

Bowdoin

A Brief Tour

CSCI 2330



A Brief Tour

- Information is bits + context
- Programs & Compilation
- Hardware Organization
- Memory, Storage and Cache
- Operating System

Information: bits

```
#include <stdio.h>
```

```
int main() {  
    printf("hello world\n");  
    return 0;  
}
```

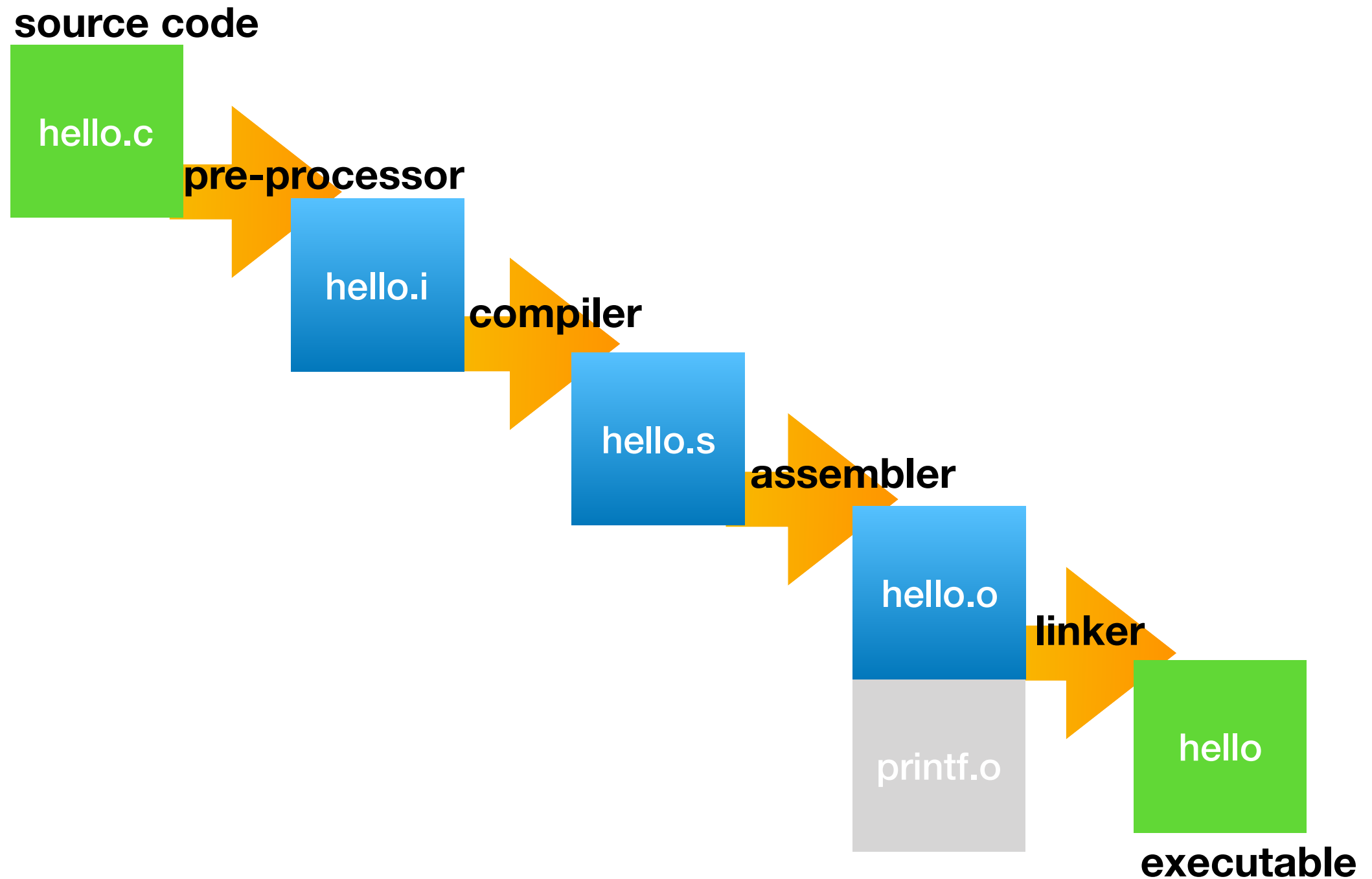
Information: bits

```
#include <stdio.h>
```

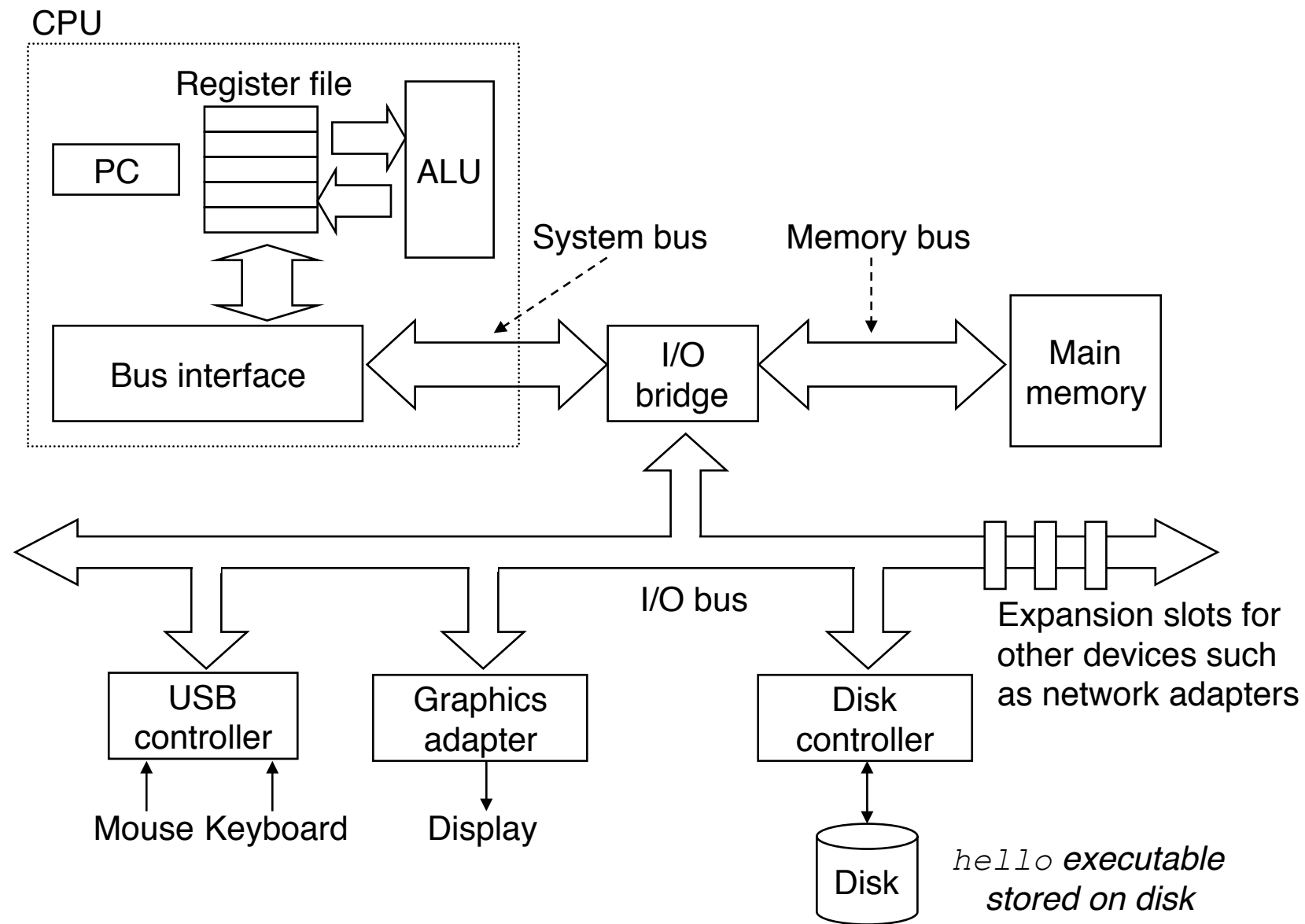
```
int main() {  
    printf("hello world\n");  
    return 0;  
}
```

#	i	n	c	l	u	d	e	sp	<	s	t	d	i	o	.
35	105	110	99	108	117	100	101	32	60	115	116	100	105	111	46
h	>	nl	nl	i	n	t	sp	m	a	i	n	(	)	sp	{
104	62	10	10	105	110	116	32	109	97	105	110	40	41	32	123
nl	ht	p	r	i	n	t	f	(	"	h	e	l	l	o	sp
10	9	112	114	105	110	116	102	40	34	104	101	108	108	111	32
w	o	r	l	d	\	n	"	)	;	nl	ht	r	e	t	u
119	111	114	108	100	92	110	34	41	59	10	9	114	101	116	117
r	n	sp	0	;	nl	}									
114	110	32	48	59	10	125									

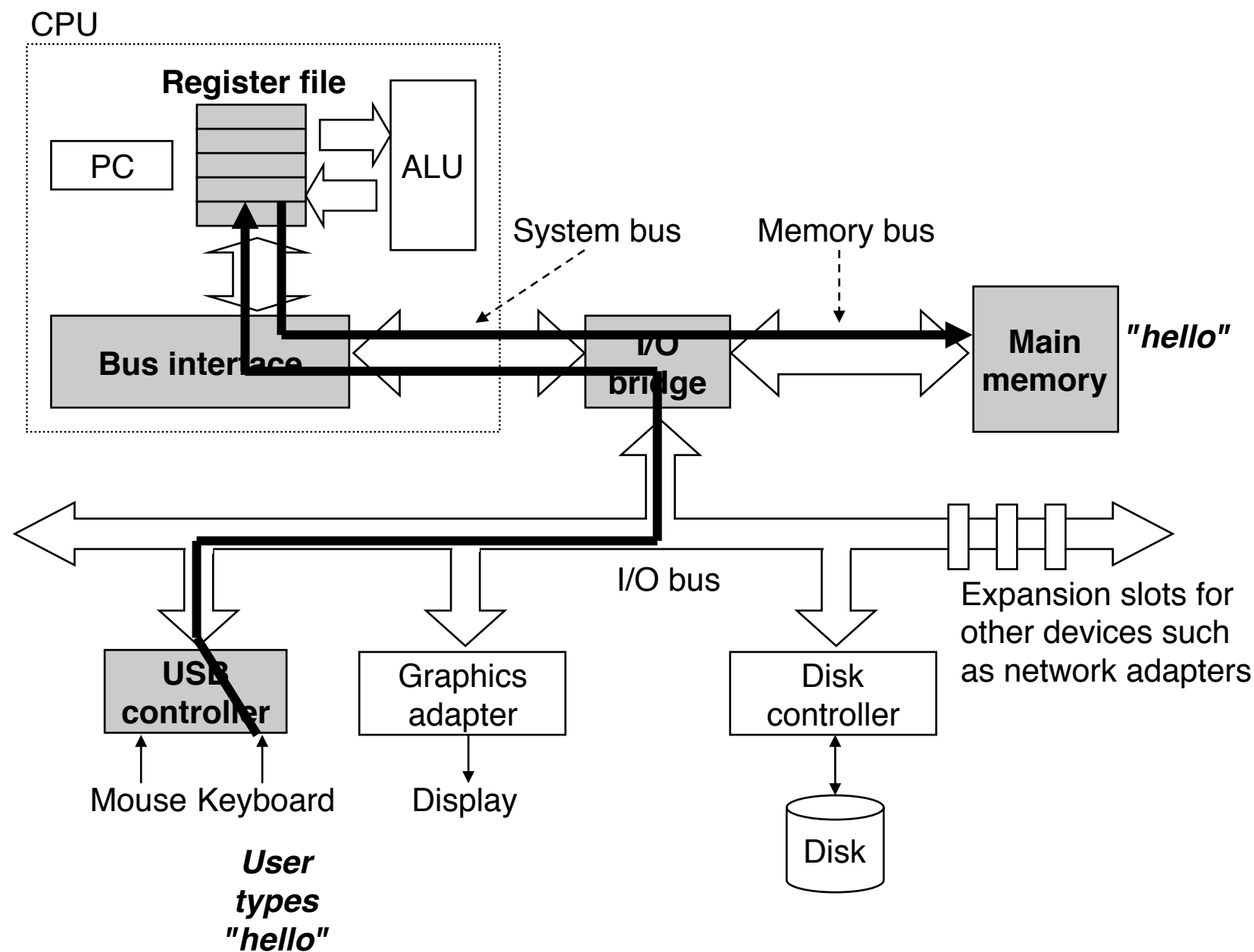
Program Translation



Hardware Organization

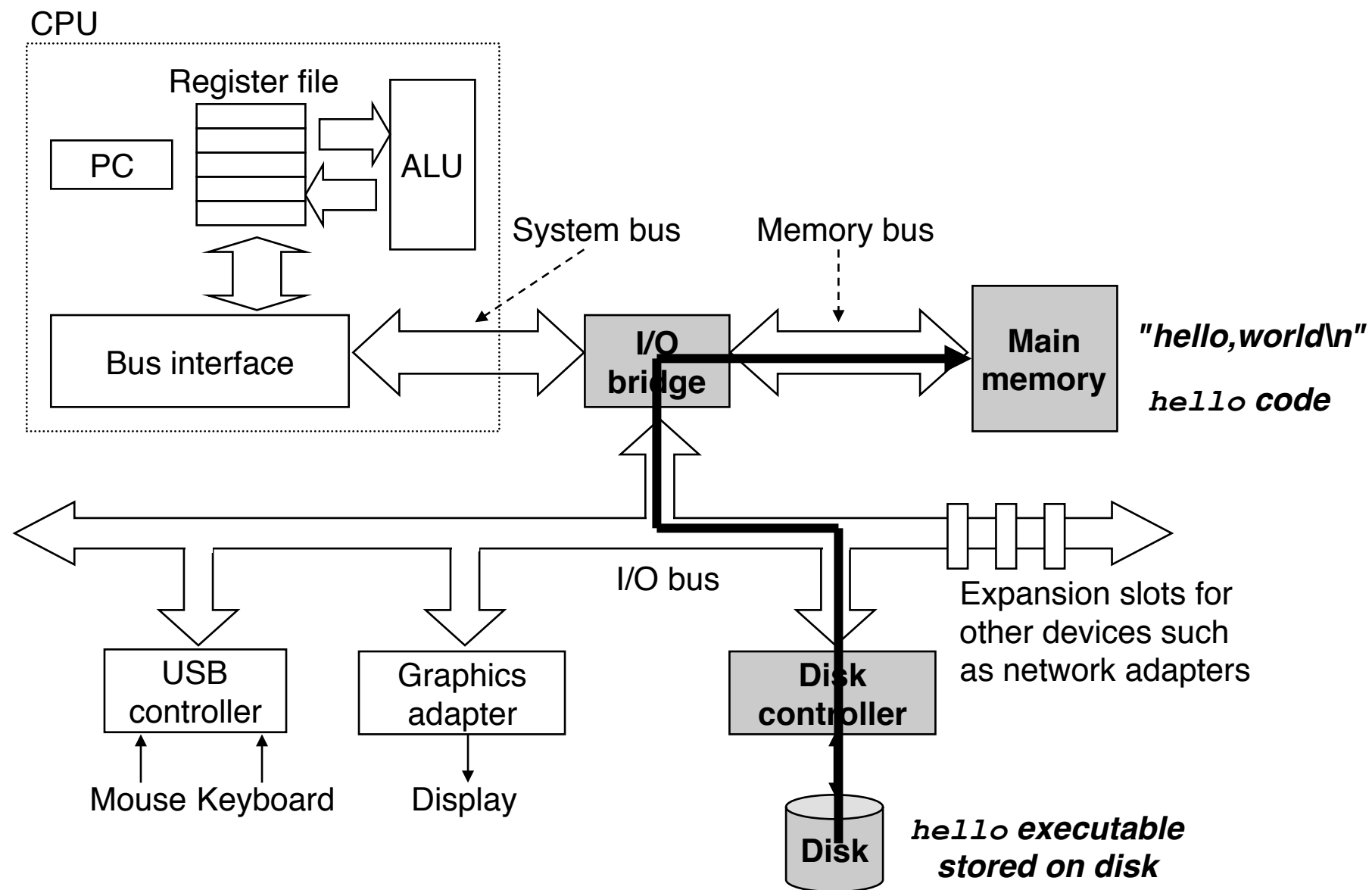


Hardware Organization



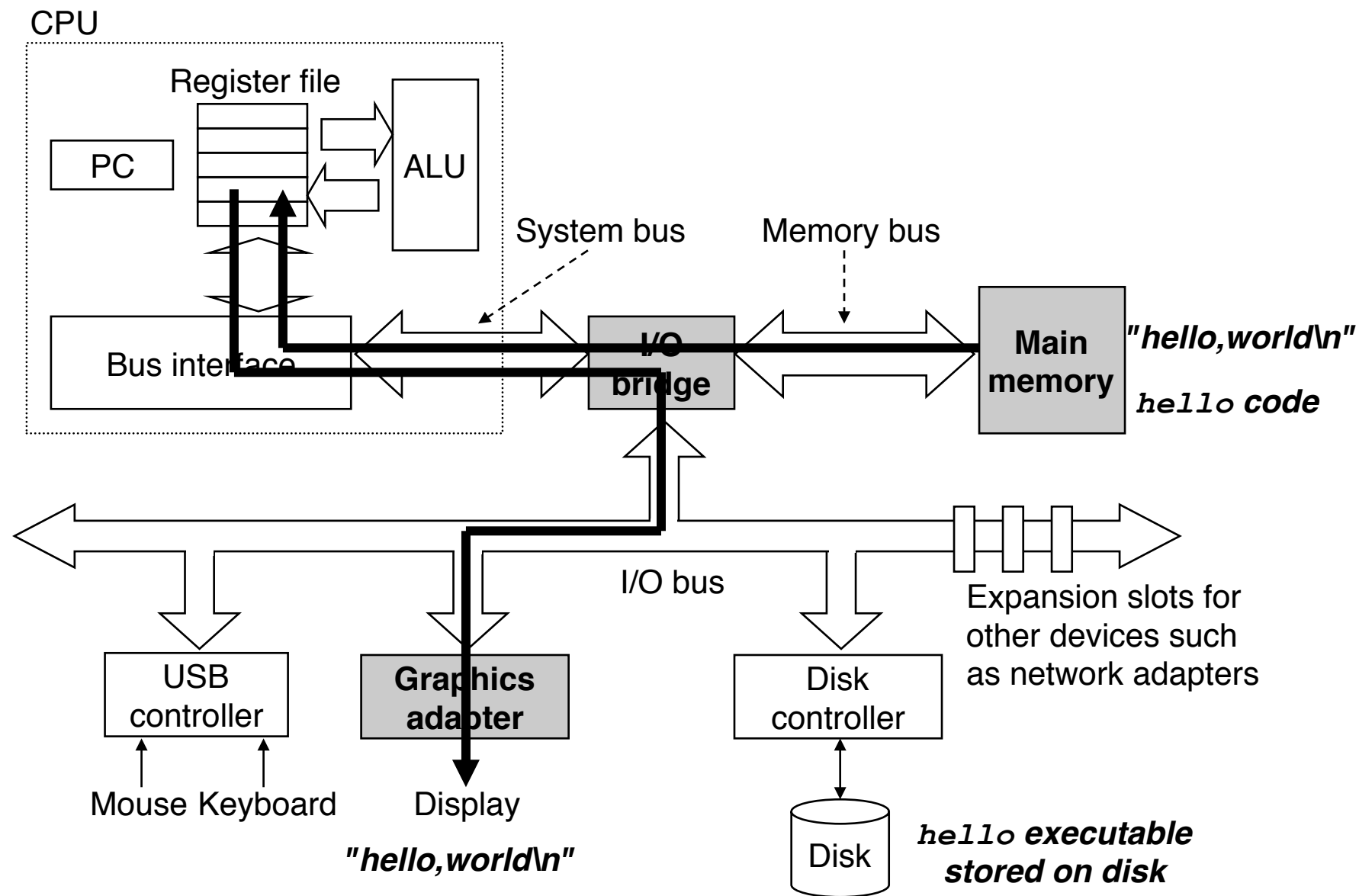
Reading the Command Line

Hardware Organization



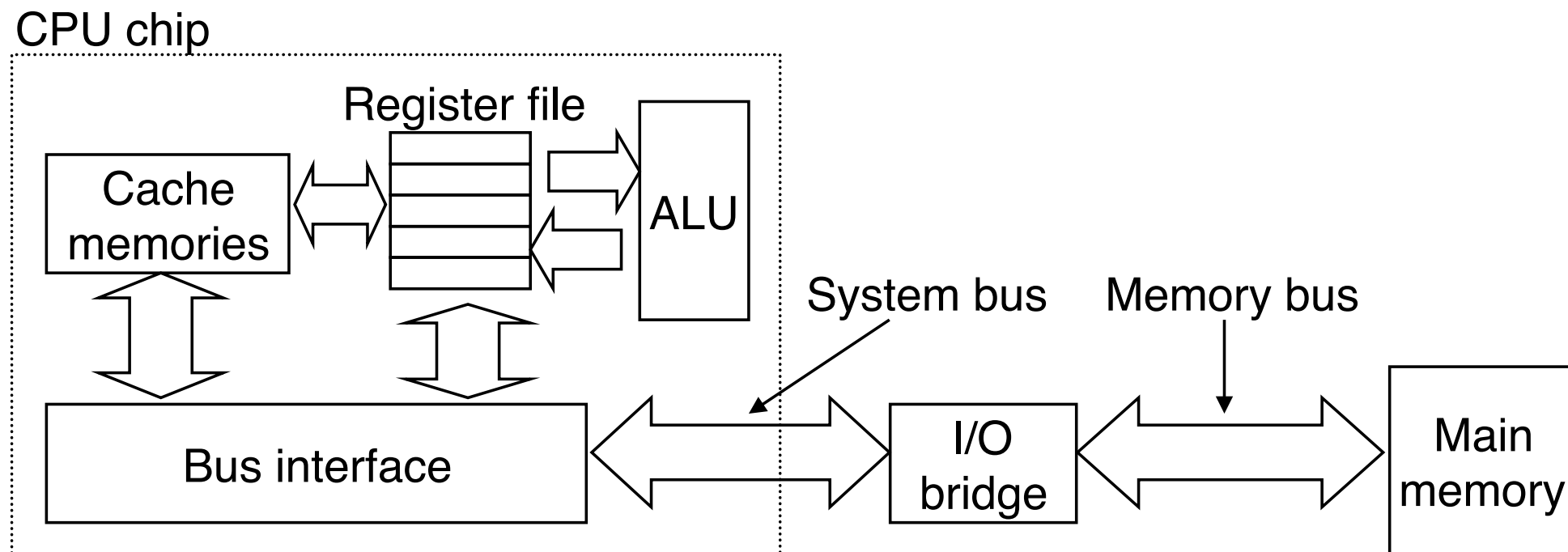
Loading Executable

Hardware Organization



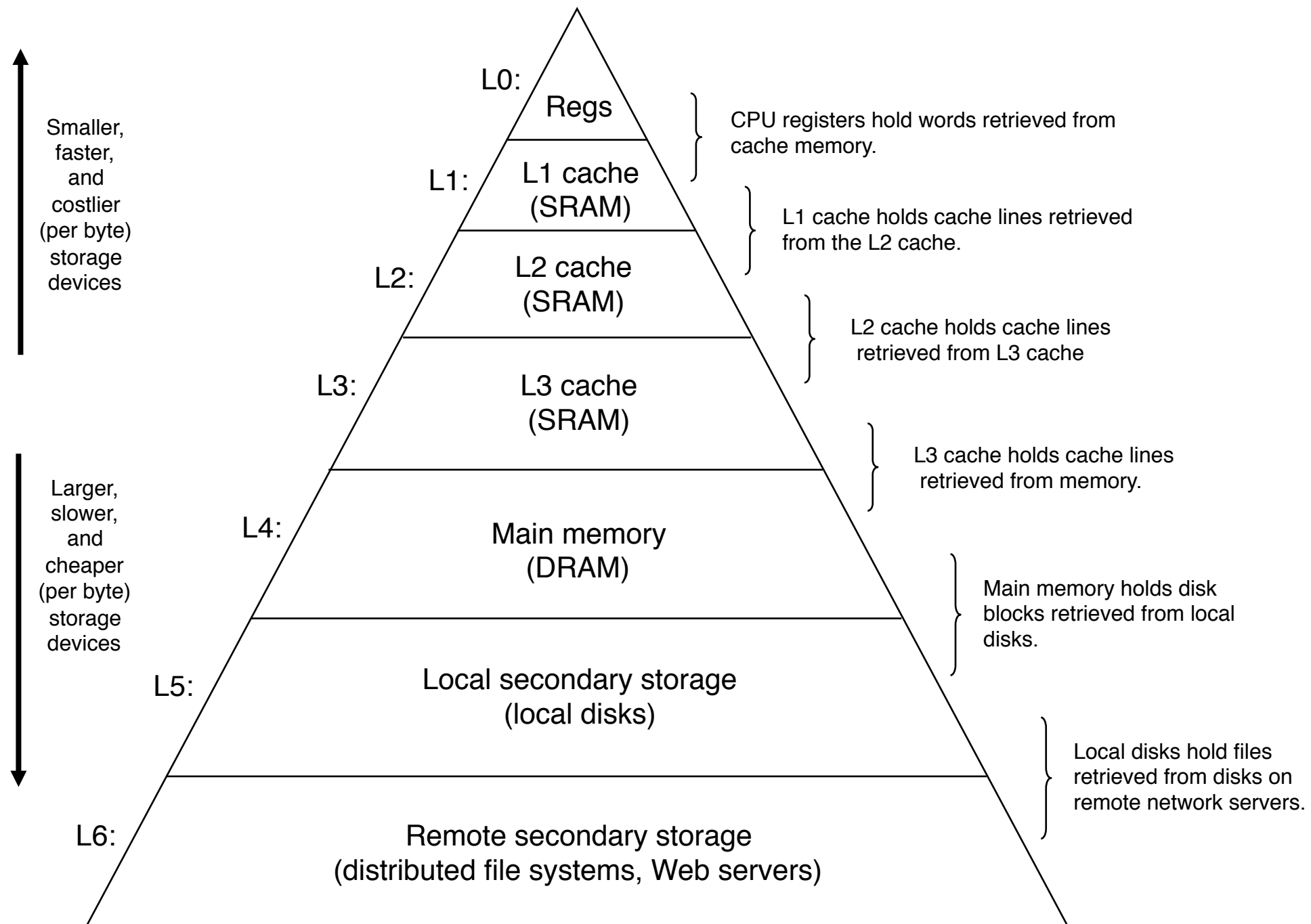
Writing Output

Cache Memory



- “closer” than Main Memory
- Much faster than Main Memory
- Much more expensive than Main Memory

Memory Hierarchy



Operating System

- Layer of software between application and hardware
- Manages hardware and all access to it
- When a program runs it's called a process
 - illusion of having own processor
 - illusion of having own memory
- Manages running multiple processes and threads

Bowdoin

end

