



# SC18

Dallas,  
TX | **hpc**  
**inspires.**

## Conference Schedule at a Glance

**Program November 11–16, 2018**

**Exhibits November 12–15, 2018**

KAY BAILEY HUTCHISON CONVENTION CENTER  
DALLAS, TX, USA

The International Conference for High Performance  
Computing, Networking, Storage, and Analysis

Sponsored by:  **IEEE**  
**computer**  
society



**sig**hpc

## Registration Pass Access

### Technical Program (TP)

- HPC Inspires Plenary (Mon)
- Keynote (Tue)
- Early Career (Mon)
- Grand Opening Gala Reception (Mon)
- Papers (Tue–Thu)
- Panels (Tue–Fri)
- Posters (Tue–Thu)
- Posters Reception (Tue)
- HPC Impact Showcase (Wed)
- Emerging Technologies Showcase (Wed)
- Doctoral Showcase (Wed)
- Scientific Visualization & Data Analytics Showcase (Wed)
- Student Cluster Competition (Mon–Wed)
- Invited Talks (Tue–Thu)
- Birds of a Feather (Tue–Thu)
- Awards (Tue–Thu)
- Awards Ceremony (Thu)
- Exhibits (Tue–Thu)
- Exhibitor Forum (Tue–Thu)
- Technical Program Reception (Thu, additional ticket required)
- One copy of the SC18 Proceedings

### Tutorials (TUT)

- HPC Inspires Plenary (Mon)
- Keynote (Tue)
- Panels (Friday only)
- Tutorials (Sun and/or Mon)
- Tutorial Lunch (Sun and/or Mon)
- Electronic access to all tutorial notes (Tutorial notes are also available on a USB Flash Memory device for an additional \$5)

### Workshops (W)

- HPC Inspires Plenary (Mon)
- Keynote (Tue)
- Panels (Friday only)
- Workshops (Sun, Mon, Fri)

### Exhibitor 24-hour Access (EX)

- Exhibitor Reception (Sun)
- Grand Opening Gala Reception (Mon)
- HPC Inspires Plenary (Mon)
- Keynote (Tue)
- Panels (Fri only)
- Posters (Tue–Thu)
- HPC Impact Showcase (Wed)
- Student Cluster Competition (Mon–Wed)
- Invited Talks (Tue–Thu)
- Birds of a Feather (Tue–Thu)
- Awards (Tue–Thu)
- Awards Ceremony (Thu)
- Exhibits (Tue–Thu)
- Exhibitor Forum (Tue–Thu)

### Exhibits Hall Only (EXH)

- HPC Inspires Plenary (Mon)
- Keynote (Tue)
- Panels (Fri)
- HPC Impact Showcase (Wed)
- Student Cluster Competition (Mon–Wed)
- Birds of a Feather (Tue–Thu)
- Awards (Tue–Thu)
- Awards Ceremony (Thu)
- Exhibits (Tue–Thu)
- Exhibitor Forum (Tue–Thu)
- Additional: Grand Opening Gala Reception (Mon, tickets available on-site at the conference store: \$100)

## General Information

### On-Site Registration and Conference Store

Level 2, Lobby D

Saturday, November 10, 1–6 pm  
Sunday, November 11, 7 am–6 pm  
Monday, November 12, 7 am–9 pm  
Tuesday, November 13, 7:30 am–6 pm  
Wednesday, November 14, 7:30 am–6 pm  
Thursday, November 15, 7:30 am–5 pm  
Friday, November 16, 8–11 am

### Information Booths

#### Main Information Booth

Level 2, Between Lobby C and Lobby D

Saturday, November 10, 1–5 pm  
Sunday, November 11, 8 am–6 pm  
Monday, November 12, 8 am–7 pm  
Tuesday, November 13, 8 am–6 pm  
Wednesday, November 14, 8 am–6 pm  
Thursday, November 15, 8 am–6 pm  
Friday, November 16, 8:30 am–noon

#### Satellite Booth

Level 2, Lobby E

Sunday, November 11, 8 am–5 pm  
Monday, November 12, 8 am–5 pm  
Tuesday, November 13, 10 am–6 pm  
Wednesday, November 14, 8 am–4 pm

### Coat and Bag Check

Level 1, Lower Lobby D

Saturday, November 10, 11 am–8 pm  
Sunday, November 11, 7 am–6 pm  
Monday, November 12, 7 am–10 pm  
Tuesday, November 13, 7 am–9 pm  
Wednesday, November 14, 7 am–8 pm  
Thursday, November 15, 7 am–11 pm  
Friday, November 16, 7 am–1 pm

### Lost and Found

Located at the Exhibitor Approved Contractor (EAC) desk across from Registration on Level 2, Lobby D

### Parents Room

Level 1, Room D160

Sunday, November 11, 8 am–6 pm  
Monday, November 12, 8 am–9 pm  
Tuesday, November 13, 8 am–7 pm  
Wednesday, November 14, 8 am–7 pm  
Thursday, November 15, 8 am–6 pm  
Friday, November 16, 8 am–noon

### Quiet Room

Level 3, Room A301

Saturday, November 10, 9 am–6 pm  
Sunday, November 11, 8 am–6 pm  
Monday, November 12, 8 am–9 pm  
Tuesday, November 13, 8 am–7 pm  
Wednesday, November 14, 8 am–7 pm  
Thursday, November 15, 8 am–7 pm

### SC19 Information

#### SC19 Preview Booth

Level 2, Lobby E

Tuesday, November 13, 10 am–5 pm  
Wednesday, November 14, 10 am–5 pm  
Thursday, November 15, 10 am–3 pm

#### SC19 Preview

Level 2, Exhibit Hall B

Thursday, November 15, 8:30–8:35 am

### Security

Level 2, Room A201

### Visit Dallas Booth

Level 2, Lobby D

Sunday, November 11, 8 am–6 pm  
Monday, November 12, 8 am–6 pm  
Tuesday, November 13, 8 am–6 pm  
Wednesday, November 14, 8 am–6 pm  
Thursday, November 15, 8:30 am–5 pm  
Friday, November 16, 8 am–noon

## Schedule of Events

Sunday, November 11

Time	Event	Session	Room
8:30 am–9:45 am	Students@SC Event	Students@SC Keynote: Livin' on the Edge: Thoughts on Careers in High Performance Computing	D227
8:30 am–12:00 pm	Tutorial	High Performance Computing (HPC) Data Center Planning and TCO: A Case Study and Roadmap	C140
8:30 am–12:00 pm	Tutorial	Secure Coding Practices and Automated Assessment Tools	C147
8:30 am–12:00 pm	Tutorial	Introduction to Kubernetes	C144
8:30 am–12:00 pm	Tutorial	InfiniBand, Omni-Path, and High-Speed Ethernet for Beginners	C143/149
8:30 am–12:00 pm	Tutorial	Introduction to Quantum Computing	C146
8:30 am–5:00 pm	Tutorial	Parallel Computing 101	C142
8:30 am–5:00 pm	Tutorial	Advanced OpenMP: Host Performance and 5.0 Features	C141
8:30 am–5:00 pm	Tutorial	OpenMP Common Core: a “Hands-On” Exploration	C145
8:30 am–5:00 pm	Tutorial	Fault-Tolerance for High Performance and Distributed Computing: Theory and Practice	C148
8:30 am–5:00 pm	Tutorial	How to Analyze the Performance of Parallel Codes 101	C154
8:30 am–5:00 pm	Tutorial	Parallel-IO in Practice	C155
8:30 am–5:00 pm	Tutorial	Node-Level Performance Engineering	C156
9:00 am–12:30 pm	Workshop	5th International Workshop on HPC User Support Tools: HUST-18	D172
9:00 am–12:30 pm	Workshop	Fourth International Workshop on Heterogeneous High-Performance Reconfigurable Computing (H2RC'18)	D167/174
9:00 am–12:30 pm	Workshop	ResCuE-HPC: 1st Workshop on Reproducible, Customizable, and Portable Workflows for HPC	D171
9:00 am–12:30 pm	Workshop	Fifth Workshop on Accelerator Programming Using Directives (WACCPD)	D175
9:00 am–4:30 pm	Workshop	Innovating the Network for Data Intensive Science (INDIS)	D163
9:00 am–5:30 pm	Workshop	The 3rd International Workshop on Post-Moore Era Supercomputing (PMES)	D161
9:00 am–5:30 pm	Workshop	Fourth Computational Approaches for Cancer Workshop (CAFCW18)	D165
9:00 am–5:30 pm	Workshop	MCHPC'18: Workshop on Memory Centric High Performance Computing	D170
9:00 am–5:30 pm	Workshop	Workshop on Exascale MPI (ExaMPI)	D166

## Schedule of Events

Sunday, November 11

Time	Event	Session	Room
9:00 am–5:30 pm	Workshop	Workshop on Education for High Performance Computing (EduHPC)	D168
9:00 am–5:30 pm	Workshop	WORKS 2018: 13th Workshop on Workflows in Support of Large-Scale Science	D173
9:00 am–5:30 pm	Workshop	Women in HPC: Diversifying the HPC Community	D220
10:00 am–10:30 am	Break	Morning Break	Lower Lobby C
10:00 am–10:30 am	Break	Morning Break	Lower Lobby D
10:30 am–12:00 pm	Students@SC Event	Students@SC: Careers in Industry, Research Labs, and Academia	D227
10:30 am–5:30 pm	Workshop	2nd ATIP Workshop on International Next-Generation Computing Programs and Workforce Development	D222
12:00 pm–1:30 pm	Tutorial	Tutorials Lunch	C1/2/3/4 Ballroom
1:30 pm–3:00 pm	Students@SC Event	Students@SC: Resume Workshop	A3 Ballroom
1:30 pm–5:00 pm	Tutorial	Container Computing for HPC and Scientific Workflows	C140
1:30 pm–5:00 pm	Tutorial	Tools and Best Practices for Distributed Deep Learning with Supercomputers	C143/149
1:30 pm–5:00 pm	Tutorial	Productive Parallel Programming for FPGA with High-Level Synthesis	C144
1:30 pm–5:00 pm	Tutorial	InfiniBand, Omni-Path, and High-Speed Ethernet: Advanced Features, Challenges in Designing HEC Systems, and Usage	C146
1:30 pm–5:00 pm	Tutorial	SENSEI Cross-Platform View of In Situ Analytics	C147
2:00 pm–5:30 pm	Workshop	HPC Systems Professionals Workshop (HPCSYSPROS18)	D172
2:00 pm–5:30 pm	Workshop	Machine Learning in HPC Environments	D167/174
2:00 pm–5:30 pm	Workshop	Fifth International Workshop on Visual Performance Analysis (VPA 18)	D171
2:00 pm–5:30 pm	Workshop	The 4th International Workshop on Data Reduction for Big Scientific Data (DRBSD-4)	D175
2:00 pm–5:30 pm	Workshop	Computational Reproducibility at Exascale 2018 (CRE2018)	D221
3:00 pm–3:30 pm	Break	Afternoon Break	Lower Lobby C
3:00 pm–3:30 pm	Break	Afternoon Break	Lower Lobby D
3:30 pm–5:00 pm	Students@SC Event	Students@SC: Making the Best of Your HPC Education	D227
6:00 pm–9:00 pm	Reception	Exhibitors' Reception	Gilley's
7:00 pm–9:00 pm	Emerging Technologies	Emerging Technologies Showcase	Booth 619

## Schedule of Events

Monday, November 12

Time	Event	Session	Room
8:30 am–9:45 am	Students@SC Event	Students@SC Keynote: The Computing Hidden in Everyday Things	D227
8:30 am–10:00 am	Early Career Program	Connecting and Thinking Strategically through Your Strengths	A302
8:30 am–12:00 pm	Tutorial	The Business of HPC: TCO, Funding Models, Metrics, Value, and More	C140
8:30 am–12:00 pm	Tutorial	Mastering Tasking with OpenMP	C141
8:30 am–12:00 pm	Tutorial	Containers, Collaboration, and Community: Hands-On Building a Data Science Environment for Users and Admins	C146
8:30 am–12:00 pm	Tutorial	Introduction of Practical Approaches to Data Analytics for HPC with Spark	C154
8:30 am–5:00 pm	Tutorial	Programming Your GPU with OpenMP: A Hands-On Introduction	C142
8:30 am–5:00 pm	Tutorial	Advanced MPI Programming	C143/149
8:30 am–5:00 pm	Tutorial	Deep Learning at Scale	C144
8:30 am–5:00 pm	Tutorial	Application Porting and Optimization on GPU-Accelerated POWER Architectures	C145
8:30 am–5:00 pm	Tutorial	High Performance I/O Frameworks 101	C147
8:30 am–5:00 pm	Tutorial	Managing HPC Software Complexity with Spack	C148
8:30 am–5:00 pm	Tutorial	Better Scientific Software	C155
8:30 am–5:00 pm	Tutorial	Quantum Computing for Scientific Applications	C156
8:59 am–5:30 pm	Workshop	The 9th International Workshop on Performance Modeling, Benchmarking, and Simulation of High-Performance Computer Systems (PMBS18)	D165
9:00 am–5:30 pm	Workshop	9th Workshop on Latest Advances in Scalable Algorithms for Large-Scale Systems	D161
9:00 am–5:30 pm	Workshop	PDSW-DISCS: Joint International Workshop on Parallel Data Storage and Data Intensive Scalable Computing Systems	D163
9:00 am–5:30 pm	Workshop	The 2nd Industry/University Joint International Workshop on Data Center Automation, Analytics, and Control (DAAC)	D170
9:00 am–5:30 pm	Workshop	IA <sup>3</sup> 2018: 8th Workshop on Irregular Applications: Architectures and Algorithms	D172

## Schedule of Events

Monday, November 12

Time	Event	Session	Room
9:00 am–5:30 pm	Workshop	ESPM2 2018: Fourth International Workshop on Extreme Scale Programming Models and Middleware	D166
9:00 am–5:30 pm	Workshop	Machine Learning in HPC Environments	D167/174
9:00 am–5:30 pm	Workshop	ISAV 2018: In Situ Infrastructures for Enabling Extreme-Scale Analysis and Visualization	D168
9:00 am–5:30 pm	Workshop	2nd International Workshop on Software Correctness for HPC Applications (Correctness 2018)	D171
9:00 am–5:30 pm	Workshop	4th Workshop for Open Source Supercomputing (OpenSuCo)	D173
9:00 am–5:30 pm	Workshop	LLVM-HPC2018: The Fifth Workshop on the LLVM Compiler Infrastructure in HPC	D175
9:00 am–5:30 pm	Workshop	8th Workshop on Python for High-Performance and Scientific Computing	D220
9:00 am–5:30 pm	Workshop	Ninth Annual Workshop for the Energy Efficient HPC Working Group (EE HPC WG)	D221
9:00 am–5:30 pm	Workshop	Fifth SC Workshop on Best Practices for HPC Training and Education	D222
10:00 am–10:30 am	Break	Morning Break	Lower Lobby C
10:00 am–10:30 am	Break	Morning Break	Lower Lobby D
10:30 am–12:00 pm	Early Career Program	CV Review and Career Development Panel	A302
10:30 am–12:15 pm	Students@SC Event	Students@SC: Resume Workshop	A3 Ballroom
12:00 pm–1:30 pm	Tutorial	Tutorials Lunch	C1/2/3/4 Ballroom
1:30 pm–3:00 pm	Students@SC Event	Students@SC: HPC Research	D227
1:30 pm–3:00 pm	Early Career Program	Early Career Survival Guide for Successful Communication: Preparing Effective Grant Proposals, Publications, and Presentations	A302
1:30 pm–5:00 pm	Tutorial	Procurement and Commissioning of HPC Systems	C140
1:30 pm–5:00 pm	Tutorial	Compression for Scientific Data	C141
1:30 pm–5:00 pm	Tutorial	Exploiting HPC Technologies for Accelerating Big Data Processing and Associated Deep Learning	C146
1:30 pm–5:00 pm	Tutorial	Performance Tuning of Scientific Codes with the Roofline Model	C154
2:00 pm–3:00 pm	Experiencing HPC for Undergraduates	Experiencing HPC for Undergraduates Opening Reception	D169

## Schedule of Events

**Monday, November 12**

Time	Event	Session	Room
3:00 pm–3:30 pm	Break	Afternoon Break	Lower Lobby C
3:00 pm–3:30 pm	Break	Afternoon Break	Lower Lobby D
3:00 pm–5:00 pm	Experiencing HPC for Undergraduates	Experiencing HPC for Undergraduates Orientation	D169
3:30 pm–4:10 pm	Early Career Program, Students@SC Event	Building Lasting and Effective Mentoring Relationships	A2 Ballroom
3:30 pm–4:10 pm	Early Career Program, Students@SC Event	Students@SC Mentoring Panel	A2 Ballroom
4:45 pm–5:30 pm	Navigating SC18	Navigating SC	D227
5:30 pm–6:45 pm	HPC Inspires Plenary	HPC Inspires Plenary	Exhibit Hall B
7:00 pm–9:00 pm	Exhibits, Reception	Gala Opening Reception	
7:30 pm–8:00 pm	Student Cluster Competition	Student Cluster Competition Kick-Off	Exhibit Hall F

## Schedule of Events

**Tuesday, November 13**

Time	Event	Session	Room
7:30 am–8:15 am	Navigating SC18	Navigating SC	D227
8:30 am–10:00 am	Keynote & Plenary Talk	Keynote	Exhibit Hall B
8:30 am–5:00 pm	Poster	Research Posters	C2/3/4 Ballroom
8:30 am–5:00 pm	ACM Student Research Competition, Poster	ACM Student Research Competition Posters	C2/3/4 Ballroom
8:30 am–5:00 pm	Doctoral Showcase	Exhibition of Doctoral Showcase Posters	C2/3/4 Ballroom
8:30 am–5:00 pm	Scientific Visualization & Data Analytics Showcase	Scientific Visualization & Data Analytics Showcase Posters	Lower Lobby C
10:00 am–5:00 pm	SC19	SC19 Preview Booth	Lobby E



## Schedule of Events

**Tuesday, November 13**

Time	Event	Session	Room
10:00 am–6:00 pm	Student Cluster Competition	Student Cluster Competition	Exhibit Hall F
10:00 am–6:00 pm	Exhibits	Exhibits	Exhibit Hall C/D/ E/ F
10:00 am–6:00 pm	Emerging Technologies	Emerging Technologies Showcase (Day 1)	Booth 619
10:30 am–12:00 pm	Paper	Next-Generation Networking	C140/142
10:30 am–12:00 pm	Paper	Resilience	C141/143/149
10:30 am–12:00 pm	Paper	Data and Storage	C146
10:30 am–12:00 pm	Panel	Quantum Communication Networks and Technologies	C147/148/154
10:30 am–12:00 pm	Panel	HPC in Cloud or Cloud in HPC: Myths, Misconceptions and Misinformation	C155/156
10:30 am–12:00 pm	Exhibitor Forum	Networking	D173
10:30 am–12:00 pm	Invited Talk	Invited Talk Session 1	Exhibit Hall B
10:30 am–12:00 pm	Doctoral Showcase	Doctoral Showcase I	D221
10:30 am–12:00 pm	Experiencing HPC for Undergraduates	Experiencing HPC for Undergraduates: Introduction to HPC Research	D169
12:15 pm–1:15 pm	Birds of a Feather	LUSTRE Community BOF: Lustre in HPC and Emerging Data Markets: Roadmap, Features and Challenges	C140/142
12:15 pm–1:15 pm	Birds of a Feather	Energy Efficiency Considerations for HPC Procurements	C145
12:15 pm–1:15 pm	Birds of a Feather	Open MPI State of the Union 2018	C146
12:15 pm–1:15 pm	Birds of a Feather	Meeting HPC Container Challenges as a Community	C147/148/154
12:15 pm–1:15 pm	Birds of a Feather	SIGHPC Annual Member Meeting	C155/156
12:15 pm–1:15 pm	Birds of a Feather	SAGE2 10th Annual International SC BOF: Scalable Amplified Group Environment for Global Collaboration	D163
12:15 pm–1:15 pm	Birds of a Feather	Impacting Cancer with HPC: Opportunities and Challenges	D165
12:15 pm–1:15 pm	Birds of a Feather	Unified Communication X (UCX) Community	D166
12:15 pm–1:15 pm	Birds of a Feather	HPCG Benchmark Update	D167
12:15 pm–1:15 pm	Birds of a Feather	Pros and Cons of HPCx Benchmarks	D174

## Schedule of Events

Tuesday, November 13

Time	Event	Session	Room
12:15 pm–1:15 pm	Birds of a Feather	What the Heck Is HEC?	D168
12:15 pm–1:15 pm	Birds of a Feather	LLVM in HPC: What's New?	D171
12:15 pm–1:15 pm	Birds of a Feather	High Level Programming Languages for Quantum Computation	D173
12:15 pm–1:15 pm	Birds of a Feather	17th Graph500 List	D175
12:15 pm–1:15 pm	Birds of a Feather	Best Practices for Scaling-Up and Sustaining HPC Education, Outreach and Training	D220
12:15 pm–1:15 pm	Birds of a Feather	Spack Community BoF	D227
1:30 pm–2:45 pm	Doctoral Showcase	Doctoral Showcase II	D221
1:30 pm–3:00 pm	Paper	Biology Applications	C140/142
1:30 pm–3:00 pm	Paper	Performance and Energy Analysis	C141/143/149
1:30 pm–3:00 pm	Paper	Large-Scale Algorithms	C146
1:30 pm–3:00 pm	Panel	Swiss Army Programming: Performance and Portability from Modern Tools	C147/148/154
1:30 pm–3:00 pm	Exhibitor Forum	HPC in the Cloud	D171
1:30 pm–3:00 pm	Test of Time	Test of Time Award Presentation	Exhibit Hall B
1:30 pm–3:00 pm	Exhibitor Forum	Networking	D173
3:30 pm–4:45 pm	Doctoral Showcase	Doctoral Showcase III	D221
3:30 pm–5:00 pm	Paper	Resource Management and Interference	C140/142
3:30 pm–5:00 pm	Paper	Algorithms on Sparse Data	C141/143/149
3:30 pm–5:00 pm	Paper	Performance Optimization Studies	C146
3:30 pm–5:00 pm	Panel	How Can Lessons Learned in the Past Forty Years Guide Future HPC Research Strategies?	C155/156
3:30 pm–5:00 pm	Exhibitor Forum	HPC Workflow	D171
3:30 pm–5:00 pm	Exhibitor Forum	HPC Workflow	D173
3:30 pm–5:00 pm	Invited Talk	Invited Talk Session 2	Exhibit Hall B
5:15 pm–6:45 pm	Birds of a Feather	Containers in HPC	C140/142
5:15 pm–6:45 pm	Birds of a Feather	Enabling Data Services for HPC	C141/143/149
5:15 pm–6:45 pm	Birds of a Feather	The Facility Perspective on Liquid Cooling: Experiences and Proposed Open Specification	C144

## Schedule of Events

Tuesday, November 13

Time	Event	Session	Room
5:15 pm–6:45 pm	Birds of a Feather	HPC in the DoD	C145
5:15 pm–6:45 pm	Birds of a Feather	Purpose-Built HPC: Last Hope for Earth System Prediction?	C146
5:15 pm–6:45 pm	Birds of a Feather	Multi-Level Memory and Storage for HPC and Data Analytics	C147/148/154
5:15 pm–6:45 pm	Birds of a Feather	Analyzing Parallel I/O	C155/156
5:15 pm–6:45 pm	Birds of a Feather	Strategies for Inclusive and Scalable HPC Outreach and Education	D163
5:15 pm–6:45 pm	Birds of a Feather	HPC Graph Toolkits and the GraphBLAS Forum	D166
5:15 pm–6:45 pm	Birds of a Feather	Ceph Applications in HPC Environments	D174
5:15 pm–6:45 pm	Birds of a Feather	Distributed and Heterogeneous Programming in C++ for HPC 2018	D168
5:15 pm–6:45 pm	Birds of a Feather	OpenACC API User Experience, Vendor Reaction, Relevance, and Roadmap	D171
5:15 pm–6:45 pm	Birds of a Feather	Interactivity in HPC	D173
5:15 pm–6:45 pm	Birds of a Feather	The New NSF-Funded Resource: Frontera—Towards a Leadership Class Computing Facility	D175
5:15 pm–6:45 pm	Birds of a Feather	Advanced Architecture Testbeds: A Catalyst for Co-design Collaborations	D220
5:15 pm–6:45 pm	Birds of a Feather	Designing and Building Next-Generation Computer Systems for Deep Learning	D227
5:15 pm–7:00 pm	Birds of a Feather	TOP500 Supercomputers	Exhibit Hall B
5:15 pm–7:00 pm	ACM Student Research Competition, Poster, Reception	Poster Reception	C2/3/4 Ballroom
5:15 pm–7:00 pm	Doctoral Showcase	Doctoral Showcase Posters Reception	C2/3/4 Ballroom
5:15 pm–7:00 pm	Scientific Visualization & Data Analytics Showcase	Scientific Visualization & Data Analytics Showcase Reception	Lower Lobby C

## Schedule of Events

Wednesday, November 14

Time	Event	Session	Room
8:30am–10:00 am	Awards Presentation	ACM and IEEE-CS Award Presentations	Exhibit Hall B
8:30 am–5:00 pm	Poster	Research Posters	C2/3/4 Ballroom
8:30 am–5:00 pm	ACM Student Research Competition, Poster	ACM Student Research Competition Posters	C2/3/4 Ballroom
8:30 am–5:00 pm	Doctoral Showcase	Exhibition of Doctoral Showcase Posters	C2/3/4 Ballroom
8:30 am–5:00 pm	Scientific Visualization & Data Analytics Showcase	Scientific Visualization & Data Analytics Showcase Posters	Lower Lobby C
10:00 am–10:30 am	Break	Tech Program Morning Break	
10:00 am–3:00 pm	Student Job/Opportunity Fair, Students@SC Event	Student/Postdoc Job Fair	D163/165/170/172
10:00 am–5:00 pm	SC19	SC19 Preview Booth	Lobby E
10:00 am–6:00 pm	Student Cluster Competition	Student Cluster Competition	Exhibit Hall F
10:00 am–6:00 pm	Exhibits	Exhibits	Exhibit Hall C/D/ E/ F
10:00 am–6:00 pm	Emerging Technologies	Emerging Technologies Showcase (Day 2)	Booth 619
10:30 am–12:00 pm	Experiencing HPC for Undergraduates	Experiencing HPC for Undergraduates: Graduate Student Perspective	D169
10:30 am–12:00 pm	Paper	MPI Optimization and Characterization	C140/142
10:30 am–12:00 pm	Paper	Non-Volatile Memory	C141/143/149
10:30 am–12:00 pm	Paper	Task-Based Programming	C146
10:30 am–12:00 pm	Panel	SC: The Conference	C147/148/154
10:30 am–12:00 pm	Panel	Innovative Approaches for Developing Accessible, Productive, Scalable HPC Training	C155/156
10:30 am–12:00 pm	Exhibitor Forum	Machine Learning and AI	D171
10:30 am–12:00 pm	Exhibitor Forum	HPC System Architectures	D173
10:30 am–12:00 pm	Invited Talk	Invited Talk Session 3	Exhibit Hall B
10:30 am–12:00 pm	Scientific Visualization & Data Analytics Showcase	Scientific Visualization & Data Analytics Showcase	D220

## Schedule of Events

Wednesday, November 14

Time	Event	Session	Room
12:15 pm–1:15 pm	Birds of a Feather	OpenHPC Community BoF	C140/142
12:15 pm–1:15 pm	Birds of a Feather	The Message Passing Interface (MPI): Version 4.0 and Beyond	C141/143/149
12:15 pm–1:15 pm	Birds of a Feather	A Look Ahead: Energy and Power Aware Job Scheduling and Resource Management	C144
12:15 pm–1:15 pm	Birds of a Feather	Women in HPC: the Importance of Male Allies	C145
12:15 pm–1:15 pm	Birds of a Feather	HDF5: I/O Middleware and Ecosystem for HPC and Experimental and Observational Sciences	C146
12:15 pm–1:15 pm	Birds of a Feather	Big Data Challenge–How to Engage with Large Scale Facilities?	C147/148/154
12:15 pm–1:15 pm	Birds of a Feather	Batched, Reproducible, and Reduced Precision BLAS	C155/156
12:15 pm–1:15 pm	Birds of a Feather	InfiniBand In-Network Computing Technology and Roadmap	D166
12:15 pm–1:15 pm	Birds of a Feather	PBS Pro Open Source Project Community BoF	D167
12:15 pm–1:15 pm	Birds of a Feather	HPC in Space: An Update on Spaceborne Computer after 1+ Year on the ISS	D174
12:15 pm–1:15 pm	Birds of a Feather	Special Interest Group on HPC in Resource Constrained Environments (SIGHPC-RCE)	D168
12:15 pm–1:15 pm	Birds of a Feather	Third Annual Meeting of the SIGHPC–Big Data Chapter	D169
12:15 pm–1:15 pm	Birds of a Feather	Software Engineers: Careers in Research	D171
12:15 pm–1:15 pm	Birds of a Feather	Benchmarking Scientific Reconfigurable/FPGA Computing	D173
12:15 pm–1:15 pm	Birds of a Feather	Getting Scientific Software Installed	D175
12:15 pm–1:15 pm	Birds of a Feather	Charm++ and AMPI: Adaptive and Asynchronous Parallel Programming	D220
12:15 pm–1:15 pm	Birds of a Feather	Exascale Archiving–Challenges and Opportunities	D221
12:15 pm–1:15 pm	Birds of a Feather	IEEE CS TCHPC Meeting	D222
12:15 pm–1:15 pm	Birds of a Feather	Power API and Redfish: Standardizing Power Measurement and Control for HPC	D227
1:30 pm–3:00 pm	Paper	Physics and Tensor Applications	C140/142
1:30 pm–3:00 pm	Paper	Clouds and Distributed Computing	C141/143/149
1:30 pm–3:00 pm	Paper	Resilience II	C146
1:30 pm–3:00 pm	Panel	Reconfigurable Computing for HPC: Will It Make It this Time?	C147/148/154

## Schedule of Events

Wednesday, November 14

Time	Event	Session	Room
1:30 pm–3:00 pm	Panel	Runtime for Exascale and Beyond: Convergence or Divergence?	C155/156
1:30 pm–3:00 pm	HPC Impact Showcase	HPC Impact at TAE Technologies and Pratt & Whitney	D171
1:30 pm–3:00 pm	Exhibitor Forum	Machine Learning and AI	D173
3:00 pm–3:30 pm	Break	Tech Program Afternoon Break	
3:00 pm–5:00 pm	ACM Student Research Competition	ACM Student Research Competition	C145
3:30 pm–5:00 pm	Paper	Large Scale System Deployments	C140/142
3:30 pm–5:00 pm	Paper	Arithmetic and Optimization	C141/143/149
3:30 pm–5:00 pm	Panel	Sustaining Research Software	C147/148/154
3:30 pm–5:00 pm	Panel	The Difference Between HPC on Premises and in the Cloud	C155/156
3:30 pm–5:00 pm	HPC Impact Showcase	HPC Impact at Procter & Gamble, Boeing and GE	D171
3:30 pm–5:00 pm	Exhibitor Forum	Datacenter and Cooling Technologies	D173
3:30 pm–5:00 pm	Invited Talk	Invited Talk Session 4	Exhibit Hall B
3:30 pm–5:00 pm	ACM Gordon Bell Finalist	Gordon Bell Prize Finalist #1	A2 Ballroom
4:00 pm–6:00 pm	Exhibits	Family Day	Exhibit Hall C/D/ E/ F
5:15 pm–6:45 pm	Birds of a Feather	OpenMP® 5.0 Is Here: Find Out All the Things You Need to Know About It!	C140/142
5:15 pm–6:45 pm	Birds of a Feather	Cloud Infrastructure Solutions To Run HPC Workloads	C141/143/149
5:15 pm–6:45 pm	Birds of a Feather	PMIx: Enabling Workflow Orchestration	C144
5:15 pm–6:45 pm	Birds of a Feather	OpenSHMEM in the Era of Exascale	C145
5:15 pm–6:45 pm	Birds of a Feather	MPICH: A High Performance Open-Source MPI Implementation	C146
5:15 pm–6:45 pm	Birds of a Feather	Applications of Deep Learning in Industry and Research	C147/148/154
5:15 pm–6:45 pm	Birds of a Feather	Exascale Machine Learning	C155/156
5:15 pm–6:45 pm	Birds of a Feather	Consolidating the European Exascale Effort	D166
5:15 pm–6:45 pm	Birds of a Feather	The Green 500: Trends in Energy Efficient Supercomputing	D167
5:15 pm–6:45 pm	Birds of a Feather	Big Data and Exascale Computing (BDEC2) Application Roundtable	D174
5:15 pm–6:45 pm	Birds of a Feather	Software Engineering and Reuse in Computational Science and Engineering	D168

## Schedule of Events

Wednesday, November 14

Time	Event	Session	Room
5:15 pm–6:45 pm	Birds of a Feather	The ARM HPC Experience: From Testbeds to Exascale	D169
5:15 pm–6:45 pm	Birds of a Feather	Revisiting the 2008 ExaScale Computing Study and Venturing Predictions for 2028	D171
5:15 pm–6:45 pm	Birds of a Feather	The IO-500 and the Virtual Institute of I/O	D173
5:15 pm–6:45 pm	Birds of a Feather	Monitoring Large-Scale HPC Systems: Extracting and Presenting Meaningful System and Application Insights	D175
5:15 pm–6:45 pm	Birds of a Feather	Personalized Medicine and HPC	D220
5:15 pm–6:45 pm	Birds of a Feather	Deep500: An HPC Deep Learning Benchmark and Competition	D221
5:15 pm–6:45 pm	Birds of a Feather	Workloads and Benchmarks for System Acquisition	D227

## Schedule of Events

Thursday, November 15

Time	Event	Session	Room
8:30 am–8:40 am	SC19	SC19 Conference Preview	Exhibit Hall B
8:30 am–10:00 am	Invited Talk	Invited Talk Session 5	Exhibit Hall B
8:30 am–5:00 pm	Poster	Research Posters	C2/3/4 Ballroom
8:30 am–5:00 pm	ACM Student Research Competition, Poster	ACM Student Research Competition Posters	C2/3/4 Ballroom
8:30 am–5:00 pm	Doctoral Showcase	Exhibition of Doctoral Showcase Posters	C2/3/4 Ballroom
8:30 am–5:00 pm	Scientific Visualization & Data Analytics Showcase	Scientific Visualization & Data Analytics Showcase Posters	Lower Lobby C
10:00 am–10:30 am	Break	Tech Program Morning Break	
10:00 am–2:30 pm	Emerging Technologies	Emerging Technologies Showcase (Day 3)	Booth 619
10:00 am–3:00 pm	Student Cluster Competition	Student Cluster Competition	Exhibit Hall F
10:00 am–3:00 pm	Exhibits	Exhibits	Exhibit Hall C/D/ E/ F
10:00 am–3:00 pm	SC19	SC19 Preview Booth	Lobby E
10:30 am–12:00 pm	Paper	Graph Algorithms and Systems	C140/142
10:30 am–12:00 pm	Paper	Programming Systems Tools	C141/143/149

## Schedule of Events

Thursday, November 15

Time	Event	Session	Room
10:30 am–12:00 pm	Panel	"If you can't measure it, you can't improve it" – Software Improvements from Power/Energy Measurement Capabilities	C147/148/154
10:30 am–12:00 pm	Panel	Federated Cloud: An Evolutionary Path from Grid Computing	C155/156
10:30 am–12:00 pm	Exhibitor Forum	HPC System Architectures	D171
10:30 am–12:00 pm	Exhibitor Forum	HPC Storage and Memory Architectures	D173
10:30 am–12:00 pm	Invited Talk	Invited Talk Session 6	Exhibit Hall B
10:30 am–12:00 pm	ACM Gordon Bell Finalist	Gordon Bell Prize Finalist #2	A2 Ballroom
10:30 am–12:00 pm	Experiencing HPC for Undergraduates	Experiencing HPC for Undergraduates: Careers in HPC	D169
12:15 pm–1:15 pm	Birds of a Feather	Volunteer Opportunities for SC Conference Planning	C144
12:15 pm–1:15 pm	Birds of a Feather	Spectral Analysis: Building an LGBTQIA+ Community in Scientific Computing	C145
12:15 pm–1:15 pm	Birds of a Feather	HPC Meets Real-Time Data: Interactive Supercomputing for Urgent Decision Making	C146
12:15 pm–1:15 pm	Birds of a Feather	SLURM User Group Meeting	C155/156
12:15 pm–1:15 pm	Birds of a Feather	TCHPC Career Panel	D161
12:15 pm–1:15 pm	Birds of a Feather	The Power of Storytelling: Exposing User Experiences and Lessons Learned to Inspire and Instruct Technology Adoption	D166
12:15 pm–1:15 pm	Birds of a Feather	Collaboration Toward a Software Stack for System Power Optimization: The HPC PowerStack	D167
12:15 pm–1:15 pm	Birds of a Feather	On Launching Ask.CI, a Q&A Platform for Research Computing, Using StackExchange and Discourse	D174
12:15 pm–1:15 pm	Birds of a Feather	Navigating the SC Conference Technical Program Submission Process	D168
12:15 pm–1:15 pm	Birds of a Feather	Data Analytics for System and Facility Energy Management	D171
12:15 pm–1:15 pm	Birds of a Feather	National Research Infrastructure: Collaborative Session	D173
12:15 pm–1:15 pm	Birds of a Feather	International HPC Certification Program	D175
12:15 pm–1:15 pm	Birds of a Feather	Achieving Performance on Large-Scale Intel Xeon-Based Systems	D220
12:15 pm–1:15 pm	Birds of a Feather	Data Science and HPC Education and Outreach	D221



## Schedule of Events

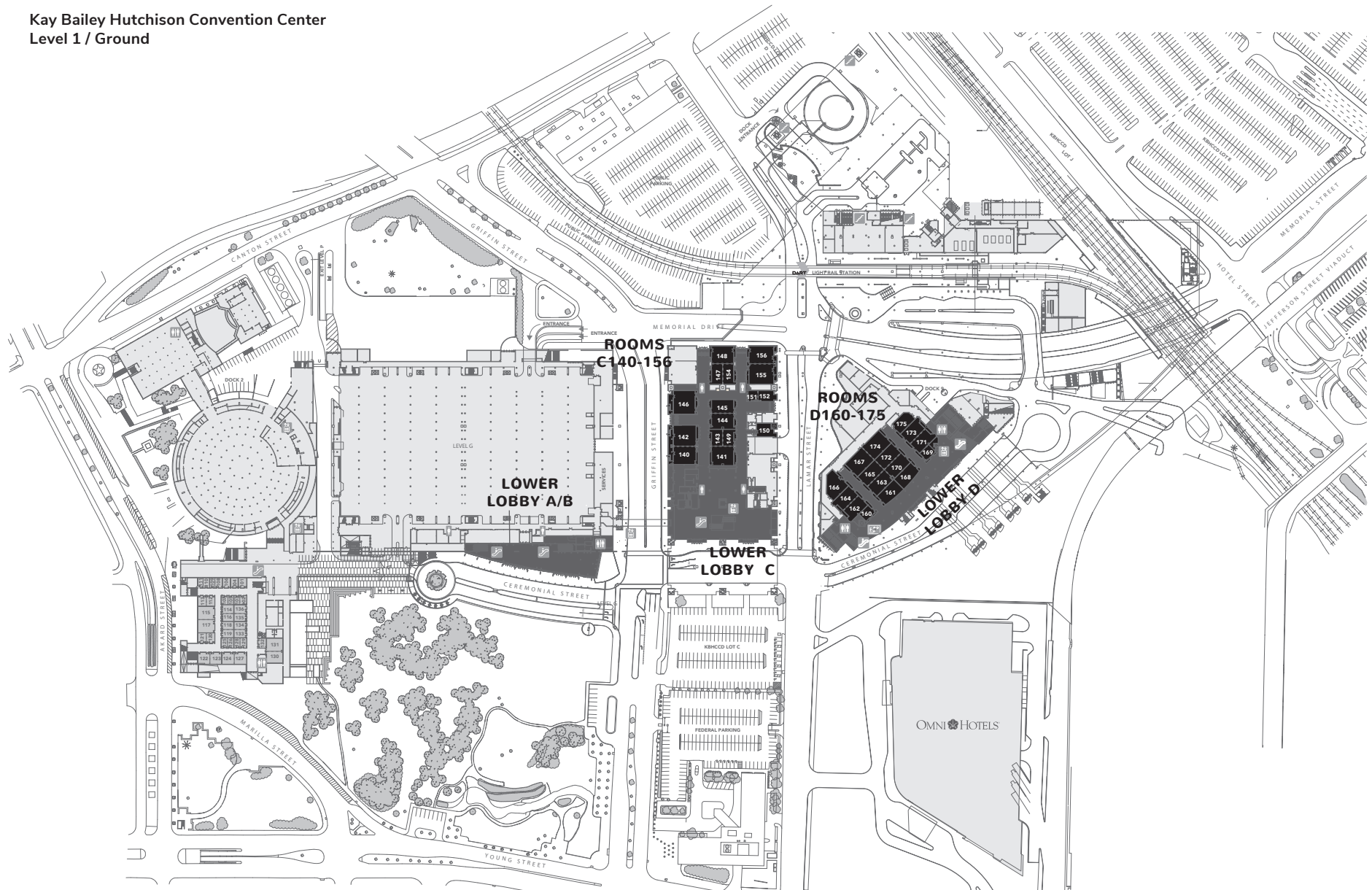
Thursday, November 15

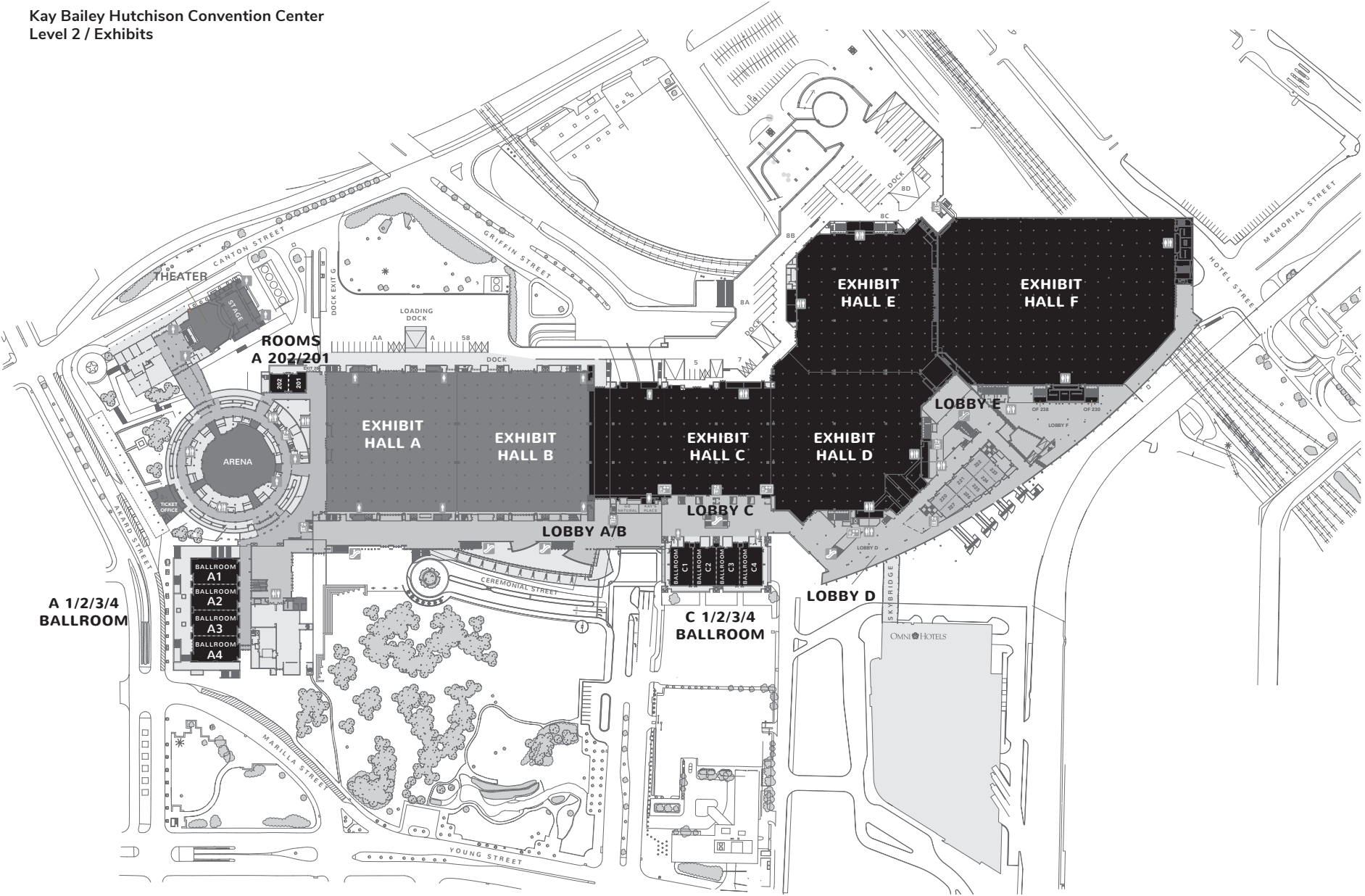
Time	Event	Session	Room
12:15 pm–1:15 pm	Birds of a Feather	The Future of NSF Supported Advanced Cyberinfrastructure	D227
12:45 pm–1:30 pm	Awards Presentation	Awards Ceremony	Exhibit Hall B
1:30 pm–3:00 pm	Paper	Deep Learning	C140/142
1:30 pm–3:00 pm	Paper	Resilience III: GPUs	C141/143/149
1:30 pm–3:00 pm	Panel	Approximating for Faster, Better and Cheaper Scientific Computing	C155/156
1:30 pm–3:00 pm	HPC Impact Showcase	HPC Impact at BP and Lockheed Martin	D171
3:00 pm–3:30 pm	Break	Tech Program Afternoon Break	
3:30 pm–5:00 pm	Paper	Astrophysics Applications	C140/142
3:30 pm–5:00 pm	Paper	File Systems: Data Movement and Provenance	C141/143/149
3:30 pm–5:00 pm	Panel	The Next Wave of HPC in the Datacenter	C147/148/154
3:30 pm–5:00 pm	HPC Impact Showcase	HPC Impact at GM and John Deere	D171
7:00 pm–10:00 pm	Reception	Technical Program Reception	The Perot Museum

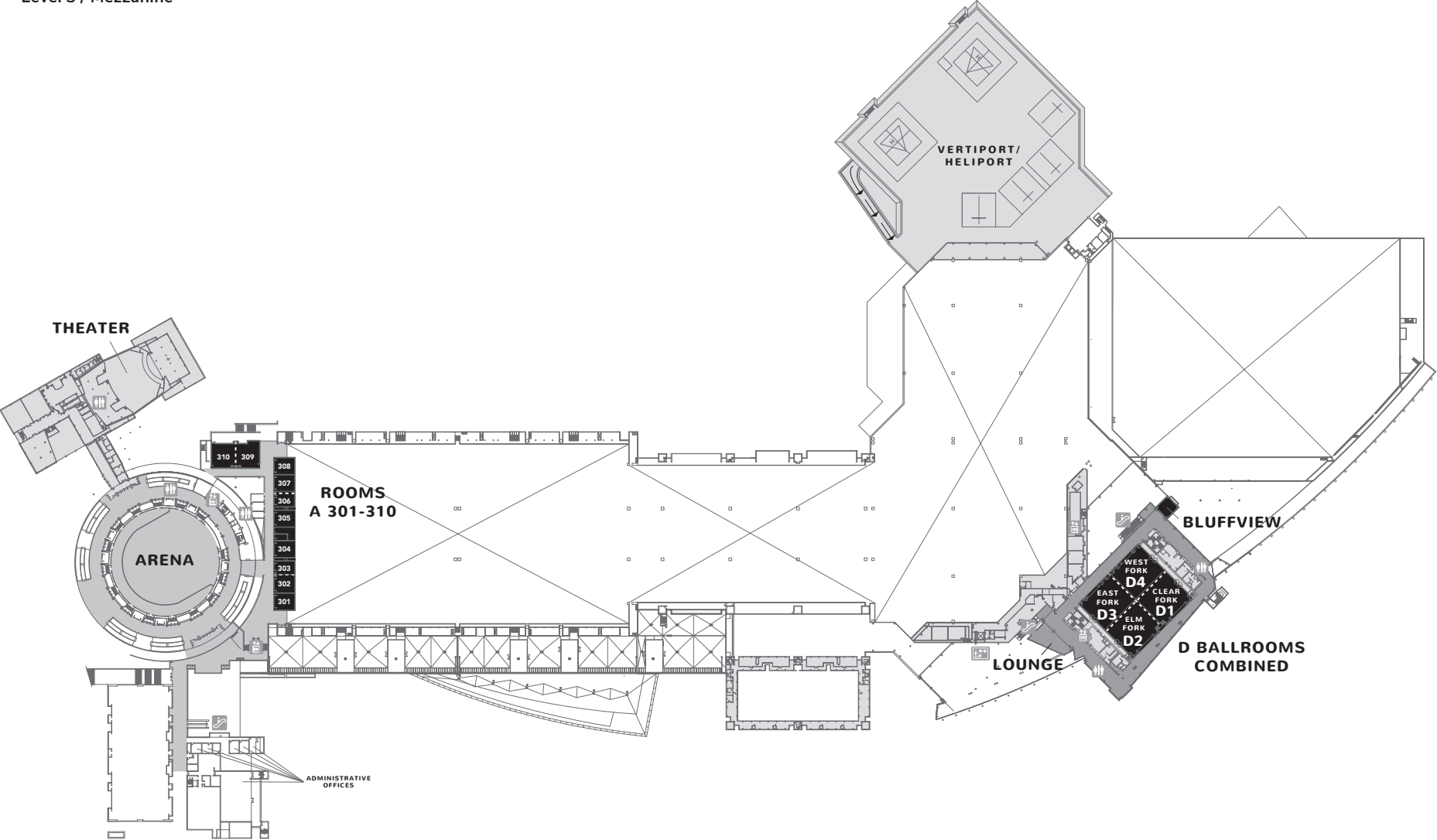
## Schedule of Events

Friday, November 16

Time	Event	Session	Room
8:30 am–12:00 pm	Workshop	Deep Learning on Supercomputers–Welcome	D167
8:30 am–12:00 pm	Workshop	7th Workshop on Extreme-Scale Programming Tools (ESPT)	D161
8:30 am–12:00 pm	Workshop	Computational Phenomics @Scale: From Supercomputers to Bedside	D175
8:30 am–12:00 pm	Workshop	Workshop on Fault-Tolerance for HPC at Extreme Scale (FTXS)	D174
8:30 am–12:00 pm	Workshop	International Workshop on Performance, Portability, and Productivity in HPC (P3HPC)	D171/173
8:30 am–12:00 pm	Workshop	PAW-ATM: Parallel Applications Workshop–Alternatives to MPI	D168
10:30 am–12:00 pm	Panel	Convergence between HPC and Big Data: The Day After Tomorrow	C155/156









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