

# A6000 Research Server Documentation

Amir Taherin

April 2025

## Overview

This server is intended for deep learning and research workloads by multiple students and researchers. The system has been upgraded with high-performance and large-capacity storage to support parallel experimentation, model development, and data handling.

## Hardware Summary

- **Server Name:** A6000 Server
- **Architecture:** x86\_64
- **CPU:** 2× Intel(R) Xeon(R) Gold 5418Y, 96 threads (24 cores/socket, 2 threads/core), 3.8GHz max
- **RAM:** 256GB DDR4
- **GPU:** 8× NVIDIA RTX A6000 (48GB each)
- **CUDA Version:** 12.3
- **NVIDIA Driver:** 545.23.08
- **Total Storage:** 40TB usable

## Storage Layout

Mount Point	Disk(s)	Capacity	Type	Purpose
/home	2×8TB SSD (RAID0)	15TB	SSD (RAID 0)	User home directories (fast access)
/data	22TB HDD	20TB	HDD	Large datasets, models, experiments
/fast	1.4TB NVMe	1.4TB	NVMe SSD	Conda envs, pip/hf cache, scratch use

## Shared Conda & Cache Configuration

### Conda

- Conda environments: `/fast/conda/envs`
- Conda package cache: `/fast/conda/pkgs`

This is pre-configured via a `.condarc` file in each user's home directory.

### HuggingFace / Torch Cache

- HuggingFace cache: `/fast/hf_cache`
- Torch cache: `/fast/hf_cache`

Global environment variables:

```
export CONDA_ENVS_PATH=/fast/conda/envs
export CONDA_PKGS_DIRS=/fast/conda/pkg
export TRANSFORMERS_CACHE=/fast/hf_cache
export HF_HOME=/fast/hf_cache
export TORCHHOME=/fast/hf_cache
```

## Notes for Users

- All users have access to **/home**, **/data**, and **/fast**
- You are free to create, experiment, and install things as needed
- Use **/fast** for temporary files, cache, training runs
- **Do not** store large datasets or models in **/home**. Use **/data**
- **/archive** is reserved for backups (future use)

## System Admin Notes

- RAID0 setup via **mdadm** for **/home**
- RAID5 setup via **mdadm** for **/archive**
- **/etc/fstab** and **mdadm.conf** updated for persistence
- All user caches cleaned (April 2025) and redirected to **/fast**

## Optional Future Enhancements

- Auto-cleanup for **/fast/scratch**
- Quotas for **/home**
- Cron-based backups to **/archive**