

Power supply in desktop computer engineering essay



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Power supplies are used for making computer system whether it is desktop or tower to it is laptop it is must used. Here only desktop based computer's power supplies are mentioned.

A poor power supply can reduce the life time of a computer system. On the other hand a high quality Power supply can help to reduce the noise or heat generated within a computer system. So we should use good quality power supply but how we can come to know that this is good and this is bad power supply here are some of the points which make power supply good.

Now a day's power supplies generally work on almost +12V with at least 18A. This can also vary for the good performance if the components are also increased.

This paper discusses the comparison of old and current power supplies and also about the different types of power supplies that exist in these days. And discuss the specifications, prices and show the diagrams of them.

Circuit of today's power supply

Power supply mostly consist of transformer, capacitor, rectifier, cables, and connectors etc. the transfer is step down that is sued to covert the 220 voltage into required less voltage and rectifier is sued for the signals and capacitor issued to achieve at max 5 voltage continuously. This is all about the inside working of desktop power supply. There are many other things as well but the most important behavior is all of the discuss above. The internal working of the circuit in accordance to the signal is shown below.

- Internal working of power supply

- Schematic of Today's Power Supply

Circuit of old power supply

In old power supplies the circuit was almost same and working as also the same but the difference was on the performance of individual components like the transformer do not provide their 100% correct work and we have to use other means of source for that and rectifier was not in the condition to handle the waves as it should be. The above diagram is of one of the old power supply and we can imagine the difference between old and new one by seeing just the internal structure of both the old and new (as above) power supply. First the circuit was complex and now days we have reduce that too.

Disadvantage in old days power supply

In past the power supplies used in desktop based computer had any issues. Some of them are listed here

- Noise
- Cost
- Power Efficiency
- Meant time between failures
- Circuit Size
- Compatibility Issue

Noise:

The old power supply had major problem of noise in that. These power supplies were not able to minimize the noise.

Cost:

These power supplies were also very costly because the circuit in these days were not common so buyer has to pay a lot for that.

Power Efficiency:

It was very poor in power efficiency as compared to now days. The difference was also due to the structure of the mother board as well but it also affects the efficiency of desktop based computers.

Compatibility Issue:

This can be called as father of all issues as old power supplies has the compatibility issue because if someone's power supply break down mean get damage then it was very hard to find the power supply for the same kind of desktop base computer. And the internal structure was so complex that no one can repair else the manufacturer of that. So user has to face many problems due to this.

Advantages of current power supply

In today's power supplies we have gained a lot of benefits from the power supply which are

- Low or no Noise
- Meant time between failures
- Power Efficiency

Low Noise

The today's power supplies have reduced the problem of noise as well. To avoid lot of noise then there are a number of options available. The first option is that use larger fans that move more air through the power supplies and from the system as well at slower speed so we do not feel any kind of noise. Another option is that use " silent power supplies" that has no link with fans and it does not generate any kind of noise.

Mean time between Failures

For the current power supplies manufacturer have also increase the mean time of usage. And we can use them for large period of time. Because higher the meant time between failure, higher the quality of the power supply we use.

Power Efficacy

Modern power supplies have also gained the advantage by increasing the power efficiency of computer. As we know that power supplies convert voltages from wall outlets to lower levels in the desktop computer. During this conversion, some power is lost as heat. And the efficiency of desktop computer is determined by how much lower extra power must be put into the power supply to use the computer. And in today's supplies we have to put very low extra power to overcome the heat issue hence in advantage we have gained greater power efficiency.