

Specs

The configuration of a computing system is described using 'specs' (specifications), a table of hardware components and technical characteristics.

In the pages that follow, you will find the specs for a range of computing systems.

Real-life specs can be difficult to read. They may include a lot of technical jargon, and the information presented sometimes depends on what the manufacturer wants to highlight for commercial reasons.

The specs in this handout have been simplified, and the information is structured and presented in a uniform way, to facilitate comparisons.

Hardware components of a computer system

Processor

Memory

Storage

Standard characteristics in one system might not be present in another

Communication

Graphics processor

Components used for input or output

Video

Sound

Components used to connect with other devices and/or extend capabilities

Connections

Power

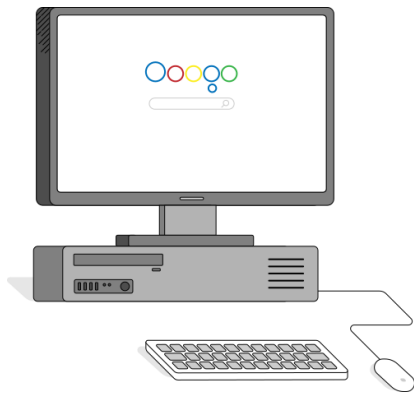
Weight

Additional features that are often included in specs

Software

Typical desktop

(circa 2020)



These specifications do not correspond to a specific product.

They have been compiled from different sources to reflect standard configurations at the time of writing (2020).

References to specific component brands, models, and technical details have been removed.

Processor	8-core CPU, clock speed 3.0GHz, 12MB cache
Memory	8GB RAM
Storage	512GB SSD (solid-state disk) 1TB HDD (hard disk drive)
Communication	Ethernet (wired) Wi-Fi, Bluetooth (wireless)
Graphics processor	Advanced gaming GPU Over 1000 cores and 6GB memory
Expansion slots	Hard disk slots Memory slots Expansion slots (e.g. for sound or graphics cards)
Connections	Ports for video output (screens) Ports for sound input and output (microphone, speakers) Ports for other devices (through USB)
Power	225W via power connectors (460W power supply)
Software	Operating system Productivity software (office suite) Security software



Typical laptop




(circa 2020)



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References to specific component brands, models, and technical details have been removed.

Processor	4-core CPU, clock speed 1.6GHz, 6MB cache
Memory	8GB onboard RAM
Storage	256GB SSD (solid-state disk)
Communication	Wi-Fi, Bluetooth (wireless)
Graphics processor	Integrated GPU
 Video	13.3" IPS multitouch display, 1920 x 1080 Camera
 Sound	Microphone and speakers
 Connections	Ports for video output (screens) Ports for sound input and output (microphone, speakers) Ports for other devices (through USB) Slot for storage (SD card)
Power	60Wh lithium-ion battery
Weight	1.2kg
Software	Operating system

Typical mobile phone

(circa 2020)



These specifications do not correspond to a specific product.

They have been compiled from different sources to reflect standard configurations at the time of writing (2020).

References to specific component brands, models, and technical details have been removed.

Processor	8-core CPU, clock speed 2.3GHz Includes an integrated neural processing unit
Memory	8GB onboard RAM
Storage	512GB
Communication	Wi-Fi, Bluetooth, NFC, MHL (wireless) GSM, 3G, 4G (mobile telephone network)
Graphics processor	Integrated GPU
Video	5.4" display, 3040 x 1440 Front and rear cameras
Sound	Microphone and speakers
Sensors	Accelerometer, ambient light, barometer, compass, fingerprint, gyroscope, heart rate, magnetometer, proximity
Navigation	GPS, GLONASS, Galileo
Connections	Ports for sound input and output (microphone, speakers) Ports for other devices (through USB) Slot for storage (SD card)
Power	12Wh battery
Weight	150g
Software	Operating system for mobile devices



Raspberry Pi 4



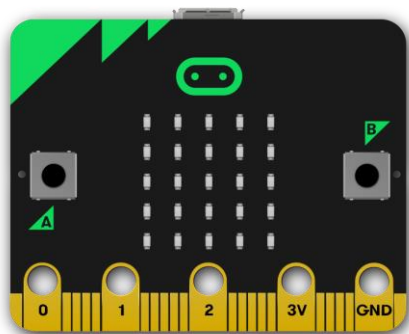
Processor	4-core CPU, clock speed 1.5GHz
Memory	4GB onboard RAM
Storage	No onboard storage Uses SD card for software and data storage
Communication	Ethernet (wired) Wireless LAN, Bluetooth (wireless)
Graphics processor	Integrated GPU
Connections	Standard 40-pin GPIO header Ports for video output (screens) Port for video input (camera slot) Ports for sound input and output (microphone, speakers) Ports for other devices (through USB) Slot for storage (SD card)
Power	Via 5V USB-C connector or GPIO header
Weight	46g



Sources:

<https://www.raspberrypi.org/products/raspberry-pi-4-model-b/specifications/>

https://en.wikipedia.org/wiki/Raspberry_Pi

micro:bit



Processor	Single application processor, clock speed 16MHz
Memory	16kB onboard RAM
Storage	256kB
Communication	Bluetooth, Low Level Radio (wireless)
 Display	5x5 red LED matrix
Buttons	2 tactile user buttons, 1 tactile system button
Sensors	Ambient light, accelerometer, magnetometer, temperature
 Connections	3 input/output rings, 2 power rings
Power	Via USB connection, the interface chip, or a battery
Weight	5g

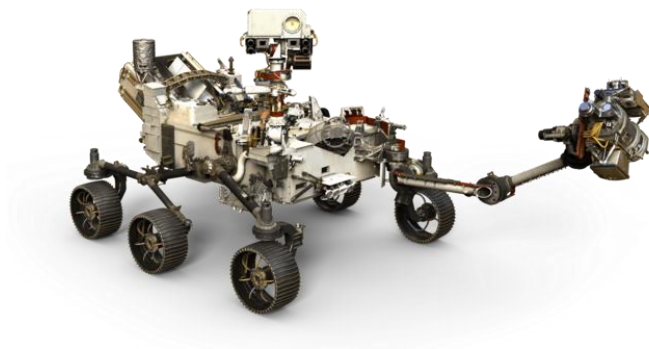
Sources:

<https://tech.microbit.org/hardware/>

https://en.wikipedia.org/wiki/Micro_Bit

Perseverance rover

Mars 2020 mission



Processor	Radiation-hardened CPU, clock speed 110MHz
Memory	256MB onboard RAM
Storage	2GB + 256kB EEPROM
Communication	Ultra-high frequency antenna X-band high-gain antenna (transmission) X-band low-gain antenna (reception)
Video	23 cameras
Audio	2 microphones
Sensors	Inertial Measurement Unit (IMU) A range of instruments for measurements and scientific experiments
Power	Radioisotope power system 2 lithium-ion rechargeable batteries
Software	Real-time operating system Flight software Surface operations software



“The rover has two ‘computer brains’, one of which is normally asleep. In case of problems the other computer brain can be awakened to take over control and continue the mission.”

Sources:

<https://mars.nasa.gov/mars2020/spacecraft/rover/brains/>

[https://en.wikipedia.org/wiki/Perseverance_\(rover\)](https://en.wikipedia.org/wiki/Perseverance_(rover))

Image source:

<https://mars.nasa.gov/resources/mars-2020-rover-artists-concept/>