5 SIMPLE STEPS TO A QUIETER PC

No one wants their computer to be loud, but in order to keep components running at safe temperatures, cooling fans can wind up making the system sound like a blow dryer. In a busy office environment some noise may go unnoticed, but as computers find their way into more rooms of the home, near silence is essential. A computer sitting in the living room for use with a home theater system has to be quiet so that it doesn't interfere with the enjoyment of music or movies, for example. Complete systems and high end components are available to combat computer noise, but this Tip will look at a few areas to quiet existing systems on a minimal budget.

1. Cooling Fans

The bulk of all noise in a computer system is going to come from the cooling fans mounted on the case and from any heat generating components such as the processor. Cases generally employ 80mm fans with ball bearings to keep cool air flowing. Two steps to reduce noise include increasing the fan size and choosing a fan with fluid or sleeve bearings. If a 120mm fan can be installed where the 80mm fan presently resides, a noise reduction can be achieved because the larger fan can move the same amount of air at a lower rotational speed. In general, the slower a fan moves the less noise it will make. The ball bearings on many fans are a source of

vibration which in turn create noise. Selecting a fan with fluid or sleeve bearings will greatly reduce the noise created, which is generally a good thing, except for one instance.

Ball bearing fans can be counted on to get even noisier just before failure, letting you know when replacement is necessary. Fluid or sleeve bearings will just fail without such a warning which could jeopardize other system components. One other caveat to sleeve-bearing fans vs. ball-bearing fans is that sleeve-bearing fans generally tend to fail sooner than ball-bearing fans. A quality processor cooler is essential to keep a high powered system running cool, but it isn't always necessary to run the fan installed at full speed. Some coolers, such as the Cooler Master Aero 4, include a simple fan speed dial that can be mounted either in the back or the front of the case for convenient adjustment. For those bold enough to run plumbing inside a computer, water cooling kits such as the Cooler Master Aquagate can take cooling performance and quiet operation to a whole new level. Many cooling fans will actually list the decibel level of the noise that they generate. The lower the number, the better. In practical terms, below 20 decibels (db) would be super quiet; 20 to 30 decibels, somewhat quiet; 30 to 40 decibels, somewhat noisy; and over 40 decibels, just plain noisy.

2. Cases

The design of a case is a key factor in the system's cooling performance and noise

generation. A case with ample ventilation is required to keep the components cool,

and a few things can be done to achieve this without adding to the

noise level. "Of most interest is the availability of multiple fan

mounting locations in a case, as well as the open area provided for

the fans to move air." (not sure why there are quotation marks

around this sentence.)Taking a look at the back of this Gladiator ATX Window

Case shows that the user has the flexibility to mount an 80mm fan, or opt for the

previously described benefits of a 120mm fan. But, the perforations provided for the

air to pass through are somewhat restrictive, which could add to the noise level as the

wind whistles through the small openings. This is nothing that someone handy with a

Dremel couldn't remedy, but for those who don't want to cut up their case, compare

the Z-Alien ATX Window Case to the Gladiator. There is much more open area for a

120mm fan to pass the air without restriction. Along the same lines, but applied to

other areas of the case, the X Blade ATX Window Case has a fairly open design on

both the front grill and the side panel for 80mm fans to draw in cool air.

Experimenting with the size, speed and placement of case fans can lead to a setup

with adequate cooling and low noise production that might not be expected. It is

possible for some cases to be cooled well with a single 120mm exhaust fan while

leaving the other various fan locations empty. The noise will obviously be less with fewer fans running and if the temperatures are acceptable there is no need to use all of the fans just because they are there.

3. Fan Controllers

Fan controllers are available in numerous configurations, but they all serve the same function… to allow a fan to run at something other than full speed. Just reducing a fan's speed by 5-10% can have a noticeable impact on noise, but zero impact on cooling performance. Some fan controllers operate automatically, using a thermal sensor to vary the speed of the fan in direct proportion to the temperature sensed. This type is convenient as it requires no user interaction but eliminates any possibility of custom control. Manual speed controllers put all of the power in the user's hands, generally with a dial that adjusts the fan's speed by varying the resistance on the line powering it. The Cooler Master Cool Drive 4 is primarily a hard drive cooler, but it also serves the function of a four channel manual fan speed controller. From one digital control panel, up to four temperatures can be monitored, and the corresponding fans can be monitored and controlled to maintain a healthy balance between noise and temperature.

4. Power Supplies

The typical computer power supply features two 80mm fans to
keep it cool, which will obviously also generate some noise.
Fanless power supplies are now available that generate zero noise,
but none have found their way to the shelves at Geeks.com. These
fanless power supplies don't follow the guidelines of typical design and there are
other ways to quiet a power supply without removing the fans all together. The MGE
Vigor 450W Power Supply incorporates two ideas already discussed in other sections
in order to reduce noise from the power supply. It features a larger 120mm fan to
move more air with less speed and a fan speed control knob to allow the user to
reduce the speed even more, if they desire. Some other companies, such as Clever
Power (which Computer Geeks sells fromtime to time), specialize in making super
quiet power supplies with a variable fan that automatically increases and decreases
the spin of the fan depending on the system's power draw.

5. Noise / Vibration Isolators

Products are available to reduce the vibration caused by system components, as well
as to insulate the case to keep the noise from escaping. Examples of some of these
isolation products can be applied to many areas of a computer system and may
drastically reduce the overall noise, no matter what components are installed. For the

bottom of the computer case, rubber feet are available to replace the hard plastic ones generally found. Silicone gaskets can be installed between a power supply or case fan and the case to reduce the transmission of vibrations and the amplification of noise. If you want to keep the noise inside your case, there is even adhesive backed sound insulation that can be applied to the inside walls of a computer case.