



# CUB

## API Reference

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# CUB Overview

CUB provides state-of-the-art, reusable software components for every layer of the CUDA programming model:

- ▶ **Parallel primitives**
  - ▶ Warp-wide "collective" primitives
    - ▶ Cooperative warp-wide prefix scan, reduction, etc.
    - ▶ Safely specialized for each underlying CUDA architecture
  - ▶ Block-wide "collective" primitives
    - ▶ Cooperative I/O, sort, scan, reduction, histogram, etc.
    - ▶ Compatible with arbitrary thread block sizes and types
  - ▶ Device-wide primitives
    - ▶ Parallel sort, prefix scan, reduction, histogram, etc.
    - ▶ Compatible with CUDA dynamic parallelism
- ▶ **Utilities**
  - ▶ Fancy iterators
  - ▶ Thread and thread block I/O
  - ▶ PTX intrinsics
  - ▶ Device, kernel, and storage management

The full CUB documentation is available on GitHub. See [CUB](#).

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