



DIPARTIMENTO DI MATEMATICA "TULLIO LEVI-CIVITA" (<https://hpc.math.unipd.it/>).

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CLUSTER description

Access

Is it possible run jobs from two *submit hosts* (aka *access hosts*):

labsrv7.math.unipd.it

labsrv8.math.unipd.it

You can connect to these hosts via ssh from any host internal to the Department of Mathematics. To connect from the general internet you have to perform as first step an ssh connection to *riemann.math.unipd.it* or *labta.math.unipd.it* or *guestportal.math.unipd.it* (depending from your status: faculty member, student, guest) and then connect to the submit hosts.

Computing resources

The cluster is made up of 28 computing nodes. Some nodes are equipped with a CUDA card. Please, note the column 'Labels', this declare the "Features" (in SLURM terms) that can be used to select the nodes with the '`--constraint=LABEL`' switch (see the [examples](https://hpc.math.unipd.it/?page_id=68) (https://hpc.math.unipd.it/?page_id=68)). This is the hardware list:

Node	CPU	GPU	RAM	#Cores	Labels (aka Features)	Connectivity	LocalStorage
hpblade01	4 x Eight- Core Intel(R) Xeon(R) CPU E5- 4640 0 @ 2.40GHz	none	256GB	32	hpblade01, matlab	Ethernet 1GB	200GB

hpblade04	2 x Intel(R) Xeon(R) CPU E5520 @ 2.27GHz	none	32GB	8	hpblade04, matlab	Ethernet 1GB	50GB
hpblade05	2 x Intel(R) Xeon(R) CPU E5520 @ 2.27GHz	none	32GB	8	hpblade05	Ethernet 1GB	50GB
hpblade06	2 x Intel(R) Xeon(R) CPU E5520 @ 2.27GHz	none	32GB	8	hpblade06	Ethernet 1GB	50GB
hpblade07	2 x Intel(R) Xeon(R) CPU X5650 @ 2.67GHz	none	64GB	12	hpblade07, matlab	Ethernet 1GB	50GB
hpblade08	2 x Intel(R) Xeon(R) CPU X5650 @ 2.67GHz	none	96GB	12	hpblade08, matlab	Ethernet 1GB	50GB
hpblade12	2 x Intel(R) Xeon(R) CPU X5650 @ 2.67GHz	none	32GB	8	hpblade12, matlab	Ethernet 1GB	50GB

hpblade13	2 x Intel(R) Xeon(R) CPU X5650 @ 2.67GHz	none	32GB	8	hpblade13, matlab	Ethernet 1GB	50GB
hpblade16	2 x Intel(R) Xeon(R) CPU E5- 2680 0 @ 2.70GHz	none	256GB	16	hpblade16	Ethernet 1GB	80GB
gpu03 (inactive)	2 x Intel(R) Xeon(R) CPU E5- 2670 0 @ 2.60GHz	1 x NVidia K20	128GB	16	gpu03, K20, kepler	Ethernet 1GB	500GB
gpu04	2 x Intel(R) Xeon(R) CPU E5- 2670 0 @ 2.60GHz	1 x NVidia K20	128GB	16	gpu04, K20, kepler	Ethernet 1GB	500GB
dellcuda0	2 x Intel(R) Xeon(R) CPU E5- 2630L v3 @ 1.80GHz	1 x Nvidia V100	192GB	16	dellcuda0, matlab, V100, cudadv495, volta	Ethernet 10GB	200GB
dellcuda1	2 x Intel(R) Xeon(R) CPU E5- 2630L v3 @ 1.80GHz	1 x Nvidia A100	192GB	16	dellcuda1, matlab, A100, cudadv495, ampere	Ethernet 10GB	200GB

dellcuda2	2 x AMD EPYC 7301 16-Core	1 x Nvidia V100	256GB	32	dellcuda2, V100, cudadriv495, volta	Ethernet 10GB	500GB
dellsrv0	2 x Intel(R) Xeon(R) CPU E5-2650 v3 @ 2.30GHz	none	160GB	20	dellsrv0, matlab	Ethernet 10GB	200GB
dellsrv1	2 x Intel(R) Xeon(R) CPU E5-2650 v3 @ 2.30GHz	1 x Nvidia V100	160GB	20	dellsrv1, matlab, V100, cudadriv470, volta	Ethernet 10GB	200GB
dellsrv2	2 x Intel(R) Xeon(R) CPU E5-2650 v3 @ 2.30GHz	1 x Nvidia T4	160GB	20	dellsrv2, matlab, T4, cudadriv495, turing	Ethernet 10GB	200GB
dellsrv3	2 x Intel(R) Xeon(R) CPU E5-2650 v3 @ 2.30GHz	1 x Nvidia T4	160GB	20	dellsrv3, matlab, T4, cudadriv495, turing	Ethernet 10GB	200GB
dellsrv4	2 x Intel(R) Xeon(R) CPU E5-2650 v3 @ 2.30GHz	1 x Nvidia T4	160GB	20	dellsrv4, matlab, T4, cudadriv510, turing	Ethernet 10GB	200GB

dellsrv5	2 x Intel(R) Xeon(R) CPU E5- 2650 v3 @ 2.30GHz	1 x Nvidia T4	160GB	20	dellsrv5, matlab, T4, cudadv510, turing	Ethernet 10GB	200GB
dellsrv6	2 x Intel(R) Xeon(R) CPU E5- 2650 v3 @ 2.30GHz	1 x Nvidia T4	160GB	20	dellsrv6, matlab, T4, cudadv510, turing	Ethernet 10GB	200GB
vgpu0-0	1 x Intel(R) Xeon(R)	1 x Nvidia RTX A5000	60GB	4	vgpu0-0, A5000, cudadv510, ampere	Ethernet 1GB	20GB
vgpu1-0	1 x Intel(R) Xeon(R)	1 x Nvidia RTX A5000	60GB	4	vgpu1-0, A5000, cudadv510, ampere	Ethernet 1GB	20GB
vgpu2-0	1 x Intel(R) Xeon(R)	1 x Nvidia RTX A5000	60GB	4	vgpu2-0, A5000, cudadv510, ampere	Ethernet 1GB	20GB
vgpu3-0	1 x Intel(R) Xeon(R)	1 x Nvidia RTX A5000	60GB	4	vgpu3-0, A5000, cudadv510, ampere	Ethernet 1GB	20GB
vgpu4-0	1 x Intel(R) Xeon(R)	1 x Nvidia RTX A5000	60GB	4	vgpu4-0, A5000, cudadv510, ampere	Ethernet 1GB	20GB
vgpu5-0	1 x Intel(R) Xeon(R)	1 x Nvidia RTX A5000	60GB	4	vgpu5-0, A5000, cudadv510, ampere	Ethernet 1GB	20GB

vgpu0-1	1 x Intel(R) Xeon(R)	1 x Nvidia RTX A5000	60GB	4	vgpu0-1, A5000, cudadv510, ampere	Ethernet 1GB	20GB
vgpu1-1	1 x Intel(R) Xeon(R)	1 x Nvidia RTX A5000	60GB	4	vgpu1-1, A5000, cudadv510, ampere	Ethernet 1GB	20GB
vgpu2-1	1 x Intel(R) Xeon(R)	1 x Nvidia RTX A5000	60GB	4	vgpu2-1, A5000, cudadv510, ampere	Ethernet 1GB	20GB
vgpu3-1	1 x Intel(R) Xeon(R)	1 x Nvidia RTX A5000	60GB	4	vgpu3-1, A5000, cudadv510, ampere	Ethernet 1GB	20GB
vgpu4-1	1 x Intel(R) Xeon(R)	1 x Nvidia RTX A5000	60GB	4	vgpu4-1, A5000, cudadv510, ampere	Ethernet 1GB	20GB
vgpu5-1	1 x Intel(R) Xeon(R)	1 x Nvidia RTX A5000	60GB	4	vgpu5-1, A5000, cudadv510, ampere	Ethernet 1GB	20GB
vgpu6-0	1 x Intel(R) Xeon(R)	1 x Nvidia RTX A6000	120GB	6	vgpu6-0, A6000, cudadv510, ampere	Ethernet 1GB	20GB
vgpu7-0	1 x Intel(R) Xeon(R)	1 x Nvidia RTX A6000	120GB	6	vgpu7-0, A6000, cudadv510, ampere	Ethernet 1GB	20GB
vgpu8-0	1 x Intel(R) Xeon(R)	1 x Nvidia RTX A5000	120GB	6	vgpu8-0, A5000, cudadv510, ampere	Ethernet 1GB	20GB

vgpu9-0	1 x Intel(R) Xeon(R)	1 x Nvidia RTX A6000	120GB	6	vgpu9-0, A6000, cudadv510, ampere	Ethernet 1GB	20GB
vgpu10-0	1 x Intel(R) Xeon(R)	1 x Nvidia RTX A6000	120GB	6	vgpu10-0, A6000, cudadv510, ampere	Ethernet 1GB	20GB

There are 392 cpu-cores and 26 gpu. As previously the field '**Storage**' of the table describes the amount of disk space available locally for every node for temporary storage of the intermediate results of the computations.

Storage

How stated before every node has an average of 50Gb of local disk space, other storage can be accessed via the network.

The table below describes the various storage unit with the 'mount directory' that has to be used for the access:

Generic Name	Size (TB)	Availability	Mount directory	Connection
Home	35	All users	/home	Ethernet 10GB
Storage	34	All users (on request)	/storage	Ethernet 10GB