SYCL WG
State of the Union 2020

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SYCL Present and Future Roadmap (May Change)

<table>
<thead>
<tr>
<th>Year</th>
<th>SYCL Version</th>
<th>Language</th>
<th>Backends</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>SYCL 1.2</td>
<td>C++11</td>
<td>OpenCL</td>
</tr>
<tr>
<td>2015</td>
<td>SYCL 1.2.1</td>
<td>C++11</td>
<td>OpenCL</td>
</tr>
<tr>
<td>2017</td>
<td>SYCL 2020</td>
<td>C++17</td>
<td>OpenCL</td>
</tr>
<tr>
<td>2020</td>
<td>SYCL 2020</td>
<td>C++20</td>
<td>OpenCL</td>
</tr>
<tr>
<td>2021</td>
<td>SYCL 2021</td>
<td>C++20</td>
<td>OpenCL</td>
</tr>
</tbody>
</table>
SYCL community is vibrant

SYCL F2F meetings attendance

2X growth

SYCL-1.2.1

2016/04 Frankfurt
2016/10 Seoul
2017/04 Vancouver
2017/09 Amsterdam
2018/04 Chicago
2018/01 Taipei
2018/04 Montreal
2018/09 Budapest
2019/01 San Diego
2019/04 Singapore
2019/09 New Orleans
2020/02 Barcelona
SYCL Evolution

SYCL 2020 Potential Features
- Generalization (a.k.a the Backend Model) presented by Gordon Brown
- Unified Shared Memory (USM) presented by James Brodman
- Improvement to Program class Modules presented by Gordon Brown
- Host Task with Interop presented by Gordon Brown
  In order queues, presented by James Brodman

SYCL 2020 Roadmap (WIP, MAY CHANGE)

- Improving Software Ecosystem
  Tool, libraries, GitHub
- Expanding Implementation
  DPC++
  ComputeCpp
  trisSYCL
  hipSYCL
- Regular Maintenance Updates
  Spec clarifications, formatting and bug fixes
  https://www.khronos.org/registry/SYCL/

Repeat The Cycle every 1.5-3 years

SYCL 2020 compared with SYCL 1.2.1
- Easier to integrate with C++17 (CTAD, Deduction Guides...)
- Less verbose, smaller code size, simplify patterns
- Backend independent
- Multiple object archives aka modules simplify interoperability
- Ease porting C++ applications to SYCL
- Enable capabilities to improve programmability
- Backwards compatible but minor API break based on user feedback

Integration of successful Extensions plus new Core functionality

Converge SYCL with ISO C++ and continue to support OpenCL to deploy on more devices
- CPU
- GPU
- FPGA
- AI processors
- Custom Processors

Repeat The Cycle every 1.5-3 years
SYCL 2020 Provisional is coming

- In a few months, SYCL 2020 provisional will be released
- We need your feedback asap
  - [https://app.slack.com/client/TDMDFS87M/CE9UX4CHG](https://app.slack.com/client/TDMDFS87M/CE9UX4CHG)
  - [https://community.khronos.org/c/sycl](https://community.khronos.org/c/sycl)
  - [https://sycl.tech](https://sycl.tech)
- What features are you looking for in SYCL 2020?
- What feature would you like to aim for in future SYCL?
- How do you join SYCL?
Engaging with the Khronos SYCL Ecosystem

Kronos SYCL Forums, Slack Channels, stackoverflow, reddit, and SYCL.tech

Contribute to SYCL open source specs, CTS, tools and ecosystem

SYCL Advisory Panels

SYCL Working Groups

Any member or non-member can propose a new SYCL feature or fix

Open to all!

https://community.khronos.org/www.khr.io/slack
https://app.slack.com/client/TDMDFS87M/CE9UX4CHG
https://community.khronos.org/c/sycl
https://stackoverflow.com/questions/tagged/sycl
https://www.reddit.com/r/sycl
https://github.com/codeplaysoftware/syclacademy
https://sycl.tech/

Spec fixes and suggestions made under the Khronos IP Framework. Open source contributions under repo's CLA - typically Apache 2.0

https://github.com/KhronosGroup
https://github.com/KhronosGroup/SYCL-CTS
https://github.com/KhronosGroup/SYCL-Docs
https://github.com/KhronosGroup/SYCL-Shared
https://github.com/KhronosGroup/SYCL-Registry
https://github.com/KhronosGroup/SyclParallelSTL

Invited Advisors under the Khronos NDA and IP Framework can comment and contribute to requirements and draft specifications

https://www.khronos.org/advisors/

Khronos members under Khronos NDA and IP Framework participate and vote in working group meetings. Starts at $3.5K/yr.

https://www.khronos.org/members/
https://www.khronos.org/registry/SYCL/

Any member or non-member can propose a new SYCL feature or fix

https://www.khr.io/slack
https://app.slack.com/client/TDMDFS87M/CE9UX4CHG
https://community.khronos.org/c/sycl
https://stackoverflow.com/questions/tagged/sycl
https://www.reddit.com/r/sycl
https://github.com/codeplaysoftware/syclacademy
https://sycl.tech/
Thank You!

- Khronos SYCL is creating cutting-edge royalty-free open standard
  - For C++ Heterogeneous compute, vision, inferencing acceleration
- Information on Khronos SYCL Standards: https://www.khronos.org/sycl
- Any entity/individual is welcome to join Khronos SYCL: https://www.khronos.org/members
- Join the SYCLCon Tutorial Monday and Wednesday Live panel: Wednesday Apr 29 15:00-18:00 GMT
  - Have your questions answered live by a group of SYCL experts
- Michael Wong: michael@codeplay.com | wongmichael.com/about

Benefits of Khronos membership

- Gain early insights into industry trends and directions
- Influence the design and direction of key open standards that will drive your business
- Accelerate your time-to-market with early access to specification drafts
- Gather industry requirements for future open standards
- Draft Specifications Confidential to Khronos members
- Publicly Release Specifications and Conformance Tests
- Network with domain experts from diverse companies in your industry
- State-of-the-art IP Framework protects your Intellectual Property
- Enhance your company reputation as an industry leader through Khronos participation

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