Troubleshooting Fan Issues with Intel® Boxed Processors

Documentation

Content Type Troubleshooting

Article ID 000029307

Last Reviewed 10/02/2019

PCs are generally built with industry-accepted motherboards, Intel® Boxed Processors, chassis, and peripherals. Boxed processors are packaged in a retail box with a fan heatsink and a three-year warranty. Some Intel® Boxed Desktop Processors Ship without a Fan Heatsink. Anyone working on a PC should have general knowledge of and experience with desktop PC operation, integration, and thermal management. The recommendations below allow for more reliable PCs and reduce thermal management issues.

Thermal Management

Systems using Intel® Boxed Processors require thermal management. The term thermal management refers to two major elements:

- A heatsink properly mounted to the processor
- Effective fan airflow through the system chassis

The goal of thermal management is to keep the processor at or below its maximum operating temperature.
Proper thermal management efficiently transfers heat from the processor to the system air, which then vents out. Desktop boxed processors ship with a high-quality fan heatsink that effectively transfers processor heat to the system air. System builders are responsible for ensuring adequate system airflow by choosing the correct chassis and system components.
The processor's fan is used to facilitate airflow and normally used with heatsink. Sometimes fan can stop working in the system. Check the symptoms and the troubleshooting tips listed below.

Symptoms of Fan Failure

1. System continuously reboots and doesn't start unless the power button is pressed to reboot the system.
2. System occasionally reboots or crashes.
3. System stops booting completely.
4. Temperature of the system (chassis) is warm to hot

Troubleshooting Fan Failure

These tips might help in the case of fan failure:

1. Check the power cord that is connected from the fan to the motherboard. Processor's fan might be incorrectly installed.
2. Clean up the dust. When the system is used for a long time, sometimes in dry and hot conditions, the fan can accumulate dust.
3. Check to see if the fan stopped working. Fans do have lifespans that may end when used for a long time. Poor quality fans can also stop working.
4. Check to see if the fan is drawing air in the same direction as the overall system airflow.
5. Check to ensure the processor is properly installed in the system. The fan will start but will shut down shortly, causing the system to shut down to protect the processors from the heat damage.
6. Check the hotspots of the chassis that are significantly warmer than the rest of the chassis air. Such areas can be created by improper positioning of the exhaust fan, adapter cards, cables, or chassis brackets and subassemblies. These can block the airflow within the system. To avoid hotspots:

- Place exhaust fans as needed
- Re-position full-length adapter cards or use half-length cards
- Reroute and tie cables
- Ensure space is provided around and over the processor

Related topic

Symptoms and troubleshooting overheating issues for Intel® Boxed Processor

Troubleshooting Overheating Issues for Intel® Boxed Processors

Documentation

Content Type Troubleshooting

Article ID 000005776

Last Reviewed 08/22/2019

Caution These troubleshooting tips are intended for build-your-own PC systems using Intel® Boxed Processors. If your PC is an OEM system from a computer manufacturer such as Acer, ASUS, Dell, Hewlett-Packard or Lenovo, we recommend that you contact the manufacturer if you're experiencing any overheating issues.

Note The troubleshooting tips apply on Intel® Boxed Processors

Following the troubleshooting tips may resolve your issue if your computer is overheating:

Expand all

Click or the topic for details:

Check the fan heatsinkCheck the airflowUse the correct chassisEnsure proper ventilationMake sure that you load default settings in BIOS.Update the BIOS.Undo any recent changes made if you've installed a new system.Loose cables

Related topics

Processor Installation Center

How do I know if my computer is overheating?

Processor operation temperature FAQ

Warranty Eligibility of Intel® Processors

How to Check if Intel® Quick Sync Video Feature is Enabled or not in Intel® Processors?

Validated. This solution has been verified by our customers to fix the issue with these environment variables

Knowledge

Content Type Troubleshooting

Article ID 000029338

Last Reviewed 07/12/2019

What are you seeing?

Intel® Quick Sync Video is disabled with Edius 7.53.10 version

Environment:

Any Intel Processor that supports Intel® Quick Sync Video feature for processor graphics
Any Windows operating system that supports the application listed on
Intel Quick Sync Link

Example System Configuration:-
Operating System: Windows - 10 (64 -bit)
Processor: Model No - i7 6700k

How to fix it:

Intel® Quick Sync Video delivers fast conversion of video for portable media players, online sharing, and video editing and authoring.
To check if the processor supports Quick Sync Video, follow these steps:

- Check this page that is filtered for all processors with Intel® Quick Sync Video enabled or
- Go to the product specifications site and choose the processor family then drill down the the exact processor(s) you'd like to check.
    - Look under *Processor Graphics* section to see if enabled with Intel® Quick Sync Video
    - If the Intel® Quick Sync Video is set to No- The processor does not support the feature
    - If the Intel® Quick Sync Video is set to Yes – The processor supports Quick Sync

If Intel® Quick Sync Video is set to Yes and still it's showing disabled or is not working , follow the below steps:
1. The BIOS needs to be latest for the motherboard
2. The Windows build should be updated to the latest
3. Update the graphic drivers to the latest based on the processor model
4. Install a compatible software that uses the Quick Sync feature to get the feature working for the processor from the listed below section for Quick Sync Video Enabled Application
Click: Intel Quick Sync

Cause & More Information:

Blue Screen of Death (BSOD) Errors on My Processor

Validated. This solution has been verified by our customers to fix the issue with these environment variables

Knowledge

Content Type Troubleshooting

Article ID 000025090

Last Reviewed 07/10/2019

What are you seeing?

BSOD errors encountered when booting up and during operation.

Environment:

Might apply to all Intel® Processors

How to fix it:

1. Check the BSOD error message on Microsoft's web site.
    1. Refer to: Troubleshoot blue screen errors
    2. A more global Google search for the error might also produce a solution.
2. Uninstall / change incompatible components.
3. Undo recent changes:
    1. If a setting was changed in BIOS (Basic Input Output System), undo it.
    2. If a new software app was installed, uninstall it.
4. Update BIOS.
    1. To perform any BIOS changes contact the motherboard manufacturer.
5. If the BSOD happens **after** Windows boots up, try the following:
    1. Uninstall / re-install the software that triggers the BSOD.
    2. Update drivers.
6. If the BSOD happens **before** Windows boots up, try the following:
    1. Reformat / re-install Windows.
    2. Use basic components.
7. Test another processor on the system and check if the BSOD is resolved or test the processor on another compatible motherboard.

8. If the other processor did not cause a BSOD error or if the processor was producing BSOD error on another board, Contact Intel® Customer Support.

Cause & More Information:

No Display on Dual-Channel Memory on an Intel® Processor

Validated. This solution has been verified by our customers to fix the issue with these environment variables

Knowledge

Content Type Troubleshooting

Article ID 000025980

Last Reviewed 06/17/2019

What are you seeing?

Once a (RAM) Random Access Memory stick is attached to DIMM (**dual** in-line memory module) slots to activate dual channel mode, the system will be unable to show any display This might also apply for a single memory channel.

Environment:

Processors used for Swap testing (Swap testing is testing another processor on the board to test the functionality of the suspected faulty processor):

i7-7700K

i3-7100

No beep codes

BIOS version updated

Intel® PDT done IMC error cannot be detected there

How to fix it:

Steps to fix issues where the processor is not showing a display when memory slots to activate dual channel mode is populated:

- Update the BIOS of your Motherboard. Intel suggests for you to contact your system manufacturer if you need step by step assistance on how to update the BIOS of your board
- Test another model of RAM on the board
- If issue persists, test the processor on another motherboard or if you have access to another processor, test it on the current board.
- If the problem is still being experienced, contact Intel® Customer Support

Cause & More Information:

My Intel® Core™ Processor has Low Frequency and does Not Reach the Maximum Turbo Frequency in Intel® Extreme Tuning Utility

Validated. This solution has been verified by our customers to fix the issue with these environment variables

Knowledge

Content Type Troubleshooting

Article ID 000029339

Last Reviewed 05/21/2019

What are you seeing?

The processor frequency is low. The turbo frequency of the Intel® Core™ Processor is not reaching its maximum value (as shown in ARK) while all the cores are enabled in Intel® Extreme Tuning Utility.

Environment:

-Intel® Core™ Processors

For example: Intel® Core™ i7-8700 Processor has Maximum Turbo Boost Frequency of 4.6 GHz and Intel® XTU will show 4.45 GHz while bench marking.

How to fix it:

This content elaborates how the rated turbo boost frequency can be achieved and how does it work.
By disabling other cores, one can achieve the rated turbo boost frequency by running the Intel® XTU Benchmark on a single core. Please perform the following steps:

1. Update BIOS (Basic Input/Output System) version. You may need to contact your system manufacturer for assistance on this, as BIOS update differs from motherboard to motherboard.
2. Disable other cores in BIOS settings (Settings may vary from Motherboard to Motherboard)
3. Re-run the Benchmarking/Stress test in Intel® XTU by selecting Stress test and clicking on CPU stress test.

- XTU:- (Extreme Tuning Utility) Intel® XTU is a simple Windows-based performance-tuning software for novice and experienced enthusiasts to overclock, monitor, and stress a system.
- The rated Maximum Turbo Boost frequency can be achieved with only single core enabled,
- When all the cores are enabled, Intel turbo Boost frequency will be the average frequency of all the cores.

Not getting the Intel® Turbo Boost Frequency.

Validated. This solution has been verified by our customers to fix the issue with these environment variables

Knowledge

Content Type Troubleshooting

Article ID 000031027

Last Reviewed 05/21/2019

What are you seeing?

The frequency of the processor is stuck at a lower frequency.
Not getting the Intel® Turbo Boost Frequency.

Environment:

Processors:
Intel® Core™ i5 and i7

How to fix it:

The possible fixes are listed below:

1. Disable the following BIOS features:
    - Intel® Adaptive Thermal Monitor
    - Intel® SpeedStep® Technology
    - Check with motherboard manufacturer if the BIOS has a feature that can disable/enable the Intel® Turbo Boost.
2. Check for a "Slow Mode" switch in your motherboard and make sure is off.
3. Restore the BIOS back to default.
4. Perform a BIOS update.

    You can run our Intel® Processor Diagnostic Tool to check the current performance and status of the processor.

If none of these work, please refer to the OEMs to check Bios readings or contact Intel® Support.

MSI's motherboards are known to have this issue.

How to find BIOS Version, Motherboard Manufacturer, and Model

Documentation

Content Type Troubleshooting

Article ID 000022425

Last Reviewed 12/11/2018

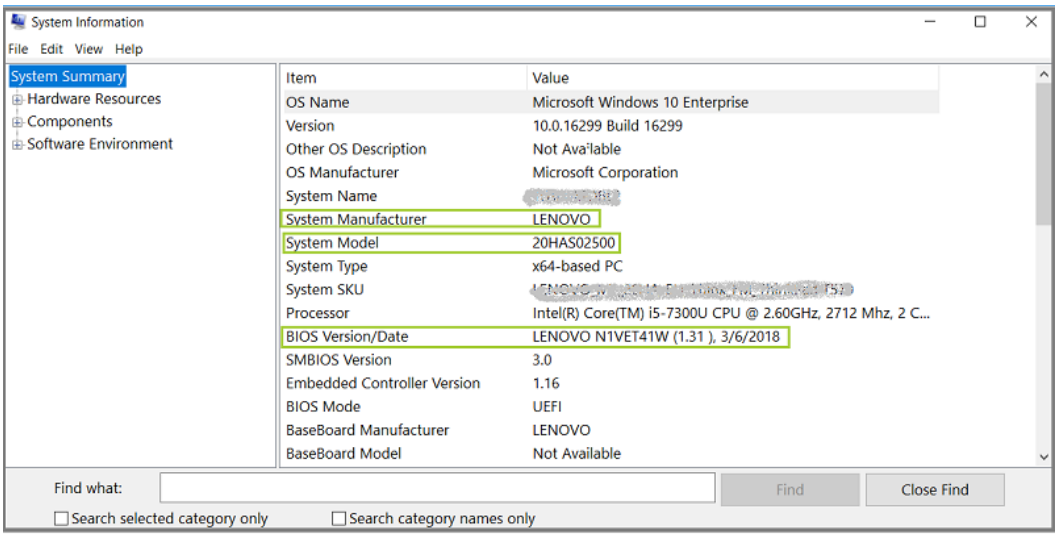
BIOS version, motherboard (system) manufacturer, and motherboard (system) model information can be found using the built-in Microsoft System Information tool.

System Information displays a comprehensive view of your hardware, system components, and software environment.

To view System Information:

1. Press the **Windows** key  on your keyboard and start typing *System.*
2. Choose **System Information** to view the system manufacture, model, and BIOS version.

See the example below:


System Information
File Edit View Help
System Summary
Hardware Resources
Components
Software Environment
Item
Value
OS Name
Microsoft Windows 10 Enterprise
Version
10.0.16299 Build 16299
Other OS Description
Not Available
OS Manufacturer
Microsoft Corporation
System Name
System Manufacturer
LENOVO
System Model
20HAS02500
System Type
x64-based PC
System SKU
Processor
Intel(R) Core(TM) i5-7300U CPU @ 2.60GHz, 2712 Mhz, 2 C...
BIOS Version/Date
LENOVO N1VET41W (1.31), 3/6/2018
SMBIOS Version
3.0
Embedded Controller Version
1.16
BIOS Mode
UEFI
BaseBoard Manufacturer
LENOVO
BaseBoard Model
Not Available
Find what:
Find
Close Find
Search selected category only
Search category names only