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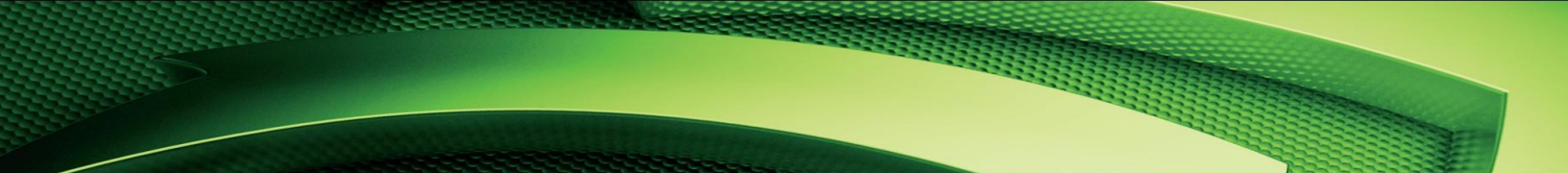
StarCraft II: Wings of Liberty

Benchmarking Guide



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StarCraft II: Wings of Liberty

This Guide

This guide focuses on benchmarking the NVIDIA GeForce GTX 460 GPU with the *StarCraft II* Beta. *StarCraft II: Wings of Liberty* is the much awaited sequel to what some critics hail as the best PC game ever made—***StarCraft***. In *StarCraft II*, you play one of three unique and powerful races in a Real Time Strategy (RTS) environment, battling for dominance in a myriad of different landscapes and situations. *StarCraft II* does not have a built-in benchmark, but does possess the ability to create and play back “replays” of previous saved games. Playing back replays creates a consistent benchmark environment for testing the performance of any GPU.

***StarCraft II* & NVIDIA GeForce GTX 460**

The performance benefits of using a GeForce GTX 460 GPU when playing *StarCraft II* are clear when compared to the competition.

- Superior driver support and functionality.
- 3D Vision support with single panel 3D Vision in *StarCraft II* sometime after the full release of the retail game.
- Full support for Anti-Aliasing in *StarCraft II* via the NVIDIA Control Panel.

Activating Your *StarCraft II* Beta Key

To activate your *StarCraft II* Beta key, you must first create a Battle.net account. A Battle.net account will allow you to manage your key as well as to download the *StarCraft II* Beta Installer.

NOTE: You should have received a *StarCraft II* Beta key from a NVIDIA PR representative, but if you have not received one and would like to, please refer to the contact information at the end of this guide to receive your key.

Activating *StarCraft II*

To begin, open a Web browser and navigate to the Battle.net home page:

<http://www.battle.net/>



Figure 1: Creating and managing a Battle.net account.

Click on "**Create or Manage a Battle.net Account**" to create a new Battle.net account. If you already have a Battle.net account, use the same page to log in.

NOTE: If you already have a Battle.net account and would like to add your *StarCraft II* Beta key to this account, simply log in to your account and add your beta key.

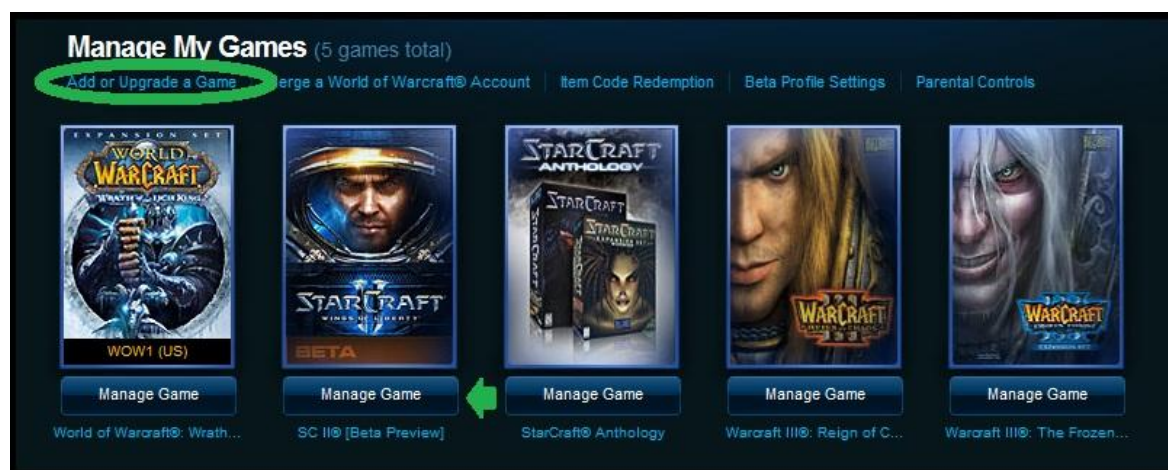


Figure 2: Manage My Games: Add or Upgrade a Game

Once you have created an account, you will be shown a page where you can manage the Blizzard games that have been added. To add your *StarCraft II* Beta key, click **"Add or Upgrade a Game"** as seen in **Figure 2**. You will then be able to enter your *StarCraft II* Beta key and download the client by clicking **"Manage Game"** once the beta key code has been activated.

The Blizzard Download Manager will then download the game to your computer, and you will then be able to install the *StarCraft II* Beta client.

Once installed, you will be asked for your Battle.net credentials that you previously created. Updates may be required and will be automatically downloaded and applied when the game is launched. You are now ready to blast some Zerglings into space!

Loading/Finding a Replay File

Loading the Reply File

Replays for the *StarCraft II* Beta are created and stored in the following folder:

C:\Users\"username"\Documents\StarCraft II Beta\Accounts\1662834\1-S2-1-40295\Replays\Multiplayer

NOTE: You must first start and end a multiplayer game before the folders inside the Accounts folder is created.

The two folder numbers after "Accounts" in the folder path will be different for each user. You will need to click through to the Replays folder instead of copying this path.

You may need to create the "Multiplayer" folder by hand if it is not created. Make sure the replay is copied into the "Multiplayer" folder.



Figure 3: To load one of your own replays, simply click on the replay button at the top of the main menu in the *StarCraft II* Beta and select the replay file.

Using the Replay File

Place the replay file (**NVIDIA1.SC2replay**) in the abovementioned directory and access the file in the replay menu of the *StarCraft II* Beta.

NOTE: If you are unable to use this replay file or are having trouble, please contact one of the respective PR representatives in the **NVIDIA Contact Information** section at the end of this guide.

Benchmarking *StarCraft II*

Creating a Replay

To benchmark *StarCraft II*, you need to run a replay file and measure the performance manually. You will need to use a Frames Per Second (FPS) calculator due to the lack of a built in benchmark. We recommend using Fraps (<http://www.fraps.com/>) or something similar.

The replay will be loaded for each run, making a consistent in-game environment to measure and record GPU performance. Please refer to the previous section to learn how to obtain and load a replay file for testing purposes.

Setting the Playback Camera

When benchmarking the replay—to maximize graphics rendering and stress the GPU as much as possible—you can set the camera to follow the player’s actions, which generates the most action in the game while still retaining a consistent testing scenario.



On the lower right side of the replay screen you will see a view selector drop down menu. For this replay, the player’s name to follow is “andYz00m”. Simply select “andYz00m” from the drop down menu and then click the camera button next to the drop down menu to have the camera follow the player’s movement throughout the entire replay.

Once the replay starts, follow the player and then start your Fraps benchmarking software which has been set to capture FPS and report in an Excel format.

This benchmarking method is very straightforward and you should achieve accurate and consistent results.

Benchmarking Results

Below are the results we found while benchmarking the *StarCraft II* replay file attached with this Reviewers Guide. We encourage you to use your own findings but the graph can be used as a reference point.

We are very confident that using a GeForce GTX 460 will provide the best performance in its price class.

Remember, using an NVIDIA GPU also provides the benefit of the NVIDIA GeForce ecosystem of support and features. For example, while *StarCraft II* does not support Anti-Aliasing natively in the game, you can turn this on via the NVIDIA Control Panel.

Table 1: Single-card testing at 1920x1200 Resolution with No Antialiasing

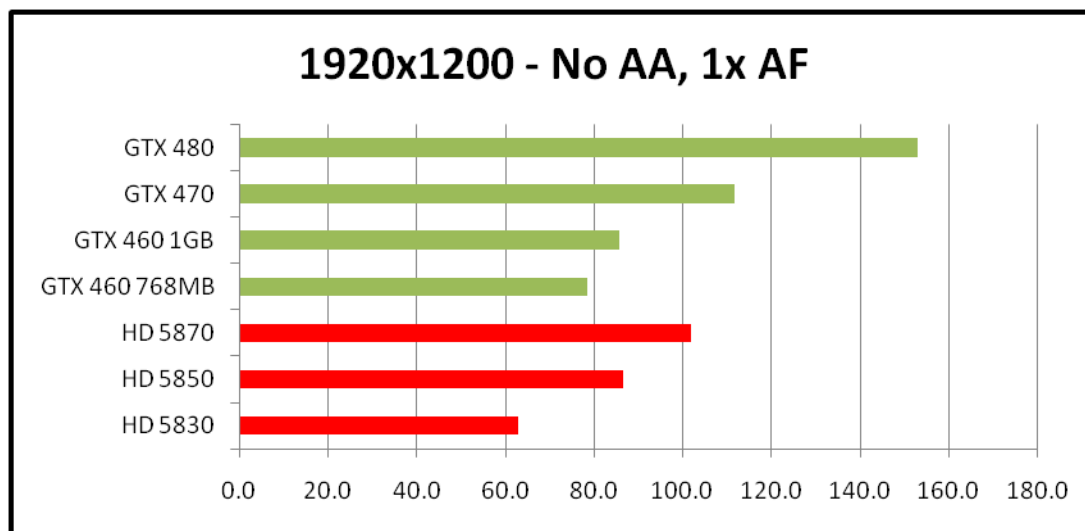


Figure 4: Shown as Frames Per Second (FPS).

Table 2: Single-card testing at 1920x1200 Resolution with 4x Antialiasing

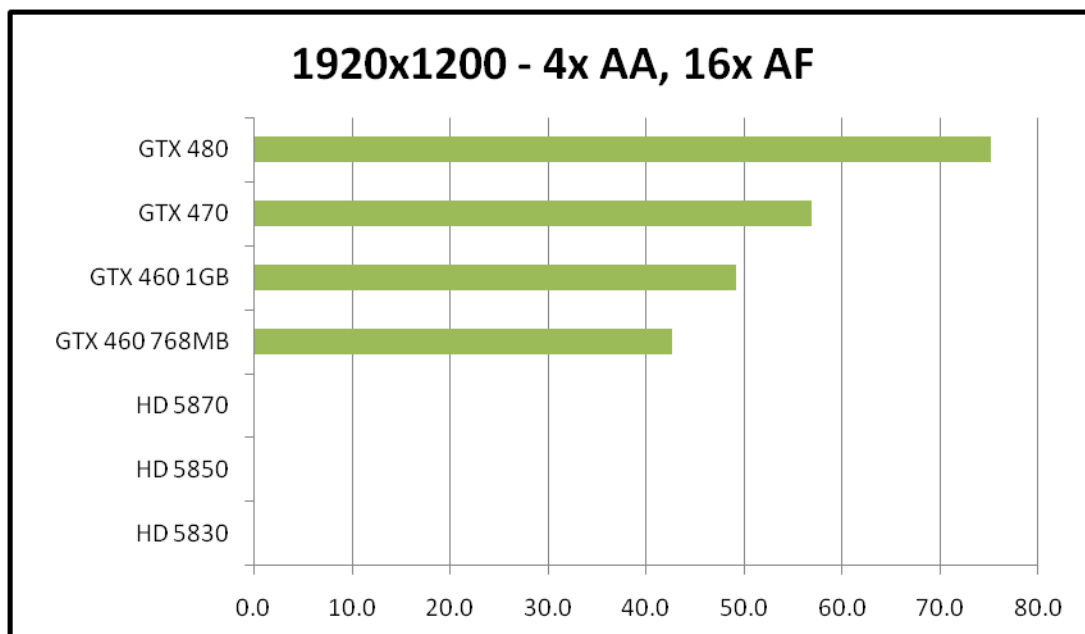


Figure 5: In the above chart you can see that it is impossible to achieve values on AMD with Anti Aliasing enabled because AA is not supported by AMD. Shown as Frames Per Second (FPS).

Table 3: SLI vs. Crossfire at 1920x1200 Resolution with No Antialiasing

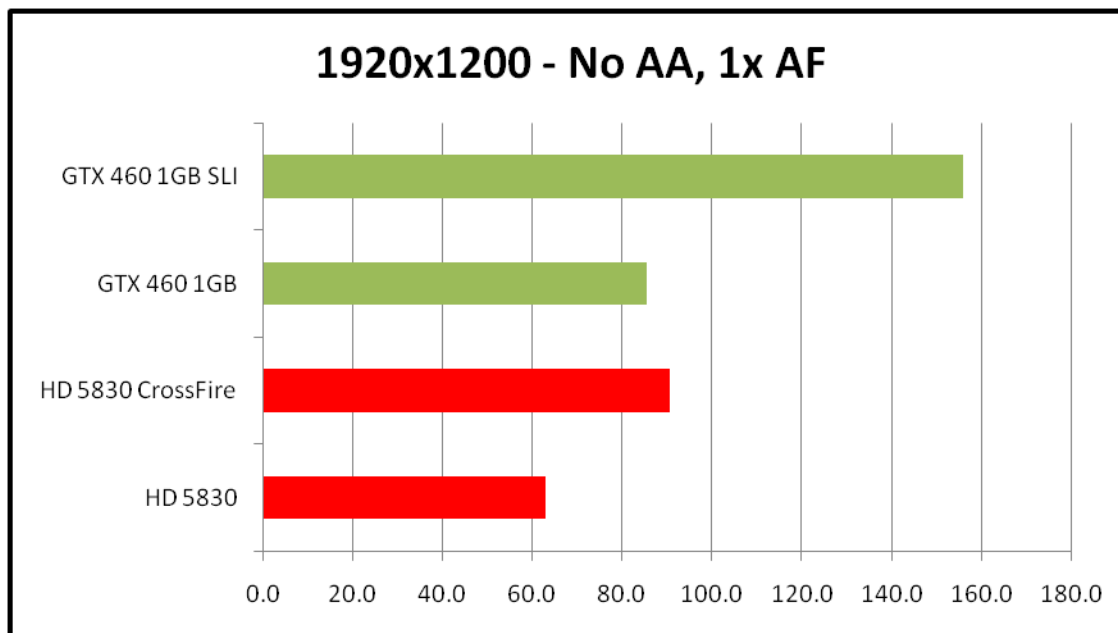


Figure 6: Shown as Frames Per Second (FPS).

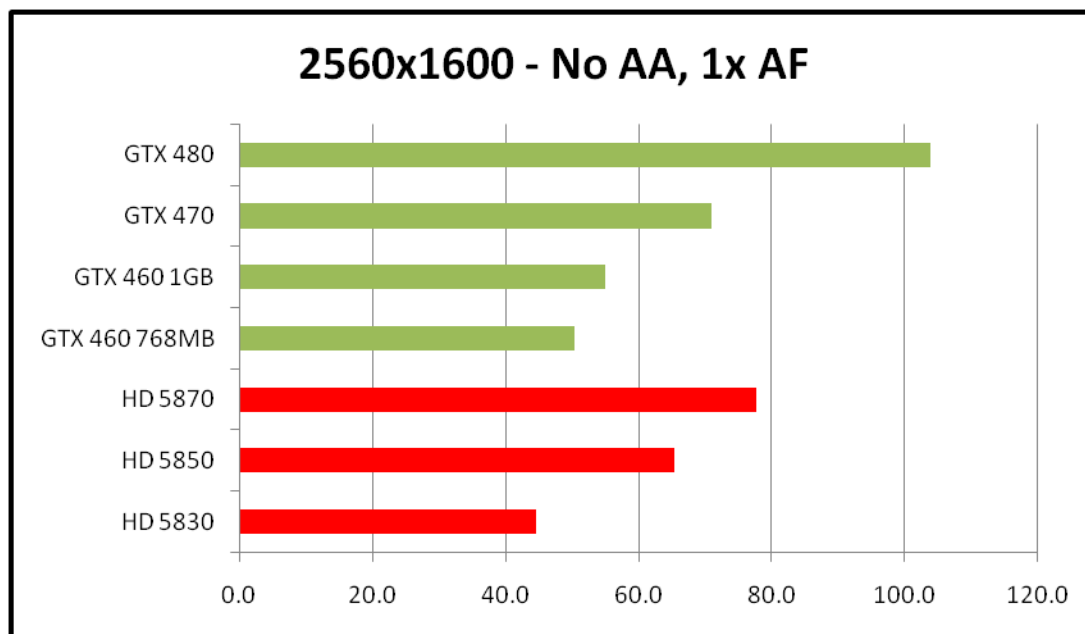
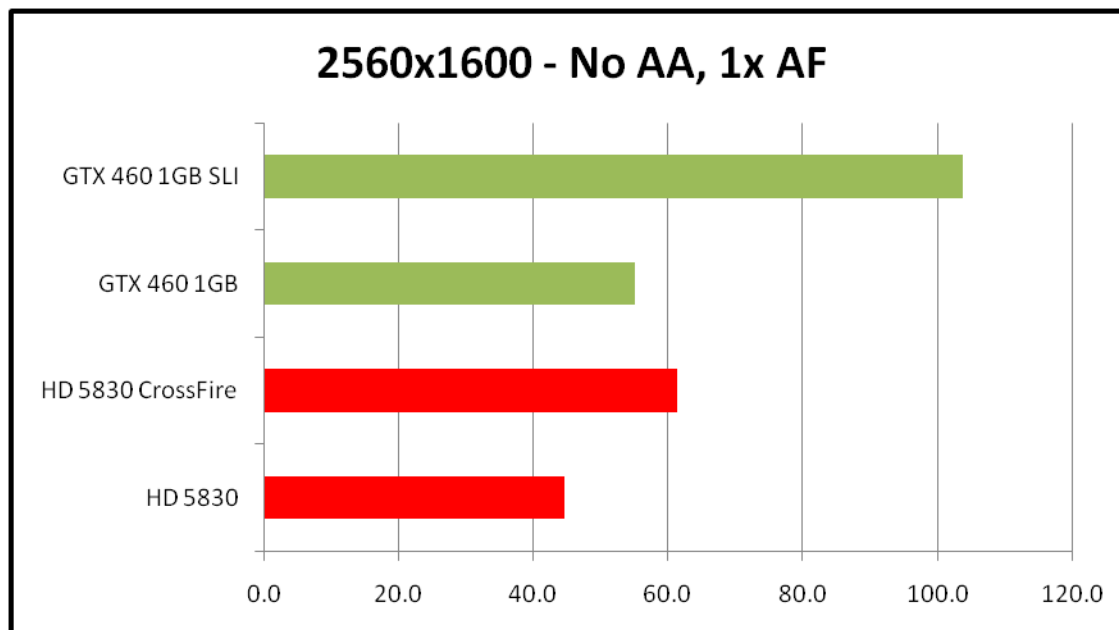
Table 4: Single-card testing at 2500x1600 Resolution with No Antialiasing**Figure 7:** Shown as Frames Per Second (FPS).**Table 5:** SLI vs. Crossfire at 2500x1600 Resolution with No Antialiasing

Figure 8: As you can see, the NVIDIA GTX 460 SLI configuration scales much more effectively than its Crossfire competition.
Shown as Frames Per Second (FPS).

Antialiasing & *StarCraft II*

Only NVIDIA GeForce GPUs allow anti-aliasing in *StarCraft II*.

NVIDIA has added Anti-Aliasing support for *StarCraft II* via the NVIDIA Control Panel.

NOTE: AMD drivers currently do not support control panel Anti-Aliasing for *StarCraft II*.

Enabling AA

Right-click on the desktop and select “**NVIDIA Control Panel**” to open it up.

It is important to make sure these settings are set (as per **Figure 9**).

1. **Antialiasing – Mode:** Override any application setting
2. **Antialiasing – Setting:** 4x (or whatever level you want)
3. **Vertical Sync:** Force Off

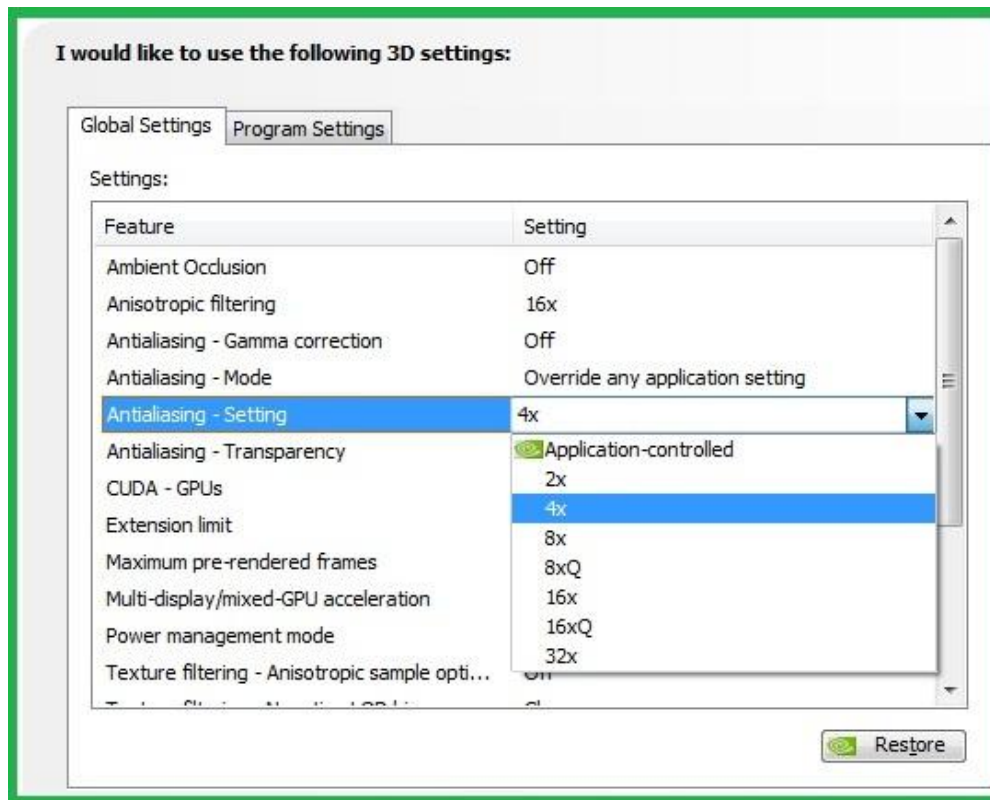


Figure 9: To enable AA in *StarCraft II*, open the NVIDIA Control Panel, select Manage 3D Settings, and then select Global Settings.

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