Introduction
Related Courses

- Computer Programming
- Operating System
- Compiler
- Introduction to Computer Science
- System Programming
- SW
- Hardware
- Algorithm
- Introduction to Digital System
- Computer Architecture and Organization

國立政治大學資科系
SP.Chap1.2
An Overview

- System software?

- System software vs. application software: System software are usually related to the architecture of the machine on which they are to run.

- Some aspects of system software do not directly depend on its host machine.

- Simplified Instructional Computer (SIC)
Systems Programming
Example: Programming

sample.c

Compiler

sample.exe

Loader, Linker & Runtime System

output
Computers
Mother Board

Source: Charles S. Parker, Understanding Computers Today & Tomorrow, Dryden, 1998

CPU CHIP
The CPU chip can fetch data from internal cache, external cache, or RAM.

RAM
RAM is implemented in SIMM boards. The computer turns to RAM when it can’t find what it needs in cache.

EXTERNAL CACHE
External cache resides on fast chips that are located closer to the CPU than regular memory. The CPU looks here if it can’t find the data it needs in internal cache.

INTERNAL CACHE
Internal cache is built right into the CPU chip. The CPU looks here first to find the data it needs.
CPU

CONTROL UNIT
The control unit is the section of the CPU that directs the flow of electronic traffic.

ALU
The ALU is the section of the CPU that performs arithmetic and logical operations.

BUSINES
Bus lines connect parts of the CPU that need to exchange data. They also link the CPU to memory and peripherals.

REGISTERS
Registers are storage areas used by both the control unit and ALU to speed up system processing.

Source: Charles S. Parker, Understanding Computers Today & Tomorrow, Dryden, 1998
Turing Machine

- Tape
- Head
- Table
- State Register