--VOLDY RETARD GUIDE--

He who shall not be named

`The definitive Stable Diffusion experience ™`

(Special thanks to all anons who contributed)

---FEATURE SHOWCASE & HOWTO---

Notable: GUI, Inpainting/Outpainting, Live generation preview, Tiling, Upscaling, <4gb VRAM support, Negative prompts, CLIP

(Basic) CPU-only guide available **Here**

Japanese guide here 日本語ガイド

Minimum requirements:
-16gb ram
-Nvidia Maxwell-architecture or newer GPU with **at least** 2gb vram
-Linux or Windows 7/8/10+
-20gb disk space

`--GUIDE--`

Step 1: Install Git (page)
-When installing, make sure to select the Windows Explorer integration > Git Bash

Step 2: Clone the WebUI repo to your desired location:
-Right-click and select 'Git Bash here'
-Enter `git clone https://github.com/AUTOMATIC1111/stable-diffusion-webui`
(Note: to **update**, all you need to do is is type `git pull` within the newly made webui folder)

Step 3: Download the 1.4 AI model from huggingface (requires signup) or **HERE**
-(torrent magnet)
(Alternate) 1.4-based **Waifu model** trained on an additional **56k** Danbooru images **HERE** (**mirror**)
-(torrent magnet)
(Note: Several GB larger than normal model, see instructions below for pruning)
comparison

-**See This page for additional models** (Most in beta)

Step 4: Rename your .ckpt file to "model.ckpt", and place it in the `/models/Stable-diffusion` folder

Step 5: Install Python 3.10.6 (Windows 7 ver) (page)

Make sure to choose "**add to PATH**" when installing

Step 6 (Optional):
This reduces VRAM, and allows you to generate at larger resolutions or batch sizes for a <10% loss in raw generation speed
(For me, singular results were significantly slower, but generating with a batch size of 4 made each result **25% faster** on average)
-Edit `webui-user.bat`
-Change `COMMANDLINE_ARGS=` to `COMMANDLINE_ARGS=--medvram`

Step 7: Run `webui-user.bat` from your File Explorer. Run it as normal user, **not** as administrator.

- Wait patiently while it installs dependencies and does a first time run.
  It may *seem* "stuck" but it isn't. It may take up to 10-15 minutes.
  And you're done!

Usage

- Open webui-user.bat
- After loading the model, it should give you a LAN address such as **'127.0.0.1:7860'**
- Enter the address into your browser to enter the GUI environment
  Tip: Hover your mouse over UI elements for tooltips about what they do
- To exit, close the CMD window

--RUNNING ON 4GB (And under!)--

These parameters are also useful for regular users who want to make larger images or batch sizes!
It is possible to drastically reduce VRAM usage with **some modifications:**

- **Step 1:** Edit `webui-user.bat`
- **Step 2:** After `COMMANDLINE_ARGS=` , enter your desired parameters:
  Example: `COMMANDLINE_ARGS=--medvram`

- If you have 4GB VRAM and want to make 512x512 (or maybe larger) images,
  use `--medvram`.
- If you have **2GB** VRAM,
  use `--lowvram`

If you are getting 'Out of memory' errors on either of these, add `--always-batch-cond-uncond` to the other arguments

NOTES:

- If you get a **green/black screen** instead of generated pictures, you have a card that doesn't support half precision floating point numbers (known problem on 16xx cards):
  You must use `--precision full --no-half` in addition to other flags, and the model will take much more space in VRAM
- Make sure to **disable** hardware acceleration in your browser and close anything which might be occupying VRAM if you are getting out-of-memory errors, and possibly remove GFPGAN (if you have it)

--ALTERNATE GUIDE (Conda)--

(You can try this method if the traditional install isn't working)

- **Follow Steps 1-4 on the main guide above**
- Download Miniconda HERE. Download Miniconda 3
- Install Miniconda in the default location. Install for **all users**.
  Uncheck "Register Miniconda as the system Python 3.9" unless you want to
- Open Anaconda Prompt (miniconda3)
- In Miniconda, navigate to the `/stable-diffusion-webui` folder wherever you downloaded using "cd" to jump folders.
  (Or just type "cd" followed by a space, and then *drag the folder into* the Anaconda prompt.)
- Type the following commands to make an environment and install the necessary dependencies:
- `conda create --name qwe`
  (You can name it whatever you want instead of qwe)
- `conda activate qwe`
- `conda install python`
- `conda install git`
- `webui-user.bat`
  (Note: it may seem like it's stuck on "Installing torch" in the beginning. This is normal and should take 10-15 minutes)
  It should now be ready to use

Usage

- Navigate to `/stable-diffusion-webui` in Miniconda
- Type `conda activate qwe`
  (You will need to type 'conda activate qwe' every time you wish to run webui)
- Type `webui-user.bat`
- After loading the model it should give you a LAN address such as '**127.0.0.1:7860**'
  Enter the address into your browser to enter the GUI environment

--LINUX INSTALLATION--

Step 1: Install dependencies

- Debian-based:
  `sudo apt install wget git python3 python3-venv`
- Red Hat-based:
  `sudo dnf install wget git python3`
- Arch-based:
  `sudo pacman -S wget git python3`

Step 2: To install in `/home/$(whoami)/stable-diffusion-webui/`, run:
`bash <(wget -qO- https://raw.githubusercontent.com/AUTOMATIC1111/stable-diffusion-webui/master/webui.sh)`

--LINKS--

- Textual Inversion guide (Allows you to teach Stable Diffusion to understand new concepts!)
- Artist list with pictures
- Top 500 artists comparison
- Search the training database
- SD wiki (on hiatus)
- Voldy's mini-wiki
- Inpainting Tips
- Anon's guide for anime vectors (Waifu Diffusion)
- Remacri Upscaler(Landscapes) Lollypop Upscaler(Anthropomorphic Figures)
- Other Upscaler Models
  (Place upscaler models in ESRGAN folder)
- Trinart Alternate .ckpt (Pixiv-esque illustrations, not as cohesive as waifu diffusion)
- Build great aesthetic prompts using the prompt builder
- Japanese Keywords
- Use Darkreader to change your Gradio theme to dark mode
- Informal Training guide (30gb vram+)
- Python for Windows 7
- Stable diffusion WebUI repo
- Waifu Diffusion huggingface page

--TROUBLESHOOTING--

- Make sure your folder paths do **not have spaces**
- If you are getting a **winerror** when installing, or you feel you broke something and want to reinstall from scratch,
  delete these directories: `venv`, `repositories` and try again
- (img2img) if you get **RuntimeError: Sizes of tensors must match**, you need to change the resolution of your input image
- Make sure you have the latest CUDA toolkit and GPU drivers you can run
- If you get **Torch is not able to use GPU**, you may have to download Python 3.7 instead
- if your version of Python is not in PATH (or if another version is)
  create or modify webui.settings.bat in `/stable-diffusion-webui` folder
  add the line set PYTHON=python to say the full path to your python executable: `set PYTHON=B:\soft\Python310\python.exe`
  You can do this for python, but not for git.
- The installer creates a python virtual environment, so none of installed modules will affect your system installation of python if you had one prior to installing this.
- To prevent the creation of virtual environment and use your system python, edit webui.bat replacing set `VENV_DIR=venv` with `set`

`VENV_DIR=`

- webui.bat installs requirements from files `requirements_versions.txt`, which lists versions for modules specifically compatible with Python 3.10.6.
  If you choose to install for a different version of python, editing webui.bat to have set REQS_FILE=requirements.txt instead of set REQS_FILE=requirements_versions.txt may help (but I still reccomend you to just use the recommended version of python).
- If you get a **green/black** output instead of generated pictures, you have a card that doesn't support half precision floating point numbers (known problem on 16xx cards):
  -edit webui-user.bat
  -Modify line 6 to `COMMANDLINE_ARGS=--precision full --no-half` along with any other flags you wish to add
  Unfortunately, the model will take much more space in VRAM-
  So it is recommended to use flags like `--medvram` in combination with it
- If your output is a jumbled rainbow mess your image resolution is set TOO LOW
- Having too high of a CFG level will also introduce color distortion, your CFG should be between 5-15
- On older systems, you may have to change `cudatoolkit=11.3` to `cudatoolkit=9.0`
- Make sure your installation is on the C: drive
- This guide is designed for NVIDIA GPUs *only*, as stable diffusion requires cuda cores.
  AMD users should try THIS GUIDE

`--TIPS--`

- If you are generating images **larger** than 512x512, make sure to check **Highres, fix** for the best results.
  otherwise, 'cloning' distortion will begin appearing (multiple faces, arms, etc)
  +Lower denoising strength seems to work best (I used 0.5)
- Even with the available fix, it is still recommended to generate in 512x512 for the most accurate results, as the model was trained on 512x images
- The Waifu model and normal .ckpt have their own pros and cons;
  Non-anime promps done with the waifu .ckpt will be biased toward anime stylization, making realistic faces and people more difficult
- Use ((( ))) around keywords to increase their strength and [[[ ]]] to decrease their strength
- Unlike other samplers, **k_euler_a** can generate high quality results from low steps. Try it with 10-25 instead of 50
- **Save prompt as style** allows you to save a prompt as an easily selectable output. A box to select will appear to the left of Roll after you save your first style, allowing you to make a selection. Prompts can be deleted by accessing `styles.csv`
  (This can be helpful if you find a combination that generations really good images and want to repeatedly use it with varied subjects.)
- You can drag your favorite result from the output tab on the right **back into** img2img for further iteration
- The **k_euler_a** and **k_dpm_2_a** samplers give vastly different, more intricate results from the same seed & prompt
  However their results are not consistent throughout steps. Other samplers provide more predictable, linear refinement with more steps
- The seed for each generated result is in the output filename if you want to revisit it
- Using the same keywords as a generated image in img2img produces interesting variants
- It's recommended to have your prompts be at least 512 pixels in *one* dimension, or a 384x384 square at the smallest
  Anything smaller will have heavy distortion
- CLIP interrogator takes up a lot of space (8gb), you might not want to select it if you don't plan on using it frequently
- Try Low strength (0.3-0.4) + High CFG in img2img for interesting outputs
- You can use Japanese Unicode characters in prompts

`--HOWTO EXTRAS--`

-----Launching Different Models-----

If you have multiple models installed and you want to launch from another conveniently, you can make another .bat

- Make a copy of webui-user.bat and name it whatever you want
- After `COMMANDLINE_ARGS=`, add `--ckpt` followed by the desired model to your launch parameters:
  eg: `COMMANDLINE_ARGS=--ckpt wd-v1-2-full-emma.ckpt`
  You can also select a different model while in the webUI, under the **settings** tab

-----Changing UI Defaults-----

After running once, a `ui-config.json` file appears in the webui directory:
Edit values to your liking and the next time you launch the program they will be applied.

-----Running Online or through LAN-----

Edit webui-user.bat and add the necessary parameters after `COMMANDLINE_ARGS=`, along with any existing parameters you have

- Use `--share` option to run online. You will get a xxx.app.gradio link. This is the intended way to use the program in collabs.
- Use `--listen` to make the server listen to network connections. This will allow computers on your **local network** to access the UI, and if you configure port forwarding, also computers on the internet.
- Use `--port xxxx` to make the server listen on a specific port, `xxxx` being the wanted port. Remember that all ports below 1024 needs root/admin rights, for this reason it is advised to use a port above 1024. Defaults to port 7860 if available.
- Use `--share --gradio-auth username:password` to add shared authentication
  Optionally, you can provide multiple sets of usernames and passwords separated by commas (user1:pw1, user2:pw2).

-----**Auto-update**-----

Note: This only applies to those who used `git clone` to install the repo, and not those who used the .zip
You can set your script to automatically update by editing `webui-user.bat`
Add `git pull` one line above `call webui.bat`
Save

-----**Setting Different Output Location**-----

-Copy the text Here and save it as `output.bat`, Move it to wherever you want your images to output to.
Run it, and it will create the appropriate sub-folders. You can delete the .bat after this is complete.
-Go to the Settings tab of the UI and assign your new file locations accordingly. Once you've assigned the locations, make sure to hit **Apply Settings**
It is also recommended to enable the following setting if you want your outputs to be organized
-[x] When writing images/grids, create a directory with name derived from the prompt

-----**GFPGAN**-----

GFPGAN is used for correcting realistic faces, it was replaced with CodeFormer face correction which comes with the main install and is generally better.
To install GFPGAN, download and place **GFPGANv1.3.pth** into the main webUI directory

-----**Enabling Negative Prompts**-----

Negative prompts are a powerful tool to remove unwanted features and elements from your generations
They should be enabled by default, but if not:

- Edit webui-user.bat
- After `COMMANDLINE_ARGS=`, add `--show-negative-prompt` to your launch parameters:
  `COMMANDLINE_ARGS=--show-negative-prompt`

--PRUNING A .CKPT--

'Unpruned' models can be up to 7gb due to redundant training data,
but it can be reduced to 3.6gb without any loss of quality, reducing ram usage and loading time
(The original model is not lost, a new pruned copy is made)
NOTE: You should only do this after running webui-user.bat at least once

- Place the .ckpt file you wish to prune in your main `/stable-diffusion-webui` folder
- Copy https://raw.githubusercontent.com/harubaru/waifu-diffusion/main/scripts/prune.py
  Delete line **6** and **8**
  Save as `prune.py`
  Save as 'all files' in your main `/stable-diffusion-webui` folder
- Edit the last line in prune.py to the name of your ckpt:
  eg. `prune_it('wd-v1-2-full-emma.ckpt')` and save
- Copy and save the script for launching prune.py **HERE**
  Save it as `prune.bat` in your main `/stable-diffusion-webui` folder
  Save as 'all files'
  (This loads venv and torch dependencies into memory before running prune.py)
- Run prune.bat
  The pruning process may take a few minutes
  Afterward, you should now have a pruned .ckpt alongside your normal one

--OUTPAINTING--

(9/17) A new and improved outpainting script has been added to the webUI!
Make sure to use `git pull` so you can update to the latest version
To use, go to img2img and select "Outpainting mk2" from the Script dropdown menu
~~**Recommended parameters**~~ (Further testing is needed)

Steps: 85-100
Sampler: Euler a
CFG Scale: 7.5
Denoising Strength: 0.8
Width: Same as source image
Height: Same as source image
Pixels to expand: 128-256
Mask Blur: 10-25
Fall-off exponent: 1-2
Color variation: 0.05

Tips

- Make sure your width and height are the same or close to the source image resolution,
  otherwise your outpainting results will be incoherent
- Don't feel locked into these parameters, tweaking is highly encouraged
  they are just a rough approximation of what seemed to work best for me through a few minutes of testing
- The higher the mask blur, the more 'seamless' results tend to be (to an extent)
  but if it's too high, deformed distortions occur

--W7 HELP--

On Windows 7, you **may** get "**api-ms-win-core-path-l1-1-0.dll is missing**" as an error when trying to follow this guide.
This is because many modern programs and frameworks require a system file only present in newer versions of Windows.
Luckily, it has been backported to be compatible with W7, and can be downloaded **HERE** (Github page)
Upzip and copy the **x86** .dll into `C:\Windows\SysWOW64` and the **x64** .dll into `C:\Windows\System32` and reboot, then you should be good to go
If you do not get that error, then you do not need to do this.

--X/Y Plot--

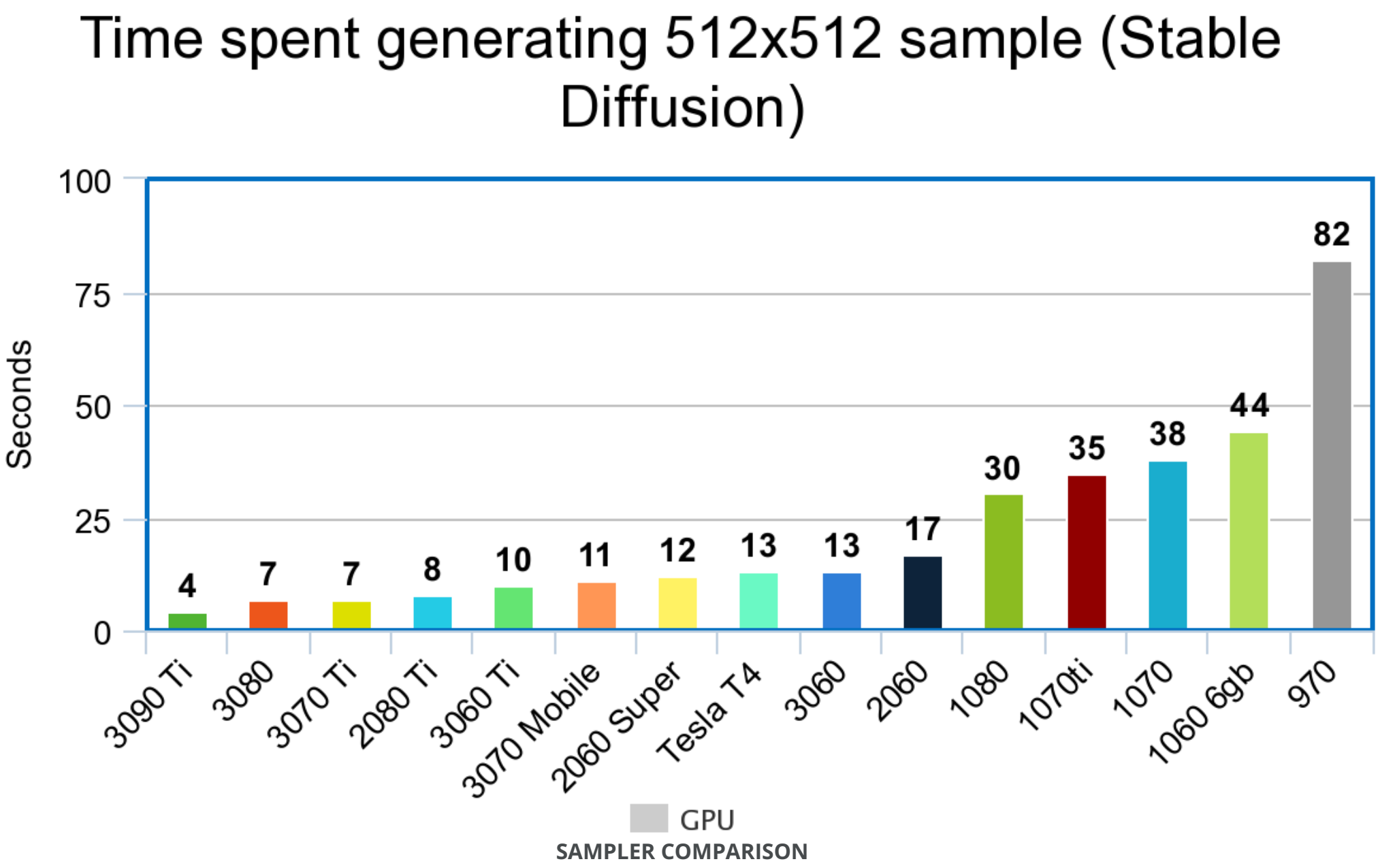
Although most features are relatively self explanatory to use, the X/Y plot script can be particularly obtuse to understand, notably the "S/R" option
-The S/R prompt Searches the whole prompt for the first entry in the the comma separated values field and Replaces all occurrences of the first word with with one entry from the values Prompt S/R field on every iteration.
-The iterations of course also happen for every value of the other type field.
-The keyword will *also* be iterated, so using something like "red, white, blue" will result in issues when your prompt also features "reddit gayfurs".

--MISC--

--OLD MODEL--
The original v1.3 leaked model from June can be downloaded here:
https://drinkordiecdn.lol/sd-v1-3-full-ema.ckpt
Backup Download: https://download1980.mediafire.com/3nu6nlhy92ag/wnlyj8vikn2kpzn/sd-v1-3-full-ema.ckpt
Torrent Magnet: https://rentry.co/6gocs

--OLD GUIDE--
Voldy guide pre-Table of Contents (9/15) https://rentry.org/voldyold
The original hlky guide (replaced as of 9/8/22) is here: https://rentry.org/GUItard
Japanese hlky guide https://news.livedoor.com/article/detail/22794512/
The original guide (replaced as of 8/25/22) is here: https://rentry.org/kretard

APPROXIMATE RENDER TIME BY GPU (50 steps)


Time spent generating 512x512 sample (Stable Diffusion)
Seconds
100
75
50
25
0
4
7
7
8
10
11
12
13
13
17
30
35
38
44
82
3090 Ti
3080
3070 Ti
2080 Ti
3060 Ti
3070 Mobile
2060 Super
Tesla T4
3060
2060
1080
1070ti
1070
1060 6gb
970
GPU
SAMPLER COMPARISON

Sampler vs. Steps

(Scale = 15.0, W = 512, H = 512)