6-DIGITS 7-SEGMENT LEDS DISPLAY DRIVER

A. 6-digits 7-segment LEDs Display Driver

This device also used a very common components. For the driver I used TTL seven segment decoder/driver 74LS247 (Family of 7447 is ok!). It needs one IC for every digit LED, The LED used is a common anode type. The color is up to you. Every segment needs a pull up resistor. Used a 220 Ohm for a bright light and a bigger one (about 470 Ohm) for a dimmer light. I used a 220 Ohm resistor and a green color LED. Up to six digits can hold by DB-25 connector, because the input of 74LS247 is a BCD (4-bits). For the dots we used a DB-9 connector, through the buffer 7407 IC for pull up the power, so the input of DB-9 connector could be tired to any TTL level logic. One pin of DB-9 also used for lamp test (LT) function. Use a female type connector, because you can use the standard parallel connector selling in the market without making it anymore. Ok, nothing more to say, lets go to the project.

B. Schematic Diagram

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

[Image of schematic diagram]

C. PCB Layout

For the PCB layout, I drawn it using a single layer side. Here is the complete PCB layout (I drawn it with Protel V1.5).
D. Mounting

All the circuit are very best if it can fit in a box. I put it all in a box size of 20 cm (long) X 10 cm (wide) x 3 cm (tall). The layout panel consist of 6-digits 7-segment LEDs, miniature jack socket, miniature on/off switch, power indicator lamp, DB-9 female connector for dot bits LEDs, and DB-25 female connector for 6-digits BCD input LEDs. Its quiet a compact device

E. Components

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

Resistors:
1. R1...R48=220 Ohm.............48 pcs

Diodes:
1. SS1...SS6=7-Segment LED, common anode, green color..6 pcs

ICs:
1. Decoder/Driver IC1...IC6=74LS247.........6 pcs
2. Buffer IC7=7407........................... 1 pcs

Others:
1. Con1=DB-25 female socket........................ 1 pcs
2. Con2=DB-9 female socket......................... 1 pcs
3. Con3=Miniature jack socket (mono) - Optional.... 1 pcs
4. S1=Miniature on/off switch (spdt) - Optional.... 1 pcs
F. Testing

The software test needs LPT expander card for interfacing the circuit. It can both except LPT expander card when run on LPT port or using decoder for PPI-8255. There are 3 kind of test; first is displaying any numerical inputed by user, second is counting up from 0 to 999999, third is displaying the clock. Please try by your self.
G. Prototype

My prototype shown below. The panel made by plastic sheet same as the 36-LEDs display driver. Here is the picture.

H. Application

Here is the application program and hardware. The program test on 80486-DX2-66 PC/AT computer
Source: http://mediatoget.blogspot.in/2011/01/6-digits-7-segment-leds-display-driver.html