

ECE 506: Program 1 Building and Running GPGPU-Sim using Docker with CUDA

1. Install Docker

- Visit the official Docker website: <https://www.docker.com/products/docker-desktop>
- Download and install Docker Desktop appropriate for your operating system:

Note: After installation, confirm Docker is working by running `docker --version` in a terminal.

2. Pull the Pre-Built GPGPU-Sim Docker Image

Open a terminal and run:

```
docker pull pli11/gpgpusim:cuda_10_1
```

This command downloads a pre-built Docker image containing:

- GPGPU-Sim source code
 - CUDA Toolkit 10.1
 - Necessary dependencies and build tools
-

3. Launch a Docker Container

To run the container:

```
docker run -w /root -it pli11/gpgpusim:cuda_10_1 /bin/bash
```

Once inside the container, run `ls` to list the files. You should see:

```
gpgpu-sim_distribution/
```

This is the root directory of the `gpgpu-sim` source code.

4. Check out and Prepare GPGPU-Sim Source Code

Navigate to the `gpgpu-sim` source directory:

```
cd ~/gpgpu-sim_distribution/
```

5. Compile GPGPU-Sim

Run the following commands to clean, configure, and compile the simulator:

```
make clean
source setup_environment
make
```

Note: Compilation may take several minutes. If errors occur, you might start a new container if you believe you might have changed some of the files and aren't sure which one was changed.

Examples: Using docker cp to transfer files to and from a Docker container

1. Copying a File from Docker Container → Windows/MAC Host

Copy the log file, e.g., /root/gpgpu-sim_distribution/src/gpgpu-sim/vectorAdd/gpgpusim_power_report__Sat-May-17-17-50-42-2025.log

from a running container (with ID or name)

e.g:f9e4282955ad974c4589439653d599789fcd8a936c1c7aac38e699898e2315a3

to your directory, e.g., C:\Users\<Unity ID>\Downloads\ or /Users/<Unity ID>/downloads

Sample command:

```
docker cp
f9e4282955ad974c4589439653d599789fcd8a936c1c7aac38e699898e2315a3:/root
/gpgpu-sim_distribution/vectorAdd/gpgpusim_power_report__Sat-May-17-
17-50-42-2025.log "C:\Users\onkar\Downloads\."
```

This will copy the log into C:\Users\onkar\Downloads\.