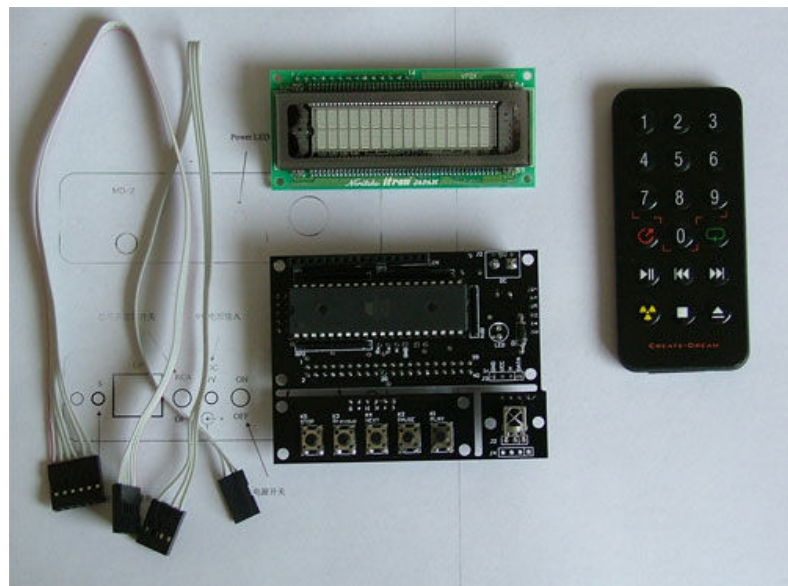


CD ROM CONTROLLER AND DISPLAY KIT

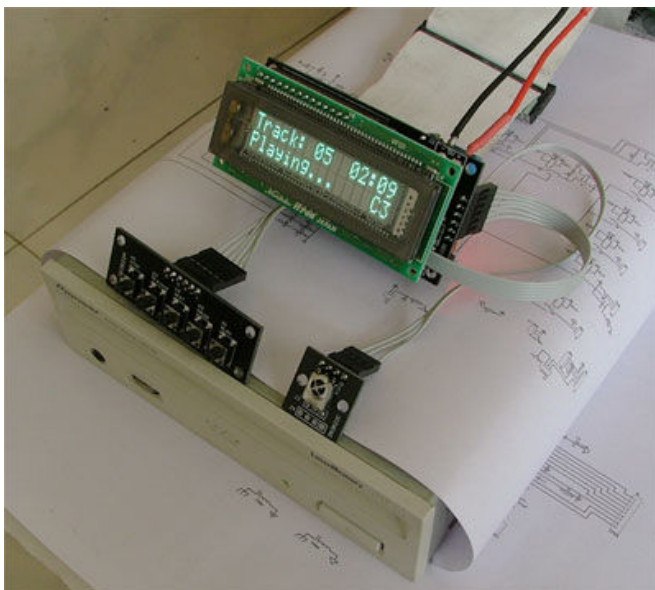
Contact Slowman Huang [hsslow@msn.com]

Congratulations. You have purchased a very affordable kit of components that will turn a standard PC type CD-ROM optical drive (IDE) into a very respectable budget CD player.

The CDRC kit contains three circuit boards (shipped joined into one board), a high quality 2-line X 16 character florescent display, a remote control handset and two cables used to connect the modules together into a fully functioning CD-ROM drive based CD player.



The CDRC Controller kit



A CD player made with the CDRC kit.

YOU WILL NEED

In addition to the parts provided in the CDRC kit, you will need:

- ✓ one IDE type CD-ROM optical drive (used or new, any make)
- ✓ one 40-pin ribbon cable suitable for connecting IDE devices
- ✓ a small (about 125W) computer power supply (probably used)
- ✓ a suitable chassis (case) to house your CD player.
- ✓ Audio output cable(s) (see below)
- ✓ S/PDIF output cable (optional – see below)

The CD-ROM (optical) drive: this can be any CD-ROM drive that has a 40-pin IDE interface. Many used drives are quite good quality, with Plextor, Sony and Matsushita being among the best. These drives are no longer used in PCs, since the recent move to providing DVD format drives in most PCs made since 2006. CD-RW re-writer drives may be used with the CDRC kit, however disk writing functions will be ignored.

DVD drives can also be used, both read-only and re-writer types, but these also will behave only as a CD-ROM drive – all writing functions will be ignored.

NOTE: most drives have their own technology and it is impossible to say which will sound better with the CDRC. Plextor drives have a very high reputation for excellence in audio applications, but you will have to experiment with different drives to find the one that sounds 'best'. Since a huge variety of IDE drives are available used from computer shops, technology recyclers and on-line at very affordable prices (between \$5.00 and \$15.00), the cost of experimenting is not high.

IDE Interface Cable: this is a standard computer-type IDE cable and should be supplied with your CD-ROM drive. If it is not, then cables of this type are available from most computer shops that have a repair department.

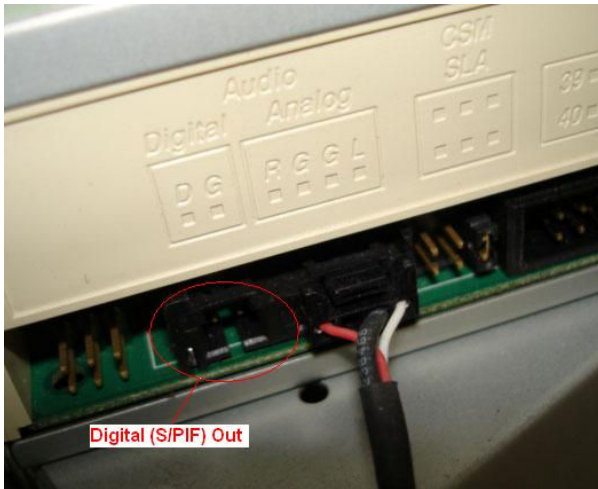
NOTE: using jumpers located on the back end of the drive, IDE devices can be set as either Master or Slave. For use with the CDRC, the jumpers should always be set to Master. If you are unclear on how to do this, just ask your drive supplier to set it to Master for you.



Audio output cables: audio output is derived from a 4-pin mini berg connector molded into the back of the drive. Only three conductors are normally used, as the two middle pins are connected together. The cable supplied with most optical drives to connect them to the computer's sound card can provide you with the important mini berg connector. Strip the other end of the cable and solder it to your choice of RCA jacks, 3.5mm mini phone plug or any other arrangement you want to use.



S/PDIF Digital output cable: every IDE drive has digital (S/PDIF) output provided for direct connection to a computer's DAC. This output is exactly the same specification as S/PDIF output from commercial audio equipment and operates in exactly the same way. This output is intended to use a short 2-pin mini berg cable to jump from the drive to the host computer's DAC input. To use this in your audio system, connect the 2-pin cable to the 'Digital Out'

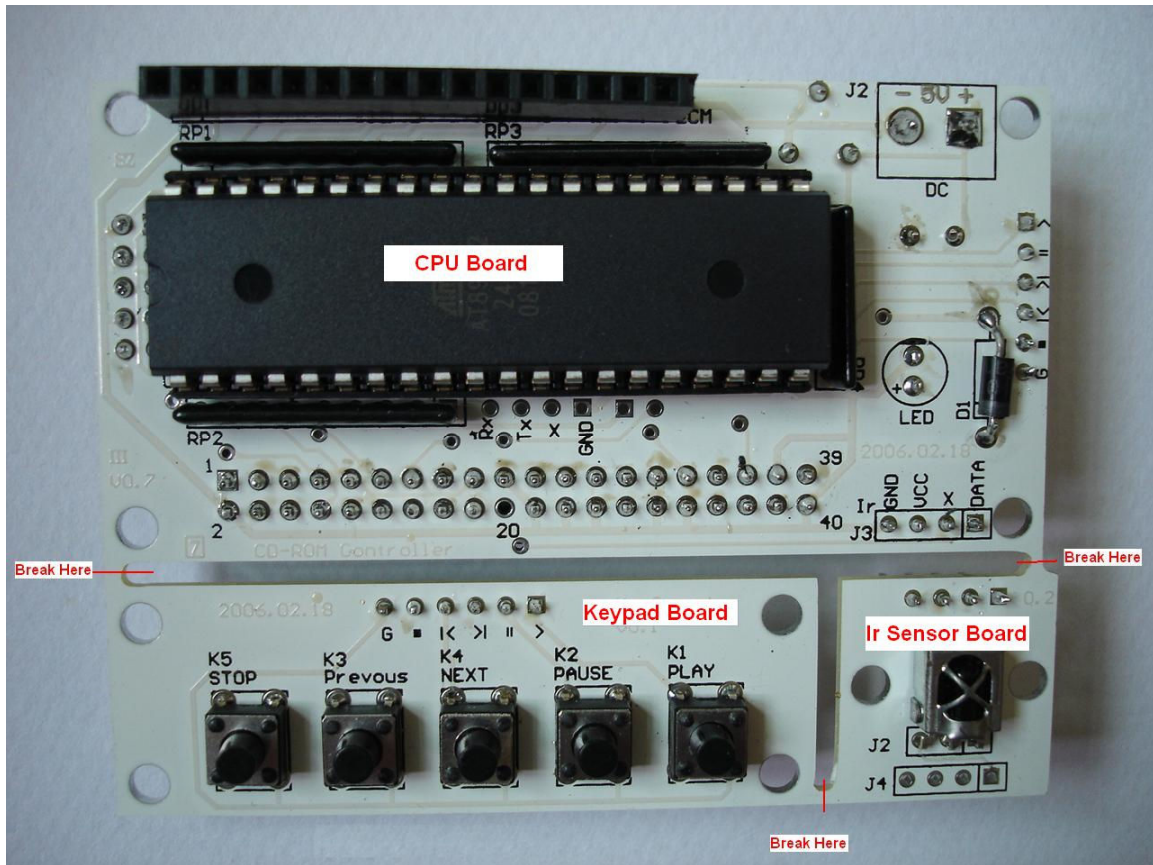


NOTE: your board set may come with either black or white circuit boards. There are no differences in either layout or function between either version of the CDRC.

ASSEMBLY

To begin, separate the three printed circuit boards from each other.

Boards



Break main assembly into 3 separate boards

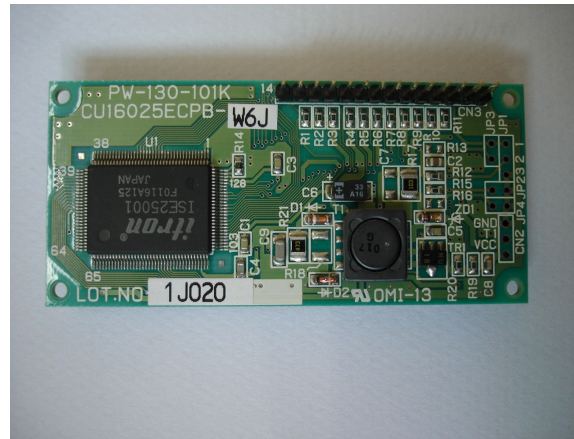
You do not have to separate the boards if your project intends to use them in their factory configuration. In most cases, however, you will want to separate them so that the location of display board, keypad and Ir sensor can be situated to suite your design layout.

To separate the boards, simply bend the keypad board and Ir board back and forth while holding firmly to the CPU board. When these come away from the CPU board, bend at the connection point between the keypad board and Ir board to separate these.

The Display

The VFD display module has a row of pins, labeled CN3, projecting from the back of the pcb on which it is mounted.

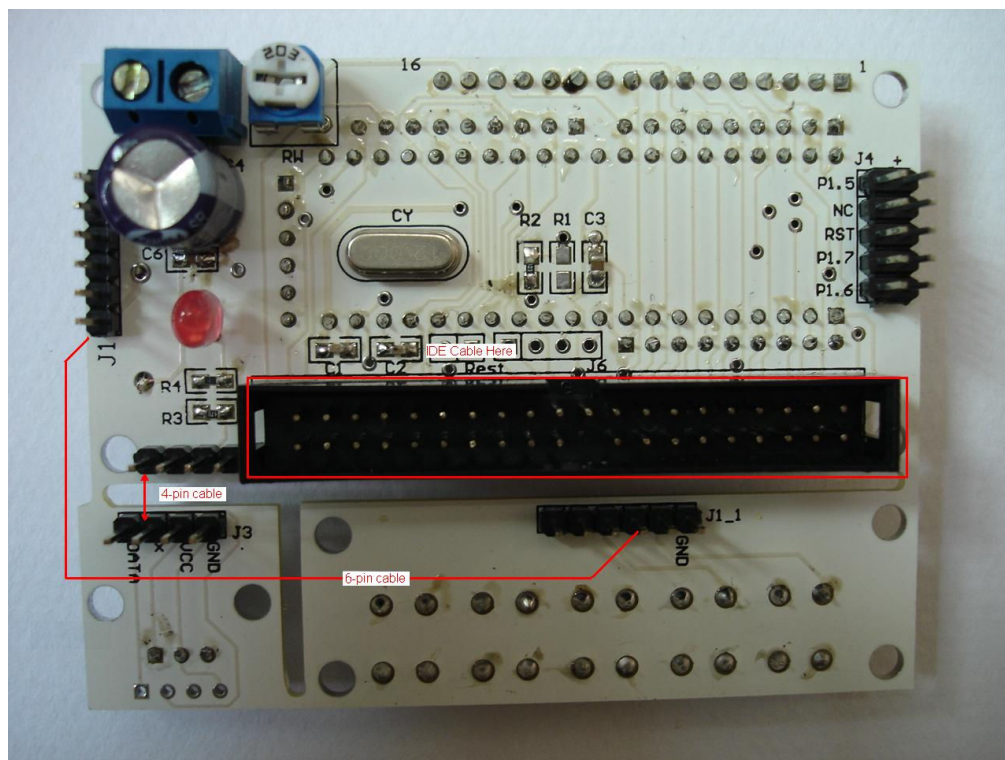
The VFD display module connects to the CPU board by plugging these pins into the connector strip on the front side of the CPU board labeled RP3.



Back of VFD module

Cables

There are two cables supplied with the CDRC kit. Both are flat ribbon cables with female mini berg type connectors on each end. They plug on to rows of pins soldered to the circuit boards and marked to identify which purpose they serve.



One is 6 pins wide and connects the keypad to the CPU board.

The other is 4 pins wide and connects the Ir (infra-red) sensor module to the CPU board.

POWER SUPPLY

There are many ways to power your project, and it is beyond the scope of this manual to explain them, or the theory and use of power supplies generally. Here, we will describe one of the simplest means of providing power to your CDRC project and leave further study to you.

Your CDRC board set requires +5 volts at 0.75 Amps. Your CD-ROM drive requires +5 volts and + 12 volts. The simplest way of providing this is to use a discarded PC power supply. These units, like the optical drives, are easily available from computer shops or tech recyclers for a few dollars. We have seen new ATX power supplies offered on line for as little as \$13.00.

The drive can be powered by connecting one of the 4-pin molex connectors into the receptacle on the back of the drive.



All you need to do is to connect the 5V DC power to the CPU board. You will need to separate out one black wire and one red wire for this. The black wires are all ground wires. The red wires are all +5volts. Take any one of each, clip the connectors and bare the end of each wire a short way back from the end. Next, clamp the black wire to the 'Gnd' connector on the CPU board and the red wire to the +5V connector and screw them in tight as shown in the photo below.

