The Hessian Competence Center for High Performance Computing HPC Hessen

Brainware for Science

The Hessian Competence Center for High Performance Computing (HPC Hessen) supports scientists striving for the efficient and sustainable use of modern HPC systems. HPC systems are in use at all universities in Hesse and accessible statewide.

To this end, HPC Hessen offers workshops, consulting, and HPC user support. HPC experts support users locally at each university, but also coordinate their efforts.

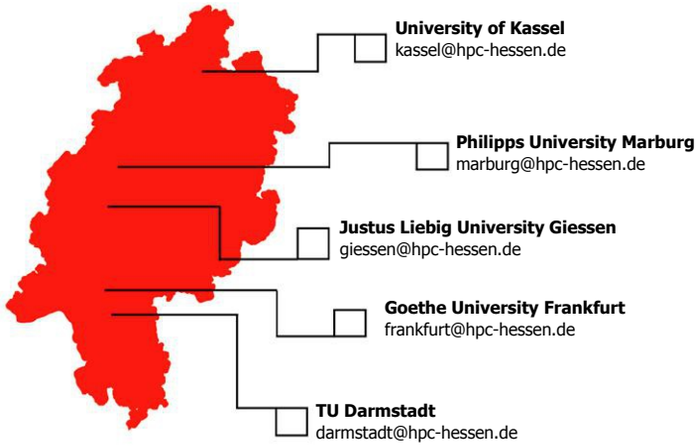
Our services includes the installation of a central monitoring infrastructure, cooperative support in using performance analysis tools, preparation and execution of workshops, and monthly internal workshops to discuss and learn from new local experien-ces.

HPC Hessen was founded in 2014 by the universities of Darmstadt, Frankfurt, Giessen, Kassel, and Marburg with initial funding by the Hessian State Ministry of Higher Education, Research and the Arts.

www.hpc-hessen.de

HESSEN

Local Support:



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Hessisches Kompetenzzentrum für Hochleistungsrechnen

Which computer is right for you?

To find out which computer matches your research best, an overview of the main characteristics of the Hessian high performance computers is provided here.

HPC Hessen experts can advise you on the suitability of these systems for your needs and how to access them.

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	Lichtenberg Cluster TU Darmstadt		Goethe-HLR Goethe University Frankfurt		Skylla Cluser JLU Giessen		Linux Cluster University of Kassel		MaRC2 Philipps University Marburg	
Typical Node Parameters	**Note type A**		**Note type B**		**Node type A**	**Node type B**	**GPU Node**			
	Typical	**Max**	**Typical**	**Max**	**-**	**-**	**-**	**Typical**	**Max**	**Typical**	**Max**
Cores (sockets x cores/socket)	2x8	8x8	2x12	4x15	2x40	2x40	2x6	2x6	4x8	2x16	
Memory	32 GB	1 TB	64 GB	1 TB	192 GB	768 GB	128 GB	32 GB	64 GB	64 GB	256 GB
FLOPS/Core (DP, theor. peak)	20.8 GFlop/s		20.0 GFlop/s		76.8 GFlop/s	76.8 GFlop/s	27.8 GFlop/s	9.6 GFlop/s		18.38 GFlop/s	
CPU Type	Intel Xeon E5-2670		Intel Xeon E5-2680v3		Intel Xeon Skylake 6148 (2.4 GHz)	Intel Xeon Skylake 6148 (2.4 GHz)	Intel Xeon E5-2630v2 (2.6GHz)	AMD Opteron 2431 (Istanbul, 2.4 GHz)		AMD Opteron 6267 (2.3 GHz)	
MPI Communication (pt2pt)	Intranode	Internode	Intranode	Internode	Intranode	Intranode	-	Intranode	Internode	Intranode	Internode
- Bandwidth	4.6 GB/s	4.7 GB/s	4.1 GB/s	6.5 GB/s	6.7 GB/s	6.7 GB/s	-	2.5 GB/s	1.6 GB/s	2.7 GB/s	4.2 GB/s
- Latency (64 bytes)	0.73 µs	1.34 µs	0.71 µs	1.29 µs	0.39 µs	0.39 µs	-	0.8 µs	3.8 µs	0.8 µs	2.5 µs
Memory Bandwidth	40 GB/s per socket		60 GB/s per socket		192 GB/s	192 GB/s	-	15.5 GB/s		51 GB/s	
Accelerators	2x NVIDIA K20Xm 1.3 TFlop/s, 6 GB each		2x NVIDIA K40m 1.4 TFlop/s, 12 GB each		-		2 x AMD FirePro S10000 1.5 Tflop/s (DP) each	-		-	
Local Temporary Storage	100 GB				-		-	400 GB		1.8 TB	
Node Allocation	shared and exclusive				-		-	shared and exclusive		shared and exclusive	

Global Cluster Parameters					
Processors (CPU, DP, peak)	771 TFlop/s	1,450 TFlop/s	9.3 TFlop/s	28.05 TFlop/s	56.5 TFlops/s
Accelerators (GPU, DP, peak)	180 TFlop/s	150 TFlop/s	-	-	-
Compute Cores (CPU)	27,928	19,360	992	1,480	6,411
Permanent Storage	0.5 PB	4 PB	8 TB	40 TB	33 TB
Scratch Storage	1.5 PB	2 PB	24 TB	5 TB	33 TB
Job Manager	Slurm Workload Manager	Slurm Workload Manager	Sun Grid Engine	Slum Workout Manager	Sun Grid Engine
Other Job Constrains	runtime: 24h, max 7d	runtime: max 21d	runtime: 5d/unlimited max 128 (192) cores/user	runtime: 24h, max 48h	runtime: 10d max 1000 jobs/user