Khronos Group
Request for Proposals

SYCL 2020 Reference Guide

May 2023

Notice

Trademarks

1. Background

This project aims to improve the SYCL developer ecosystem by providing a more usable version of the SYCL specification, similarly to how cppreference.com provides an application developer focused version of the ISO C++ specifications.

By design the SYCL specification is not intended to be a resource for fast consultation or reference by application developers. An online searchable reference is needed, along the lines of cppreference.com, through which developers can rapidly find relevant material in top ranked web searches or browsing. Such a reference can also make it easier for developers to collaborate by being able to share URLs for specific APIs.

A SYCL 1.2.1 reference guide was created by companies contributing to the SYCL specification, but it has not been updated to SYCL 2020 and has been taken offline to reduce confusion. Internet searches for SYCL content currently find other sources of outdated material that are causing confusion in the ecosystem.

This RFP is for a project that will update the former SYCL 1.2.1 reference guide to be consistent with the SYCL 2020 specification.

2. Methodology

Khronos has a bounded budget for this project. Bids should be no greater than the value defined in Section 5. This RFP specifies a work-for-hire. All results of the work shall be owned by Khonos and licensed according to the terms specified in the Khronos Contractor's Agreement[2].

This RFP is publicly available and will be circulated to all Khronos members, and any interested non-Khronos members are welcome to respond.

Khronos will use an email mailing list for project communication. Short verbal progress reports should be provided during the weekly SYCL working group meetings while the project is underway, in particular detailing recent activities and raising open questions or blocking issues.

All code development shall take place through Pull Requests to an agreed branch of the public Khronos SYCL GitHub SYCLreference Repository[3].

The SYCL working group shall review and accept each reference guide modification when complete, with particular attention focused on the delivery of the first deliverables to establish best practices for subsequent deliverables.

The Contractor shall provide a designated point contact for the duration of the project.

For all changes made to the SYCL reference, the contractor shall ensure that the reference always builds successfully using the Sphinx documentation generator.

3. Scope

- Update the SYCL 1.2.1 reference content at https://github.com/KhronosGroup/SYCL_Reference to be consistent with the SYCL 2020 specification.
    - Structure and content of the reference pages must be updated to be consistent with SYCL 2020 language constructs and APIs.
    - The format and style of the updated reference guide should match the existing style in the repository, although the SYCL working group welcomes suggested improvements as long as they are approved by the working group prior to implementation.

- The reference guide is rendered to HTML and PDF through the Sphinx documentation system, from the reStructuredText markup language source in the SYCL_Reference repository. The selected contractor should test rendering through Sphinx, but the working group will handle publishing the artifacts (e.g. HTML output) publicly after project completion.
- The project deliverables are to be provided through multiple pull requests against an agreed upon branch in the KhronosGroup/SYCL_Reference GitHub repository, updating the repository content to match the SYCL 2020 specification and removing SYCL 1.2.1 or other content that does not match the SYCL 2020 specification. Project progress is to be tracked and reported by the contractor towards the project completion criteria, which are:
  - 100% coverage of SYCL APIs and language features to be included in the reference, measured against the SYCL 2020 specification.
  - No APIs or language features to exist in the reference that are not present in the SYCL 2020 specification.
  - Deprecated language features and APIs should be marked as such in the reference.
  - Each API and language feature must have a description associated that is copied or synthesized from the SYCL 2020 specification.
    - This project does not require creating user friendly descriptions of APIs or language features, because inadvertent misinterpretations are more likely to be incorporated and the scope increase is too aggressive for the project timeline. Instead, this project intends for suitable text from the SYCL 2020 specification to be copied into the reference when describing APIs and language features. In many cases the text will need to include information from multiple locations in the specification.
    - The working group welcomes synthesized user friendly descriptions and use examples to be proposed by the selected bidder, and will review pull requests including such descriptions. But this content is not required as a deliverable and is not a part of project completion criteria.
- Intentional non-deliverables of this contract are synthesis of user friendly descriptions of APIs/language features, and source code examples of use of features. Although these aspects are desirable for the ecosystem, this project aims to solve the initial blocking issues that prevent a reference guide from being published in place of outdated reference information. After this project the working group and community will work to provide more user friendly descriptions and examples.

Project execution shall be divided into four phases, such that the SYCL working group is not overwhelmed with pull request reviews immediately around project completion:

- ### 3.1 Phase 1: Definition and SYCL WG acceptance of updated reference outline

In the first phase of the project, the contractor shall examine the existing reference guide (at https://github.com/KhronosGroup/SYCL_Reference) and propose how it will be updated to align with SYCL 2020. This phase shall result in a proposed outline for the reference guide, including section and sub-section titles, for the working group to review and approve. Scheduling of the update work will be proposed, aligning to three phases/milestones, for the SYCL working group to approve.

- ### 3.2 Phases 2-4: Each roughly 1/3 of the content development

Aligned with the work schedule proposed and agreed upon during Phase 1, the contractor will perform roughly one third of the content update work in each of three phases. The working group will review and merge pull requests for each of these phases throughout execution of the phase. The goal of this phased delivery approach is to encourage distribution of content update pull requests over time, such that the working group can review and merge in a timely and responsive manner.

4. Deliverables

The contractor shall submit the following deliverables at the specified dates. All deliverables (including verbal and written) are to be in US English.

- ### 4.1 Weekly status update

During the SYCL working group weekly call, a brief verbal status update including any questions or issues that are blocking progress should be provided by the contractor to the WG. No formal presentation material or report is needed - instead this status update is intended to create regular contact between the contractor and WG so that questions and issues can be addressed promptly. In case the WG call times are untenable, alternate methods/media are acceptable by mutual agreement between the contractor and the SYCL WG.

Due Date: Weekly during the SYCL working group phone meetings (Thursdays 8-9:30 AM Pacific Time), or by mutually agreed upon alternative delivery mechanism.

Acceptance Criteria: None.

- ### 4.2 Proposed reference outline and schedule of content update completions

The initial major deliverable is a proposed outline of the reference guide content update, effectively reading as a table of contents including major and minor section titles. Alongside the proposed content outline, a schedule describing when content will be completed shall be proposed, describing both ordering and completion dates of work.

Due Date: No later than at the end of month 1 of the contract period.

Acceptance Criteria: Signoff after discussions with the SYCL Working Group that the outline is technically acceptable and that the plan is feasible and practical.

- ### 4.3 Three deliverables each containing content updates for roughly ⅓ of the content as pull requests against the Khronos GitHub repository

The content update shall be provided through pull requests against the repository
https://github.com/KhronosGroup/SYCL_Reference. The working group prefers multiple smaller pull requests as opposed to few large pull requests, to make reviews faster and more responsive.

Due Date: As accepted during deliverable 4.2 (schedule of content delivery).

Acceptance Criteria: Approval and merging of all pull requests after SYCL working group review. SYCL working group review will possibly include requests for changes or clarifications, which must be addressed in the PR before approval and merging. At the end of the project, content coverage of 100% of APIs and language features from the SYCL specification must be achieved in the SYCL reference, and there must be no coverage of APIs or language features that are not in the SYCL specification (for example SYCL 1.2.1 features that were removed in SYCL 2020).

5. Schedule and Budget

Khronos has an upper budget limit of US$60,000 for this project and expects work to be complete within six months of project initiation. Higher bids than the limit may be considered if sufficient justification is provided, such as enhanced deliverables providing additional value.

The payment for this project shall be monthly with 60% of the total paid evenly over the contracted duration. The remaining 40% is paid evenly over each of the four deliverables. Khronos payment cycle is monthly with invoices due by the 5th of the month.

6. Selection Process

Khronos shall designate a Khronos RFP Manager and will use an RFP email list (sycl_reference_rfp@lists.khronos.org) that can be used to contact the RFP Manager and all other Working Group members involved in the bid selection process. No member making a bid shall be on the RFP list. Any company considering making a bid in response to the RFP should notify the RFP list as soon as possible. Any potential bidder may request additional information and submit questions directly to the RFP manager or on the RFP email list. Any additional Khronos information and RFP clarifications will be distributed equally to all potential bidders.

All bidders should provide the following information in the format and written media of their choice:

● Proposed schedule, assuming work starts on 10 July 2023.

● Confirmation that if your bid is accepted, you are willing to work under the terms of the Khronos Contractor Agreement[2].

● Any issues or risk factors that they wish to highlight.

● Supporting materials, including background materials about their company, highlighting experience and expertise relevant to this project.

RFP responses are requested by 6am PDT on Monday, 12 June 2023 and shall be sent to the RFP list. Bidders may update their bid as they wish before the submission deadline. In exceptional circumstances a requested submission deadline extension may be issued to all bidders at Khronos' discretion. All bids must be good until at least 10 July 2023.

Khronos will evaluate all bids and select the winning bid based on proposed features, budget, schedule, relevant experience, and expertise. Extra consideration will be given to bids that can complete the work by 1 November 2023.

Khronos expects to announce the selected bid three weeks after the submission deadline and will immediately notify all bidders and enter into contract negotiations with the selected bidder to finalize deliverables and payment schedule. In the case contractual agreement cannot be reached, Khronos may select an alternative bidder and re-enter negotiations.

Work can start immediately when the contract is negotiated and executed by both parties.

7. Contractors Agreement

The selected contractor will be required to execute the Khronos Contractors Agreement with Milestones and Costs entered into Exhibit B and Contractor Disclosures entered into Exhibit C.

No work shall begin, and Khronos shall be liable for no costs or expenses, until the selected contractor is in receipt of a mutually executed Contractor's Agreement.

It is important that contractors understand that, under the terms of the Contractors Agreement, Khronos will assess progress on a regular basis and reserves the right to terminate or renegotiate the contract in the event of insufficient progress or other issues.

8. References

[1] SYCL Registry https://register.khronos.org/SYCL

[2] Khronos Contractors Agreement https://members.khronos.org/document/dl/23303

[3] Previous SYCLreference source repository https://github.com/KhronosGroup/SYCL_Reference/