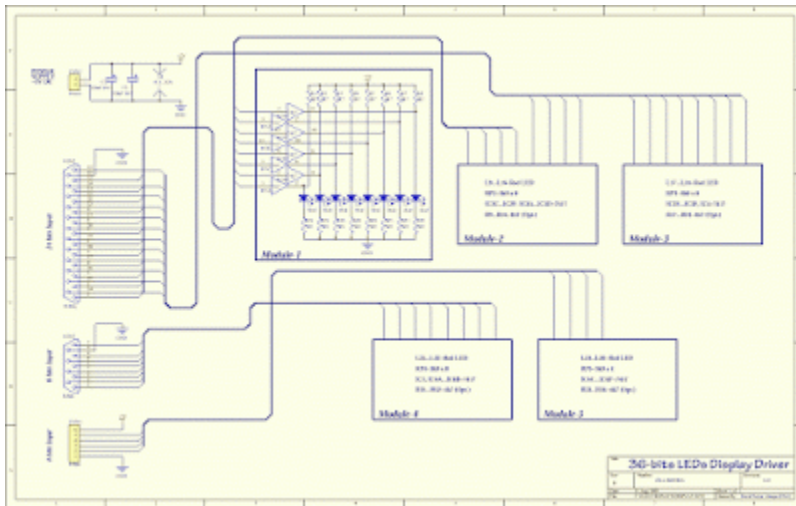


36-BITS LEDS DISPLAY DRIVER

This device used a very common components. For the driver I used any TTL buffer ICs like 7407 (Open Collector type) or 7417 (OC type). It is also can be used inverter ICs like 7404, 7405 (OC type), 7406 (OC type), 7414 (Schmitt Trigger type), 7416 (OC type), 7419 (Schmitt Trigger type). Any LS type may be ok, I think. If the ICs used an inverter type, all LEDs must be turn over the polarity and all common resistor pack must be connect to positive supply. Resistor R1...R36 may be omitted. Open Collector buffer type needs these resistors to pull up power. Open Collector Inverter type or just an inverter type does not need these pull up resistors. Schmitt Trigger type also does not need these resistor. All of these ICs are pin compatible, so it can be change to the spare ICs you can get. But be careful to the common stripe of resistors pack PCB. I designed these stripe to the ground all (used buffer type IC). If you are using different ICs, the layout need to be changed. Used miniature LEDs with high efficiency emission, so the amperes always keep small. I use a little type so I can sink about 1 mA at each gate by used a 3.9 kOhm resistor. I use resistors pack type, but if these are difficult to find, its can be change to normal resistor type. The layout must be change also. My prototype used 7417 and 74LS04 type and it runs quiet good.

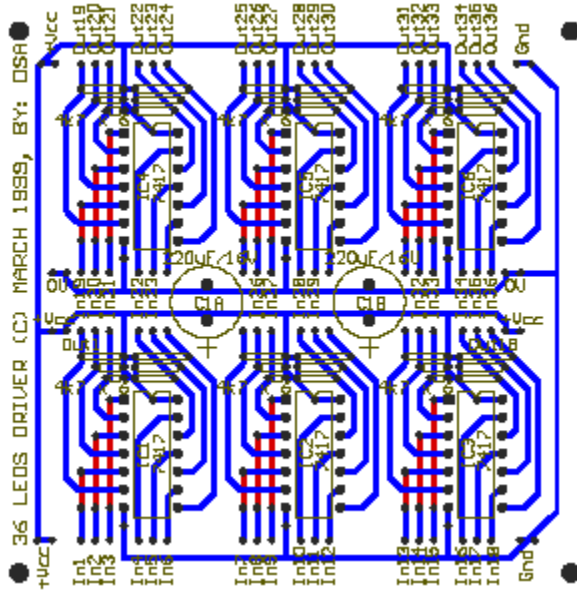
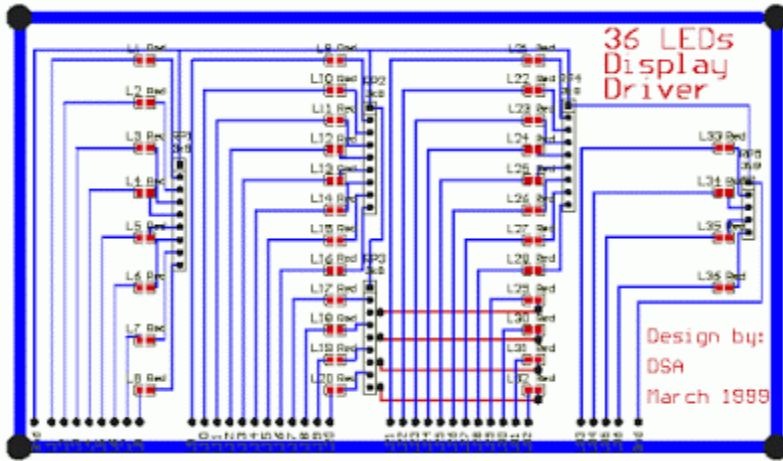
Schematic Diagram

Here is the complete [schematic diagram](#) (I drawn it with Protel V1.0)



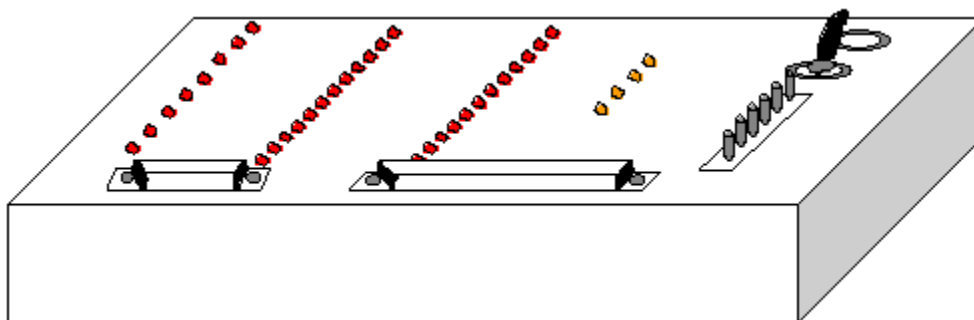
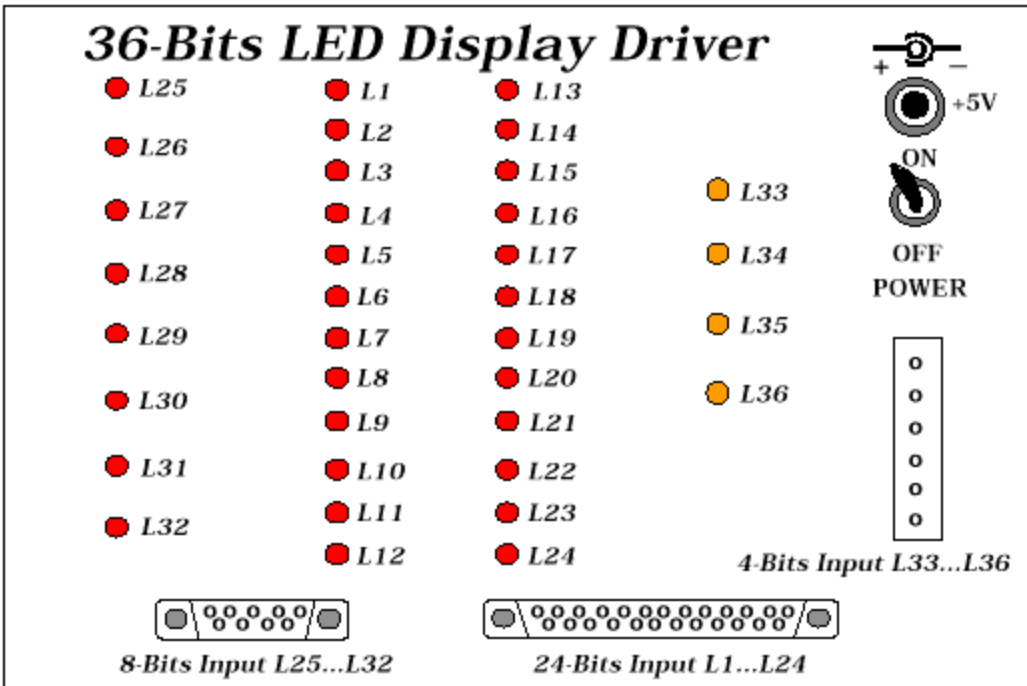
PCB Layout

First because I intended to put it all in a box, I draw the PCB in two separate plate, to make it fit in a box by doubling it. The PCB used a single layer side. One for the driver and the other for display. Here is the complete [PCB layout](#) (I drawn it with Protel V1.5).



Mounting

All the circuit are very best if it can fit in a box. I put it all in a box like below. The layout panel consist of 8-bits LEDs, double 12-bits LEDs, 4-bits LEDs, miniature jack socket, miniature on/off switch, 6-pins connector for 4-bits LEDs, DB-9 female connector for 8-bits LEDs, and DB-25 female connector for double 12-bits LEDs. Its quiet a compact device.



Components

Notes: Resistor R1...R36 refer to the ICs used. see text for any detail info.

Resistors:

1. RP1...RP4 (Resistor Pack)=3k9 x 8..... 4 pcs
2. RP5 (Resistor Pack)=3k9 x 4..... 1 pce
3. R1...R36=4k7 (Optional, see text)..... 36 pcs

Diodes:

1. L1...L32=Miniature LED (Red)..... 32 pcs

2. L33...L36=Miniature LED (Yellow)..... 4 pcs

ICs:

1. Buffer IC1...IC6=7417 (See text)..... 6 pcs

Others:

1. Con1=Miniature jack socket (mono)..... 1 pce

2. Con2=DB-25 female socket..... 1 pce

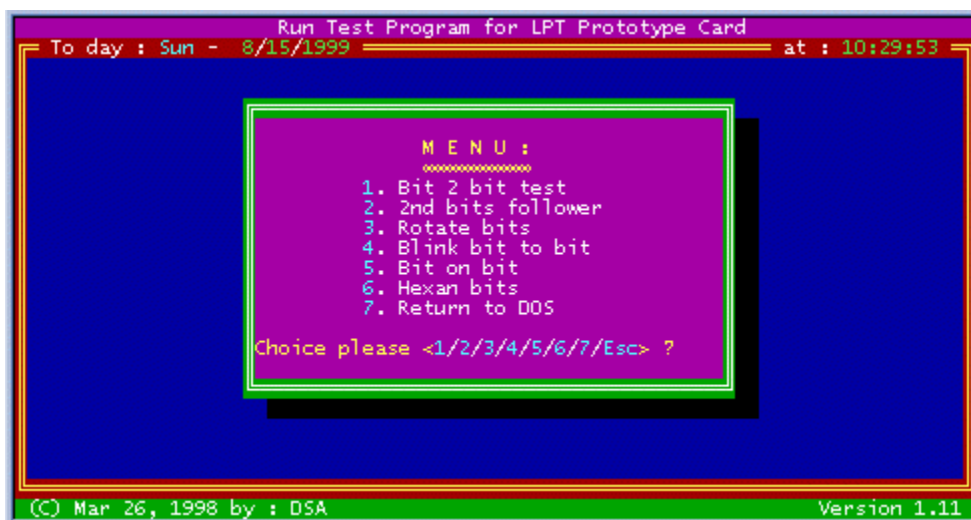
3. Con3=DB-9 female socket..... 1 pce

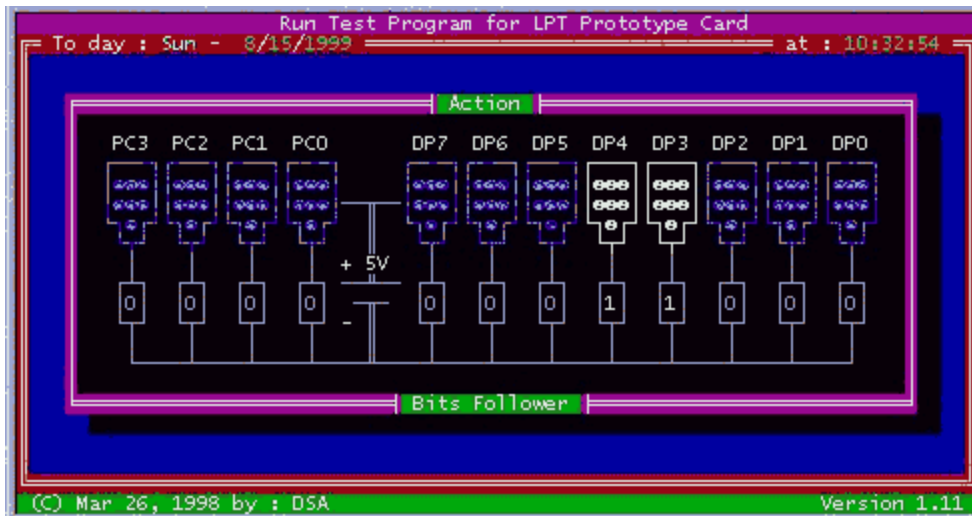
4. S1=Miniature on/off switch (spdt)..... 1 pce

5. Con4=6-pins male connector..... 1 pce

Testing

When this device run for the first time, it should light on for every LEDs, because all the inputs is on the high state condition. I have built the program test for this LEDs, but not for all inputs, by used LPT printer port adapter. The program runs every bits on LPT bits to simulate a sequence. It is a nice display. Please try by your self.

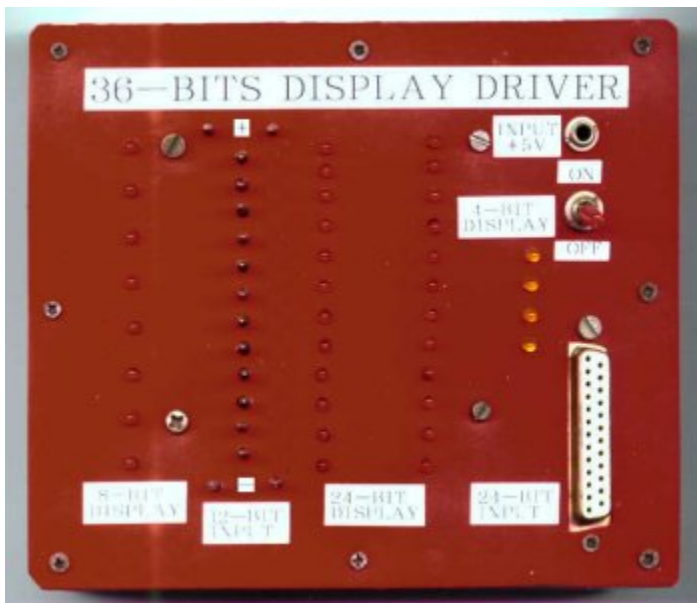




Prototype

[Compaq CQ56-219WM Presario Laptop 15.6" LED display / 2.20GHz Celeron Processor / 2GB DDR2 RAM / 250GB HDD / Lightscribe DVD±R/RW / 802.11 b/g/n Wifi / 6 Cell / Windows 7 Home Premium \(64-bit\)](#)

My prototype not precisely the same as the layout panel above. A little different in terminals and connectors for input bits. The panel made by plastic sheet. Here is the picture.



Application

Here is the application program and hardware. The program test on 80486-DX2-66 PC/AT computer.



Source : <http://mediatoget.blogspot.in/2011/01/introduction-when-we-check-logic-state.html>