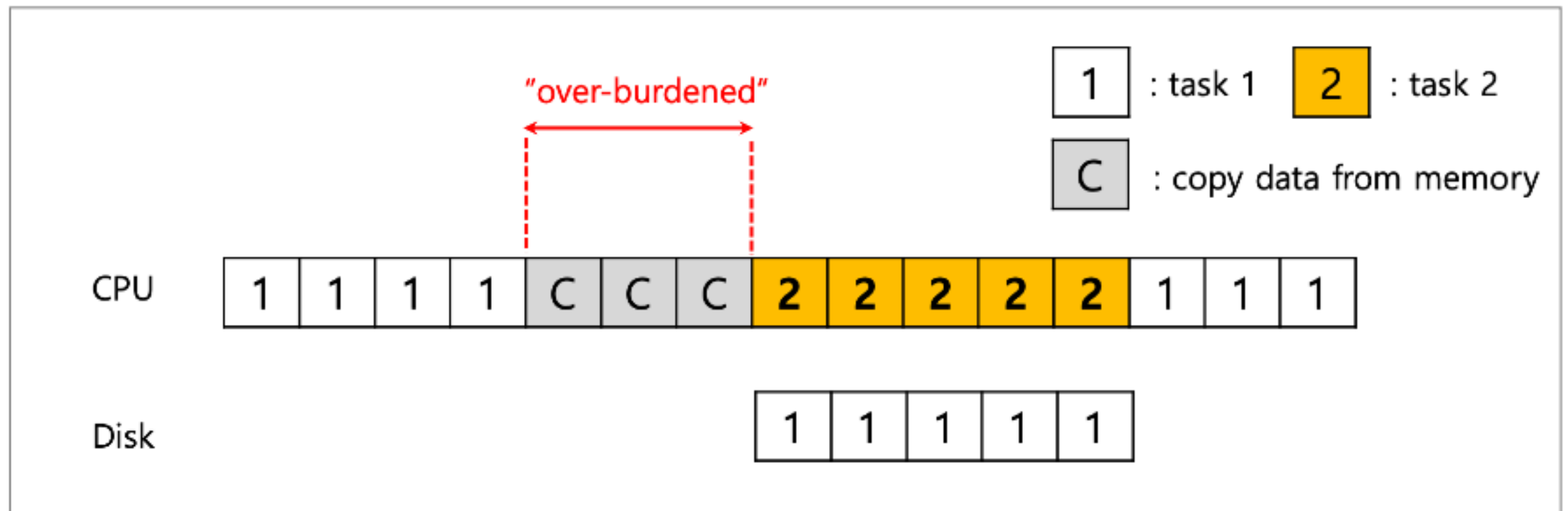


# One More Problem : Data Copying

- CPU wastes a lot of time in copying a large chunk of data from memory to the device



**Diagram of CPU utilization**

# DMA (Direct Memory Access)

- ➔ Only use CPU to transfer control requests, not data, by passing buffer locations in memory
  - Device reads list and accesses buffers through DMA
  - Descriptions sometimes allow for scatter/gather I/O

