

HPC·AI

ADVISORY COUNCIL

NETWORK OF EXPERTISE



Welcome

2021 Swiss Conference and HPCXXL User Group



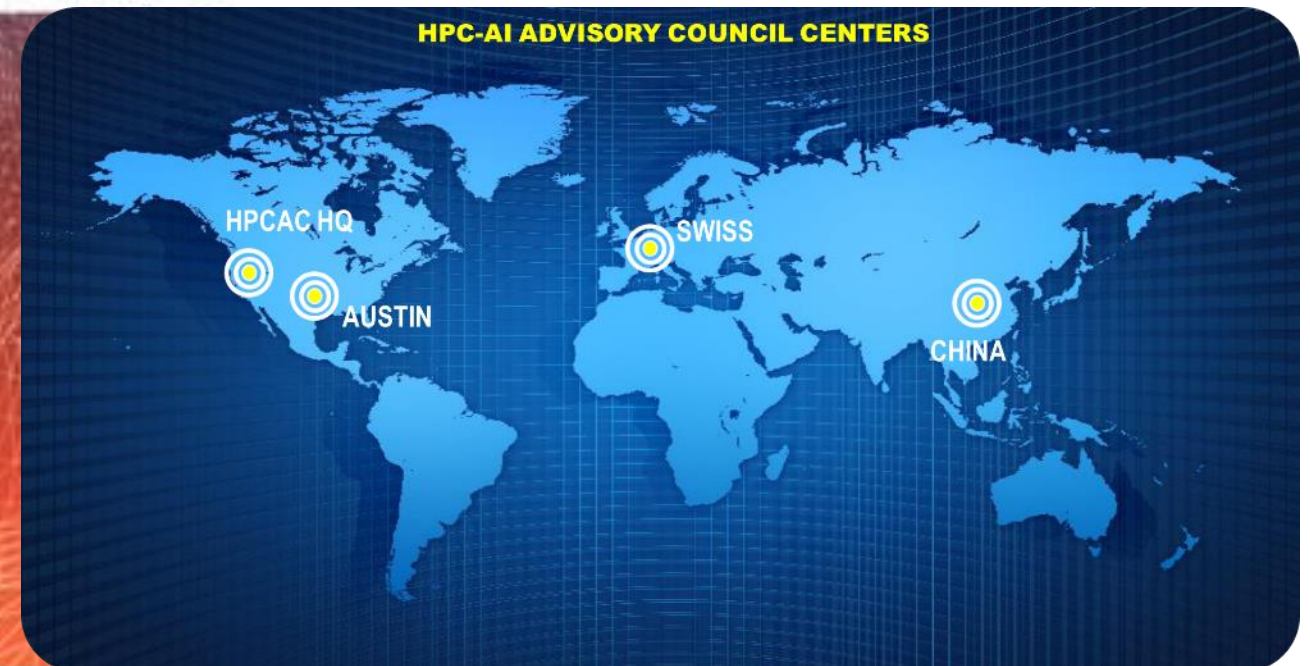
The HPC-AI Advisory Council

- **Worldwide HPC and AI community organization, established in 2008**
- **More than 400 member companies / universities / research centers**
- **Bridges the gap between HPC and AI usage and its potential**
- **Provides best practices, education, technology demonstrations, development center**
- **Explores future technologies and future developments**

HPC Advisory Council Objectives

- HPC Technology
- Network of Expertise
- HPC Outreach
- High-Performance Center
- Education
- Best Practices

HPC-AI ADVISORY COUNCIL CENTERS



- The Council operates a cluster center with 13 clusters available for operation
- Providing free of charge access to variety of compute, network and storage technologies
- New, 32-node “Iris” cluster installed in 2020
- For more information: http://hpcadvisorycouncil.com/cluster_center.php



- Daytona_X AMD 8-node cluster
- Dual Socket AMD EPYC 7742 64-Core Processor @ 2.25GHz
- Mellanox ConnectX-6 HDR 200Gb/s InfiniBand/Ethernet
- Mellanox HDR Quantum Switch QM7800 40-Port 200Gb/s HDR InfiniBand
- Memory: 256GB DDR4 2666MHz RDIMMs per node
- Lustre Storage, NFS



- Dell C6400 32-node cluster
- Dual Socket Intel(R) Xeon(R) Gold 6148 CPU @ 2.40GHz
- Mellanox ConnectX-6 HDR100 100Gb/s InfiniBand/VPI adapters
- Mellanox HDR Quantum Switch QM7800 40-Port 200Gb/s HDR InfiniBand
- Memory: 192GB DDR4 2666MHz RDIMMs per node
- Lustre Storage, NFS



- Supermicro SYS-6029U-TR4 / Foxconn Groot 1A42USF00-600-G 32-node cluster
- Dual Socket Intel(R) Xeon(R) Gold 6138 CPU @ 2.00GHz
- Mellanox ConnectX-6 HDR/HDR100 200/100Gb/s InfiniBand/VPI adapters with Socket Direct
- Mellanox HDR Quantum Switch QM7800 40-Port 200Gb/s HDR InfiniBand
- Memory: 192GB DDR4 2666MHz RDIMMs per node
- 1TB 7.2K RPM SSD 2.5" hard drive per node



- IBM S822LC POWER8 8-node cluster
- Dual Socket IBM POWER8 10-core CPUs @ 2.86 GHz
- Mellanox ConnectX-4 EDR 100Gb/s InfiniBand adapters
- Mellanox Switch-IB SB7700 36-Port 100Gb/s EDR InfiniBand switch
- Memory: 256GB DDR3 PC3-14900 RDIMMs per node
- 1TB 7.2K RPM 6.0 Gb/s SATA 2.5" hard drive per node
- GPU: NVIDIA Kepler K80 GPUs

Multiple Application Best Practices Published

New best practices for B_EFF, BSMBench, LAMMPS, MILC, and OpenFOAM now available

Abaqus	ABySS	AcuSolve	Amber	AMG	AMR
B_EFF	BiFrost	BQCD	BSMBench	CAM-SE	CASTEP
CCSM	CESM	ChaNGa	CFX	COSMO	CP2K
CPMD	Dacapo	Desmond	DL-POLY	Eclipse	FLOW-3D
Fluent	GADGET	Graph500	GRID	GROMACS	Himeno
HIT3D	HOOMD	HPCC	HPCG	HYCOM	ICON
Lattice	LAMMPS	LS-DYNA	MetaComp	miniFE	MILC
MSC	MR-Bayes	MM5	MPQC	NAMD	Nekbone
NEMO	NEMO5	NWChem	Octopus	OpenAtom	OpenFOAM
OpenMX	OptiStruct	PARATEC	PFA	PFLOTRAN	Quantum
RADIOSS	RFD	SNAP	SPECFEM3D	STAR	VASP
VPS	WRF				

Acknowledging Academic Excellence and Leadership

Worldwide

Teams	Country	Region	Gold	Silver	Bronze	LINPACK Award	Fan Favorite	Total Competitions as of 11/2020	Total Awards Points 11/2020
Tsinghua University	China	APAC	11	4	2	1	0	21	38.5
National Tsing Hua University	Taiwan	APAC	3	2	2	4	0	17	21.5
Centre for High Performance Computing	South Africa	EMEA	4	3	1	0	0	8	15.5
Nanyang Technological University	Singapore	APAC	1	3	0	3	0	13	14.5
University of Texas Austin	US	Americas	3	0	0	1	0	8	11
University of Science & Technology of China	China	APAC	1	2	2	1	0	8	10
Shanghai Jiao Tong University	China	APAC	1	2	1	0	0	10	9.5
Friedrich Alexander Universitat	Germany	EMEA	0	0	1	2	0	13	9
National University of Defense Technology	China	APAC	0	2	0	3	0	8	9
Huazhong Univ. of Science & Technology	China	APAC	1	1	0	1	0	9	8.5
Sun Yat-Sen University	China	APAC	1	0	0	2	0	7	7.5

Asia-Pacific

Teams	Country	Region	Gold	Silver	Bronze	LINPACK Award	Fan Favorite	Total Competitions as of 11/2020	Total Awards Points 11/2020
Tsinghua University	China	APAC	11	4	2	1	0	21	38.5
National Tsing Hua University	Taiwan	APAC	3	2	2	4	0	17	21.5
Nanyang Technological University	Singapore	APAC	1	3	0	3	0	13	14.5
University of Science & Technology of China	China	APAC	1	2	2	1	0	8	10
Shanghai Jiao Tong University	China	APAC	1	2	1	0	0	10	9.5
National University of Defense Technology	China	APAC	0	2	0	3	0	8	9
Huazhong Univ. of Science & Technology	China	APAC	1	1	0	1	0	9	8.5
Sun Yat-Sen University	China	APAC	1	0	0	2	0	7	7.5
Beihang University	China	APAC	0	1	1	1	0	6	5.5
Peking University	China	APAC	0	1	0	0	0	5	3.5



Americas

Teams	Country	Region	Gold	Silver	Bronze	LINPACK Award	Fan Favorite	Total Competitions as of 11/2020	Total Awards Points 11/2020
University of Texas Austin	US	Americas	3	0	0	1	0	8	11
Purdue University	US	Americas	0	0	0	0	0	14	7
Massachusetts Green High Performance Computing Center	US	Americas	0	1	0	0	0	11	6.5
Stony Brook University	US	Americas	1	0	0	0	0	5	4.5
University of Colorado	US	Americas	0	0	0	0	0	9	4.5
EAFIT University	Colombia	Americas	0	0	0	0	0	6	3
Indiana University	US	Americas	1	0	0	0	0	2	3
University of Alberta	Canada	Americas	1	0	0	0	0	2	3
University of Illinois Urbana Champaign	US	Americas	0	0	1	0	0	5	3
Northeastern University	US	Americas	0	0	0	0	0	5	2.5
Illinois Institute of Technology	US	Americas	0	0	0	0	0	4	2
University of Tennessee	US	Americas	0	1	0	0	0	2	2

EMEA

Teams	Country	Region	Gold	Silver	Bronze	LINPACK Award	Fan Favorite	Total Competitions as of 11/2020	Total Awards Points 11/2020
Centre for High Performance Computing	South Africa	EMEA	4	3	1	0	0	8	15.5
Friedrich Alexander Universitat	Germany	EMEA	0	0	1	2	0	13	9
Edinburgh Parallel Computing Centre	UK	EMEA	0	0	1	1	0	6	4.5
University of Warsaw	Poland	EMEA	0	0	0	0	0	8	4
ETH Zurich	Switzerland	EMEA	0	0	1	1	0	4	3.5
University of Hamburg	Germany	EMEA	0	0	0	0	0	7	3.5
Universitat Politecnica de Catalunya	Spain	EMEA	0	0	0	0	0	6	3
Dresden University	Germany	EMEA	1	0	0	0	0	1	2.5
Technical University of Munich	Germany	EMEA	0	0	0	1	0	3	2.5
University of Miskolc	Hungary	EMEA	0	0	0	0	0	5	2.5
University of Tartu	Estonia	EMEA	0	0	0	0	0	5	2.5
Nizhny Novgorod National University	Russia	EMEA	0	0	0	1	0	2	2

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