

Math Special Interest Group

April 24, 2024

Agenda

- Discussion on sparse BLAS APIs - Romain Biessy
- Updates from last meeting - Sarah Knepper
 - oneMKL Interfaces open source
 - oneMKL Specification
- Brief discussion on buffer APIs - Sarah Knepper

oneMKL Interfaces Open Source Project

- Need to move <https://github.com/oneapi-src/oneMKL> to LF/UXLF ownership
 - Proposal: <https://github.com/onemkl-project/oneMKL-sycl-interfaces>
- oneMKL interfaces v0.4 was released! Notes listed [here](#)
- [UXL Foundation Slack #onemkl](#) channel
- UXL Open Source Working Group created [open source checklist work package](#) to ensure best practices are used in oneMKL interfaces and other open source projects

oneMKL Specification

- The <https://github.com/oneapi-src/oneAPI-spec> repo was moved to <https://github.com/uxlfoundation/oneAPI-spec>
- [PR #522](#): [oneMKL][spblas] Update sparse blas API
 - Update the sparse BLAS API to better support other sparse backends
- [PR #525](#): [oneMKL][RNG] Fixed some bugs for oneMKL RNG device API
 - Remove constructors with `std::initializer_list` for `mcg31m1` and `mcg59` generators
- [Issue #524](#): [oneMKL] Consider avoiding references for SYCL objects

Brief Discussion on Buffer APIs

- Currently oneMKL Spec supports both USM (Unified Shared Memory) and Buffer (`sycl::buffer`) APIs
- Buffers have some limitations USM doesn't, including
 - Can't take sub-buffer of a sub-buffer
 - Group batched APIs for BLAS and LAPACK are only supported for USM
- NVIDIA and AMD libraries natively support only a USM-like interface
- No known customer usage of buffer APIs in Intel oneMKL product
- Proposal: Deprecate/remove buffer APIs from oneMKL spec
 - Sarah can craft an RFC, but wanted initial feedback first

Upcoming UXL Webinar!

- Live webinar on April 30th, 8am Pacific
- This webinar will answer the questions:
 - What are the UXL Foundation focus areas?
 - What is the oneAPI Specification?
 - What target markets are specific companies targeting for solutions based on oneAPI?
 - What open source project momentum is there and where can we learn more?
- [Register here](#)

Resources

- Unified Acceleration Foundation: <https://uxlfoundation.org/>
- GitHub for UXL Foundation: <https://github.com/uxlfoundation/foundation>
- Latest release of oneMKL Spec (currently 1.3): <https://spec.oneapi.com/versions/latest/elements/oneMKL/source/index.html>
- GitHub for oneAPI Spec: <https://github.com/uxlfoundation/oneAPI-spec>
- GitHub for open source oneMKL interfaces (currently BLAS, RNG, LAPACK, DFT, and sparse BLAS domains): <https://github.com/oneapi-src/oneMKL>
- [UXL Foundation Slack](#) [#sig-math](#) [#onemkl](#) channels