

# Computer Specifications (PC)

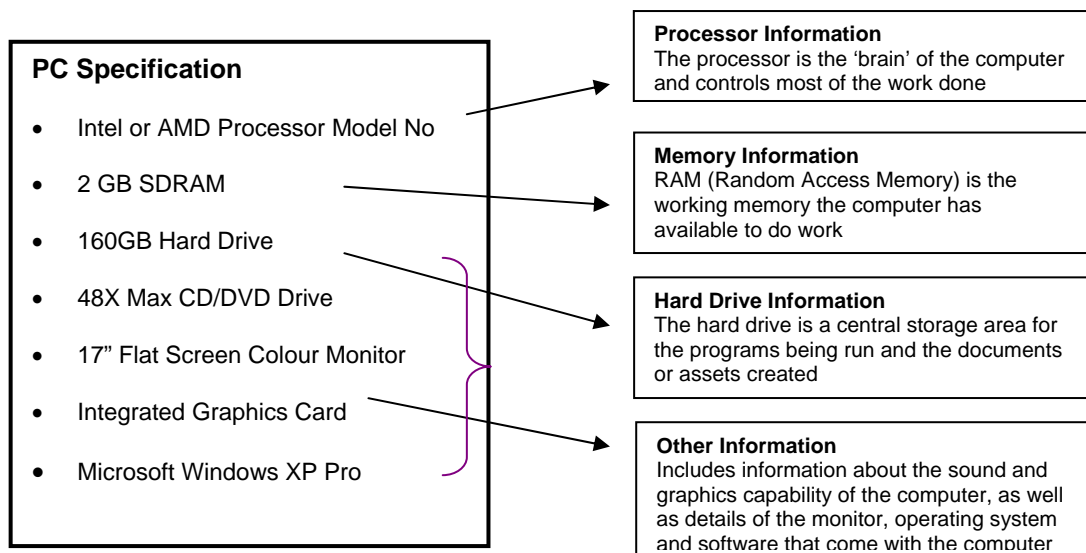


## What is the Specification?

The specification or 'spec' is a list of the key components that make up the computer. It is provided by retailers to help buyers decide which PC, and which combination of features, they need. When buying a PC, it is important to start by deciding what it is you want the PC to do. This then informs what specification you actually need.

When reviewing a computer specification, the most important components to take account of are the **processor**, the amount of **RAM** and the size of the **hard drive** as these are central to the overall capability of the system. If it is planned to use specialised programs for students with special needs (e.g., scan/read software), it is advisable to purchase a suitable specification computer to meet the system requirements for these programs.

## Understanding a Specification



In consultation with the Department of Education, and specifically with the NCTE, a technical specification has been identified for a School PC. This competitively priced PC should meet the requirements of most schools and is recommended as suitable for the majority of school day to day tasks. Five qualified suppliers have proposed such a PC, ceiling prices for these are listed below.

Supplier	Dell	Fujitsu Siemens	HP	Lenovo	PC Peripherals
Product					
OS	Windows XP Pro	Windows XP Pro	Windows XP Pro	Windows XP Pro	Windows XP Pro
Model	Dell Vostro 200 Minitower PC.	Esprimo P3510	HP DC 5850	Think Centre A62	Celtic E2200 Series
Processor	Intel Dual Core	Intel Core Duo	AMD Athlon	AMD Athlon	Intel Core Duo

	E2200	E4600	Dual Core 4450B	Dual Core 4450B	E2200
<b>RAM</b>	2GB	2GB	2GB	2GB	2GB
<b>Hard Drive</b>	250GB	160GB	250GB	160GB	160GB
<b>Delivery</b>	Free	€12.10	€12.10	€12.00	€12.10
<b>Price(incl VAT)</b>	<b>€496.10</b>	<b>€579.00</b>	<b>€578.30</b>	<b>€560.00</b>	<b>€435.60</b>

**Note 1:** Prices are inclusive of PC, 17" TFT monitor, warranty (3 Year Next Business Day onsite), support and VAT.

**Note 2:** If the technical specification of the School PC does not meet your requirements, you can get in touch with the NCTE to investigate alternative PC specifications.

**Note 3:** Prices are indicative only and will change

### Processors

Two companies - Intel Inc. and AMD Inc. - manufacture most of today's PC processors and both offer a range that balances price and performance. Processors are generally defined by their speed - in megahertz (MHz) or in gigahertz (GHz) - and this relates to the number of operations they can perform per second. The higher the value, the faster the PC will perform and the more expensive it generally is. The latest dual core processors have two processors on a single chip and operate more efficiently at lower speeds e.g. Intel's Pentium D and AMD's Athlon X2. More recent more powerful processors use a 64 Bit architecture, rather than the previous 32 Bit models.

	Entry-level processors	Mid-range processors	High-end processors
<b>IDEAL FOR</b>	<ul style="list-style-type: none"> <li>Office applications</li> <li>Internet browsing</li> <li>Basic graphics programs</li> <li>Home computing</li> </ul>	<ul style="list-style-type: none"> <li>Educational software</li> <li>Office applications</li> <li>General multimedia applications</li> <li>Internet browsing</li> </ul>	<ul style="list-style-type: none"> <li>Processor intensive multimedia creation applications, e.g. 3D graphics and video editing</li> <li>Office applications</li> <li>Internet browsing</li> </ul>
<b>PROCESSOR TYPES</b>	<ul style="list-style-type: none"> <li>Intel Celeron D</li> <li>AMD Sempron</li> </ul>	<ul style="list-style-type: none"> <li>Intel Pentium 4</li> <li>AMD Athlon (32 Bit)</li> <li>AMD Opteron</li> </ul>	<ul style="list-style-type: none"> <li>Xeon</li> <li>AMD Athlon 64 X2</li> </ul>

### Memory (RAM)

The main working memory in a computer is called random access memory or RAM. The processor uses this memory to run programs. RAM is measured in megabytes (MB). Most modern computers use DDR 2 RAM.

- A minimum of 2024MB (2GB) of RAM is recommended for general purpose PCs. 2048MB (2GB) of RAM is also sufficient for PCs running multimedia applications, i.e., those on which digital music, digital video or high-end graphics are being created/edited.

### Storage – The Hard Drive

The hard drive is the computer's primary storage area. It stores the applications and programs that run on the PC, as well as any work created by users. From a school's perspective, the capacity of the hard drive, measured in gigabytes (GB), is a key criterion and should be given due consideration when reviewing PC specifications.

- A hard drive capacity of at least 80GB is recommended for general purpose PCs.

- A hard drive capacity of 200GB or more is recommended if working with multimedia applications where large graphics and digital audio/video files are being created and stored.

## Other Specifications

### Monitors

The older CRTs have been largely replaced by TFT flat-screens. A 15" TFT has the same viewing area as the older 17" CRT.

- Average entry-level PCs usually come with a 17" flat-screen and this is adequate for most general purpose applications.
- Larger 19" flat-screens are available and may be appropriate if video editing and advanced graphics work is being carried out.
- Teachers of students with special needs may want to consider using larger monitors with their students.

### CD / DVD Drives

CD R/W drives are standard on PCs and allow the information on a compact disc (either data or audio) to be *read* and written to by the PC. It is defined by its speed (i.e., 48x or 48 speed). DVD drives can *read* both CDs and DVDs. 48x DVD-ROM/CD\_RW drives are standard on entry level computers. These allow you to copy to blank CDs. 52x DVD-RWs are standard on higher performance computers. Educational software is being developed in both DVD and CD formats, but a DVD can hold over 25 times more data than a CD. Refer to Advice sheet 6 for more information on DVD's

### Graphics and Sound Cards

These cards are installed inside a PC and are responsible for determining the quality of the audio and visuals (graphics and video) output by the computer. They hold their own memory (in MB), which is why they add to a computer's capability.

- An integrated graphics card with 256MB of memory is recommended for general purpose PCs.
- Computers running high-end applications generally require a separate 256MB graphics card.
- A sound card generally comes as standard in most PCs purchased today. If students intend to work extensively with digital music, the school should consider getting a high-end sound card as this will create greater depth, complexity and realism of sound.

### Speakers and Headphones

Most computers come with either built-in or external speakers. Schools may also consider buying headphones to control sound levels within a classroom or computer room. Cheap 'headphone splitters' can also be purchased — these enable two sets of headphones to be used per computer.

### Network Interface Card (NIC)

It is recommended that all PCs be purchased with a suitable network interface card (NIC). A network card allows a computer to be connected to a network. A 10/100/1000 Mbps (Mega bits per second) card is the standard network card today. Few school networks currently operate at speeds higher than 100Mbps .

### Operating Systems (OS)

PCs are generally purchased with an operating system pre-installed. It is worth checking that your existing software will still work with the operating system of any new systems being purchased. It may be possible to choose a particular operating system and, if so, this may help standardise new machines with existing school PCs. At present, Microsoft's newer OS is Vista, which generally performs the same functions as Win XP. Microsoft XP Professional is still the most common OS found in schools and meets schools general needs very well and is recommended for schools. As Vista operating system can come in various types and configurations, schools should check that the version of Vista will be suitable and compatible

for the software and network infrastructure in the school. Vista Home or XP home versions are not recommended for use in schools, however when ordering computers schools need to specify a base operating system. The choice of base operating system should be made along with their choice of operating system licence. Operating system licence costs depend on a number of factors including type of school, (eg DEIS schools can avail of lower OS licensing costs), or type of licence, eg once off purchase via Microsoft's select agreement or purchasing software per year via Microsoft's schools agreement. Schools should obtain relevant information from resellers before deciding which option is best suitable to their situation.

Linux is an open source free operating system which is not widely used by schools at present in Ireland, though it may be suitable for schools who are aware of its capabilities.

### **Purchasing Considerations**

Consider the following points when purchasing PCs

- What is the intended use of the PC and will the chosen specification fulfil these aims?
- Is the PC compatible with existing computer equipment and software?
- Is the technical support service satisfactory?
- A minimum 3 year warranty including next business day (NBD) onsite, including full parts and labour is recommended
- Will added peripherals be required such as headphones, optical mice etc
- Easy access of multiple USB ports
- Operating System licensing options

### **Related Web Sites**

#### **How stuff works**

<http://computer.howstuffworks.com/pc.htm>

In this article, PCs in the general sense and all the different parts that go into them are explained. You will learn about the various components and how they work together in a basic operating session. You'll also find out what the future may hold for these machines.

*Note: While the advice sheets aim to act as a guide, the inclusion of any products and company names does not imply approval by the NCTE, nor does the exclusion imply the reverse. The NCTE does not accept responsibility for any opinions, advice or recommendations on external web sites linked to the NCTE site.*

This Advice Sheet and other relevant information are available at:

[www.ncte.ie/ICTAdviceSupport/AdviceSheets](http://www.ncte.ie/ICTAdviceSupport/AdviceSheets)