85	100nF 16V	Ceramic 0402	17	C7, C49-C51, C118-C121, C128, C129, C463, C465, C500, C502-C504, C803		10%	0402		
86	100nF 50V	X7R	150	C8, C9, C18, C26, C27, C36, C46, C47, C52, C57, C58, C69, C85-C87, C89, C91-C93, C96, C115-C117, C126, C130, C131, C133, C138, C142, C144-C146, C148, C154, C156, C159, C160, C174, C175, C177-C179, C182, C184, C189, C190, C193, C194, C204, C206, C207, C212, C216, C402, C407, C408, C410, C412, C413, C418, C422, C423, C425, C426, C429, C434, C439, C441, C443, C444, C450, C455, C499, C501, C505, C516, C518, C541, C551, C555, C567, C568, C584, C595, C598, C601, C630, C632-C635, C637-C642, C644-C651, C660, C701-C708, C712, C713, C715-C717, C722-C724, C726-C728, C735-C738, C747, C751, C766, C772-C775, C800, C812, C814, C900, C902, C904, C908, C909, C923, C924, C926, C935, C937, C940		10%	0603		
87	100nF 50V	1206	6	C273, C310, C524-C527	GRM31C5C1E104JA01L	5%	1206		

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

Service Manual | Stream Magic 6

88	330nF 50V	0805 Ceramic	1	C417		10%	0805		
89	1U 16V	X5R CER 0603	4	C11, C31, C150, C594		10%	0603		
90	10uF 35V	Low ESR Electrolytic	16	C4, C10, C21, C30, C153, C169, C205, C236, C414, C415, C440, C511, C512, C514, C517, C709		20%	SMT 4mm dia		
91	10uF 10V	X5R CER 0805	10	C22, C137, C139, C185, C186, C195, C197, C198, C600, C610		10%	0805		
92	10uF 35V	NP Electrolytic	4	C270, C276, C301, C304		20%	5mm Dia		
93	47uF 16V	NP Electrolytic	2	C271, C302		20%	6mm Dia	1105-470014-000	
94	100uF 25V	Low ESR Electrolytic	13	C155, C180, C183, C187, C199, C275, C303, C419, C430, C445, C559, C560, C750		20%	SMT 6.3mm dia		
95	470uF 16V	NP Electrolytic	6	C1, C2, C40, C41, C293, C299		10%	10mm Dia		
96	470uF 16V SMT	Electrolytic	3	C43, C147, C203		20%	8mm Dia		
97	1000uF 25V	Electrolytic	3	C158, C513, C531		20%	10mm dia	1102-102024-000	
98	1000uF 25V	Electrolytic	4	C547, C548, C552, C556		20%	10mm dia		Must be rated at 105 deg C

CONNECTORS

	Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackageInfo		Part numbers
99	10 Way	IDC Box Header	2	CN1, CN10			2.54mm Pitch		
100	5 Way	Straight Header	2	CN2, CN9	B5B-PH-KS		2mm Pitch	2300-005000-000	
101	12 Way	Straight Header	1	CN5	B12B-XH-A				
102	3 Way	Straight Header	1	CN6	B3P-VH		3.96mm Pitch	2300-003400-001	
103	Male XLR	Male XLR W/EMC TAB	2	CN8, CN11	SPM-08C		Through Hole		
104	Dual RCA	Double Gold Plated RCA	1	CN12	AV2-8.4-13EL		Through Hole		
105	12 Way	Straight Header	2	CN13, CN14	B12B-PH-KS		2mm Pitch		
106	10 Way	Straight Header	3	CN15, CN16, CN711	B10B-PH-KS		2mm Pitch		
107	Single RCA	Single Gold Plated RCA	2	CN400, CN401	AV-8.4-8ES		Through Hole	2330-002901E001	
108	20 Way	IDC Box Header	1	CN404			2.54mm Pitch		Connect jumper between pins 3 and 4
109	NO FIT		1	CN405					
110	Type B	USB	1	CN406	USB-B-R-2*2S(H)		Horizontal PCB Mount	2305-004900E001	
111	RJ45	Shielded RJ45 with Magnetics +LEDs	1	CN706	TS-10014-15		Through Hole		SAME PART AS USED ON NP30
112	Type A	USB	1	CN709	18004-X11X102N		Horizontal PCB Mount		
113	6 Way	Straight Header	1	CN712	B6B-PH-KS		2mm Pitch	2300-006000-000	
114	3 Way	Pin Header	1	JP1			2.5mm Pitch		No jumper connected

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

115	2 Way Jumper	Pin Header	3	JP2-JP4			2.5mm Pitch		No jumper connected
116	3 Way	Pin Header	1	JP400			2.5mm Pitch		Connect jumper between pins 2 and 3

CRYSTALS

	Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackagelInfo		Part numbers
117	49.152MHz 3.3V	SMD oscillator	1	X402		50ppm	5mm x 7mm SMD		
118	11.2896MHz 3.3V	SMD oscillator	1	X403		50ppm	5mm x 7mm SMD		PF395
119	13MHz 3.3V	SMD oscillator	1	X404		50ppm	5mm x 7mm SMD		
120	25MHz	Strip Cut Crystal	1	X701		30ppm	HC49SD		
121	6MHz	Strip Cut Crystal	1	X702		30ppm	HC49SD		PF393
122	10MHz	Strip Cut Crystal	1	X800		50ppm	HC49SD		

DIODES

	Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackagelInfo		Part numbers
123	1N4148	SMT	5	D1, D403-D406			SOD80		
124	1A 30V	Schottky Rectifier	4	D2, D407, D412, D413	STPS1L30U		DO214		Vf=0.3V If= 1A
125	NO FIT		5	D3, D5-D8					
126	NO FIT		1	D4					
127	75V 0.215A	Dual Signal Diode SM	4	D31-D34	BAW56		SOT23		Dual diode with common anode
128	200V	1.0A SM Rectifier	4	D400, D408-D410	RS1D		DO214		
129	NO FIT		1	D702					

INDUCTORS

	Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackagelInfo		Part numbers
130	600Z 1.3A	Ferrite Bead 0603	14	FB1, FB6, FB26, FB37, FB404-FB406, FB417, FB701, FB703-FB705, FB708, FB718	BLM18KG601SN1D		0603		600Z @100MHz
131	220Z 2.2A	Ferrite Bead 0603	6	FB2, FB3, FB401, FB415, FB416, FB418	BLM18KG221SN1D		0603		220Z @100MHz
132	OR LINK	Ferrite Bead 0603	13	FB4, FB7, FB8, FB10, FB25, FB27-FB30, FB413, FB414, FB420, FB709	BLM18KG601SN1D		0603		
133	NO FIT		3	FB5, FB14, FB15					
134	OR LINK	Ferrite Bead 1206	6	FB9, FB11-FB13, FB16, FB17	BLM31PG601SH1L		1206		
135	NO FIT		9	FB18-FB24, FB410, FB412					
136	NO FIT		3	FB31, FB32, FB419					
137	NO FIT		1	FB400					
138	NO FIT		3	FB407, FB421, FB702					
139	120Z 3A	Ferrite Bead 0603	4	FB712-FB715	BLM18KG121TN1D		0603		120Z @100MHz

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

Service Manual | Stream Magic 6

140	4u7H 1.5A	4.7uH 1.5A	2	L2, L3	ELL6PG4R7N	20%	ELL6PG		
141	NO FIT		3	L4, L6, L11					
142	2200pF 6A	EMIFIL LC	6	L5, L9, L10, L403-L405	NFE31PT222Z1E9		NFE31		
143	NO FIT		2	L7, L412					
144	NO FIT		1	L8					
145	COMMON MODE CHOKE	300mA 900HM@100MHz	1	L707	ACM2012H-900		2012 SMD		

INTEGRATED CIRCUITS

	Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackageInfo		Part numbers
146	TPS2553DBV	USB Power Switch	3	U1, U3, U22	TPS2553DBV		SOT23-6		PF508
147	USB 2.0 PHY	USB2.0 ULPI PHY W/SWITCH	1	U2	USB3340-EZK-TR		QFN32 5x5mm W/ PAD		PZ713
148	2k	EEPROM	1	U4	24LC02BT-I/OT		SOT23-5		
149	NO FIT		1	U5					
150	NO FIT		1	U6					
151	3.1V	VOLTAGE DETECTOR IC	2	U7, U10	BD5231G-TR		SOT23-5		PF509
152	74LVC74A	Dual D type	3	U8, U9, U730	SN74LVC74APW		TSSOP14		
153	AT25DF041A	4Mbit SPI Flash	1	U11	AT25DF041A-SSH		S08	Program with software	PZ630
154	NO FIT		2	U12, U14					
155	2A 1.5MHz PWM	PWM	2	U13, U16	ST1S09IPUR		DFN6		
156	NO FIT		1	U15					
157	8bit Flash Micro	128k	1	U17	PIC18F67J10		64 PIN TQFP	Program with software	PY1853
158	NO FIT		1	U18					
159	74AHCT1G04	Single Inverter	3	U19, U21, U24	SN74AHCT1G04DBV		SOT23-5		
160	74VHC14	Hex Schmitt Inverter	2	U20, U411	74VHC14MTC		TSSOP14		
161	IP4220	USB ESD Protection	3	U23, U709, U711	IP4220CZ6		SOT457		PMA118
162	WM8740	24bit/192kHz DAC	2	U54, U58	WM8740SEDS		SSOP28		PY585
163	NE5532	Dual Audio Op Amp	4	U55, U56, U59, U60	NE5532D		SOIC08		PY1162
164	OP275	Dual Audio Op Amp	2	U57, U61	OP275GSZ		SOIC08		
165	25Mbps	TOSLink Receiver	1	U401	DLR2111		Through Hole		25Mbps
166	25Mbps	TOSLink Transmitter	1	U402	DLT2111		Through Hole		25Mbps
167	150MHz MCU	Sharc Processor	1	U406	ADSP-21261SKSTZ150		LQFP144		PZ663
168	CS8416	SPDIF RX IC	1	U408	CS8416-CZZ		TSSOP28		PF753
169	74AHC1G04	Single Inverter	1	U414	SN74AHC1G04DBV		SOT23-5		
170	NO FIT		1	U415					
171	15V 1A	Regulator	1	U417	7815		Through Hole	4178-150302E600	No Heatsink Required
172	-15V 1A	Regulator	1	U418	7915		Through Hole	4179-150302-600	No Heatsink Required
173	LM317AT	Adj Positive +Regulator	1	U419	LM317AT		TO-220 (3 Pin) TH		PF510
174	74LVC00A	Quad NAND Gate	3	U420, U421, U804	SN74LVC00APW		TSSOP 14		
175	NO FIT		2	U432, U435					
176	NO FIT		1	U433					

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

177	NO FIT		1	U434					
178	MCU	Single Core L1 XMOS	1	U610	XS1-L01A-TQ128-C5		TQFP128		PZ405
179	RTL8150	USB - ethernet converter	1	U701	RTL8150L		48 pin LQFP		PF400
180	93C46	64 X 16 SPI Serial EEPROM	1	U702	M93C46-MN		S08		
181	4 Port USB hub	USB Bridge	1	U706	TUSB2046BVF		LQFP32 0.8mm pitch		PF402
182	CS8406	192k Digital Audio Transmitter	1	U719	CS8406-CZZ		TSSOP 28		PY1743
183	74VHC393	2x4 bit counter	2	U722, U724	74VHC393MTC		TSSOP 14		PF406
184	74VHC153	Dual 1 to 4 MUX	1	U723	74VHC153MTC		TSSOP 16		PMA052
185	74LVC02A	Quad NOR Gate	2	U725, U731	SN74LVC02APW		TSSOP 14		

MODULES

	Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackagelInfo		Part numbers
186	Stingray Internet Radio Module (RIRM3)	Internet Radio Module	1	M701	Stingray Internet Radio Module (RIRM3)				PZ635
187	Dual 20 Way	Dual Socket	1	M7011			2mm Pitch SMD		Same as NP30 Module Connector
188	Dual 40 Way	Dual Socket	1	M7012			2mm Pitch SMD		Same as NP30 Module Connector
189	Dual 32 Way	Dual Socket	1	M7013			2mm Pitch SMD		Same as NP30 Module Connector

RELAY

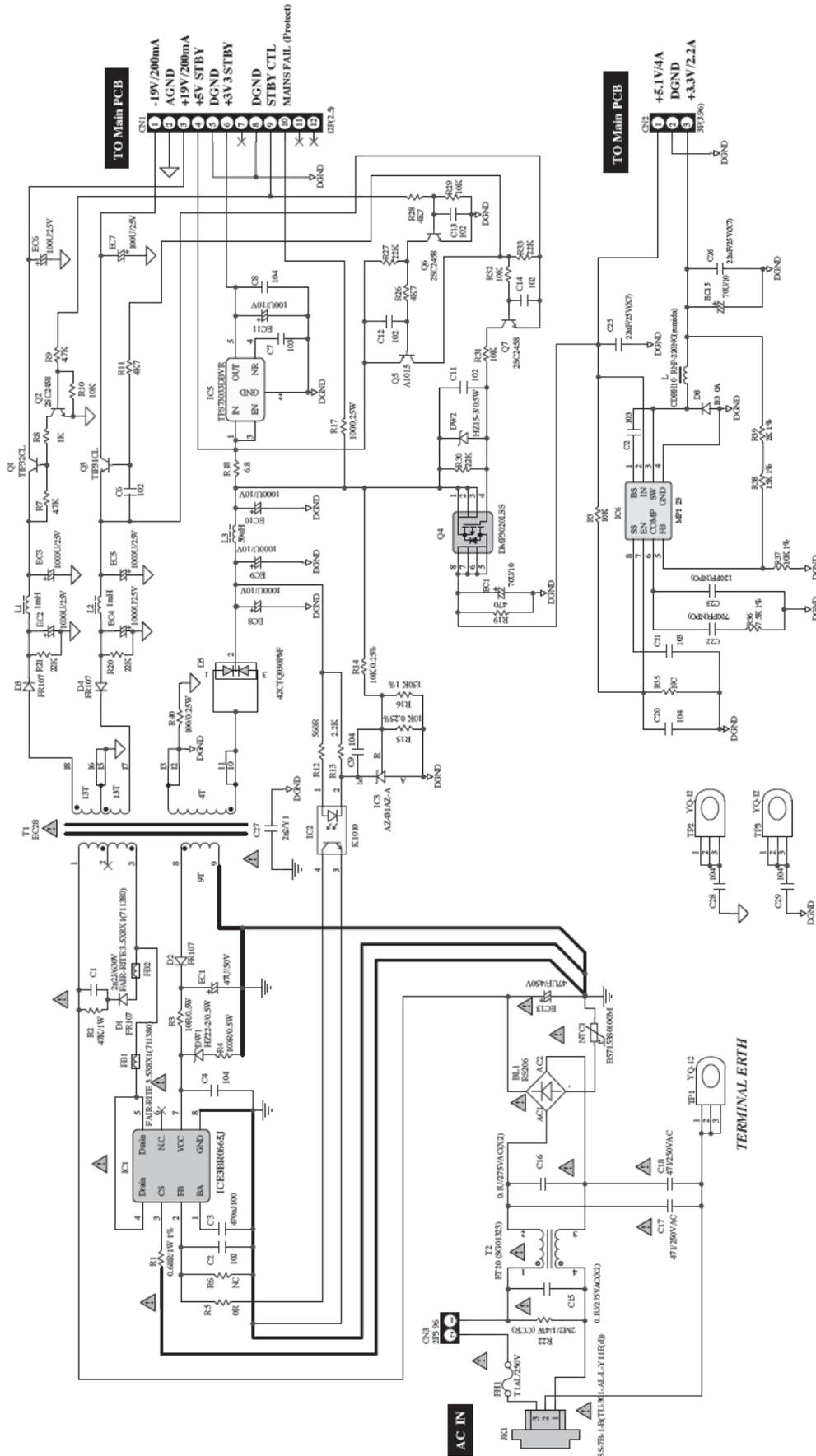
	Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackagelInfo		Part numbers
190	5V Coil, 2A Contacts	Low Power 2P2T	3	RL3-RL5	ME2-5		Through Hole		PF392
	SWITCHES								
191	2 Way	DIP Switch	1	SW1	DS-02-V		DIL04		USE ANY MANUFACTURER WITH <1R CONTACT RESISTANCE
192	Miniature slide switch	SPDT SHORTING	1	SW2	SK-12D12-G4				

TRANSISTORS

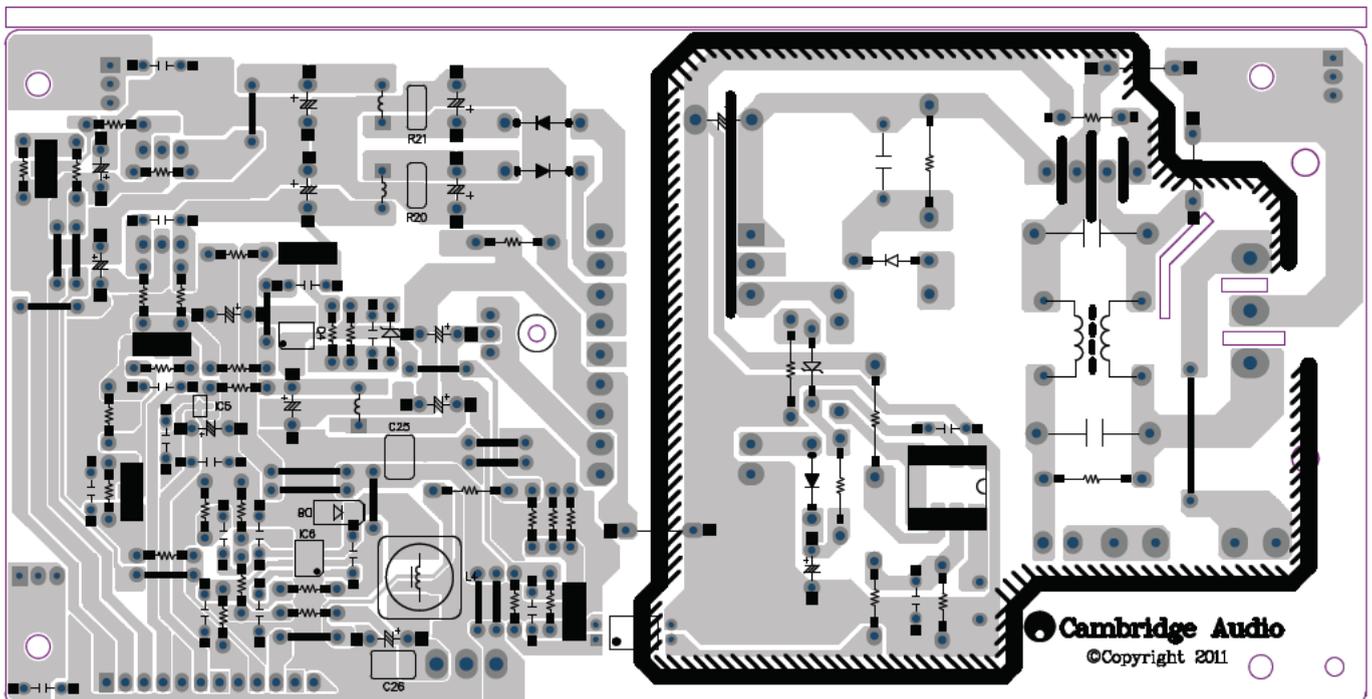
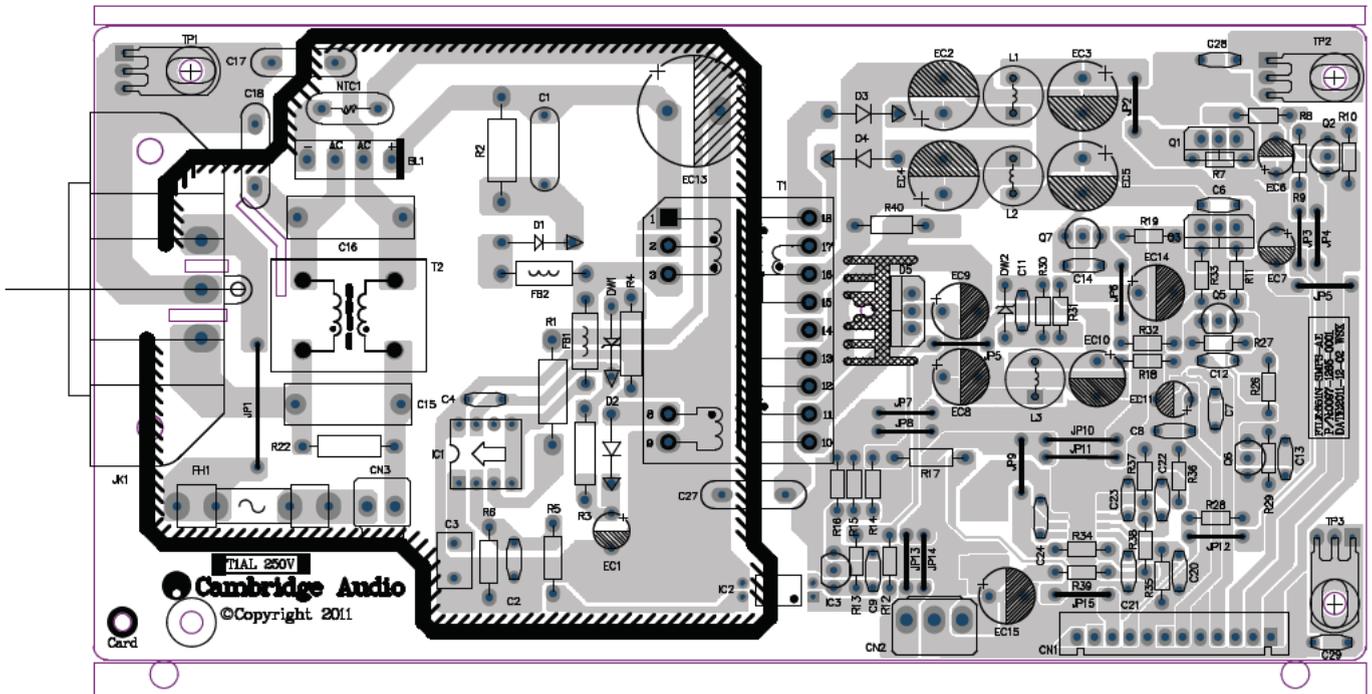
	Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackagelInfo		Part numbers
193	NO FIT		2	Q1, Q2					
194	45V 500mA	NPN Signal	6	Q3-Q5, Q7, Q8, Q10	BC817-25		SOT23	1300-817000-500	PY1847
195	45V 500mA	PNP Signal	3	Q6, Q9, Q11	BC807-25			1301-807000-500	PY1848

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

SMPS PCB Schematic



SMPS PCB Gerbers



SMPS PCB BOM

Stream Magic 6 SMPS				
Qty	Value	Tolerance		Description/Type
Resistor				
1	6.8	5%	R18	1/8W
1	470	5%	R19	1/8W
1	560R	5%	R12	1/8W
1	1K	5%	R8	1/8W
1	2.2K	5%	R13	1/8W
5	4.7K	5%	R7 R9 R11 R26 R28	1/8W
5	10K	5%	R10 R29 R31 R32 R34	1/8W
3	22K	5%	R27 R30 R33	1/8W
2	22K	5%	R20 R21	1206 Thick Film
1	2K	1%	R39	1/8W
1	7.5K	1%	R36	1/8W
1	10K	1%	R37	1/8W
2	10K	1%	R14 R15	1/8W
1	15K	1%	R38	1/8W
1	150K	1%	R16	1/8W
2	100	5%	R17 R40	1/4W
1	2M2 (CCR)	5%	R22	1/4W
1	10R	5%	R3	1/2W
1	100R	5%	R4	1/2W
1	0.68R	1%	R1	1W
1	47K	5%	R2	1W
CERAMIC CAP				
1	120PF/50V (NPO)	10%	C23	5mm Pitch
6	0.001uF/50V	10%	C2 C6 C11 C12 C13 C14	5mm Pitch
1	0.0047uF/50V	10%	C22	5mm Pitch
3	0.01uF/50V	10%	C7 C21 C24	5mm Pitch
6	0.1uF/50V	10%	C4 C8 C9 C20 C28 C29	5mm Pitch
2	22uF/25V (X7R)	10%	C25 C26	1210 Thick Film
Polypropylene CAP				
1	0.47uF/100V	10%	C3	5mm
1	0.0022uF/630V	10%	C1	CA10
Elec. Cap.				
1	47uF/50V	20%	EC1	CD
1	47uF/450V	20%	EC13	CD16
1	100uF/10V	20%	EC11	CD
2	100uF/25V	20%	EC6 EC7	CD
2	470uF/10	20%	EC14 EC15	CD8
3	1000uF/10V	20%	EC8 EC9 EC10	CD8
4	1000uF/25V	20%	EC2 EC3 EC4 EC5	CD10
2	471pF/250VAC (X1/Y1)	20%	C17 C18	CAC
1	0.0022uF/250V Y1	20%	C27	CAC
2	0.1U/275VAC (X2)	20%	C15 C16	CB15/104
Inductor				
2	1mH		L1 L2	
1	50uH		L3	
1	CDRH104RNP-220NC (sumida)		L4	
2	FAIR-RITE 3.5X8X1 (711380)		FB1 FB2	
Connector				
1	2P		CN3	3.96 pitch
1	3P		CN2	3.96 pitch
1	12P		CN1	2.54 pitch
1	SS-7B-1-B (TU-301-AL-L-Y11E(d))		JK1	SS-7B-1-B
Transistor				
1	2SA1015		Q5	PNP
3	2SC2458		Q2 Q6 Q7	NPN
1	DMP3020LSS		Q4	SOP8
1	TIP31CL		Q3	TO-220
1	TIP32CL		Q1	TO-220
Diodes				
1	42CTQ030PbF		D5	TO-220L
1	B340A		D8	SMA
4	FR107		D1 D2 D3 D4	DIODE0.4Z
1	RS206		BL1	RS206
1	HZ15-3/0.5W		DW2	DW7.5
1	HZ22-2/0.5W		DW1	DW10

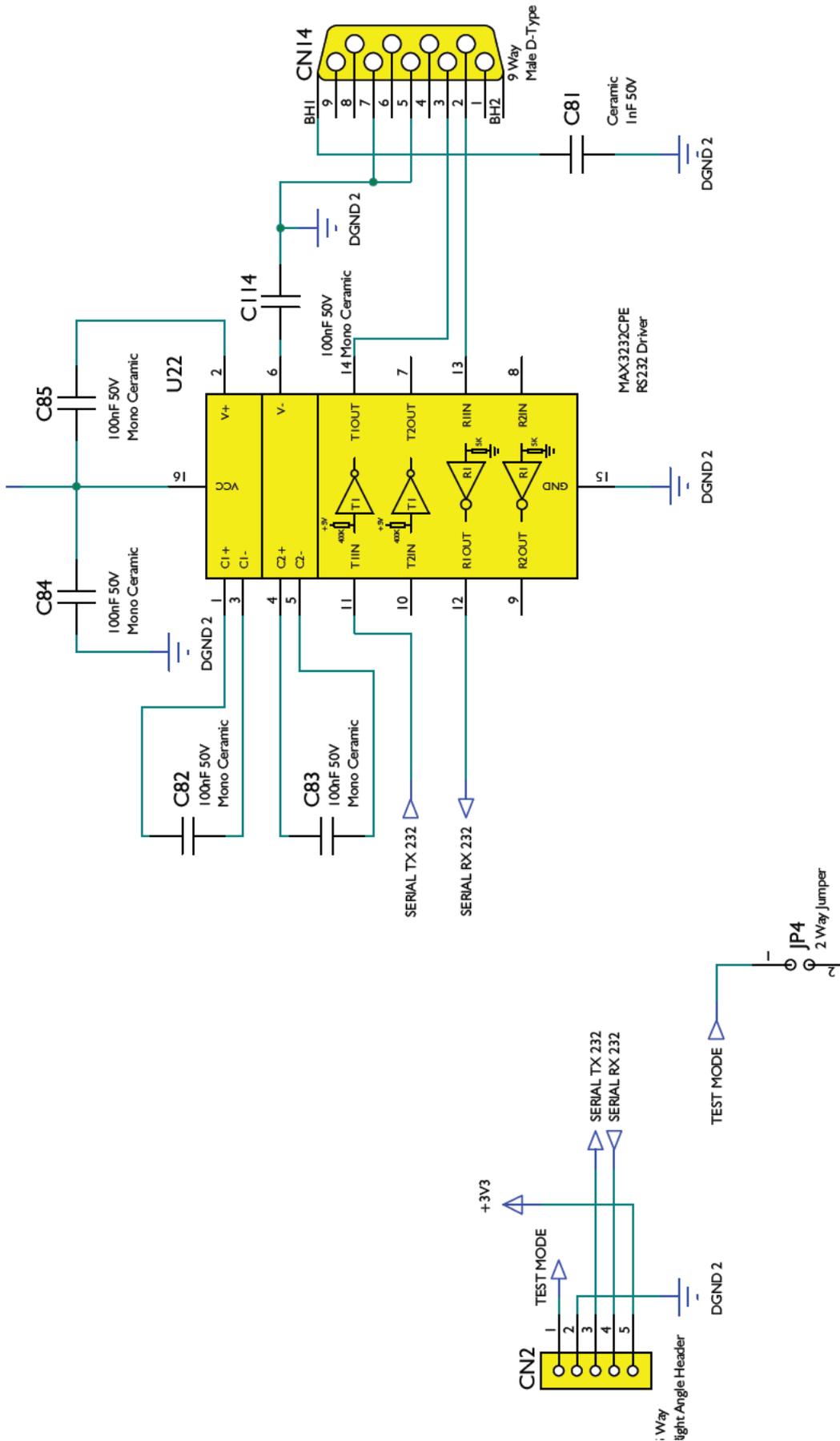
Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

SMPS PCB BOM

I. C.				
1	AZ431AZ-A		IC3	TL431
1	ICE3BR0665J		IC1	DIP8
1	K1010		IC2	817
1	MP1423		IC6	SOIC8N
1	TPS73033DBVR		IC5 PMA117	SOT23 (DBV)
1	MF72-10D9		NTC1	NTC
1	EC28		T1	EC28
1	ET20 (SG01323)		T2	ET20
1	T1AL/250V		FH1	FH
2	Fuse Holder			

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

RS232 converter schematic



RS232 converter BOM

CAPACITORS

	Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackageInfo		Part numbers
1	1nF 50V	Ceramic	1	C81		10%	2.5mm Pitch	1100-102043-000	
2	100nF 50V	Mono Ceramic	5	C82-C85, C114		10%	5mm Pitch	1100-104043-000	

CONNECTORS

	Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackageInfo		Part numbers
3	5 Way	Right Angle Header	1	CN2	S5B-PH-KS		2mm Pitch	2300-005010-000	
4	9 Way	Male D-Type	1	CN14	DMR-9P		Through Hole		MALE
5	2 Way Jumper	Pin Header	1	JP4			2.5mm Pitch		Connect Jumper

INTEGRATED CIRCUITS

	Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackageInfo		Part numbers
6		RS232 Driver	1	U22	MAX3232CPE		DIP16		PY1397

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

