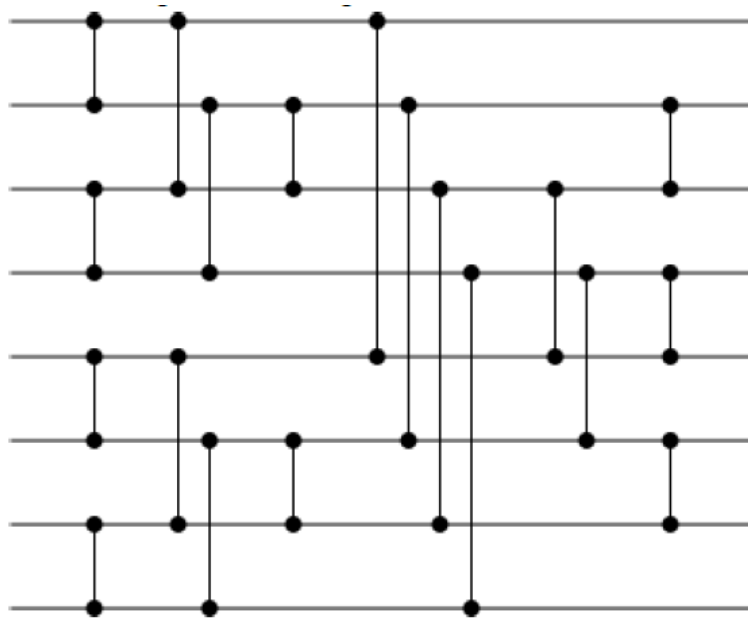
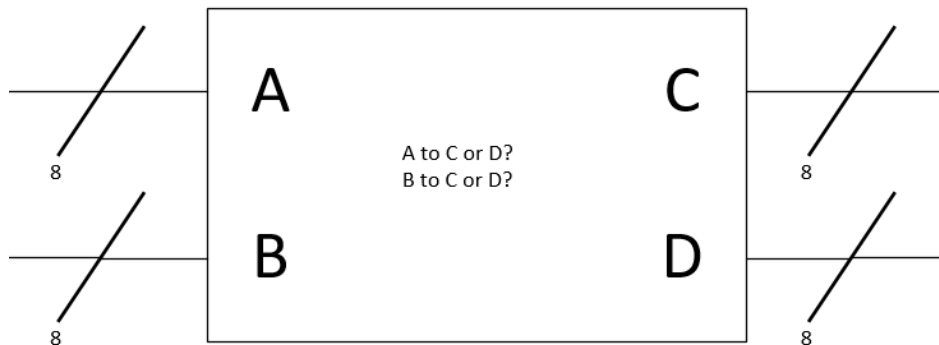


1. Implement a sorter with the following specifications:

- 8 inputs
- 8 outputs
- Datapath size is 8 bits. No negative numbers, 0 to 255 only.
- Combinational logic for muxes and comparators
- Base it on the image below. This is the Batcher sorting network.
- Build it using modular design



2. Before coding it, provide a block diagram of a single block.



3. N/A.
4. To sort 4 inputs, only 5 comparators are needed instead of 19.
5. The number of comparators grows exponentially.
6.
  - a. 5.
  - b. Bitonic uses 24 comparators, batcher uses 19.
  - c.
    - i. 24 cycles.
    - ii. 6 cycles.
    - iii. 4x faster in hardware.
7. No because some sorting algorithms are faster on hardware.
8. N/A.