

B Digital I/O board

B.1 Introduction

The computers in the digital lab are equipped with digital i/o-cards to interface the hardware circuits to the computer. A flexible ribbon cable is used to connect the computer and your breadboard. Appendix C explains how to program the board, this appendix is only concerned with the hardware connector.

B.2 Connector pinout

Figure B.1 shows the pinout of the 50-pin connector attached to the end of the cable. The installed card emulates two Intel 8255 chips, therefore the connector is split into two halves — one for each chip. For your experiments, you will get a proper counter-piece from the ECE electronics shop to plug into your breadboard.

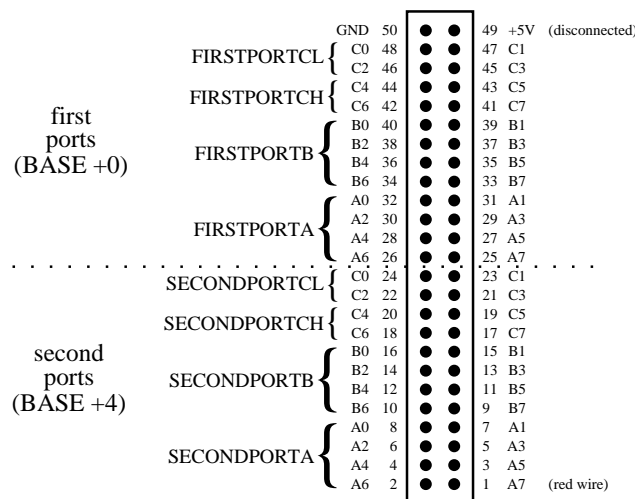


Figure B.1: Pinout of the ribbon cable (looking into the connector, not the socket).

Orientation of the connector

A few hints to determine the orientation of the plug: on most cables wire 1 is marked red and wire 49 has been physically cut to prevent the I/O-board from short-circuiting and resulting damage. Sometimes there is a small rounded plastic edge on one side of the connector preventing you from plugging in the cable the wrong way. However, usually there is no such edge and you can plug it in either way. **Note that if you are looking at the socket on the breadboard, its pinout is the mirror image of figure B.1!**

B.3 Important

- The computer and your circuit need to have **common ground**. For things to work properly, you need to tie the ground on the ribbon cable to the one on your breadboard.
- **Never connect the +5 V (pin 49) to your circuit!** Just leave it unconnected. Otherwise you risk short-circuiting the i/o-board and destroying it.
- If a port is set for output, **do not tie any of the pins to ground or VCC, or drive them from the output of another chip.**
- Disconnect your project before turning the computer on/off or when performing the self-test.
- Most computers should have a note posted with the status of the digital I/O-board (i.e. which ports work and which are damaged). If you think your board does not work correctly, you can run the “InstaCal” program and execute a self-test.
- If you are sure your circuit operates correctly and suspect the i/o-board does not, try using another computer to see if your setup works there.