OPENACC BOF at SC21

More Science. Less programming.

https://www.openacc.org/events/openacc-birds-feather-bof-sc21
Tuesday, November 16, 2021 | 5:15 to 6:45 PM CST | Online
OpenACC BOF @ SC21
Tuesday, Nov 16, 2021

- Welcome and OpenACC Organizational Update – Jack Wells, NVIDIA (5 Minutes)
- OpenACC Specification Update – Jeff Larkin, NVIDIA (7 Minutes)
- Compiler Implementations
  - HPE Updates: Barbara Chapman, HPE (6 minutes)
  - GCC Updates: Catherine Moore, Siemens (6 minutes)
- Porting Scientific Applications with OpenACC: Real-world Use Cases (7 minutes)
  - On the Road to Code Portability – Stéphane Ethier, PPPL
  - Can Fortran’s ‘do concurrent’ Replace Directives for Accelerated Computing? Ron Caplan (Predictive Science)
- Training and Education, Julia Levites, NVIDIA (7 minutes)
- Questions, General Discussion from the BOF. (45 minutes)

https://www.openacc.org/events/openacc-birds-feather-bof-sc21
OPENACC ORGANIZATION MISSION

The OpenACC Organization is dedicated to helping the research and developer community advance science by expanding their accelerated and parallel computing skills. We have 3 areas of focus: participating in computing ecosystem development, providing training and education on programming models, resources and tools, and developing the OpenACC specification.
## PILLARS OF OPENACC ORGANIZATION

<table>
<thead>
<tr>
<th>ECOSYSTEM DEVELOPMENT</th>
<th>TRAINING &amp; EDUCATION</th>
<th>OPENACC SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work with Language Standards committees</td>
<td>Hackathons/Bootcamps</td>
<td>Develop OpenACC Specification by introducing new features and functionality</td>
</tr>
<tr>
<td>• Apply collective lessons learned</td>
<td>• Focus on accelerated computing</td>
<td></td>
</tr>
<tr>
<td>• Bridge gaps in base languages</td>
<td>• Training Materials:</td>
<td></td>
</tr>
<tr>
<td>• Develop roadmap for interoperability</td>
<td>• Courses</td>
<td></td>
</tr>
<tr>
<td>Strive for performant interoperability</td>
<td>• Containers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Workshops</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Programs for educators, students, mentors</td>
<td></td>
</tr>
</tbody>
</table>
OPENACC – CELEBRATING 10 YEARS
Accelerating Science. Building Community.

Thank you, OpenACC members, for all the hard work and support!
OPENACC DIRECTIVES

a directive-based parallel programming model designed for usability, performance and portability

<table>
<thead>
<tr>
<th>APPLICATIONS</th>
<th>PLATFORMS SUPPORTED</th>
<th>COMMUNITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>250+</td>
<td>NVIDIA GPU</td>
<td>~2900</td>
</tr>
<tr>
<td>3 out of Top 5</td>
<td>X86 CPU</td>
<td>Slack Members</td>
</tr>
</tbody>
</table>
<pre><code>                                  | POWER CPU                                 |
                                  | Sunway                                    |
                                  | ARM CPU                                   |
                                  | AMD GPU                                   |
</code></pre>
TRAINING AND EDUCATION

GPU Hackathons and Bootcamps

**GPU Bootcamps**
- 1 or 2-day event
- Labs and a mini-app challenge
- 50 people with 2-3 mentors
- Prepare for future hackathons and start collaborations

**Hackathons**
- 4-day event
- Users bring their own codes or data
- Up to 10 teams with 3+ people per team
- 2 mentors per team

[Graph showing number of bootcamps and hackathons over years]

- **230+ mentors contributed**
- **23 Bootcamps in 2019**
- **27 Bootcamps in 2020**

- **430+ codes**

[Website: www.gpuhackathons.org]
APPLY TO GPU HACKATHONS
Accelerate your code on GPUs with mentors by your side

- Over 20 events globally.
- 4 full days over 2 weeks.
- Online or in-person.
- 10 teams. 2 mentors per team.
- Free to participate.
- GPU resource is provided.

www.gpuhackathons.org/events
JOIN GPU BOOTCAMPS
Build Confidence in GPU Programming

https://github.com/gpuhackathons-org/gpubootcamp

- Global Events
- Self-paced materials
- Instructor-led bootcamps
- AI and HPC content
- Team work and code challenges
- 8 hours per event

www.gpuhackathons.org/events