

SERVICE BULLETIN

Subject: CNS Computer Hardware Issues

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Bulletin No. SB12-1

Older Dell CNS computers start to experience a number of various performance issues as they age. If your computers are more than 3 years old, please follow the instructions below to see if you are experiencing any of these problems that would require you to replace the motherboard or the computer. There are a wide variety of symptoms that can occur as they start to fail.

Symptoms

- The computer may reboot at any time on its own
- Video problems
- Memory errors
- Computer will not boot
- Frequent program lockups

Potential Problems With Your Computer

Failing Capacitors

A capacitor is an electronic component designed to hold an electrical charge. They are used in power supplies, motherboards, and various other electronic devices.

To determine if your computer is experiencing capacitor failures, remove the cover and inspect the capacitors on the motherboard. Refer to Figures 1 & 2. Look for:

- Domed tops
- Split tops
- Leaking capacitors
- Leaning capacitors

Failing capacitors will have domed tops compared to the good capacitors around it. Often they will split at the lines on the top of the cap or you will observe leakage from the top. Some capacitors will bulge from the bottom and force the capacitor into a strange leaning position.

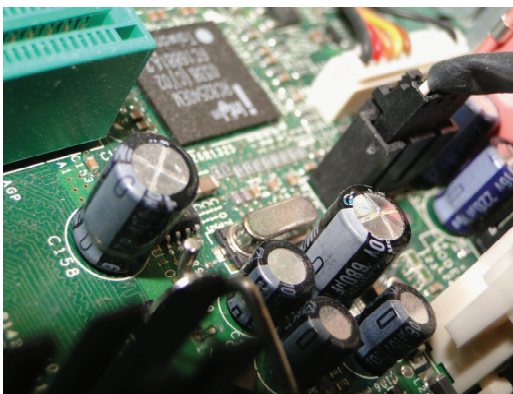


Figure 1 - Good, Flat Capacitor



Figure 2 - Domed, Leaking Capacitors

Cooling Fan Problems

Closely inspect the power supply and its fan. Verify that the fan is turning and is reasonably quiet. If your fan stops turning, it will cause your computer power supply to overheat and exhibit the symptoms listed previously. A failed power supply can also cause total failure of the motherboard. The fan not running may also indicate a failed power supply, improper power cord connection, or a lack of power to the computer.

The next step, while you have the cover open, is to verify that the CPU fan on the motherboard is running and reasonably quiet. Refer to Figure 3 for a typical CPU fan. Note that yours may vary in appearance.

The CPU fan is located in the top right portion of Figure 3. It has large white label on the upright side.

CPU fans also vary in appearance, but they are always on top of the CPU processor chip on the motherboard.



Figure 3 - Typical Cooling Fan

Customer Key Benefits

- Keep your equipment in top operating condition to identify computer problems.
- Repair problems before they impact your center's daily operations.
- Avoid the potential loss of data or data corruption resulting from a failed motherboard.

Recommendations

If you see any of the symptoms of bad capacitors or failed cooling fans as listed above, you can verify the age of your computer by contacting Brunswick Technical Support. BTS will advise if the components can be replaced and if you should contact Dell for the replacement part. If parts are no longer available, it may be necessary for you to consider replacing your computer. We will have your local Brunswick sales representative contact you as soon as possible.

Preventive Maintenance

As with any product, a certain amount of preventive maintenance can extend the life of your computer. We recommend that you visit the Dell Website and go to the Small Business Support page.

<http://support.dell.com/support/index.aspx?c=us&cs=04&l=en&s=bsd&redirect=1>

On this web page you can either enter your computer service tag number or select the model from the drop down menus and select to view the appropriate Dell User Manual.

The User Manual will explain how to open your computer to get access to the components inside. Dell does not go into detail on how to clean the inside of your computer. However, computers do collect dust inside the cabinet and especially in the power supply fan compartment. Here are a few tips on how to clean your computer.

- Turn off your computer and remove the AC power cord.
- Use a low volume air supply such as a vacuum cleaner with a plastic wand.
- Per the instructions in the Dell User Manual, remove the covers or open your computer.
- Blow the dust out of the power supply by using the vacuum to blow air into the fan opening on the back of the computer. Be prepared as you will probably stir up quite a bit of dust if the computer has never been cleaned before.
- Once you have the power supply blown out, vacuum any excess dust out of the inside of the computer.
- Many Dell computers have a duct system covering the CPU and cooling fan. The user manuals may instruct you on how to remove these ducts but it is not advised that you attempt to remove them unless you are a qualified computer technician.

If you have questions regarding the information contained in this Service Bulletin, please contact Brunswick Technical Support at 1-800-937-2695 or 231-725-4966, FAX 231-725-4667, or Email techsupport@brunbowl.com Visit <http://www.brunswickbowling.com/service-support/tech-support/> for electronic files of this and other Service Bulletins.



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