

compute resources

- In general, the offers are limited to members of I-MATH & DM3L and their students.
- Other UZH members are welcome to contact support@math.uzh.ch .
- First time user: contact support@math.uzh.ch first.

Reservations

Make reservations on <https://made-fb1.math.uzh.ch/>

- Short (< 1 day) computations don't need a reservation,
- Longer (> 1 day) are recommended to be done with a reservation.
- With reservation: In case of maintenance need, we typically schedule the maintenance according to the needs of the user.
- Without reservation: We try to contact the user and wait several hours for an answer.
- General: if we see running computations, we always contact the user first (independent of whether or not a reservation exists). If the user doesn't answer (weekend, holiday, ...) we decide on our own what to do.

Offers

- For small / ad hoc computations, just start the compute software via the ThinLinc environment.
- For medium computations, please contact support@math.uzh.ch to ask for the best fitting possibility and to reserve nodes.
- For large computations and professional support please check <http://www.s3it.uzh.ch/>.

Resources at I-MATH & DM3L

Host	Purpose	CPU	GPU	RAM	Local disks	Purchase	OS
Model	Speed	Cores	Model	VRAM			

Host	Purpose	CPU	GPU	RAM	Local disks	Purchase	OS
Broca 000024.04	research	AMD EPYC 9334 ^1^x2	2.70 GHz	64 (HT)	NVIDIA RTX 6000 Ada	48 GB	512 GB
Hellow 000024.04	research	AMD EPYC 9334 ^1^x2	2.70 GHz	64 (HT)	NVIDIA L40S x4	48 GB	512 GB
Hulem 000024.04	research	AMD EPYC 9334 ^1^x2	2.70 GHz	64 (HT)	NVIDIA A40 x2 (stacked)	96 GB	512 GB

Host	Purpose	CPU	GPU	RAM	Local disks	Purchase	OS
Wahedi 00000004. 04	research	AMD EPYC 9334 ^1^ x2	2.70 GHz	64 (HT)	NVIDIA L40S	48 GB	512 GB
Wibeiro 00000004. 04	research	AMD EPYC 7763 ^2^	2,45 GHz	64 (HT)	NVIDIA L40S	48 GB	512 GB
Wushko 00000004. 04	research	AMD EPYC 7763 ^2^	2,45 GHz	64 (HT)	NVIDIA L40S	48 GB	512 GB

Host	Purpose	CPU	GPU	RAM	Local disks	Purchase	OS
Wart 0 μ 0 0 0 2 4 . 0 4	research	AMD EPYC 7763 ^2^	2,45 GHz	64 (HT)	NVIDIA L40S	48 GB	512 GB
Vernon 0 μ 0 0 0 2 4 . 0 4	research	AMD EPYC 7763 ^2^	2,45 GHz	64 (HT)	NVIDIA L40S	48 GB	512 GB
Winzant 0 μ 0 0 0 2 4 . 0 4	research	AMD EPYC 7763 ^2^	2,45 GHz	64 (HT)	NVIDIA L40S	48 GB	512 GB

Host	Purpose	CPU	GPU	RAM	Local disks	Purchase	OS
Wheeler 0 1 0 0 0 4 . 0 4	research	AMD EPYC 7763 ^2^	2,45 GHz	64 (HT)	NVIDIA L40S	48 GB	512 GB
Willbanks b u n t u 2 4 . 0 4	research	AMD EPYC 7763 ^2^	2,45 GHz	64 (HT)	---	512 GB	2x 240 GB, 8TB NVMe
terracini b u n t u 2 4 . 0 4	research	AMD EPYC 7763 ^2^	2,45 GHz	64 (HT)	---	512 GB	2x 240 GB, 8TB NVMe
lambo b u n t u 2 4 . 0 4	research	AMD-EPYC- 7742	2,25 GHz	64 (HT)	---	512 GB	240GB, 2TB

Host	Purpose	CPU	GPU	RAM	Local disks	Purchase	OS
olive b u n t u 2 4 .04	research	AMD-EPYC-7502P	2,50 GHz	32 (HT)	---	512 GB	240GB
dja b u n t u 2 0 .04	research	AMD-EPYC-7502P	2,50 GHz	32 (HT)	---	512 GB	240GB
stokes b u n t u 2 4 .04	research	AMD-EPYC-7502P	2,50 GHz	32 (HT)	---	512 GB	240GB
walker b u n t u 2 4 .04	student	AMD-EPYC-7502P	2,50 GHz	32 (HT)	---	512 GB	240GB

Old servers

Host	Purpose	CPU	GPU	RAM	Local disks	Purchase	OS
Grady 0 μ 2 0 W 8 4 .0 4	research	Intel Core 6C i7-8700K	3,70 GHz	12 (HT)	GigaByte GeForce GTX 1070 G1	8 GB	64 GB
David 5 μ 2 0 W 2 4 .0 4	research	Intel Xeon 10C E7- 2850 x 8	2,00 GHz	80 (no HT)	GigaByte GeForce GTX 1070 G1	8 GB	512 GB
Estonia0 b u n t u 2 4 .0 4	research	Intel Xeon 6C E5-2640	2.50 GHz	12 (no HT)	---	256 GB	2 TB
Estonia1 b u n t u 2 4 .0 4	research	Intel Xeon 6C E5-2640	2.50 GHz	12 (no HT)	---	256 GB	2 TB

Host	Purpose	CPU	GPU	RAM	Local disks	Purchase	OS
Estonia2 b u n t u 2 4 .04	research	Intel Xeon 6C E5-2640	2.50 GHz	12 (no HT)	---	256 GB	2 TB
Estonia3 b u n t u 2 4 .04	research	Intel Xeon 6C E5-2640	2.50 GHz	12 (no HT)	---	256 GB	2 TB
Georgia0 b u n t u 2 4 .04	research	Intel Xeon 6C E5-2640	2.50 GHz	12 (no HT)	---	256 GB	2 TB
Georgia1 b u n t u 2 4 .04	research	Intel Xeon 6C E5-2640	2.50 GHz	12 (no HT)	---	256 GB	2 TB

Host	Purpose	CPU	GPU	RAM	Local disks	Purchase	OS
georgia2 b u n t u 2 4 .04	research	Intel Xeon 6C E5-2640	2.50 GHz	12 (no HT)	---	256 GB	2 TB
georgia3 b u n t u 2 4 .04	research	Intel Xeon 6C E5-2640	2.50 GHz	12 (no HT)	---	256 GB	2 TB
uan0 b u n t u 2 4 .04	research	Intel Xeon 6C E5-2640	2.50 GHz	12 (no HT)	---	256 GB	2 TB
uan1 b u n t u 2 4 .04	research	Intel Xeon 6C E5-2640	2.50 GHz	12 (no HT)	---	256 GB	2 TB

Host	Purpose	CPU	GPU	RAM	Local disks	Purchase	OS
Uan2 b u n t u 2 4 .04	research	Intel Xeon 6C E5-2640	2.50 GHz	12 (no HT)	---	256 GB	2 TB
Uan3 b u n t u 2 4 .04	research	Intel Xeon 6C E5-2640	2.50 GHz	12 (no HT)	---	256 GB	2 TB
Jordan0 b u n t u 2 4 .04	professors & assistants: matlab, mathematic a, maple, R	Intel Xeon 6C E5-2640	2.50 GHz	12 (no HT)	---	256 GB	2 TB
Jordan1 b u n t u 2 4 .04	research	Intel Xeon 6C E5-2640	2.50 GHz	12 (no HT)	---	256 GB	2 TB

Host	Purpose	CPU	GPU	RAM	Local disks	Purchase	OS
Jordan2 b u n t u 2 4 . 0 4	courses	Intel Xeon 6C E5-2640	2.50 GHz	12 (no HT)	---	256 GB	2 TB
Jordan3 b u n t u 2 4 . 0 4	courses	Intel Xeon 6C E5-2640	2.50 GHz	12 (no HT)	---	256 GB	2 TB

Mainboard:

- 1 [ASUS RS720A-E12-RS12](#)
- 2 [Supermicro H12SSL-CT](#)

General

Access

- The compute nodes can be accessed **by SSH only** and only from **inside** I-MATH/DM3L.
- Option A: Use **ThinLinc** as starting point
 - MatLab, Mathematica, Maple, R, RStudio: start the application via menu 'Applications > Science > ...' - you will be redirected automatically to the appropriate compute server.
 - For **non standard compute software** (e.g. python programs) please log on the compute node via `ssh` (no jumphost required), then start the program.
- Option B: **SSH** - sign into `ssh.math.uzh.ch` (=jumphost) and jump to the compute node again via `ssh`.

Best practice: Combined SSH setup for compute user

The following described setup is a multi step and complicated setup - use it, if you frequently have to log on and/or to make the log in as easy as possible. Invest 20mins to do the setup, if you fail: contact our support ... the benefits are worth.

- Benefit: no password required, only **one** command to get a **running ssh session**.
- Cost: setup has to be done on every computer you want to use for the ssh session.

1) Initial SSH login on ssh.math.uzh.ch

To use 'ssh', you need a ssh-client program:

- MS Windows: [install/activate](#) WSL (suggested Distro: Ubuntu).
- Linux / MacOS X: ssh is already installed.

Open a terminal (Windows: CMD) and type `ssh ssh.math.uzh.ch`:

```
$ ssh ssh.math.uzh.ch
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 5.15.0-186-generic x86_64)
...
```

- If you do this the first time, you have to accept the host Key.
- Without private/public key setup (next step), you will be asked for your password (same as thinlinc) and [MFA token](#).
- Keep this windows open during the next step.

2) SSH: private / public key setup

Optional: [more detailed](#) description.

- Open a second terminal and type `ssh-keygen -t ed25519`:

```
[your computer]
$ ssh-keygen -t ed25519
Generating public/private ed25519 key pair.
Enter file in which to save the key (/home/.../.ssh/id_ed25519):
Enter passphrase (empty for no passphrase):
...
Your identification has been saved in /home/...
Your public key has been saved in /home/...
...

$ cat ~/.ssh/id_ed25519.pub
```

```
ssh-ed25519 AAA...
```

- Show the new created public key and copy the content (on line 12: ssh-ed25519...) to the clipboard.
- Go back to the first terminal where you are still logged in by ssh on host ssh.math.uzh.ch. Replace everything between the double quotes with your newly created public key (it's in your clipboard).

Hint: after typing `echo "` use the right mouse button and choose *paste*, then type the rest `" >> ~/.ssh/authorized_keys` and presse `ENTER`.

```
$ echo "ssh-ed25519 AAA..." >> ~/.ssh/authorized_keys
```

- Final check: open a third terminal and type again `ssh ssh.math.uzh.ch` - you should be logged in without providing a password or MFA token.

3) Automated login on final compute host

4) SSH session resumeable

Operating System

- Ubuntu LTS (Linux) - all compute servers.
- Very very limited software might be installed on some Windows virtual machines.

Storage

- If you need more disk space, please contact support@math.uzh.ch .
- Remote (NFS)
 - Personal Home directory
 - `/compute/`
- Local
 - `/export/user/`

Programs / Software

- All compute servers use the same applications and versions as installed on the ThinLinc terminals.
- Please report missing or outdated software or wishes to support@math.uzh.ch.
- There is no Intel C or Intel Fortran Compiler.
- If you need other program versions than the default one: open a terminal, type the program name followed by two 'TAB' presses: this will show all available installed versions of the specified program.

Parallel computing

- Cluster software
 - Not installed / offered at I-MATH/DM3L.
 - Various MPI packages and libs are installed. Compiling and preparation to run programs later on a distributed compute cluster are possible.
- Some programs, like `matlab`, offer limited built-in auto parallelization.
- All of the compute nodes are shared memory machines. It's reasonable to start as many programs in parallel as long the `load` is less or equal the number of cores.
 - Determine the load by using the command `uptime` via a terminal. The last three numbers are the average number of jobs (=load) in the run queue over the last 1, 5 and 15 minutes.

```
$ uptime
15:55:20 up 22 days, 24 min,  1 user,  load average: 11.97, 11.73, 11.62
```

Monitoring

- List GPUs

```
nvidia-smi
```

- Show GPU-Usage (Load, Temperature, Watts-Usage etc.)

```
nvidia-smi -l
```

- Fan status (Rounds per Minute etc.)

```
nvidia-smi -f
```

Limitations

- Memory
 - Soft: 64GB

- Hard: unlimited
- Number of processes per user
 - Soft: 2048
 - Hard: 4096
- Change limitations

```
$ ulimit -m unlimited  
$ ulimit -u 4096
```

- Make sure to increase a hard limit only one time. If you try to increase it a second time, you'll get an error. You have to log out and log in again to get a new chance.

Revision #7

Created 2026-06-30 10:53:46 CEST by admino

Updated 2026-08-02 12:11:29 CEST by Carsten Rose