Table of Contents

A. CLEANING THE CPU AND TOWER
   Preparation ................................................................................................................... 5
   Case vents and PSU vents .......................................................................................... 6
   PSU Fans ...................................................................................................................... 6
   CPU Fan and Heatsink ............................................................................................... 6
   RAM Sticks and Expansion Slots .............................................................................. 6
   Case Fans .................................................................................................................... 6
   Video Card Fan and Heatsink .................................................................................... 7
   The Case ..................................................................................................................... 7
   The Ports ..................................................................................................................... 8
   Checking the Fan Rotation ........................................................................................ 8
   Reassembly ................................................................................................................ 8

B. CLEANING OPTICAL DRIVES AND HARD DRIVES ............................................. 9

C. DECLUTTERING CABLES ....................................................................................... 9
Many computer faults are the result of components overheating due to poor airflow inside the case. Poor airflow is often caused by dirt and dust accumulated over time. Therefore, it is worthwhile to clean the computer regularly, for example annually or more often if it is in a particularly dusty environment. In a household with pets or a smoker it is even more important to clean your computer as hair, cigarette ashes and chemicals can build up inside your computer. A few minutes of careful cleaning will remove the “computer killing” dust from your CPU’s fans, heat sinks, electronics and case. This will allow the heat to dissipate and cool air to flow unimpeded throughout your computer.

**Tools and Materials Needed**

For a dust and grime-free CPU you need the following cleaning supplies:

1. No. 2 Philips cross-head screwdriver, all plastic or nylon if possible
2. A small flat-bladed screwdriver, all plastic or nylon if possible
3. Canned air (use in short bursts)

**CAUTION:** Do not use an air compressor because it often has water and/or compressor oil in the lines or tank.

4. Five or six kitchen paper-towels or napkins to wipe down the case
5. One small paintbrush with long natural bristles. ½ inch size is ideal
6. Several cleaning swabs with shred resistant foam or polyester tips
7. Insulating tape
8. A new, unsharpened Pencil
9. A flashlight
10. An old newspaper
11. A vacuum cleaner with hose and nozzle
12. Anti-static wrist strap and anti-static mat

**Optional Items:**

13. Assorted colored stickers
14. Canister vacuum with HEPA-grade filtration
15. Micro cleaning kit – vacuum nozzle attachments with suction reducing mechanism
16. Dust Mask
17. CD Drive cleaner disk
Things to Consider Before Cleaning

A word of caution – be careful with the power supply or PSU. The PSU is in its own metal box, usually at the top rear of a tower. **NEVER attempt to open the box or stick anything metal into it.** There may be an on/off switch at the back of the power supply and there may be a (red) voltage selection switch. **DO NOT change the voltage selection switch.**

Also, **DO NOT open your computer while it is running** or still has cables attached to it. It is safer to remove all peripherals, USB cables, audio cables, video cables and especially the power cable.

**Move your computer to a well-ventilated area.** This is especially important to consider if your computer has built up a lot of dust that will be blowing around when you clean it. Breathing in all that old, accumulated dust can be hazardous to your health, so use a dust mask, too.

Finally, note that one should **use canned air only in short bursts and waiting intervals**, especially if the computer has not cooled thoroughly (covers off) before you get started. Air out of the can is going to get very cold if continuously sprayed, and cold air on hot electronics can be almost as damaging as static discharge.
A. CLEANING THE CPU AND TOWER

Preparation

**Step 1:** Shut down your computer and disconnect all the cables plugged into it. You may need a screwdriver to undo some of the connector screws. Place a newspaper down on your work surface so that it does not scratch. Situate your workspace near a power outlet, and set out your tools and materials so you don’t need to move around much to reach them once you start cleaning.

TIP: You may want to mark the cables and ports they came from with colored stickers or labeled tape to help you when putting your computer back together again.

**Step 2:** Remove the protective access panel from your CPU. Depending on the PC model you may need to remove some screws. A PC case often has a single metal piece covering the top and both sides, or has a removable side panels held in place by screws or buttons.

**Step 3:** Use an antistatic wrist strap; Put it on your wrist and attach it to a metal part of the chassis. The greatest danger inside the tower is of you “electrocuting” the computer through the discharge of static electricity that builds up on your body or clothing. Static is especially a problem during dry weather and if you have synthetic carpets or clothing. The best way to control static while cleaning is to wear a wrist strap attached to the chassis during the whole process. This will help ensure you do not damage sensitive electronics due to static discharge from your body. Also, it is a good idea to use an anti-static mat to hold any removed parts.
Case vents and PSU vents

**Step 4:** Run the vacuum cleaner nozzle over any air vents at the front, side and rear of the case and over any vents in the PSU. Pay special attention to the air vents on the sides of the PSU inside your computer. If the covers have vents, vacuum those as well.

PSU Fans

**Step 5:** Use the blunt, insulated end of the pencil to hold the fan blades steadily in place and blow canned air into the PSU fan(s) and through the PSU. Substantial dust maybe ejected from the power supply. Whenever possible blow from inside the case to the outside.

CPU Fan and Heatsink

**Step 6:** This is a significant part of the cooling system where dust collects on the fan blades and clogs the heatsink vanes. Use the paintbrush to dust off each blade and off the heatsink vanes if accessible.

**Step 7:** Using the pencil to hold the fan blades still, blow out the fan and the heatsink with the compressed air. Blow from inside the case toward the outside whenever possible.

**Step 8:** To be thorough moisten a Q-tip with glass cleaning fluid and wipe down each fan blade.

RAM Sticks and Expansion Slots

**Step 9:** Aim canned air at a RAM slot, hold the trigger and move it down the entire slot. Repeat this for every slot in your computer case - memory sticks and the video, sound or modem cards slots.

Case Fans

**Step 10:** Case fans are often attached to the front or rear panels. Using the pencil to stop fan rotation, remove the dust from the case fans with the brush and canned air.
Video Card Fan and Heatsink

**Step 11:** This step refers to PCs with a separate video card (see image below). Depending on the design, you can use either the paintbrush to remove dust/dirt from the heat sink and/or use canned air while holding the fan still with the pencil. To be thorough you may remove the video card, usually kept in place with one screw where it meets the case. Remove the screw and unplug the card by pulling it firmly outwards. There may be a plastic latch at the back of the card, press down on this to help eject it.

**Step 12:** When the fan is clean, use canned air to blow out the video card slot. Reinsert the video card, making sure the plastic latch clips into place, indicating that the card is properly seated in the slot (not all systems have a latch). Then reattach the screw.

*TIP:* On older cards, if the edge connectors of the card look tarnished, clean them lightly with a pencil eraser.

The Case

**Step 13:** Vacuum the dust from the bottom of the case, being careful to keep the nozzle away from the motherboard. Spray some paper towels with glass cleaner and wipe down the flat metal surfaces of the case and the inside of the cover(s).
The Ports

**Step 14:** Dust can accumulate in the I/O ports where you plug in peripherals on the back of the computer. Use the brush and canned air to clean them out. Blow from inside toward the outside whenever possible.

Checking the Fan Rotation

**Step 15:** Connect your PC power cable and switch on the PC, while it is open, for just long enough to see that all fans are spinning. Fans that do not spin turn into miniature heaters that will make the situation worse than without a fan. If you find a fan that is not working, turn off the PC and note the type and location. If possible, unplug it. You can probably order a replacement at your local computer store or online. If the CPU fan is not working, then you should not run the computer for more than a few minutes until it is replaced.

TIP: If the PC has started to boot while you are inspecting the fans, just hold the power button until the PC shuts off.

Reassembly

TIP: Be certain that nothing has been left inside the case and nothing is likely to get caught in the fans. Any cables that were moved to get access other items should be put back in place.

**Step 16:** Inspect the cables going to the optical drives, and hard drive(s) to ensure that none have been dislodged.

**Step 17:** Put the cover(s) back on the system and reattach the screws to hold them in place. Return your PC to its normal location.

**Step 18:** Connect all cables that were originally present (following the color code if you used it) and reconnect the power cable. Plug into the power outlet and switch on. Make sure your monitor is switched on and check to see if the computer boots up normally.
B. CLEANING OPTICAL DRIVES AND HARD DRIVES

The CDROM drives or DVD drives are unlikely to be clogged by dust, but they may collect dirt on the optical lens which can cause errors. Use the CD lens cleaning disk following the manufacturer’s instructions to clean the lenses on these drives – this has to be done when the PC is operating.

Hard drives are sealed units and require no cleaning, but to maximize the airflow around them, use the canned air to blow away any dust from the drive’s upper surfaces.

C. Decluttering Cables

This is highly recommended for custom built computers. Unlike professionally manufactured computers, custom built computers don’t arrive with nicely tucked away cabling that fits just right. So the best way to make your case more secure and organized is to use zip ties. This is because you don’t want your CPU fans, or any other fan for that matter, scraping away at cables because they’re not neatly tucked away.

**Step 1:** To start, you’ll need a pack of zip ties. Any size will do as long as they can fit around your cables. Disconnect all cables that will need to be tied. Be sure to write down or color code them for reference later.

**Step 2:** When you have a cable or set of cables grouped to your liking, wrap a zip tie around it and run the thin end through the fastener. Then tighten the zip tie by pulling the thin end until you can no longer tighten it. Grab your scissors and cut the excess.

**Step 3:** Repeat this step for as many cables as possible. You can then tuck them away to reduce their visibility and give your computer’s guts a cleaner look.

**Step 4:** Plug your cables back into their correct sockets. Refer to your document from earlier if you don’t remember where each cable goes. Also remember to put back any removed peripherals such as video card or sticks of RAM back into their appropriate sockets.
About Computer Dust Solutions
Our goal is to help industry and home computer owners protect their investment by offering top quality dust protection and computer equipment cleaning training. Computer Dust Solutions is located in Michigan's "Copper Country," known for its copper mining heritage.

As the founder of Computer Dust Solutions, LLC, working in the wood products industry and at Michigan Tech University as a wood research scientist for the past eighteen years has given me an appreciation of the need for, and innovative theory behind ShopShield™ breathable computer covers.

Several of those years were spent crawling in, around, and on top of materials and equipment in wood composite manufacturing facilities as a quality technician and process improvement technician. Dust is a major consideration in this type of environment, especially when it affects computers and equipment automating the process and used to monitor process variables.

Computer control rooms and cabinets keep out some of the dust, but not all. I saw that pcs and computers were usually covered in dust, which probably contributed to many of the glitches and other computer breakdown problems. Standard plastic computer covers were sometimes used when equipment was down, or off-line, but taking them off and putting them back on was a hassle often neglected. The plastic covers even contributed to the clutter around the work area.

This is where the potential of the ShopShield breathable cover is apparent. They are designed to stay on the computer at all times, even while the computer and monitor are running. The special filter material allows cool air to circulate through the computer and monitor while filtering out the dust.

Changed on a regular basis, the ShopShields™ keep your computer and monitor clean and cool, avoiding the burnout of sensitive computer components covered in dust. Thousands of satisfied users have relied on this technology to protect their computers and monitors. It is one of a kind.

If you have computer equipment you need to protect from dust 24/7 read about the ShopShield here:

http://www.computerdust.com/

Best Regards,
Erik Keranen

P.S. Use the code DUSTFREEPC for 15% off your order through 2/9/18