Intel Raptor Lake CPU crashes

Some players with Intel 13th and 14th gen Raptor Lake CPUs may experience frequent, repeated crashes in Old World with no clear pattern.

Affected CPUs may crash when running in a high multi-core utilization scenario. Old World makes extensive use of multicore CPUs and therefore has a higher risk of triggering the fault, although affected PCs may also crash in other games and software.

If you are using one of these CPUs and experience crashes in Old World, you may first want to check whether a BIOS update is available for your PC, as some motherboard manufacturers have released BIOS updates addressing the problem. Otherwise, it is recommended you change your BIOS settings to limit the CPU's power consumption as suggested in this article.

This issue has been confirmed by Intel and unfortunately they have also confirmed that CPUs suffering from this problem may be permanently damaged once they start experiencing crashes. If you're using an affected CPU and have experienced stability issues in Old World, or other games, we strongly recommend reaching out to Intel customer support to get your CPU replaced under warranty. Intel's recommendation is also to contact their support.

Intel have released a diagnostic tool can be used to determine if a CPU is damaged - Intel® Processor Diagnostic Tool

If you have questions, feel free to reach out to us at support@mohawkgames.com

Technical details

This section provides some additional technical information for those interested.

Affected i9 CPUs appear to have a power management problem where, if BIOS settings allow them to do so, they may draw more power than it is safe for them to do. The limit on these CPUs is 4096W, which is effectively no limit, and they've been observed to draw in excess of 370W under heavy multicore loads. This causes the CPU to exceed its thermal limits, leading to crashes and, at least in some cases, to suspected irreversible damage.

Old World performs a lot of parallel computation, mostly, but not exclusively, to plan the actions of AI players. The typical load profile for Old World includes periods of heavy CPU utilization across most cores, which can then pose a problem for the affected i9 CPUs.

Intel has released a microcode update, version 0x12B, for its 13th and 14th generation processors, and the 0x12B update is said to address the underlying stability issues. If you have

a CPU from a more recent production batch, it may already include this fix. However, as of October 2024, it's not fully known how effective the microcode update is at improving stability.

References

For more information about this problem, you can check various hardware news sites that have covered it. Some articles are:

https://en.wikipedia.org/wiki/Raptor_Lake#Instability_and_degradation_issue

https://www.techradar.com/computing/cpu/firefox-engineer-warns-intel-raptor-lake-cpus-are-crashing-more-often-because-of-the-summer-heat-and-its-making-me-worry-about-the-future-of-these-chips

https://www.tomshardware.com/pc-components/cpus/is-your-intel-core-i9-13900k-crashing-in-games-your-motherboard-bios-settings-may-be-to-blame-other-high-end-intel-cpus-also-affected

https://hothardware.com/news/intel-is-replacing-some-defective-core-i9-13900k-cpus-with-14900k-but-theres-a

https://hothardware.com/news/intel-official-statement-raptor-lake-crashes

https://www.tomshardware.com/pc-components/cpus/intel-finally-announces-a-solution-for-cpu-crashing-errors-claims-elevated-voltages-are-the-root-cause-fix-coming-by-mid-august