Operating System (CSC 3150)

Tutorial 9

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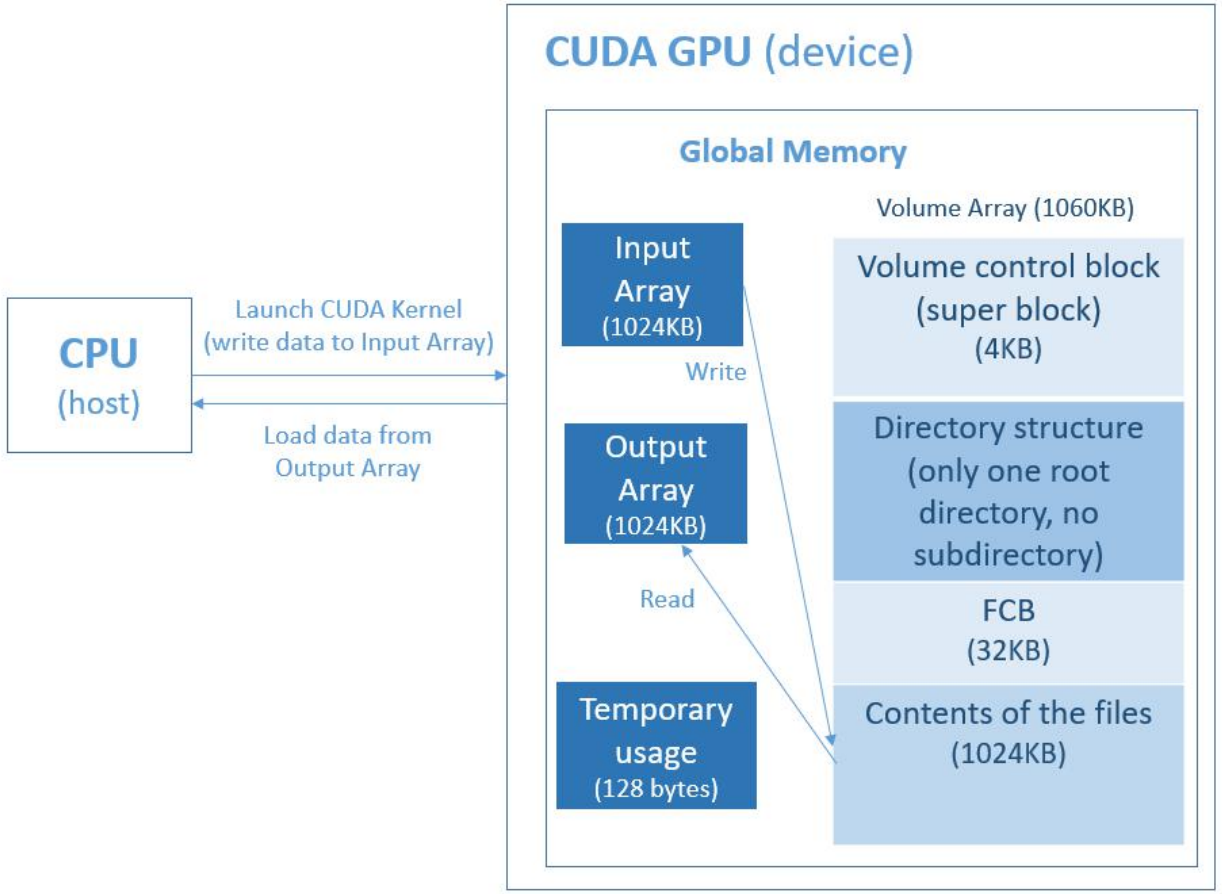
Target

In this tutorial, we will discuss Assignment 4.

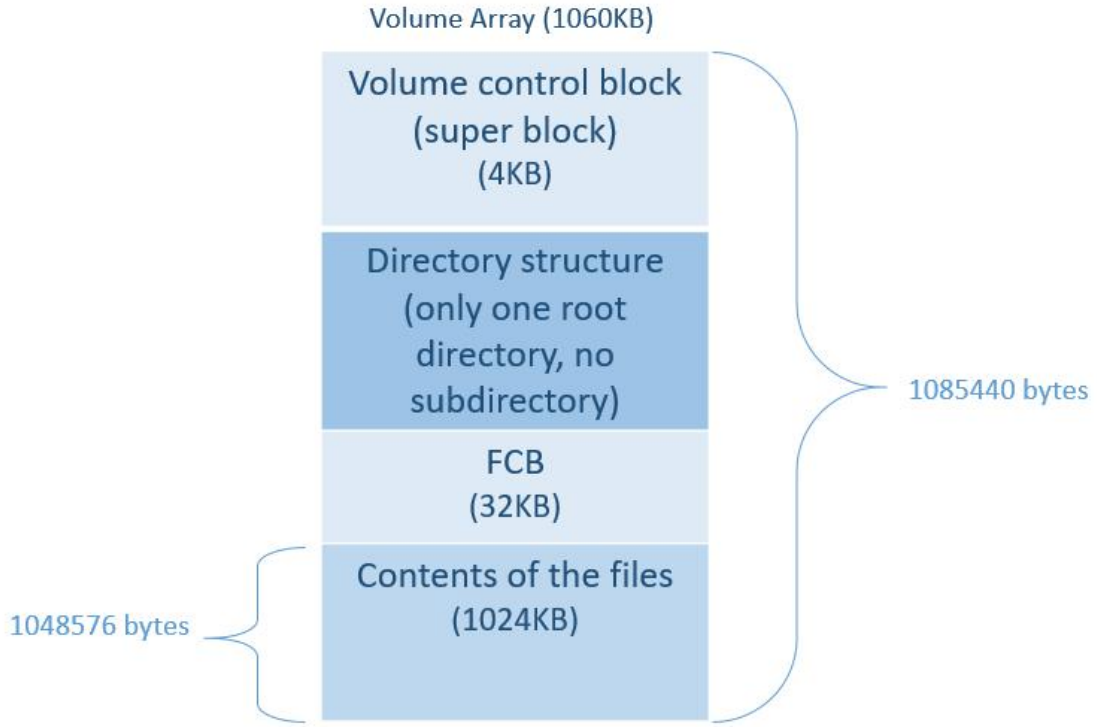
- Assignment 4 Structure
- Assignment 4 Hints
- Q & A

Assignment 4 Structure



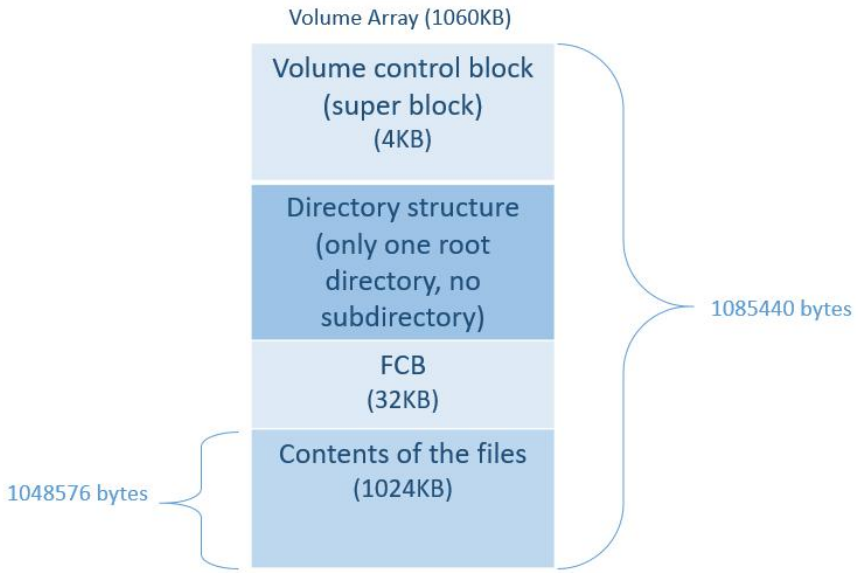
Assignment 4 Structure

- The size of volume is 1085440 bytes
- The size of files total is 1048576 bytes
- The maximum number of file is 1024
- The maximum size of a file is 1024 bytes
- The maximum size of a file name is 20 by
- FCB size is 32 bytes.
- FCB entries is 32KB/ 32 bytes = 1024
- Storage block size is 32 bytes.



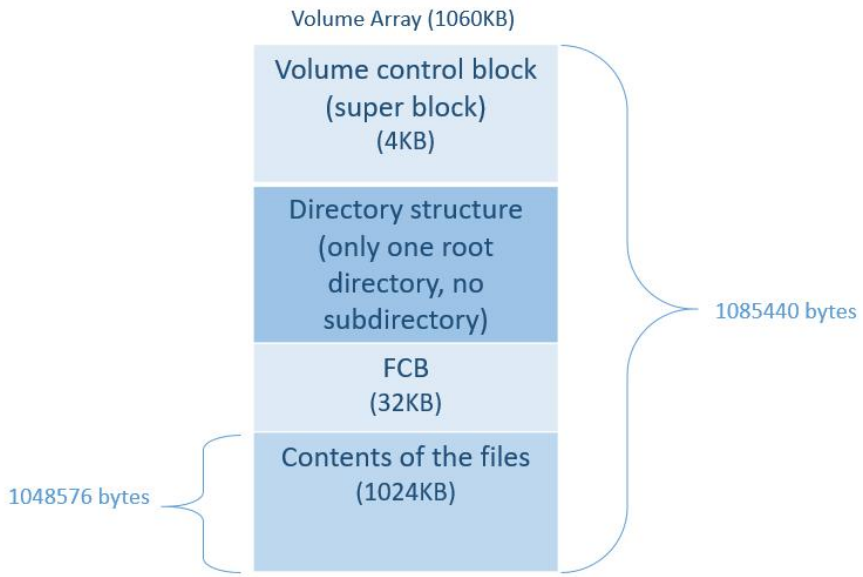
Assignment 4 Hints

- super block
  - For free space management. If using bit-map management, can store bit information in this part.
  - Each bit indicates the storage block is free or not
  - Size: 4KB (4096 bytes, 32768 bits)
  - Think about bit and byte translation.
    (e.g., volume[i] = 2, then it means 00000010)
  - Think about cases that available bits being place in different bytes.
  - Think about the mapping offset for storage block



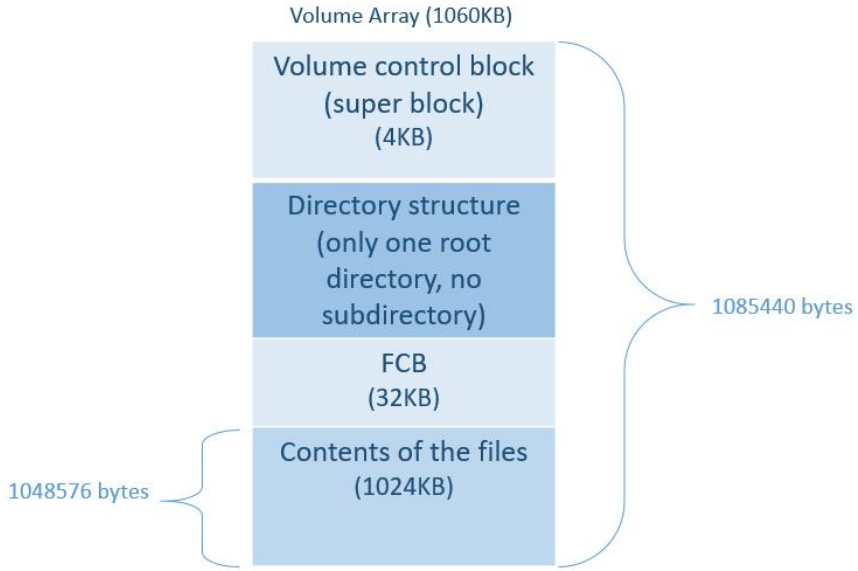
Assignment 4 Hints

- FCB
  - For file attribution information storage.
  - Information you may require: name, size, starting address, modification time etc.
  - Size: 32KB (32768 bytes)
  - File entries: maximum 1024
  - FCB size: 32 bytes
  - Think about how to use 32 bytes to store file information.
  - You may require store information into limited bytes. (calculation hints: %256; >>=8)
  - You may require byte and u32 translation. (calculation hints: data_u32 = data_8[0] + data_8[1]*2^8 + data[2]*2^{16} + data[3]*2^{24})



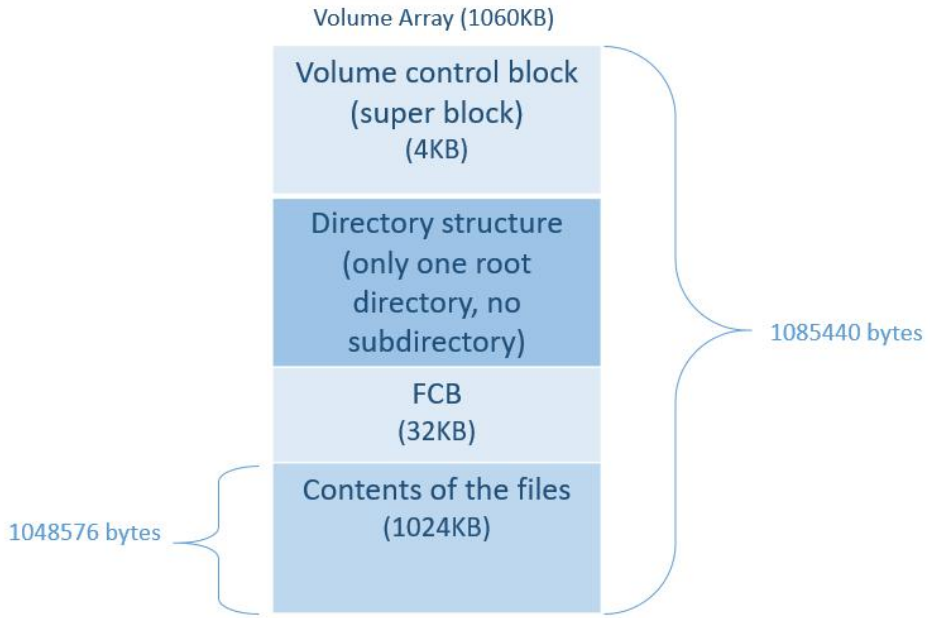
Assignment 4 Hints

- Storage block
  - For data storage.
  - Size: 1024KB
  - Block size: 32 bytes
  - Storage block entries: 32768
  - Maps with super block for free space management.



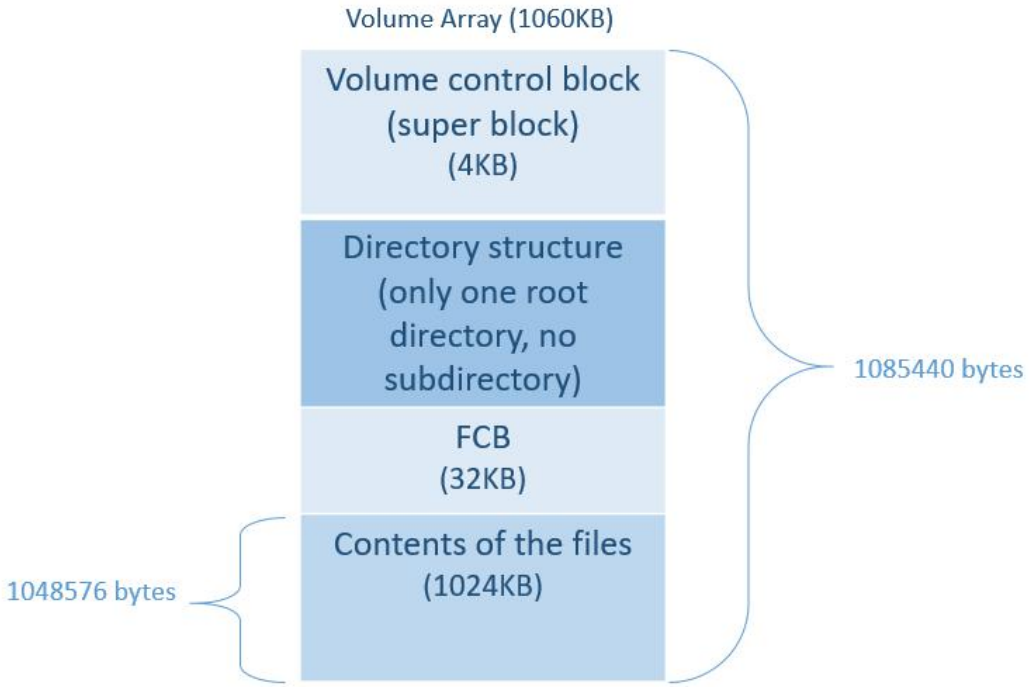
Assignment 4 Hints

- File operation
  - fp is pointing to the address (considered as volume array index) of the fcb of the file.
  - open: find fcb (file space) for existing or non-existed files.
  - write: find free space and dump contents;
    update bit map;
    update fcb information.
  - read: read contents basing on fcb.
  - rm: release file space (update fcb information)
  - ls: base on fp to find file information;
    list by size or modified time.



Assignment 4 Q & A

- Q & A



Thank you