

Topic 3: Hardware

Keyword sheet - Cambridge AS & A Level Computer Science 9618. Tick each term once you can define it from memory.

Keyword	Definition	Know it?
Embedded system	Computer system built into a device with a dedicated function.	
Microprocessor	A CPU contained on a single integrated circuit.	
RAM: DRAM / SRAM	Volatile main memory. DRAM uses capacitors and needs refreshing (cheaper, slower); SRAM uses flip-flops (faster, costlier, used for cache).	
ROM: PROM / EPROM / EEPROM	Non-volatile memory holding fixed data; programmable once / erasable with UV / electrically erasable.	
Volatile / non-volatile	Contents lost / kept when power is removed.	
Magnetic storage	Data held as magnetised regions on platters read by heads; large capacity, relatively cheap, moving parts.	
Optical storage	Data held as pits and lands read by a laser.	
Flash / SSD	Solid-state storage using NAND flash with no moving parts; faster and more robust but limited write cycles.	
Barcode / QR scanner	Reads patterns of light and dark using laser or camera and decodes them into data.	
Capacitive / resistive touchscreen	Detects the electrical charge of a finger / detects pressure between two layers.	
Buffer	Temporary memory area that compensates for differences in the speed of two devices.	
Sensor / actuator	Converts a physical quantity to an electrical signal / converts a signal to physical action.	
Logic gates	NOT, AND, OR, NAND, NOR, XOR; implement Boolean functions in hardware.	
Truth table	Lists every input combination and the resulting output of a gate or circuit.	
Boolean expression	Algebraic description of logic using AND, OR and NOT.	
Logic circuit	A combination of gates implementing a Boolean expression.	