This is the Revision A verion of the Hub8 RoboBrick. The status of this project is that it has been replaced by the PIC876Hub10 RoboBrick.

Hub8 Robobrick (Revision A)

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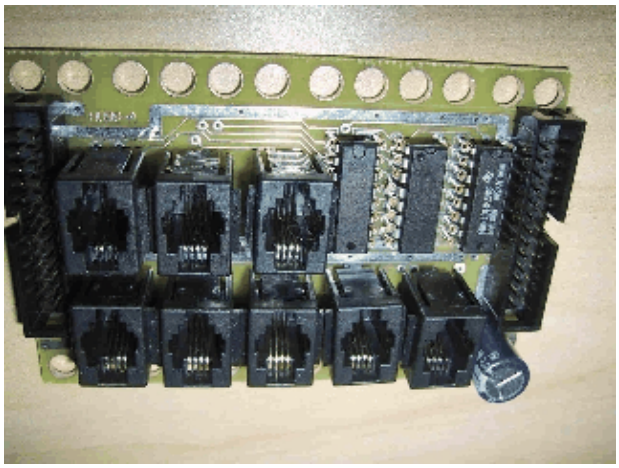
1. Introduction

The Hub8 RoboBrick is the RoboBrick that controls the mobile robot. The Hub8 is based on the MicroChip® PIC16F874 microcontroller. Eventually, over time, other master RoboBricks based on other processors are likely to be developed.

A picture of a Hub8−A RoboBrick is shown below:

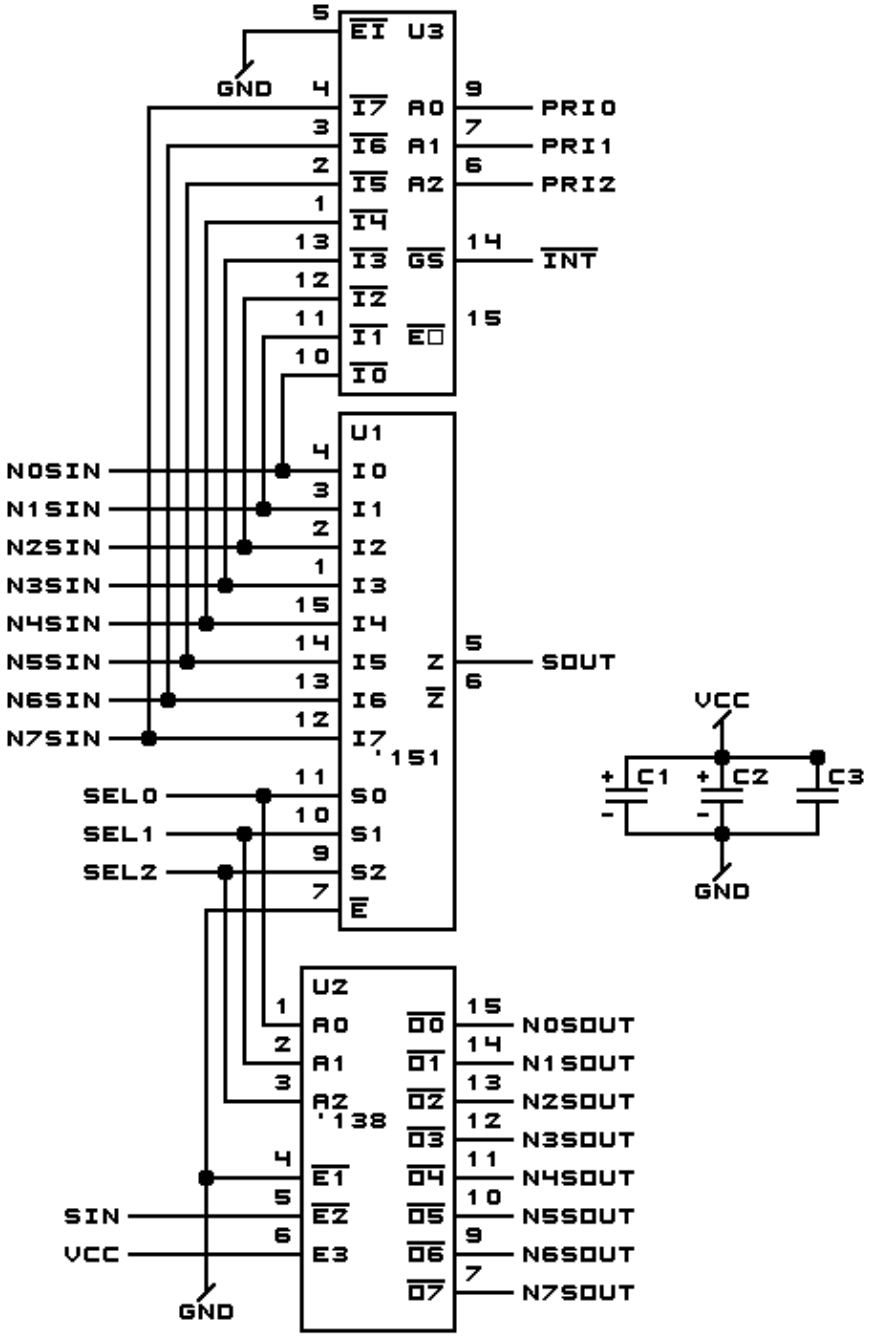


2. Hardware

The hardware consists of a circuit schematics and a printed circuit board.

2.1 Circuit Schematic

The schematic for the Hub8 RoboBrick is shown below:



HUB# ROBOBRICK -- MUX/DEMUX (REV. A)
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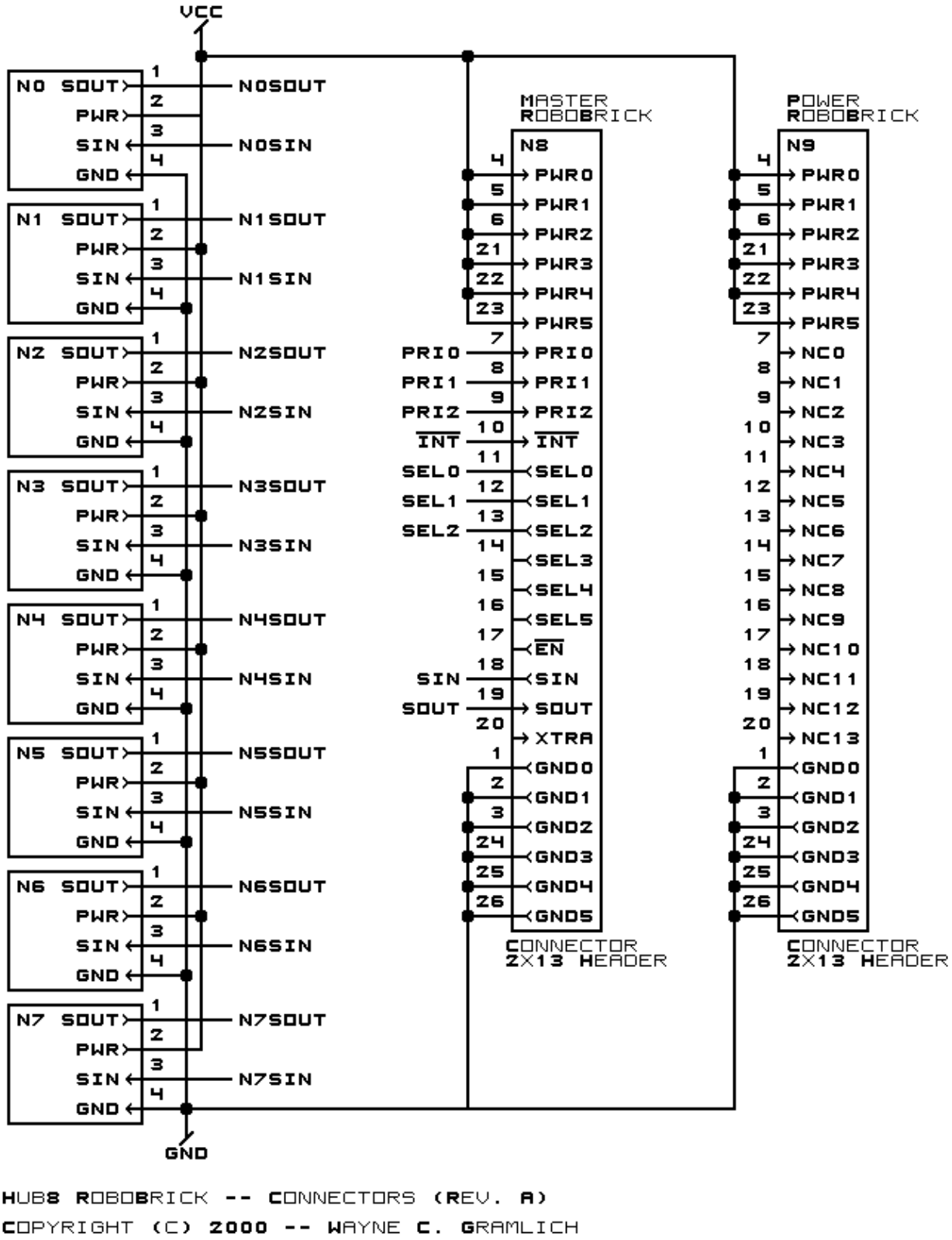

The parts list kept in a separate file −− hub8.ptl.

2.2 Printed Circuit Board

hub8_back.png
: The solder side layer.

hub8_front.png
: The component side layer.

hub8_artwork.png
: The artwork layer.

hub8.gbl
: The RS−274X "Gerber" back (solder side) layer.

hub8.gtl
: The RS−274X "Gerber" top (component side) layer.

hub8.gal
: The RS−274X "Gerber" artwork layer.

hub8.drl
: The "Excellon" NC drill file.

hub8.tol
: The "Excellon" NC drill rack file.

3. Issues

The following issues came up:

- The crimping tool for 4−wire modular plugs is difficult to obtain. Upgrade to 6−wire plugs.
- Capacitor C1 is too close to N3. Move it left .05 inches.
- The signal trace under N1 shorts with the power trace. Move it.
- Try to move filter capacitors closer to U1, U2, and U3.
- Mark which way the slot should go on the artwork layer for N8 and N9.
- Artwork lines on N3 goes one unit too far.

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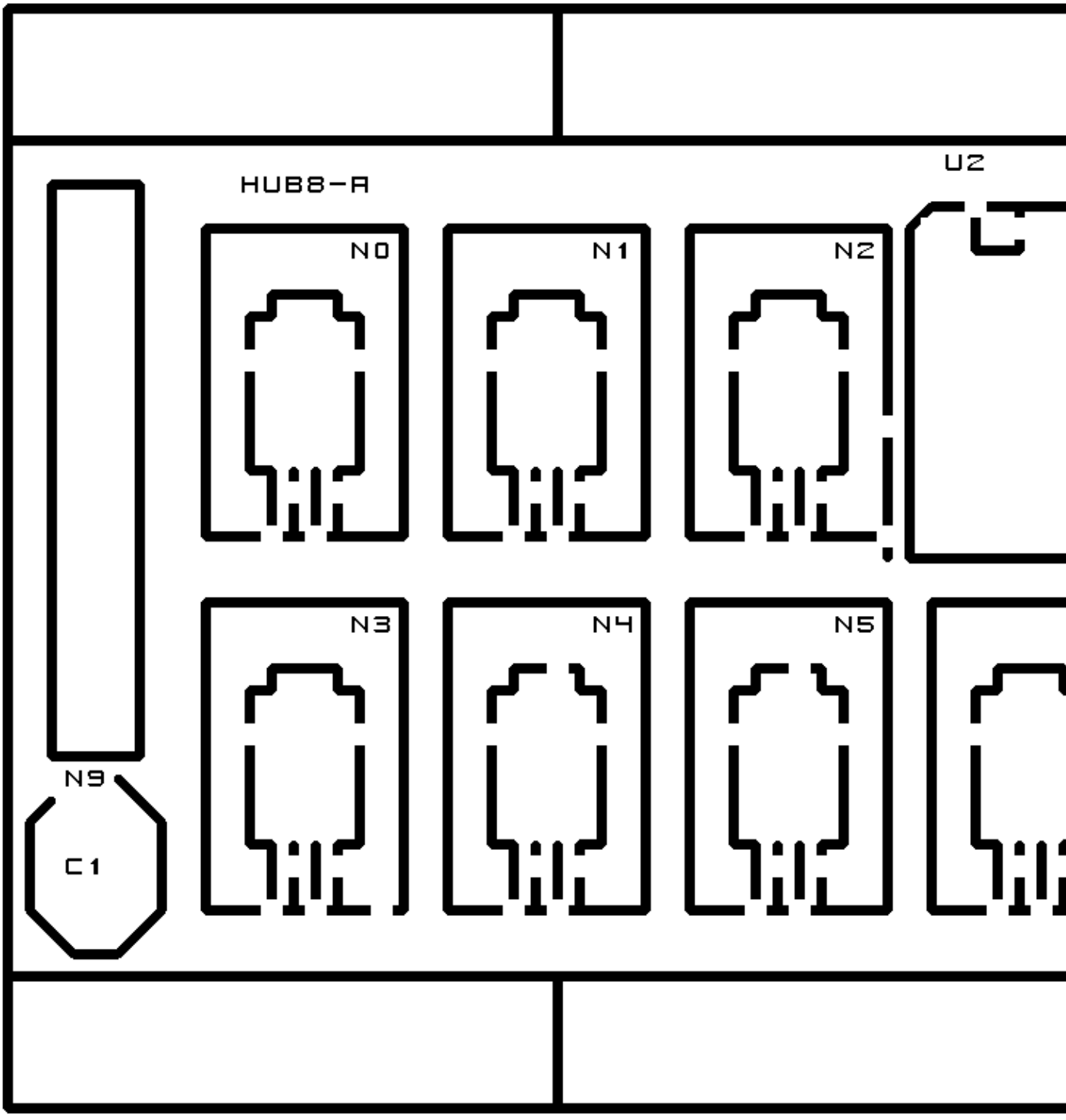
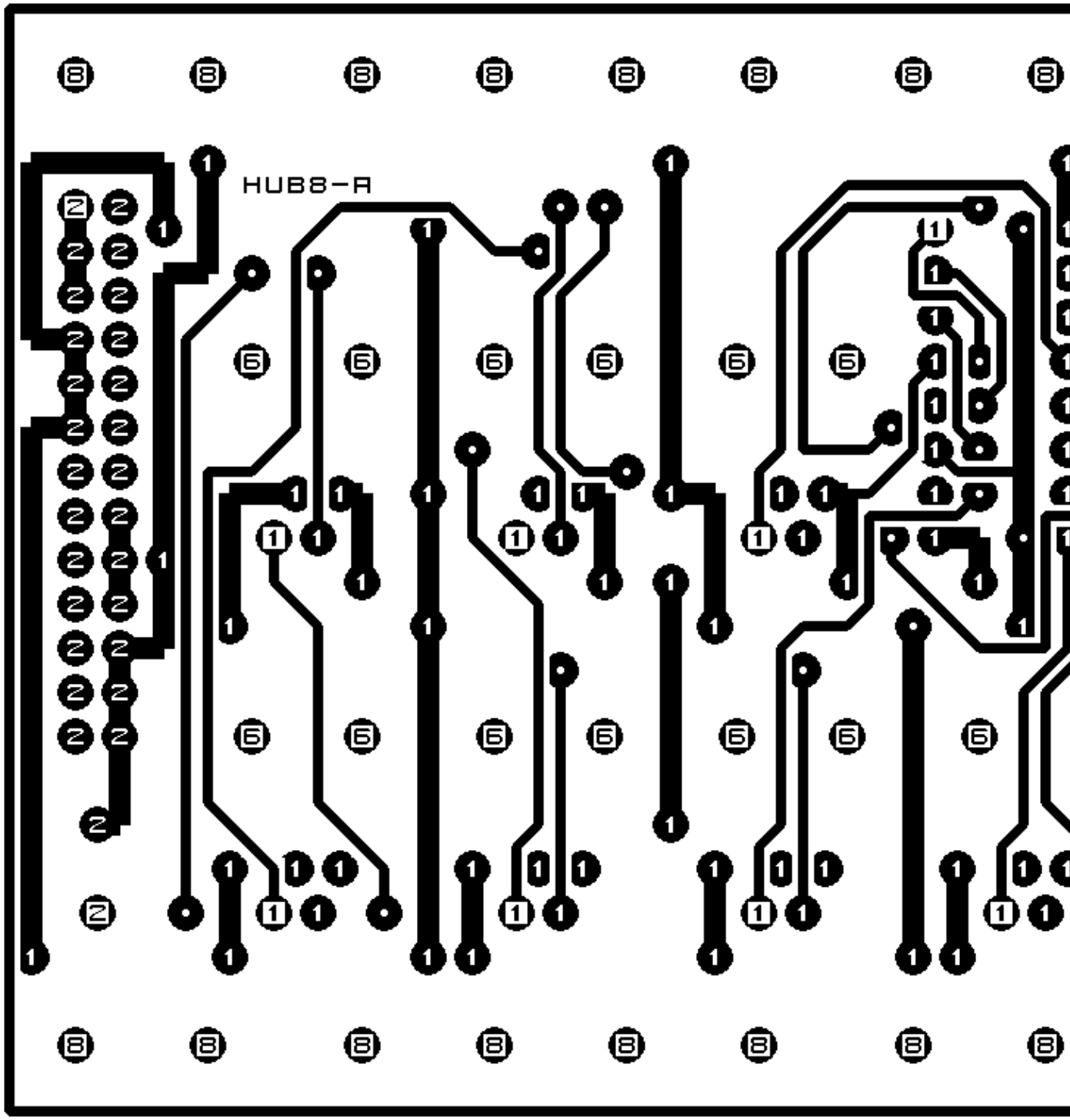
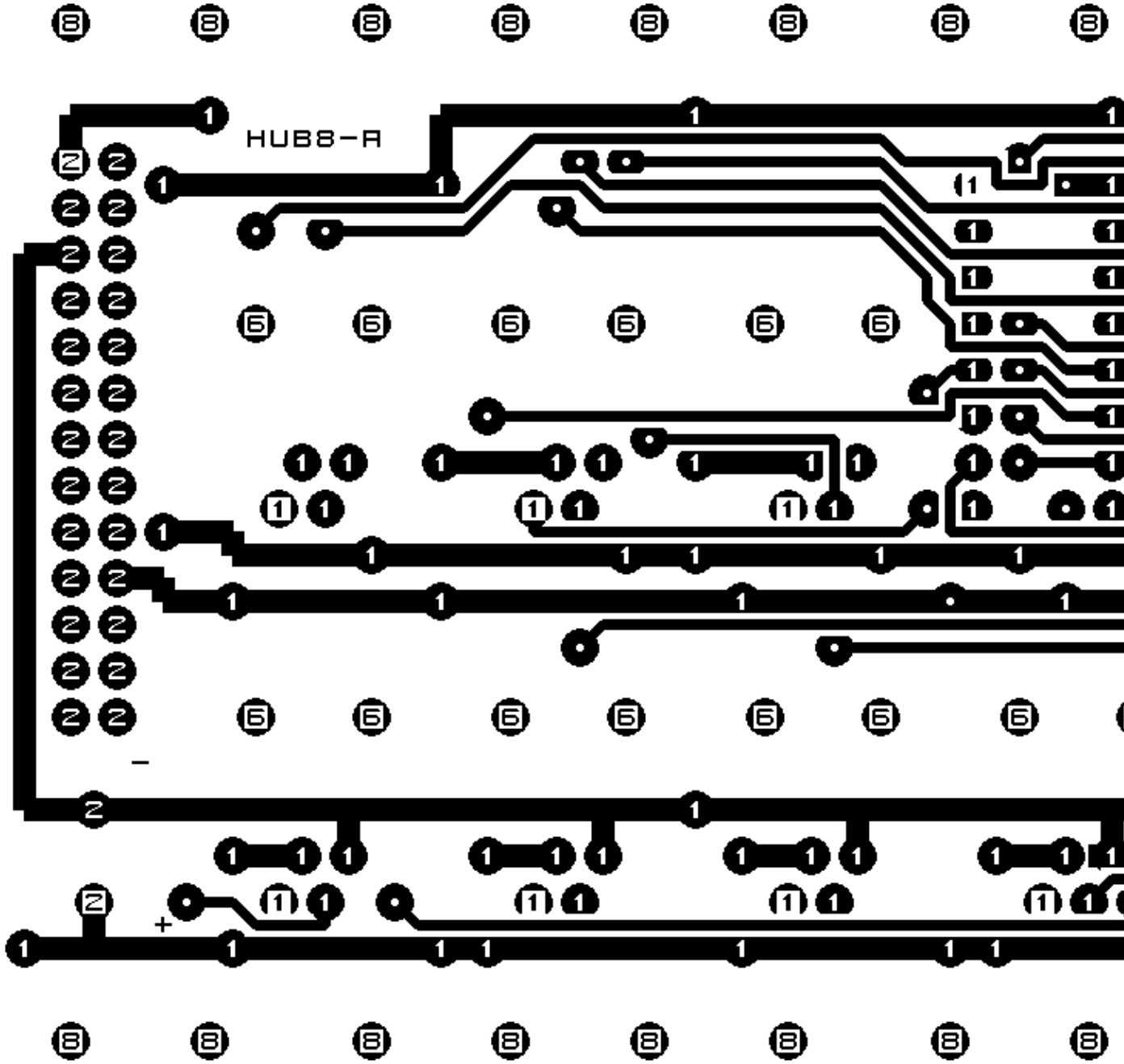
A. Appendix A: Parts List

```
# Parts list for Hub8 RoboBrick (Rev. A)
#
C1−2: Capacitor2200uF − 2200 uF 6.3V Electrolytic Capacitor [Jameco: 133145]
C3: Capacitor10pF − 10 pF Ceramic Capacitor [Jameco: 15333]
N0−7: RJ11Female4_4.RBMaster − Female RJ11 (4−4) Phone Jack [Digikey: A9071−ND]
N8: Header2x13.Processor − 2x13 Male Header [26/80 Jameco: 117196]
N9: Header2x13.Power − 2x13 Male Header [26/80 Jameco: 117196]
U1: 74HCT151 − 8−bit Multiplexer [Digikey: CD74HCT151E]
U2: 74HCT138 − 3−to−8 bit Decoder [Jameco: 44927]
U3: 74LS148 − 8−bit Priority Encoder [Jameco: 46682]
```

B. Appendix B: Artwork Layer



C. Appendix C: Back (Solder Side) Layer



D. Appendix D: Front (Component Side) Layer