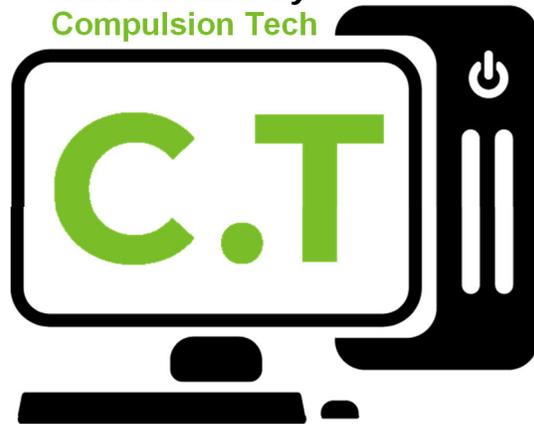


ASRock

BIOS TWEAKING GUIDE

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Guide created by
Compulsion Tech



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Introduction

Updating your motherboard's BIOS to the latest Intel Microcode is essential for Intel 13th and 14th Gen CPUs to avoid voltage spikes that can lead to long-term hardware level degradation and system instability. This guide will walk you through the steps of updating your BIOS while preserving your system's configuration settings, including fan profiles, RAM overclocking profiles, and configuring new voltage settings. Ensuring these settings are correctly restored post-update is critical for maintaining long term system stability and reliability.

Note: If your system uses a RAID storage configuration, avoid performing the BIOS update unless you are familiar with RAID reconfiguration after the update. However, you can still follow the steps for adjusting the voltage and Load-Line Calibration (LLC) settings without updating the BIOS.

Step 1: Accessing Your BIOS

To begin the process, you'll need to access your system's BIOS:

1. Turn on your system by pressing the power button.
2. Immediately start pressing the Delete key repeatedly until the BIOS menu appears.



Step 2: Saving Fan and Pump Settings

Fan settings are crucial, particularly for systems with liquid coolers, as the pump requires specific RPM and power settings to function correctly. Some systems may have the pump plugged into a chassis (CHA) fan header.

1. In the BIOS homepage (Easy Mode), click on Fan-Tastic Tuning.
2. Take a photo of the settings for each fan curve, including all Chassis Fans and both the CPU Fan 1 and CPU Fan 2.
3. Make sure the photo captures the fan control curve as this will need to be restored after the BIOS update).



This step ensures that cooling is correctly configured post-update, helping to prevent overheating or fan/pump malfunction.

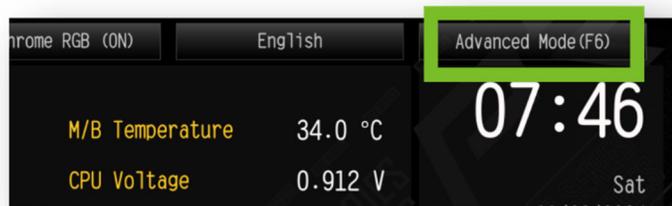


Step 3: Recording RAM Settings

Before performing the BIOS update, it's important to record your current RAM configuration, because your system should have an XMP profile or custom RAM overclock settings already applied.

These settings will have been applied when your system was originally built and configured and will be UNIQUE to each computer, the images below are EXAMPLE IMAGES ONLY!

1. Press F6 (or click the advanced mode button at top right of the screen) to enter the BIOS Advanced Mode.



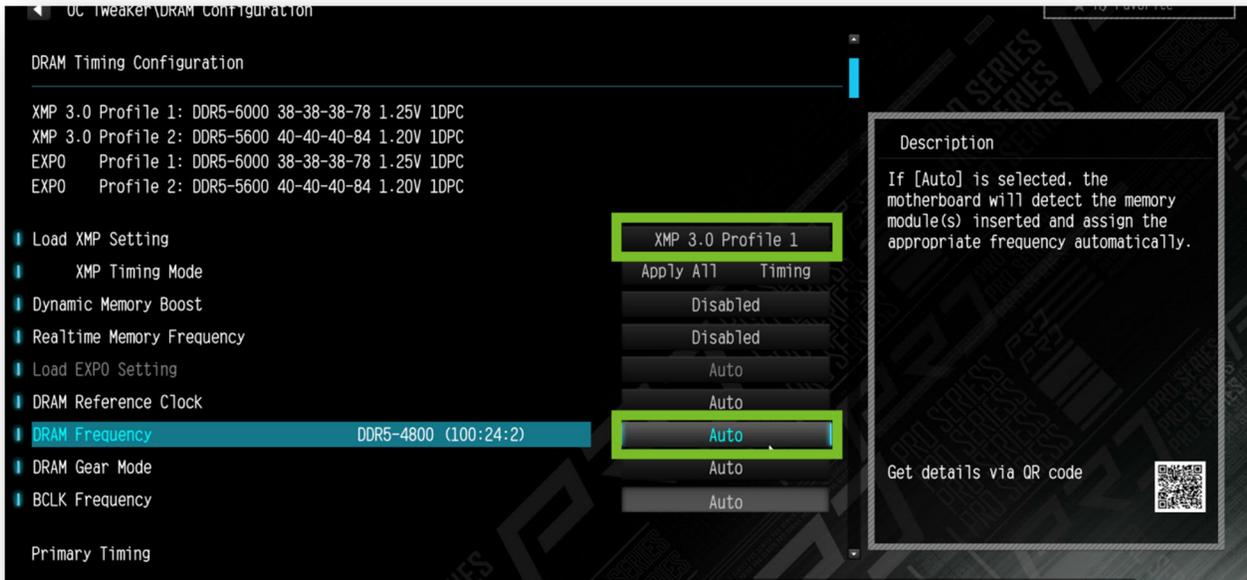
2. Navigate to the OC Tweaker menu.
3. Now select the DRAM Configuration Tab



4. For the “Load XMP Setting” note whether XMP Profile is enabled.
 - Take note of which XMP profile is selected (e.g., XMP Profile 1 or XMP Profile 2).
 - Take note if the DRAM Frequency is set to AUTO or manually set to a specific value.

A best practice is to take a photo of the entire page for quick reference.

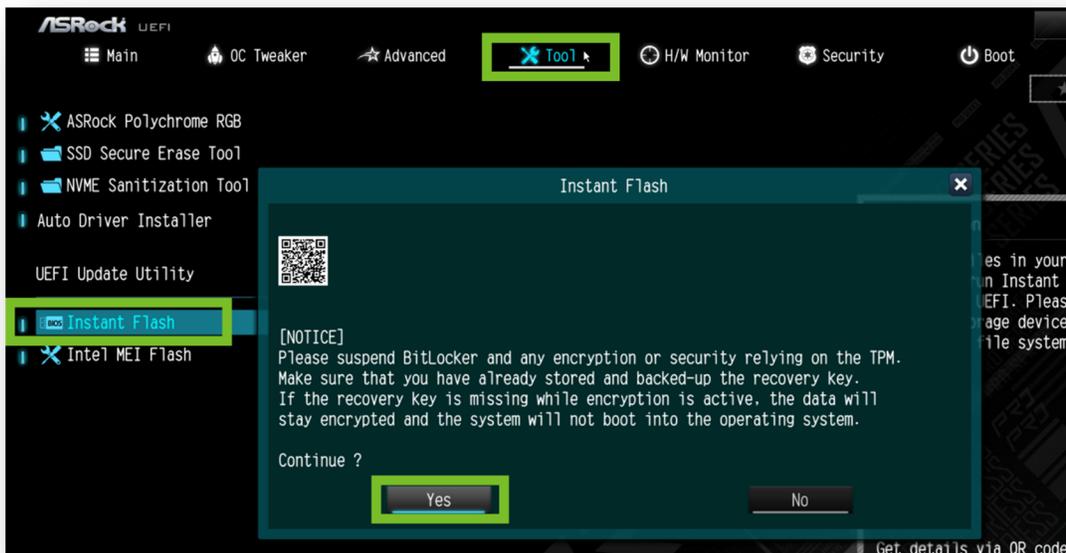
This image is simply an example to show you where to find your DRAM setting and what to capture in the photo.



Step 4: Updating the BIOS

This step assumes you have already downloaded and prepared a USB drive with the correct BIOS file for your motherboard as per the instructions at the bottom of the blog post article.

1. In the BIOS, click the “Tool” menu from the top navigation.
2. Select “Instant Flash” and press yes.



3. The BIOS will automatically search your USB drive and find the BIOS update file. Now confirm the update and allow the computer to do the BIOS update.
 - o The computer will reboot several times during the update process. Do not power off the computer or interrupt the process.

Step 5: Reconfiguring Fan Settings

After the BIOS update completes, your system will reboot into the default BIOS settings. To avoid any cooling issues, it's essential to reconfigure the fan settings you recorded earlier.

1. Re-enter the BIOS by pressing Delete on startup (refer to Step 1).
2. Return to **Fan Tastic TUNING**



3. Now restore the settings for each individual fan according to the photo you took for each chassis fan along with the CPU fan 1 and 2. (refer to Step 2)

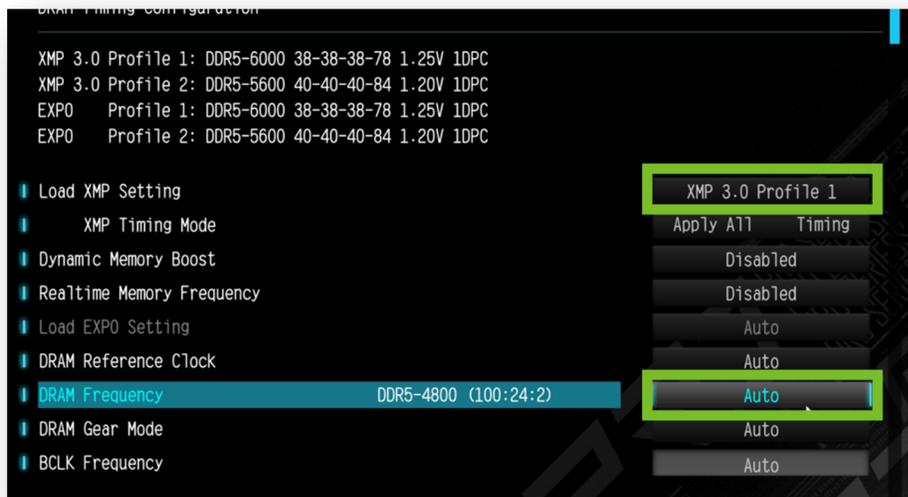


Ensure that you re-apply custom fan curves for every fan because some systems will have the Liquid Cooler Pump hooked up to a Chassis Fan Header.

Step 6: Restoring RAM Overclock Profiles

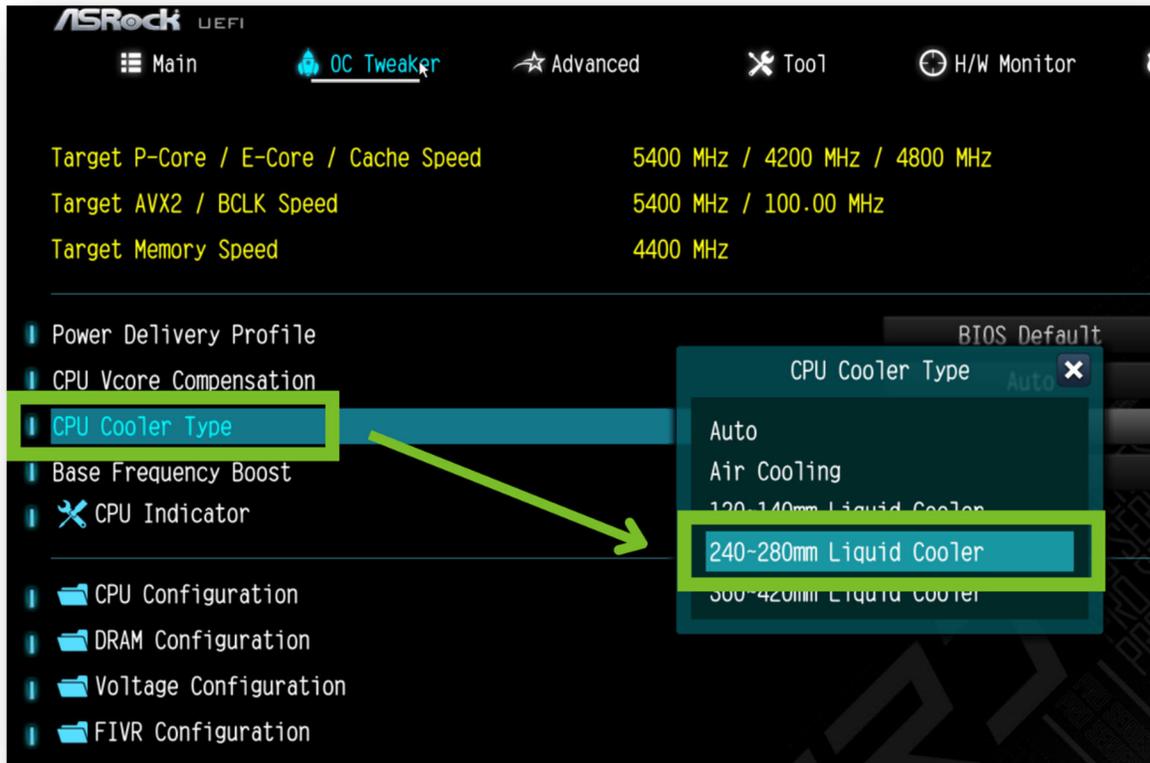
Once the fans are reconfigured, the next step is to restore your RAM settings.

1. In Advanced Mode, navigate to the OC Tweaker menu (refer to Step 3).
2. Re-enable the XMP Profile (if any) that was active before the BIOS update via the Ai Overclock Tuner.
3. If the DRAM frequency was originally set to a manual value such as 5200, please change it to the manual value it was previously set at before the update.



Step 7: Setting Power Limits & VR Voltage Limit

1. Press esc and go back to the main page for OC Tweaker settings
2. For “CPU Cooler Type”, select 240-280MM Liquid Cooler

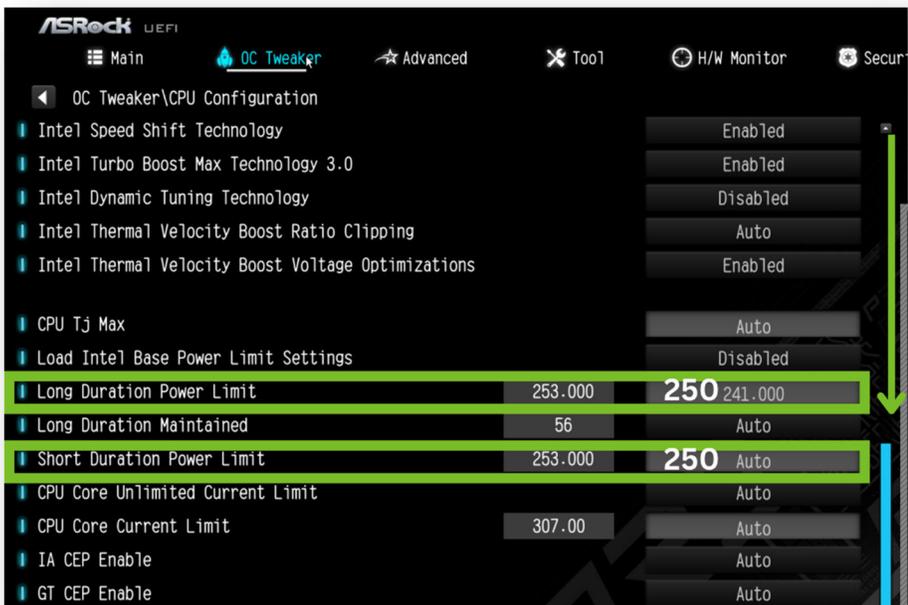


3. Now select the “CPU Configuration” settings.



4. Scroll down to the power limit settings. “Long Duration Package Power Limit” and the “Long Duration Package Power Limit”, set them both manually to 250, which provides a 250W power limit.

(Image on next page)



5. Now go back to OC Tweaker and select the “Voltage Configuration” settings.



6. Within the voltage configuration, change the CPU Core/Cache Load-Line Calibration Settings to Level 3.

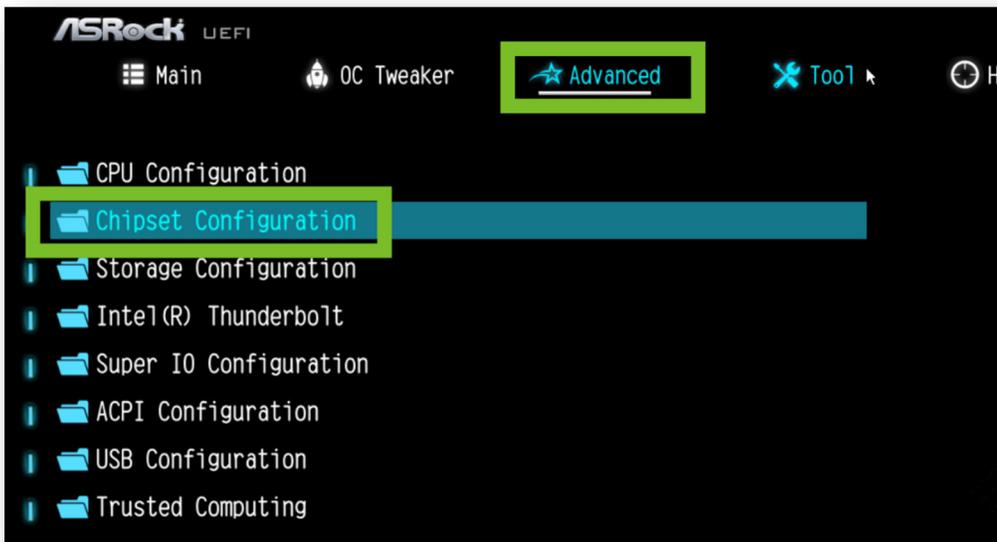


7. scroll down further and find the IA VR VOLTAGE LIMIT setting,
 - o Change it from AUTO to the value of 1.4 (which is 1.4 volts)

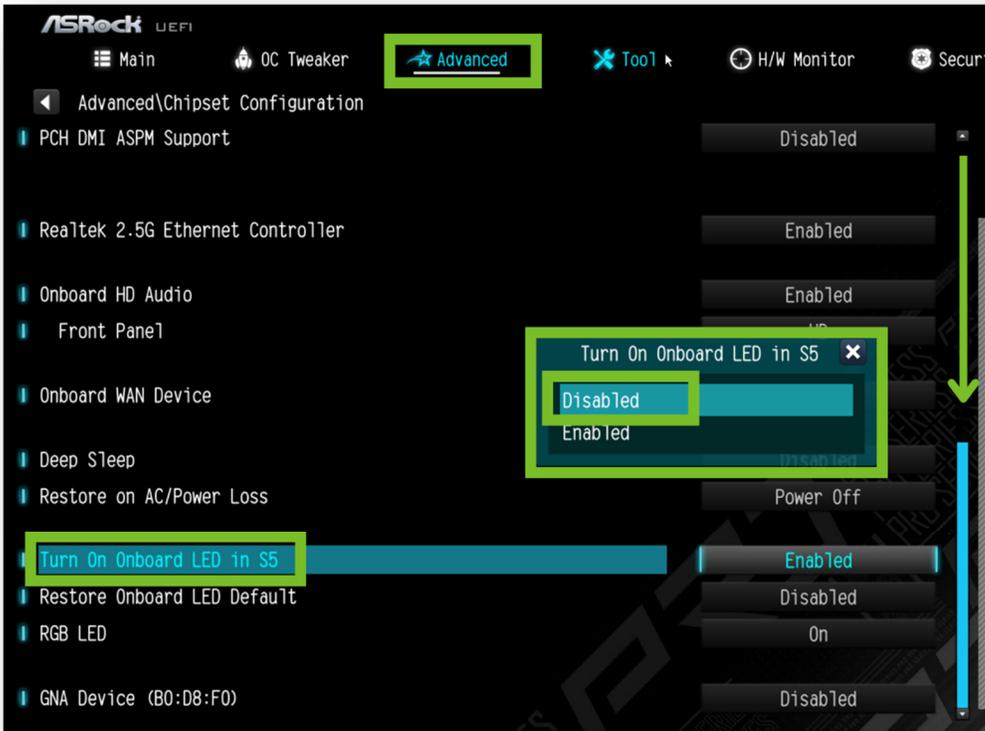


Step 8: Chipset Configuration

1. Now navigate to the "Advanced Mode" section and select "Chipset Configuration"



Scroll down to “Turn on Onboard LED in S5” and change it to disabled.



Step 9: Saving and Exiting the BIOS

After all the settings have been restored, save your changes and exit the BIOS.

1. Press the **exit tab** or and select “**Save Changes & Exit**”.
2. Confirm that all settings are saved, and allow the system to reboot.



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