

Delta-44 Audio Card Interface Kit
August 10, 2006

Description

The Delta 44 interface kit evolved from discussions on the reflector and an initial concept and schematic produced by Bill Guyer. Tony, KB9YIG, and I, AA4SW, discussed the creation of a circuit board and added various features to make a smaller more compact interface more useful when interfacing the Delta 44 internal PCI sound card to the SDR-1000 and microphone, and speakers.

Briefly the design features:

Physically smaller size approximately 1.3 inches by 2 inches.

2000 ohm ferrite filters on each audio line (silkscreen side mount).

RF bypass capacitors on each audio line (under side of board mount).

Single ground path between the sound card and the radio with option to jumper any one or more shields to the interface board groundplane and from radio to soundcard (one path suggested).

Combining inputs from 8 x ¼ inch mono plugs to 4 x 3.5mm stereo mini plugs.

SMT parts are the larger 1206 size for mounting and soldering chips to the board with a fine point soldering iron.

Packaging Comments

BEWARE THERE ARE SMALL PARTS INCLUDED DON'T LOSE THEM

The board, jacks and connector are 'dry – assembled' so that the pins on the jacks would not be bent, nor shift around damaging other parts. They ARE NOT SOLDERED and the 3.5mm jacks, J2 through J5, should be removed from the board prior to the of the module assembly.

The chip capacitors (8 plus a spare), ferrite filters (8 plus a spare), two-pin headers (4), and two-pin jumper plugs (4) are contained in the bottom fold of a small zip-loc bag that also holds the dry-assembled circuit board.

The ferrite filters, contained in a clear plastic strip carrier, have a dark gray body. The 220 pF bypass capacitors, contained in a white strip, have a lite gray body color.

The Kit Contents

- 1 - 2 sided printed circuit board. D44 Intfce V 7_25
- 1 - DB-15 pin Female solder cup connector.
- 4 - 3.5mm PCB right angle mount stereo jacks.
Digi-Key PN CP-3504-ND
- 9 - 1206 SMT 2000 ohm ferrite filters (dark grey body)
Digi-Key PN 240-2215-1ND

- 9 - 1206 SMT Cerm 220 pf 50V X7R Capicitors (light grey body)
Digi-Key PN 311-1164-2-ND
- 4 - 2-pin header, 0.1 inch on center, 0.025 inch square pins
- 4 - 2-pin jumper plug

Assembly Instructions

1. Remove 3.5mm stereo connectors form board but leave J1, the 25-pin DB-15 connector, pressed onto the edge of the circuit board.
2. Make sure the DB-15 connector's solder cups are centered on the board pads in a reasonable fashion and that the connector is pressed fully against the circuiut board edge.
3. Solder J1 to the circuit board by soldering at the junction of each of J1's solder cup and its associated circuit board pad.
4. Solder short loop of wire to connect the shield grounds vias of J1 pins 7, 9 11 and 14 to associated ground vias on the circuit board. Start will all four shield grouds connected to the ground plane of the circuit board.
5. Working across the top-side of the board, mount the ferrite chip filters to the associated 1206 pads labeled FL1 to FL8 on the top of the board.
6. Working across the bottom-sideof the board, mount the chip capacitors to the pads which although not labeled are for 1206 size capacitors.
7. Mount the four 3.5mm stereo jacks, J2 through J5, along the edge of the top-side of the circuit board. Plugging four 3.5mm stereo plugs into the four jacks prior to soldering may help get good alignment of J2 through J5.
8. Solder the four two-pin headers to the board with the short pins and header plastic bar on the top of the circuit board. Tack one pin of each header from the unside of the board and re-heat the tacked pin as necessary to achieve perpendicularity between the header pins and the circuit board. Solder both pins of each of the two-pin headers and cut off the long tails of the headers on the bottom-side of the board.
9. Other jumper options:
Case Ground: note that the donuts which can be used for mounting the board in an enclosure are isolated from the ground plane. If you should want to ground to a case, choose one of the sets of Via's adjacent to these donuts and install a jumper. Leaving the jumper out, will allow the case to float from the ground system.
10. Plug the four two-pin jumper plugs onto the four two-pin header pin groups. Various jumper plug options may be tried to minimize ground loops when more than one Delta 44 input or output is used as in the case of the SDR-1000 radio connections to the Delta 44 soundcard.