Practical Sheet 5

Computer Components

Aims

Section		Aim
1	Finding Machine Components and Devices	Understand the components used in a PC.
2	Complete a Table of Computer Information	- Find details about the components and devices of the PC using information available on the PC - Lookup further information from the manufacturer's web pages.
3	Command line	Using the command line interface
4	Task Manager	Look at running processes

Related topics

- ***Topic 5.1 Computer Components and Performance***
- ***Topic 5.2 Memory, Caching and the Operating System***

1   Finding Machine Components and Devices – Windows

1. You can use the Windows Device manager. This is accessed from the 'System' icon in the Control Panel. On the 'System Properties' tab, select the Device Manager button. Note that only users with administrator rights can change anything and some information may not be visible to some users.

2. The Windows Task Manager has some detailed information, especially on Windows 7.

3. User the DOS command 'systeminfo' (see http://technet.microsoft.com/en-us/library/bb491007.aspx)

4. Download some third party tools. Some freeware/shareware programmes are available but they mainly assume administrator rights.

1.1   Using the Web

If the can find the make and model of a device in your machine, you can often use the Internet to find more details.

Unsure what some of the information means? Please ask.

1.2   Finding Machine Components and Devices – MacOS

MacOS has a 'System Profiler'. You can find it using the 'About this Mac'

1.3   Finding Machine Components and Devices – Linux

In Linux you have look into top-level directories which contain system information: /proc and /sys. Interesting files in /proc include: cpuinfo, devices, interrupts, meminfo, and partitions.

Information about the PCI bus is extracted by running '/sbin/lspci –v' at a shell prompt.

2   Complete A Table of Computer Information

Device	Data and Notes

CPU
  • Maker
  • Number of cores
  • Clock frequency
  • Technology: 90nm, 40nm, 32nm
  • Instruction / cycle (max)	

GPU
  • Maker
  • 'Integrated' or separate
  • Memory
  • Screen resolution (max)	

Cache Memory
  • Number of levels
  • Level 1 capacity
  • Level 2 capacity	

Main memory
  • Size
  • Type (e.g. DDR)
  • Memory bus frequency
  • (Estimate) bandwidth and latency	

PCI Bus (or buses)
  • How many PCI buses?
  • What type (frequency and width)?
  • What devices are on the PCI bus?	

Hard Disk (or disks)
  • Capacity
  • Interface standard and peak bandwidth
  • RPM and access time	

Network Card (or cards)
  • Network speed
  • Which bus is it on?	

Expansion buses • What expansion buses are included? (e.g. USB)	
Other peripherals • Where are they connected?	

3   Command Line

Operating Systems, including Windows, offer a command line interface to the system. Depending on the set up, it may or may not be accessible.

The aim of this exercise is to use simple commands to manage files and show that the files you see are the same as those shown in the normal 'graphical' file manager. *The command line interface is simpler than the 'graphical' interface but both are just programs using the same capabilities of the Operating System.*

The following commands are useful in Window.

Command	Description
dir	List the files in a directory
cd, chdir	Change directory
dir	Create a new directory in the current directory
more	List the contents of a file
help	List the commands
help *cmd*	Get simple help on a command

4   Task Manager

The task manager can show information about the processes running in the system. The Windows XP manager looks like:
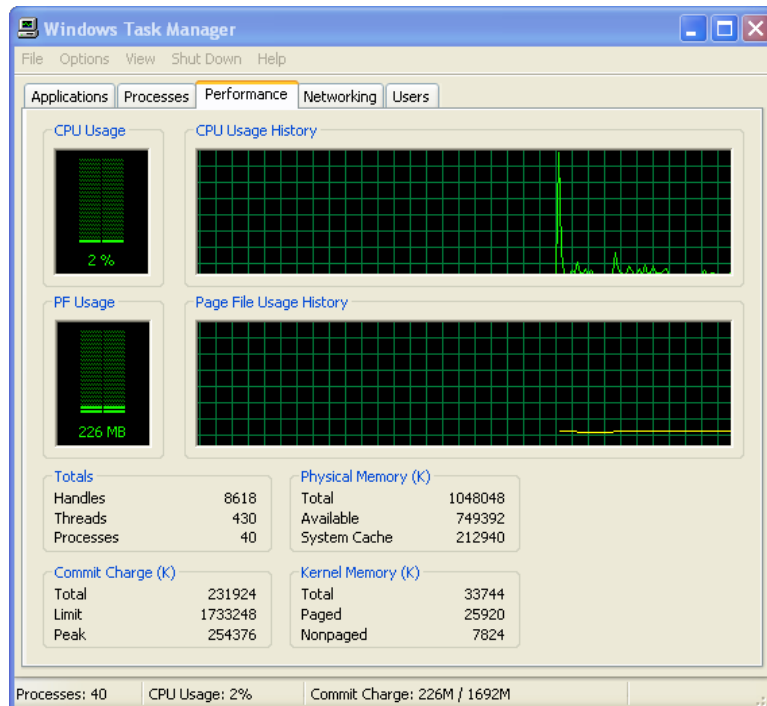
This view shows the CPU and memory usage. Other views show the processes, including user applications. Start the task manager in your version of the operating system.