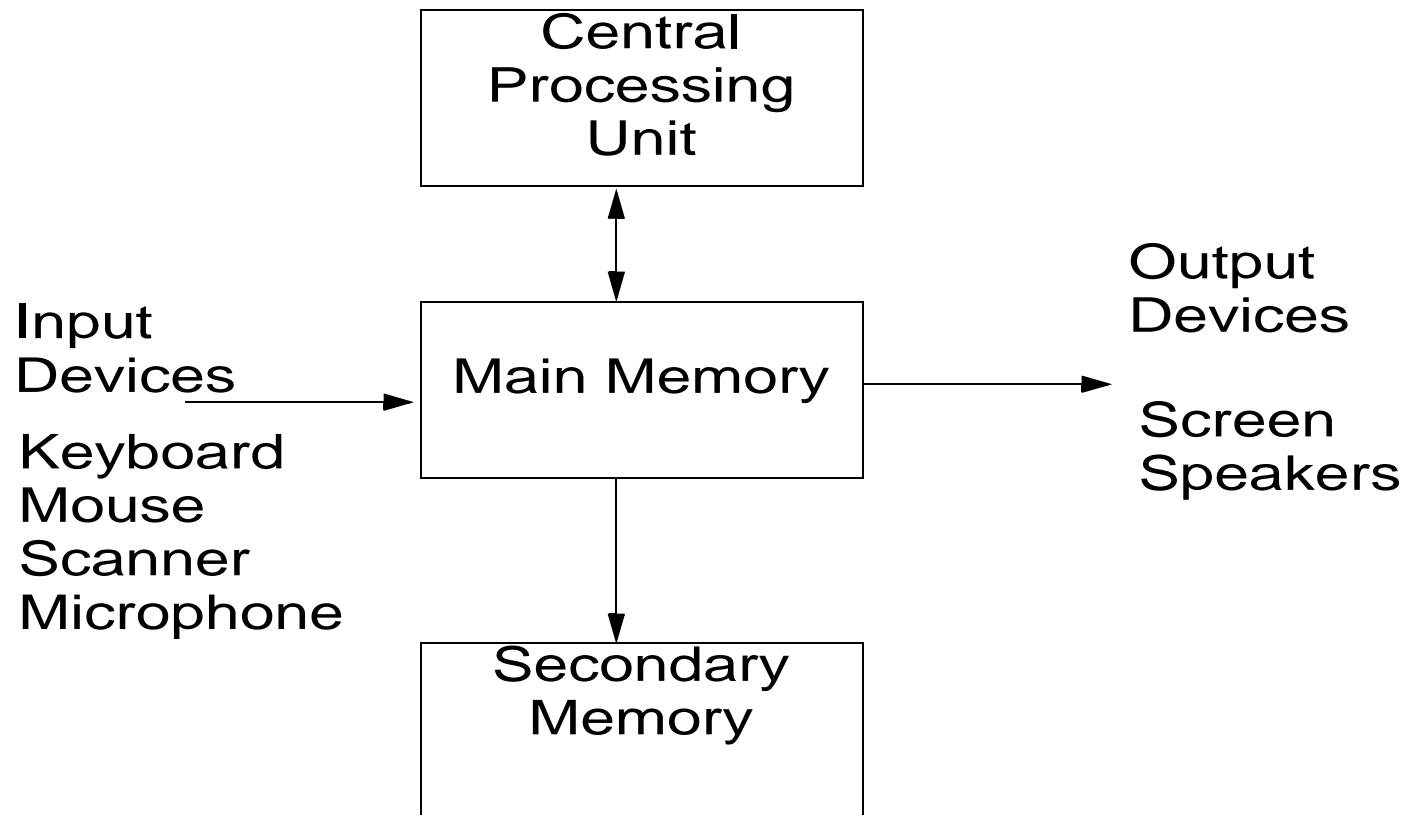


What Is a Computer?



Common Terms

Bit - Binary Digit (0 or 1)

Byte - A Group of (usually) 8 bits.

Address - A location in main memory.

Program Design, Development, and Execution

Specification

Design

Coding / Debugging (Text)

Compiler

Assembly Language (Add X, Y)

Assembler

Machine Language (01101001)

Disk/Secondary Memory

Linker/Loader

Main Memory

Software Life Cycle

Specification and Analysis

Design

Implementation/Coding

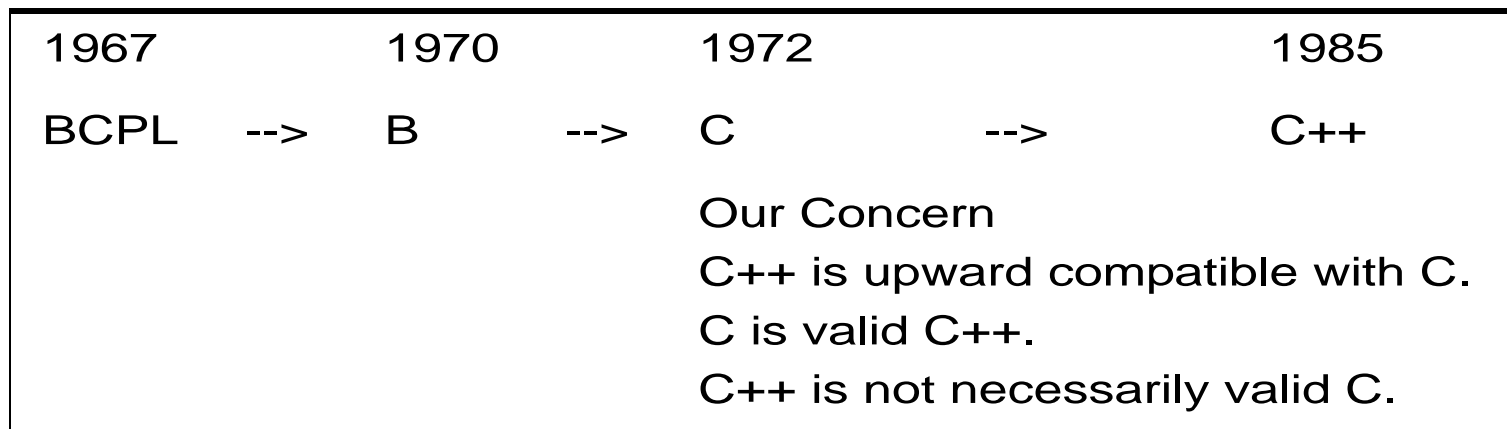
Testing

Maintenance & Re-Engineering

Obsolescence

History of C++

Timeline



The Sample “Hello World” Program

```
#include <iostream>           // For cin and cout -- used for input/output
#include <stdlib.h>           // For EXIT_SUCCESS and EXIT_FAILURE
using namespace std;

int main ( void )
{
    cout << "Hello! I'm a (slightly) experienced C++ Programmer!" << endl;
    return EXIT_SUCCESS;
}
```

Testing and Debugging

Errors in programs are known as bugs

Removing errors from a program is known as debugging

Error Types

Syntax -- Pointed out at compile time

Runtime -- occurs while the program is running

Logic/Semantic Errors -- something is wrong with the way the underlying program is implemented so that it gives an incorrect answer or does something wrong.

Testing

A successful test uncovers an error!

Two basic strategies

- White Box or Glass Box testing

Make sure that every statement in a program is executed and tested. Sometimes also known as path testing since every “path” through the program is tried.

- Black Box testing

Run test cases through the program without knowing the internal structure. Tests against the specification.

Variables

Hold values for later reference or use

Each variable has an identifier or name

Rules for constructing names

- Must start with a letter or underscore
- Remaining characters may be letters, digits, or underscores
- Case sensitive
- May not be keywords or reserved words

Reserved Words / C++

asm	do	inline	return	typedef
auto	double	int	short	typeid
bool	dynamic_c ast	log	signal	typename
break	else	long	sizeof	union
case	enum	mutable	static	unsigned
catch	explicit	namespace	static_ca st	using
char	extern	new	struct	virtual
class	false	operator	switch	void
const	float	private	template	volatile
const_cas t	for	protected	this	vchar_t
continue	friend	public	throw	while
default	goto	register	true	
delete	if	reinterpr et_ast	try	