Hand Tools and basic fittings
Computer peripherals

- Processor
- RAM
- Mother Board
- Hard Disk Drive (HDD)
- Floppy Disk Drive (FDD)
- CD/DVD/Combo Drive & CD/DVD Writer
- ATX Cabinet With SMPS
- Key Board
- Mouse
- Monitor
- UPS
- Printer
- Scanner
- Web Camera
- Pen Drive etc....
UPS
(Uninterrupted power supply)
Offline / Standby UPS

Running on normal AC power

Over/Under-voltage, or power loss
Online UPS (Double conversion UPS)
Maintanence Tips

• Charge the UPS regularly (Minimum 4 hrs per day)

• When you switch off the main, if the working system is went off then you can confirm the UPS battery is worn-out and has to be replaced.

• Decrease in backup time indicates the battery level is low, then chip level service is required
SMPS
(Switched Mode Power Supply)
ATX PSU power up sequence and cable connector pin outs with voltages

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+3.3 Vdc Orange</td>
<td>10</td>
<td>+12 Vdc Yellow</td>
</tr>
<tr>
<td>2</td>
<td>+3.3 Vdc Orange</td>
<td></td>
<td>+5 Vdc Red</td>
</tr>
<tr>
<td>3</td>
<td>+3.3 Vdc &amp; Sense, Orange</td>
<td></td>
<td>+5 Vdc Red</td>
</tr>
<tr>
<td>4</td>
<td>+5 Vdc Red</td>
<td></td>
<td>Power Good\OK Grey</td>
</tr>
<tr>
<td>5</td>
<td>Com/Sig Gnd Black</td>
<td></td>
<td>Com/Sig Gnd Black</td>
</tr>
<tr>
<td>6</td>
<td>+5 Vdc Red</td>
<td></td>
<td>Com/Sig Gnd Black</td>
</tr>
<tr>
<td>7</td>
<td>Com/Sig Gnd Black</td>
<td></td>
<td>Com/Sig Gnd Black</td>
</tr>
<tr>
<td>8</td>
<td>Power Good\OK Grey</td>
<td></td>
<td>-5 Vdc White</td>
</tr>
<tr>
<td>9</td>
<td>+5 V Standby Purple</td>
<td></td>
<td>+5 Vdc Red</td>
</tr>
</tbody>
</table>

Legend:
- Yellow
- Red
- Grey
- Black
- White
- Orange
- Green
- Blue
- Sense, Orange
Tips to remember

1. System will not boot if the standby voltage (+5) is less than 4.7 or the 12V line is less than 11.4V.

2. Voltage of Ground wire is always zero for a perfect SMPS.

3. If the voltage of black wire is greater than zero then we can reach the assumption that there is no proper earthing.

4. The easy way to check a SMPS is to short the pins 14(green), 15(black) or 14(green), 13(black). At the time of shorting, if the fan is spinning then the SMPS is working otherwise it is not working.

5. Even if the fan is spinning and if the machine is not booting then we can fix the voltage levels are varying. Now replacement of SMPS or chip level servicing is needed.
Monitors

- CRT (Cathode Ray Tube) Monitor
- LCD Flat Panel Monitor
- TFT-LCD Monitor
Mouse - Pointing Device

• **USB Mouse** - This type of mouse has a USB connector and requires a free USB port.
• **Cordless Mouse** - A cordless mouse (as the name suggests) has no cable, this type of mouse utilises batteries for its power supply.
• **Optical Mouse** - An optical mouse utilises optical electronics to track the mouse's position and movement, they are preferred over standard mechanical mice as they tend to be more reliable and require less maintenance.
• **Laser Optical Mouse** - Laser mouse uses a laser to track movement.
• **Wireless Optical Mouse** - Wireless/cordless Technology is used to transfer information.
Mother Board
Ports

- Printer port
- VGA port
- Serial port
- P/S2 port (keyboard)
- P/S2 port (mouse)
- USB port
- LAN port
- VGA port
- Serial port
- Printer port
- USB port
- LAN port
- P/S2 port (mouse)
- P/S2 port (keyboard)
PIN CONNECTORS

- Power Switch
- Power LED Switch
- Reset Switch
- HDD LED
- Speaker
- CPU Fan
Jumpers

Jumpers are pins on a Mother Board or other devices that are used to provide configuration information to the hardware.