

# Component 1: Hardware

## Secondary storage

Functional characteristics	Devices	Capacity	Durability	Portability	Speed	Cost
<p><b>Solid state</b></p> <ul style="list-style-type: none"> <li>A non-mechanical design of semiconductor chips</li> <li>It does not require defragmentation</li> <li>There are two types of solid state memory NOR and NAND</li> <li>Both contain cells (transistors) in a grid, but the wiring between the cells differs</li> <li>If a chain of transistors conducts current, it has the value of 1. If it doesn't conduct current, it's 0.</li> </ul>	 <p>Flash memory drive</p>	2 GB – 512 GB	★★★★	✓	★★★★	££££
<p><b>Magnetic</b></p> <ul style="list-style-type: none"> <li>Each sector can be magnetised as 1 or demagnetised as 0</li> <li>Data is read and written using a mechanical arm that has a head at the end</li> <li>In hard disc drives, a platter is divided into billions of tiny areas. As the disk spins, the arm travels across the disk</li> <li>Each sector of the platter can store data and the movement of both the disk and the read / write head means that every sector on the hard drive can be reached.</li> </ul>	 <p>Hard disc drive</p>	128 GB – 4 TB	★★★★		★★★★	£££££
<p><b>Optical</b></p> <ul style="list-style-type: none"> <li>A pit is "burned" with a laser beam into the surface                             <ul style="list-style-type: none"> <li>A pit represents 0</li> </ul> </li> <li>The lack of a pit (a flat, unburned area on the disc, called a land) represents the number 1</li> <li>Data is stored in a continuous spiral.</li> </ul>	 <p>Magnetic tape drive</p>	250 GB – 16 TB	★		★★★	£££
<p><b>Cloud Storage</b></p> <ul style="list-style-type: none"> <li>A technology that allows users to store their data on third-party servers. They can then access that data from many computing devices.</li> </ul>	 <p>CD / DVD / Blu-ray Drive</p>	CD: 700 MB DVD: 9 GB BD: 50 GB	★★★★	✓	★★	££
<p><b>Embedded systems</b></p> <p>An embedded system is a combination of software and hardware that performs a specific task whereas a general-purpose computer is designed to carry out multiple tasks.</p>		Unlimited		✓		Free / subscription based

Examples include - MP3 players, mobile phones, video game consoles, digital cameras, DVD players, and GPS. Household appliances, such as microwave ovens, washing machines and dishwashers.