Sorting Networks

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Sorting

- Sorting is a critical operation in computer systems.
  - In numerous application domains, sorting is an indispensable part of applications with or without the knowledge of users.
- Sorting algorithms have been extensively investigated during the entire era of computer science.
- The exponential increase in data volumes drives the search for efficient, faster, and parallelized sorting algorithms.
- Algorithms that previously were impractical or inadequate have re-emerged with the development of new technologies.

Use Cases - General

- Sorting is a very important process used within larger applications and systems.
- A set of sorted items makes many problems easy. Consider the following processes:
  - *Searching*
  - *Closest pair*
  - *Element uniqueness*
  - *Frequency distribution*
  - *Selection*
  - ….

Use Cases - Maxeler

- Network sorting on Maxeler has little direct applications;
- However, the use of network sorting for the data that already exists in the Maxeler system may be extremely useful:
  - for example, data used by other application processes or algorithms that run on the Maxeler system, which must be sorted for any reason.
- By obtaining solutions to one or more of these problems and challenges, significant improvements in numerous applications that require sorting may be possible.