Overview of a System

Systems Programming

(CST-210)

Dr. Arka P. Mazumdar

Outline

- **Revisit C Compilation**
- Tour of a Computer System
- Running a C program
- Cache Memory
- Storage Hierarchy
- Operating System Concepts

Revisit C Compilation

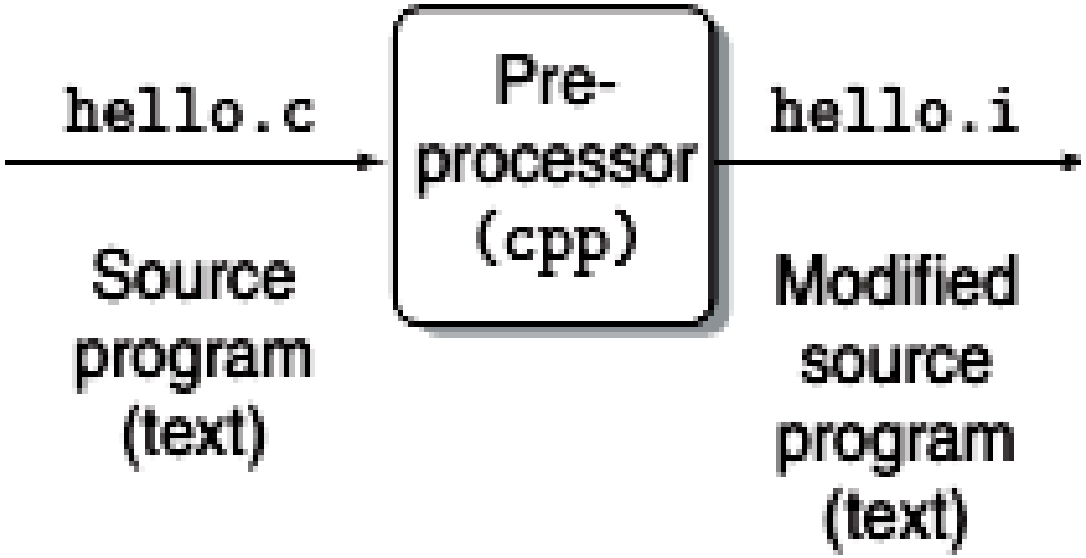
- A very simple C program:

```
#include<stdio.h>
void main() {
    printf("Hello World \n");
}
```

- We stored the program in ***hello.c***

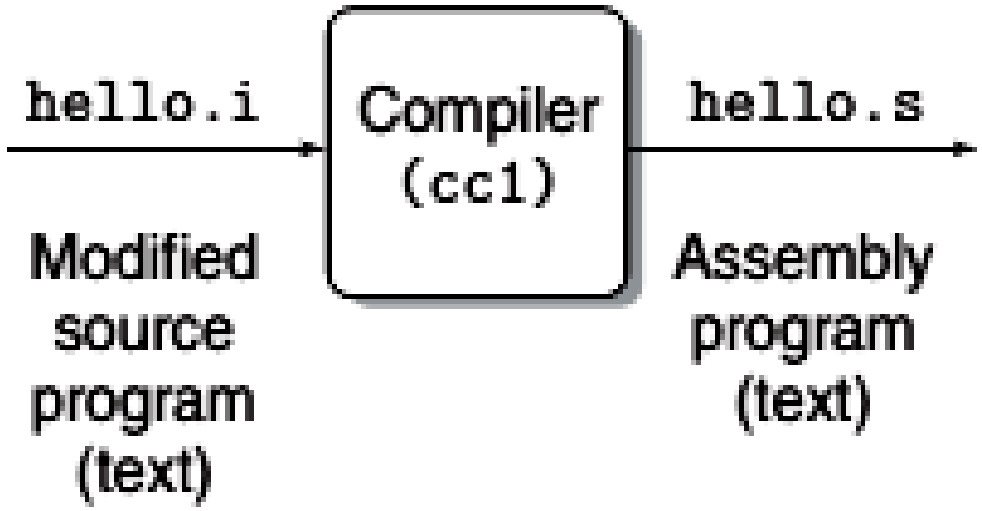
Revisit C Compilation (contd.)

- STEP 1:



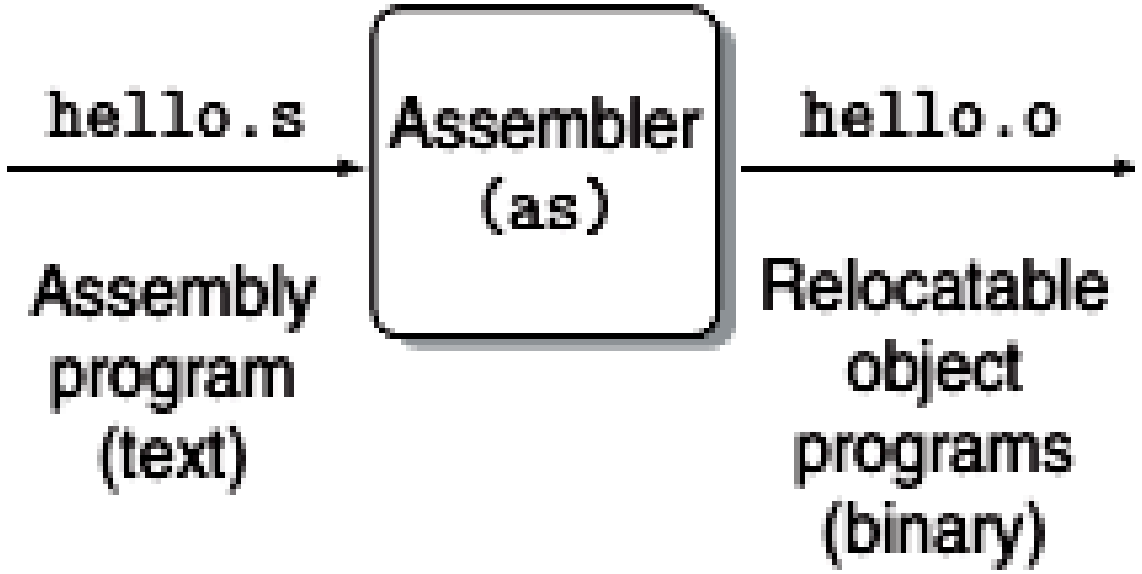
Revisit C Compilation (contd.)

- STEP 2:



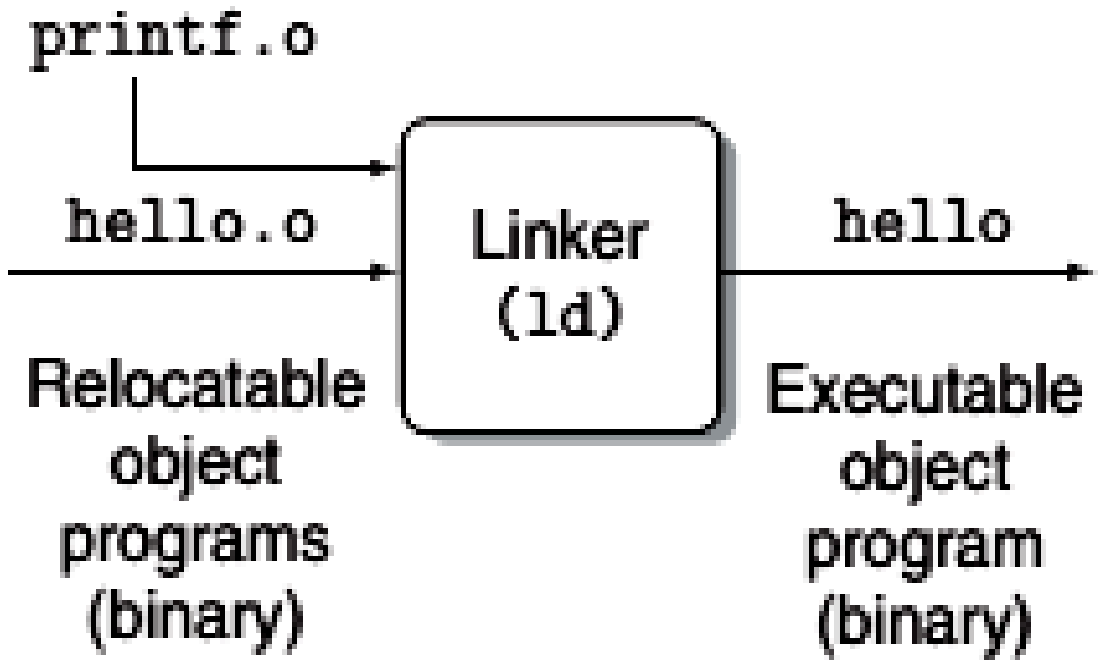
Revisit C Compilation (contd.)

- STEP 3

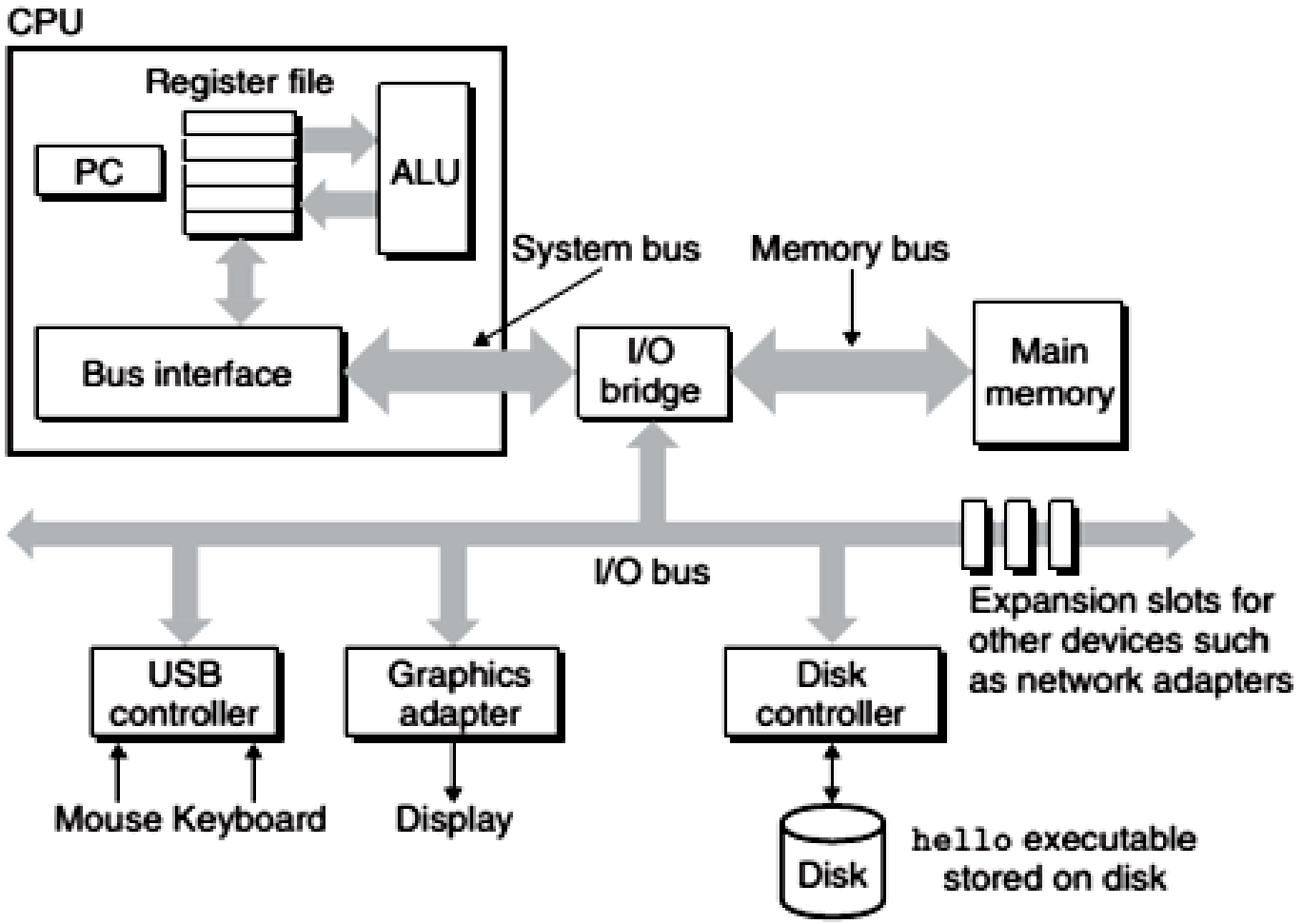


Revisit C Compilation (contd.)

- STEP 4:



Tour of a Computer System



Running a C program

- Compile:

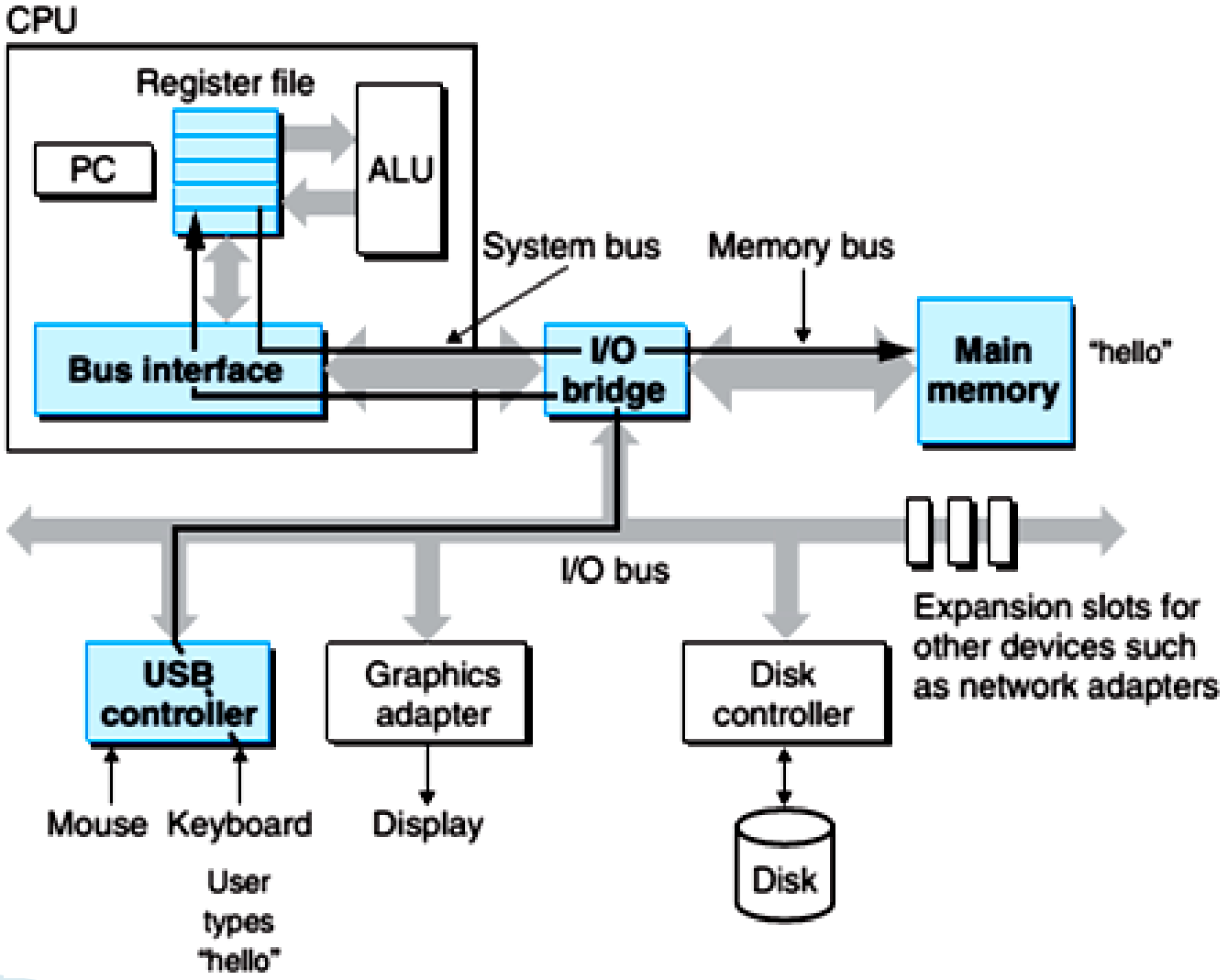
  $ **gcc –o hello hello.c**

- Run

  $ ./hello
  Hello World
  $ _

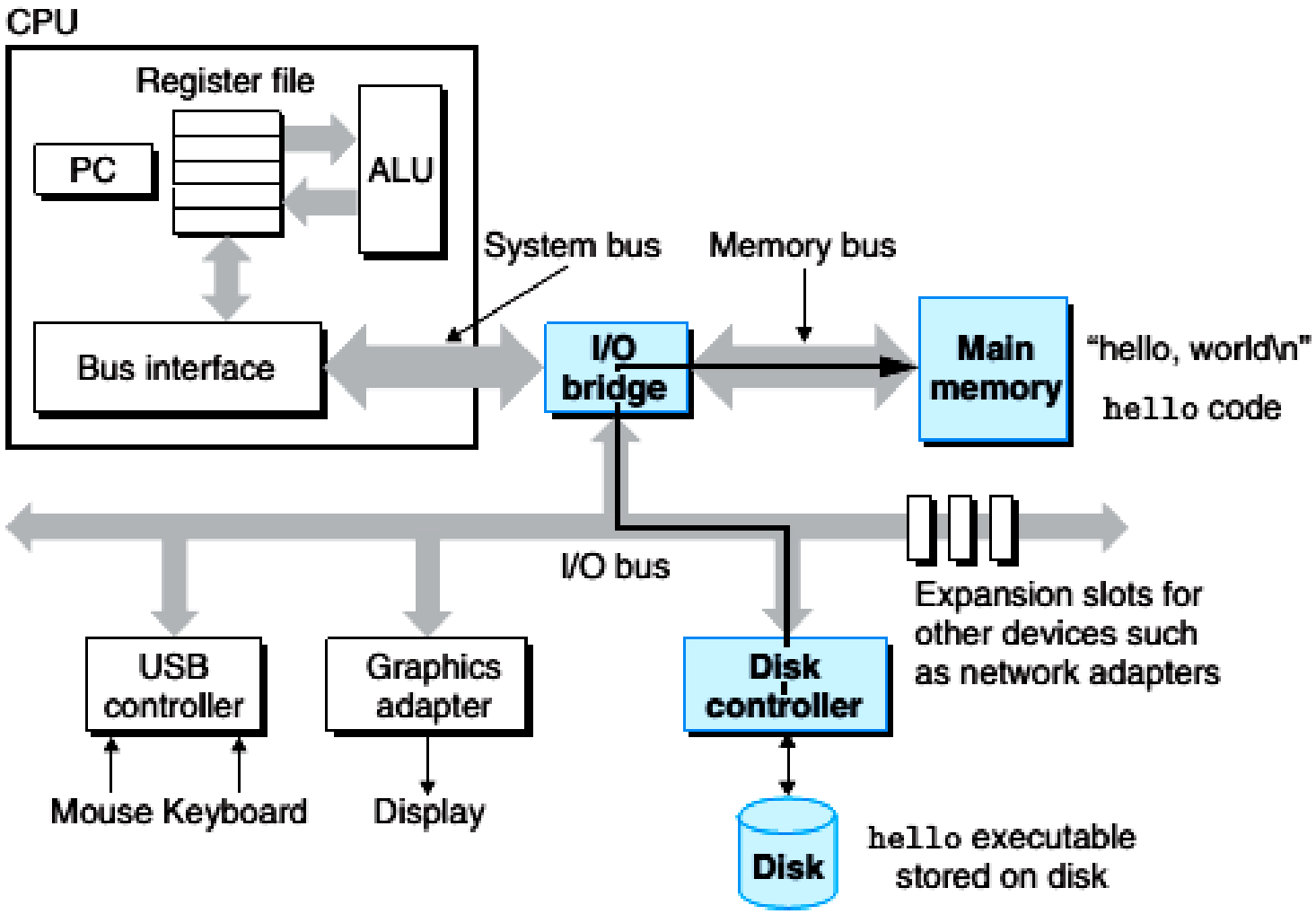
Running a C program (contd.)

- Reading **./hello**



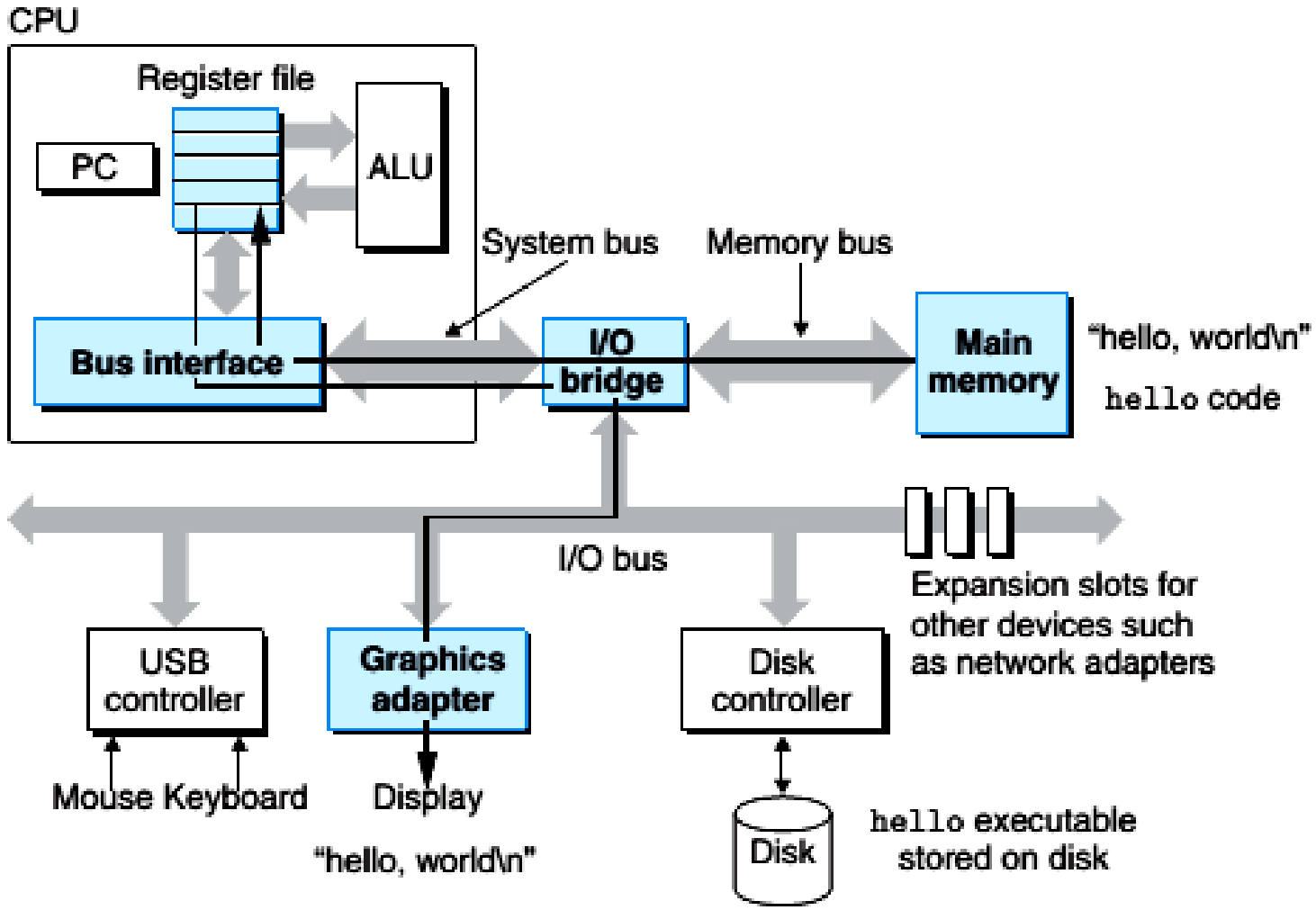
Running a C program (contd.)

- Loading the executable

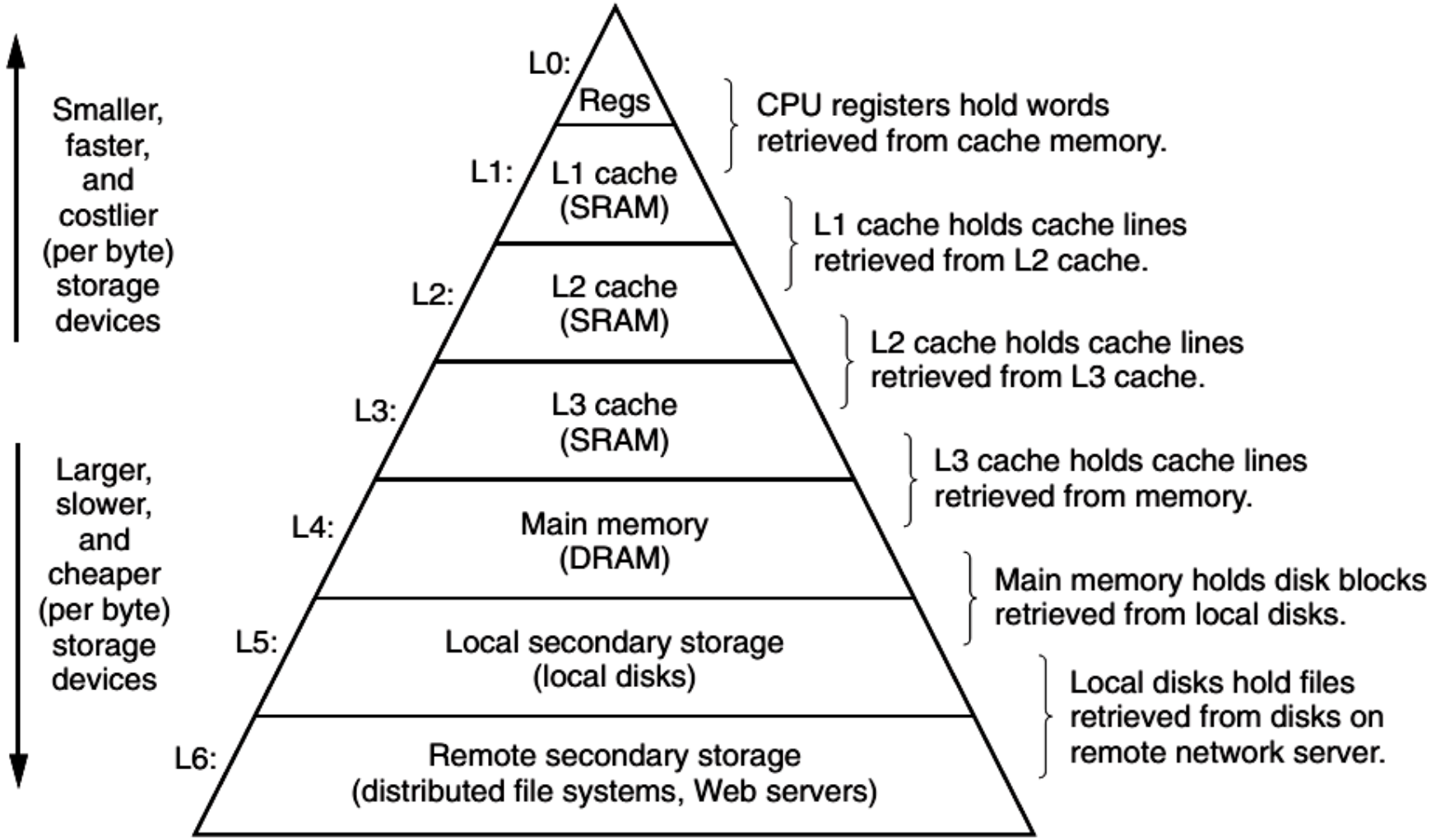


Running a C program (contd.)

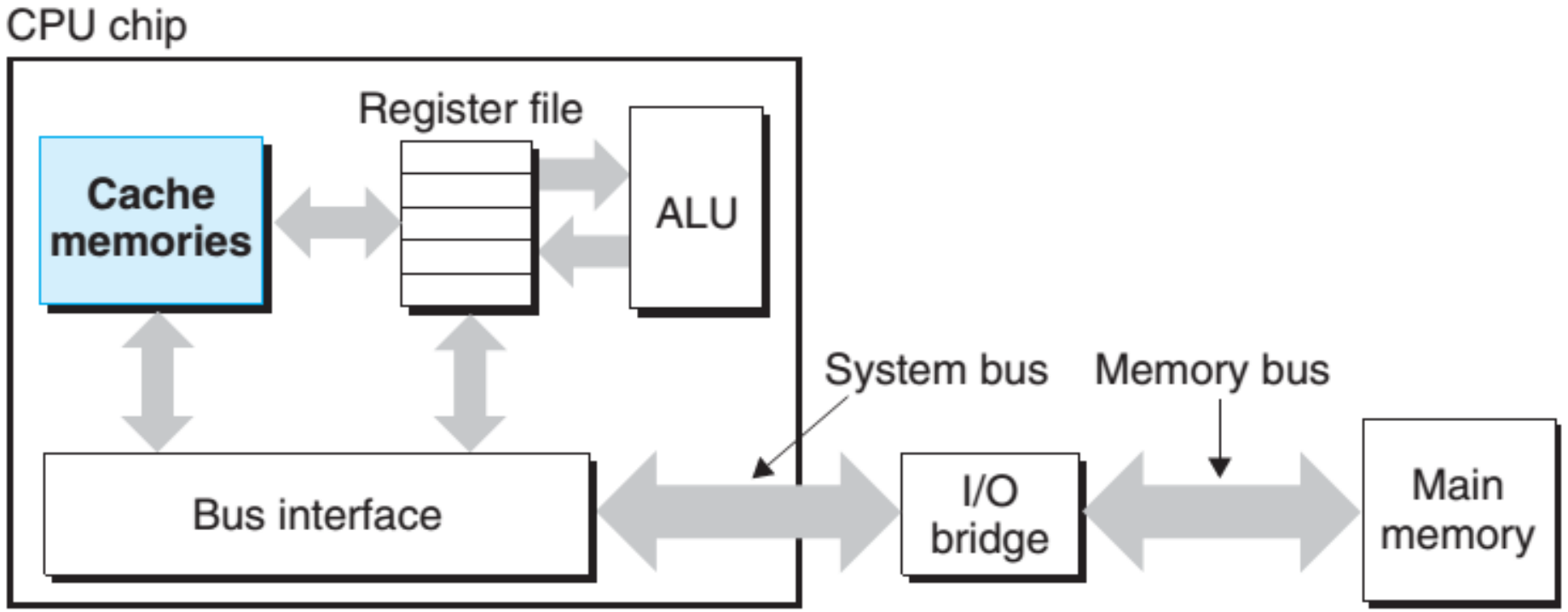
- Writing output “String”



Storage Hierarchy

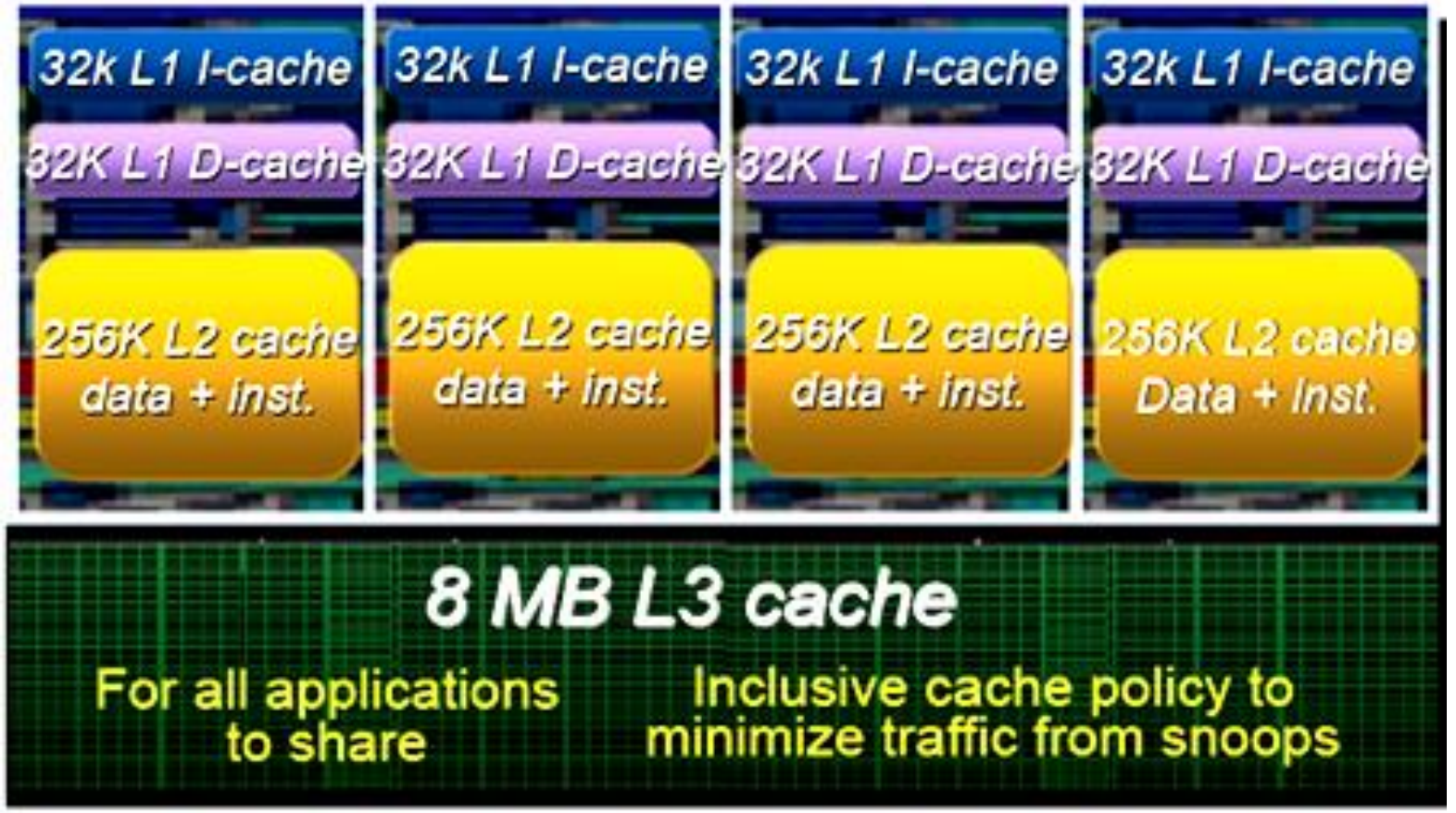


Cache Memory



Cache Memory (contd.)

- Intel Core i7



Cache Memory (contd.)

- Cache: L1
  - As fast as the Registers
- Cache: L2
  - 5-10 times faster than main memory
- Cache: L3
  - About 2-times faster

- All types are implemented using SRAM