U4L090

PC Specifications

Roll Call

TLE_IACSS9-12ICCS-Ia-e-43

Recap of the Lesson

TLE_IACSS9-12ICCS-Ia-e-43

What are PC Specifications?

Computer Specification

It refers to the detailed description of the hardware and sometimes software components of a computer. It tells you what's inside the machine and how powerful or capable it is.

Main Components of PC Specifications

- CPU
- RAM
- Storage
- Graphics Card
- Motherboard
- Power Supply
- OS
- Display
- Port & Connectivity
- Form Factor

Main Components of PC Specifications

Central Processing Unit

The "brain" of the computer, responsible for executing instructions. Example: Intel Core i7, AMD Ryzen 5.

Main Components of PC Specifications

Central Processing Unit

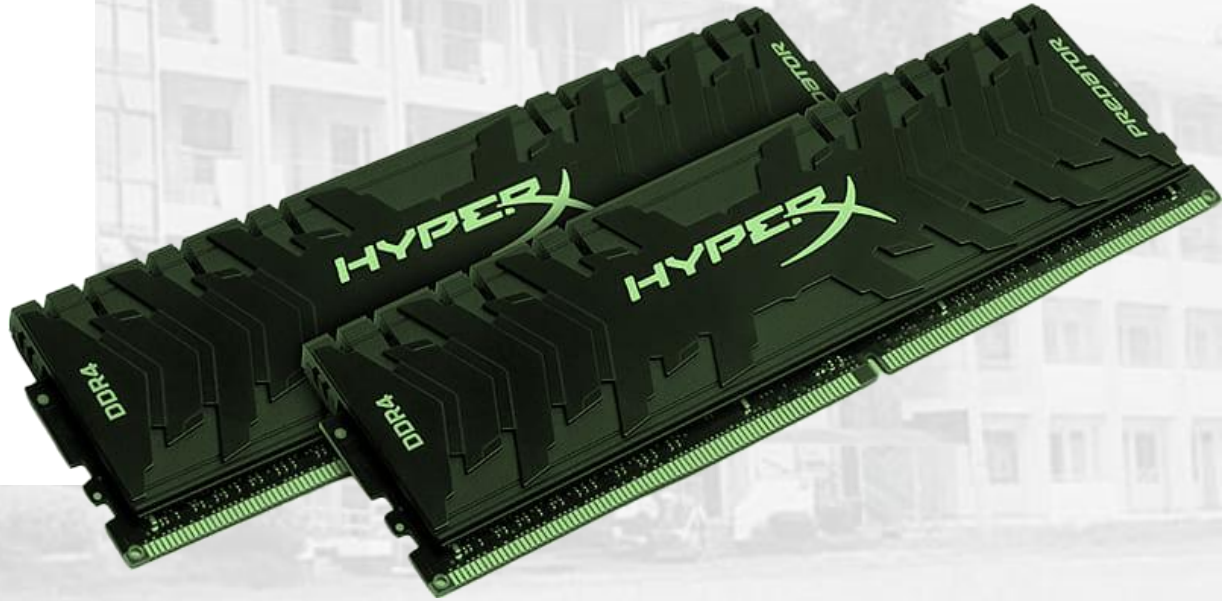
Executes instructions; crucial for overall speed and multitasking.

Example	Strength	Best For
Intel Core i3	Entry-level	Web browsing, Office work
Intel Core i5 / AMD Ryzen 5	Mid-range	Gaming, Light editing
Intel Core i9 / AMD Ryzen 9	High-end	Video editing, Programming, Gaming, 3D rendering

Main Components of PC Specifications

Random Access Memory

Short-term memory that stores data the computer is using now. More RAM allows for smoother multitasking. Example: 16GB DDR4.

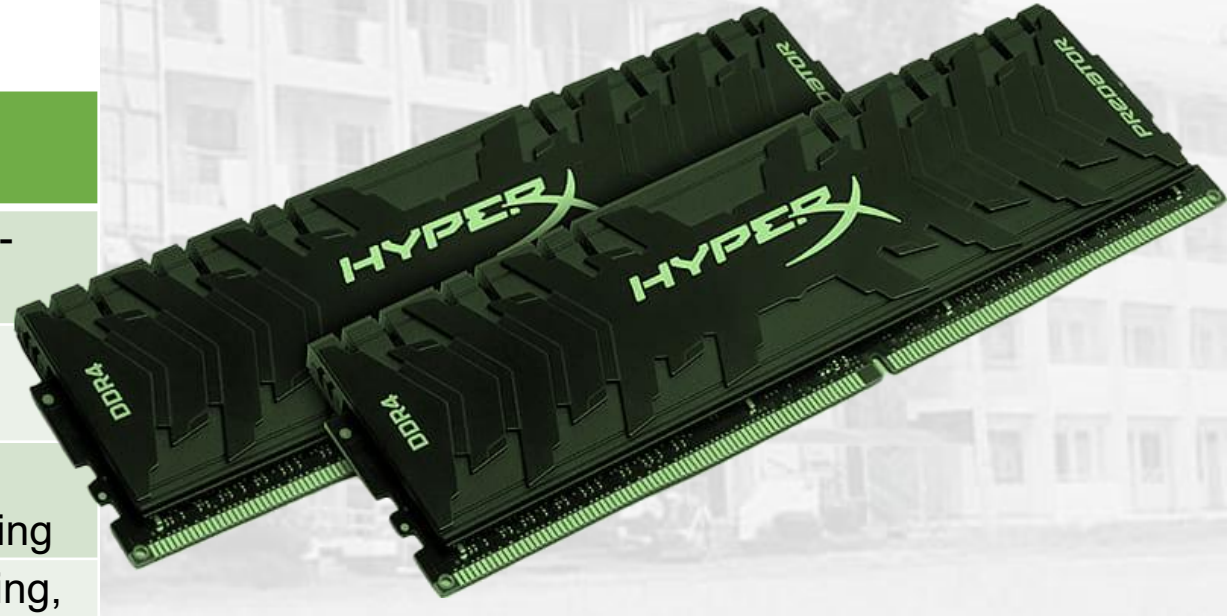


Main Components of PC Specifications

Random Access Memory

Temporary storage for active tasks; affects speed and multitasking.

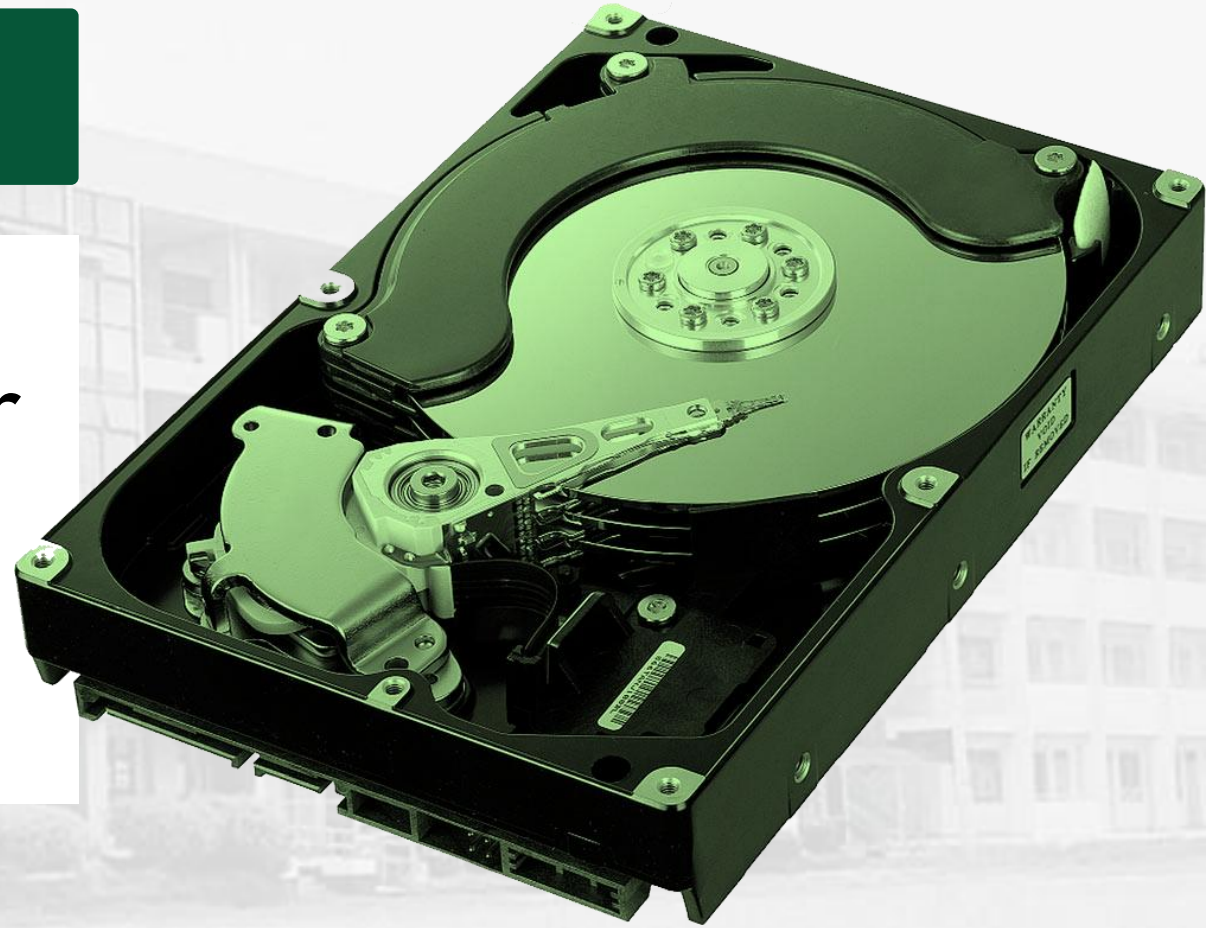
Example	Strength	Best For
4GB DDR4	Low	Basic use, single-tasking
8GB DDR4	Moderate	Office work, light gaming
16GB DDR4	High	Gaming, multitasking, editing
32GB+ DDR5	Very High	Heavy video editing, 3D work, virtualization



Main Components of PC Specifications

Storage

Where data is saved. This can be an HDD (hard disk drive) or SSD (solid-state drive). Example: 512GB SSD or 1TB HDD.

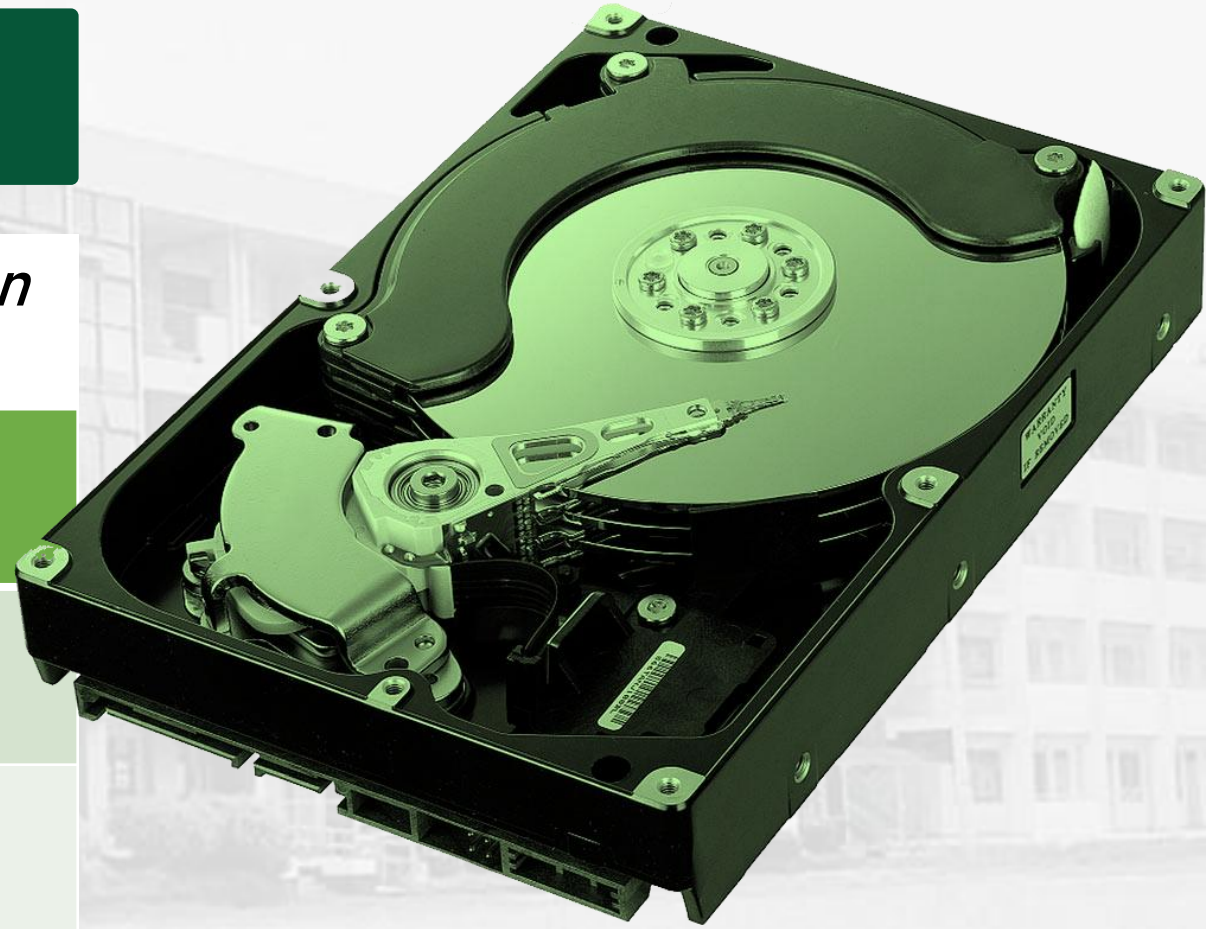


Main Components of PC Specifications

Storage

Stores data, apps, OS. SSDs are faster than HDDs.

Example	Strength	Best For
1TB HDD	High capacity, slow	Budget storage
512GB SSD	Fast, reliable	Quick boot & app load
1TB NVMe SSD	Very fast	Professionals, gamers



Main Components of PC Specifications

Graphics Card

Handles visuals and graphics. Essential for gaming, video editing, and design. Example: NVIDIA GeForce RTX 3060.

Main Components of PC Specifications

Storage

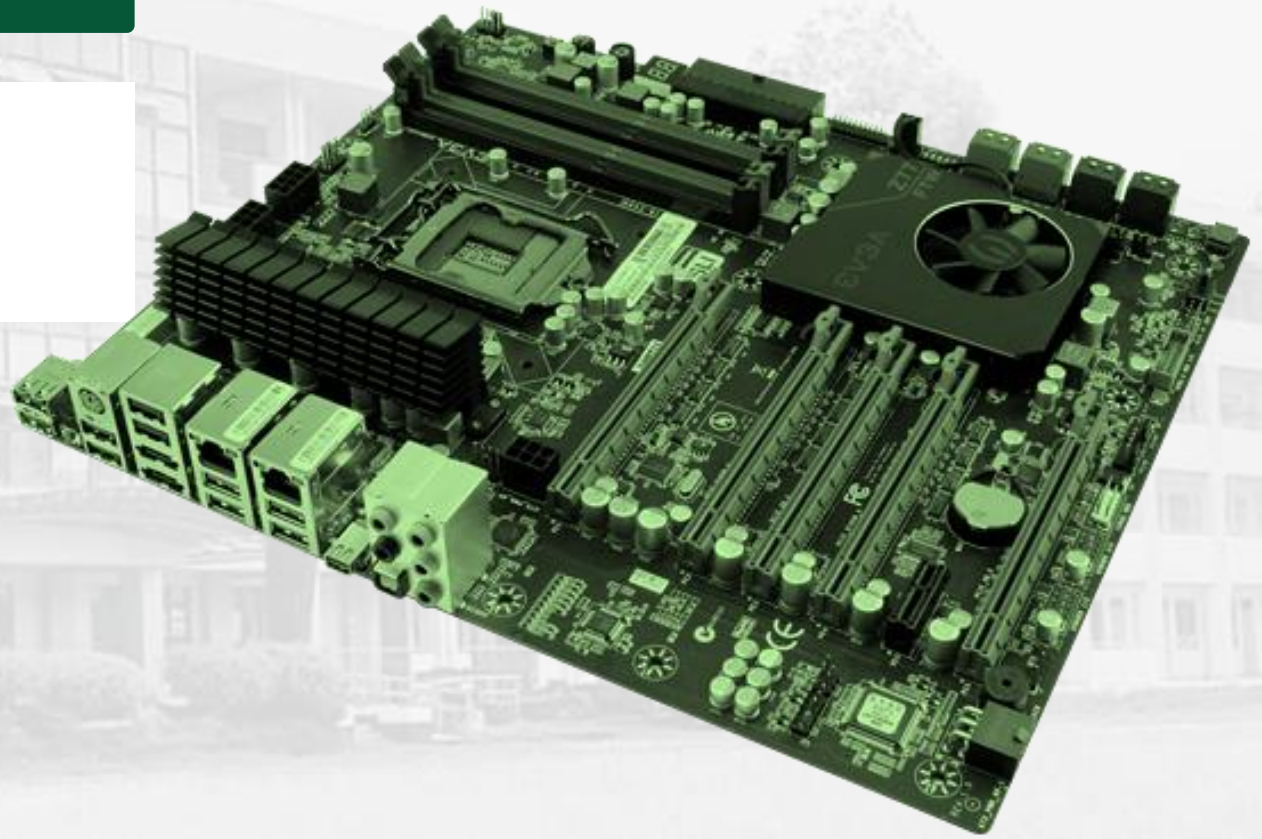
Renders images, videos, and 3D graphics.

Example	Strength	Best For
Intel UHD Graphics	Integrated, basic	Office, movies
NVIDIA GTX 1650	Entry-level discrete	Casual gaming
NVIDIA RTX 3060	Mid-range	Modern games, editing
NVIDIA RTX 4090	High-end	4K gaming, 3D, AI, VR

Main Components of PC Specifications

Motherboard

The main circuit board connecting all components.

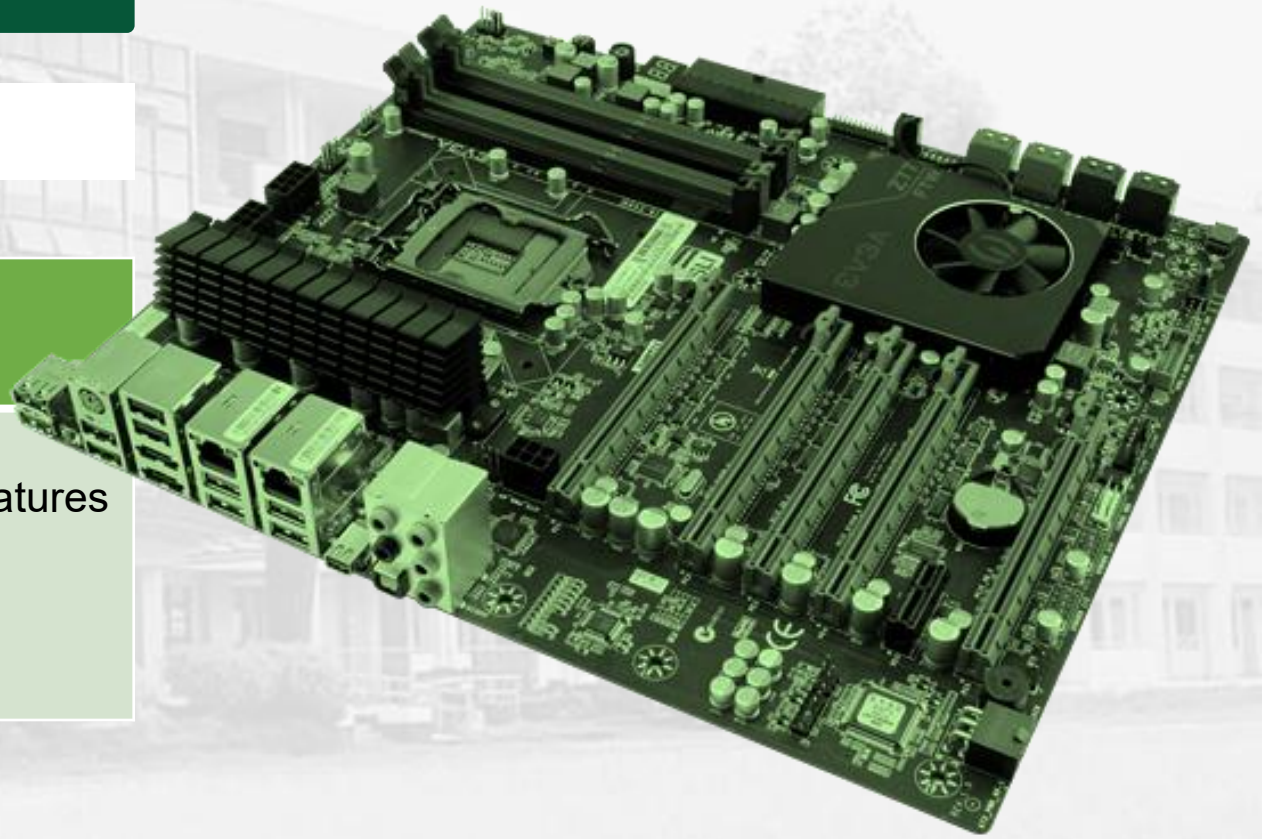


Main Components of PC Specifications

Motherboard

Connects and powers all components.

Example	Strength	Best For
ASUS ROG Strix B550-F	Mid-range	Supports AMD CPUs, good features



Main Components of PC Specifications

Power Supply Unit

Provides power to the computer.

Main Components of PC Specifications

Motherboard

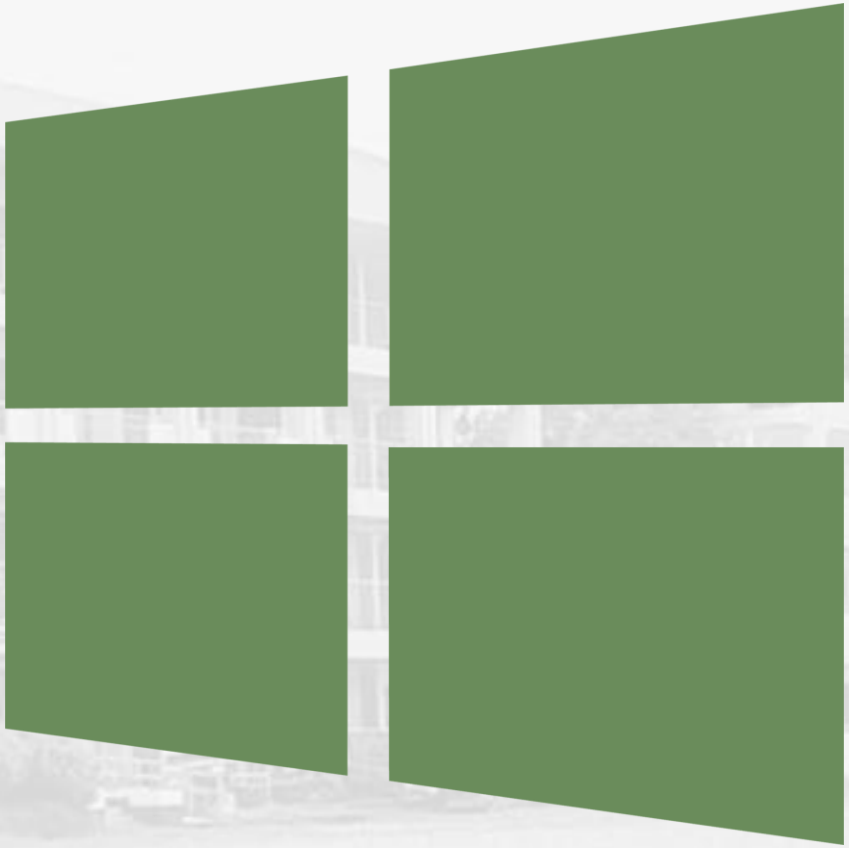
Provides power to components.

Example	Strength	Best For
450W	Low	Basic builds
650W-750W (80+ Bronze)	Medium	Gaming builds
850W+ (80+ Gold/Platinum)	High	High-end GPUs, future upgrades

Main Components of PC Specifications

Operating System

The software that manages the hardware and software.
Example: Windows 11, macOS, Linux.

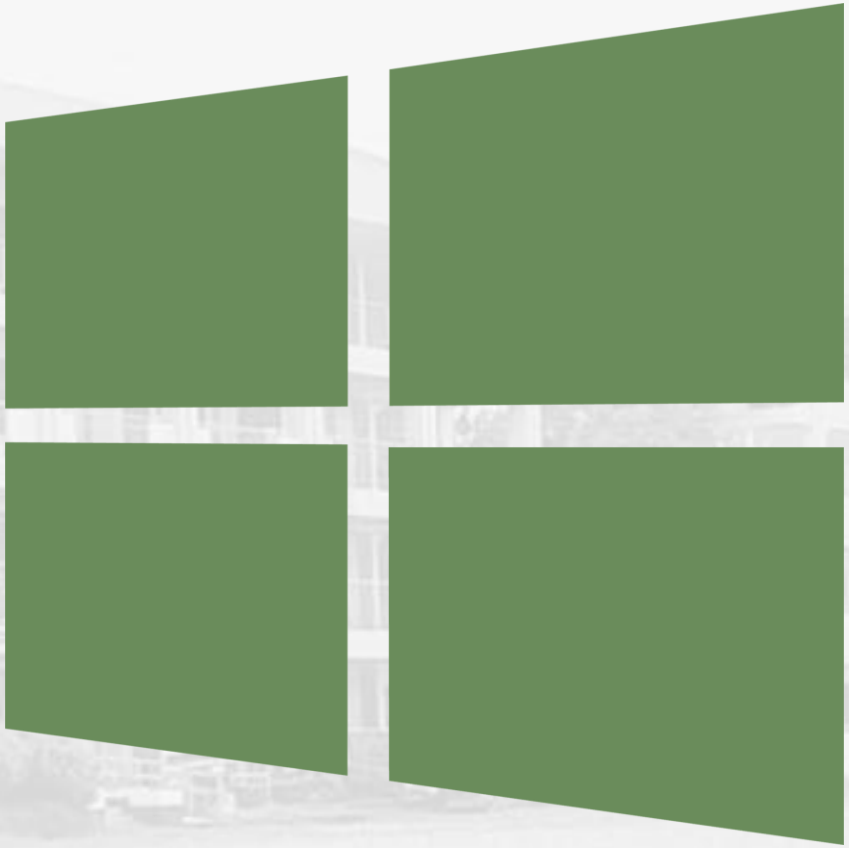


Main Components of PC Specifications

Motherboard

Software that runs the computer.

Example	Strength	Best For
Windows 11	User-friendly, gaming	Home & office
macOS Ventura	Creative workflows	Design, music, video
Linux (Ubuntu, Fedora)	Free, customizable	Development, servers



Main Components of PC Specifications

Display

Screen size and resolution.
Example: 15.6" Full HD (1920x1080).

Main Components of PC Specifications

Display

Shows visual output.

Example	Strength	Best For
14" HD (1366x768)	Basic	Text-based work
15.6" Full HD (1920x1080)	Good	Movies, work
16" 4K (3840x2160)	Excellent	Editing, media
144Hz/240Hz displays	High refresh	Gaming

Main Components of PC Specifications

Ports and Connectivity

USB ports, HDMI, Ethernet, Wi-Fi, Bluetooth, etc.

Main Components of PC Specifications

Ports and Connectivity

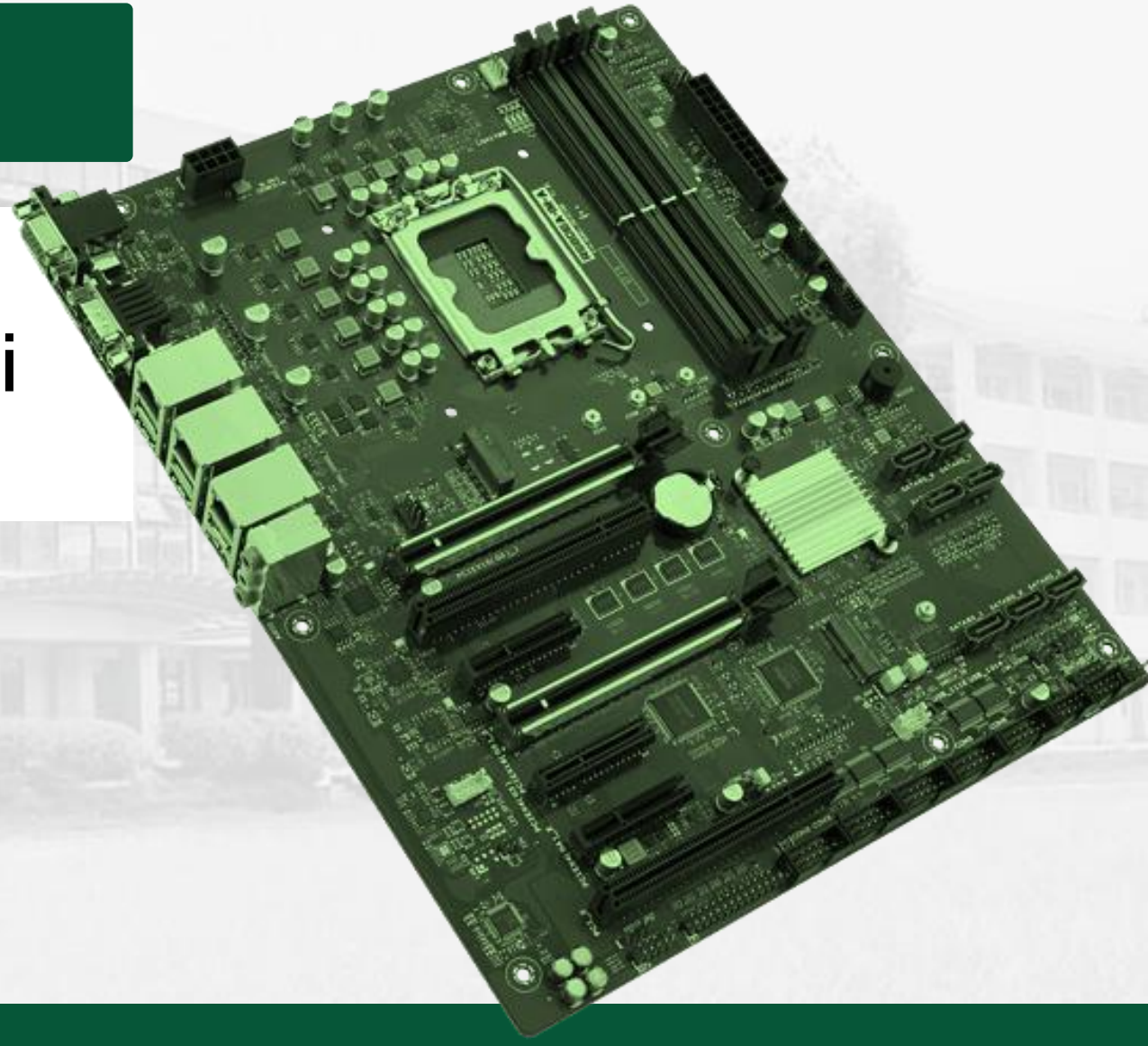
Connect peripherals and network.

Example	Strength	Best For
USB 3.0 / USB-C	Fast file transfer	
HDMI	External displays	
Ethernet	Wired internet	
Wi-Fi 6 / Bluetooth 5.2	Fast wireless connection	

Main Components of PC Specifications

Form Factor

The size and shape of the system (desktop, tower, mini PC, laptop, etc.).



Main Components of PC Specifications

Form Factor

Physical size and layout.

305mm x 244mm

Standard-ATX

244mm x 244mm

Micro-ATX

170mm x 170mm

Mini-ITX

146mm x 102mm

3.5-inch

100mm x 72mm

Pico-ITX

In upgrading your PC, what is computer peripheral that you acquired first?

PC Upgrade

- CPU
- RAM
- Storage
- Graphics Card
- Motherboard
- Power Supply
- OS
- Display
- Port & Connectivity
- Form Factor

How to upgrade your PC?

Understanding Motherboard Names

Why motherboard names matter?

Motherboard model names can seem like a random jumble of letters and numbers with no rhyme or reason, but they actually follow a number of very specific conventions.

Understanding Motherboard Names

Why motherboard names matter?

Just by a motherboard's name you can tell what brand of processor it's designed for, what specific generation of CPUs it's compatible with, whether it supports CPU overclocking, what revision memory it supports, and much more.

Motherboard Naming Scheme

While motherboard names don't always follow the exact same order and structure, there are many constants and norms. Typically, a motherboard's name will contain most of the following information:

- Brand
- Series
- Chipset
- Form-Factor
- Model
- WiFi Status
- DDR Type

Motherboard Naming Scheme

Brand

This is perhaps the most intuitive portion of the motherboard naming scheme. Typically, the first word in a mainboard model's title is the brand that manufactured it.

To be clear, we aren't referring to Intel or AMD, the brands who manufacture the chipset. Rather, we're talking about the companies that construct the actual motherboard utilizing these chipsets. Big-name motherboard brands include Asus, MSI, Gigabyte, and ASRock.

Motherboard Naming Scheme

Series

Series is used to specify where a motherboard falls within a brand's product stack. MSI motherboards, for instance, typically fall into one of four categories, from lowest to highest quality:

- PRO
- MAG
- MPG
- MEG

Motherboard Naming Scheme

Series

An MSI PRO motherboard is their most budget-friendly option, while their MEG boards are decked out with all of the latest bells and whistles and ideal for overclocking. Knowing a motherboard's series provides a quick way to identify its quality relative to other boards made by the same company

Motherboard Naming Scheme

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Motherboard Naming Scheme

Chipset

A motherboard's chipset tells you more about it than anything else. Most importantly, chipset determines what brand and generation of processors are compatible with a given motherboard, whether the board supports CPU overclocking, and in some instances what type of RAM is compatible. Note that some prior knowledge is needed to ascertain all of this information from the chipset.

Motherboard Naming Scheme

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Motherboard Naming Scheme

Chipset

Chipset names consist of a letter followed by three numbers. Intel has four main “types” of consumer chipset, while AMD has three. We’ve listed these below, with an asterisk representing the series number, which increases with every platform generation.

Motherboard Naming Scheme

Chipset

Intel Chipsets Overview

H*10 | Example: H610

B*60 | Example: B660

H*70 | Example: H670

Z*90 | Example: Z690

Motherboard Naming Scheme

Chipset

Intel Chipsets Overview

H*10 | Example: H610
B*60 | Example: B660
H*70 | Example: H670
Z*90 | Example: Z690

AMD Chipsets Overview

A*20 | Example: A520
B*50 | Example: B550
X*70 | Example: X570

Motherboard Naming Scheme

Form Factor

Oftentimes, a motherboard's name will indicate its chipset. This is mainly applicable to Mini-ITX and Micro-ATX boards, since ATX is considered the "default" form-factor by most. If you aren't familiar with the most common motherboard factors, we recommend reading our guide to motherboard form-factors to brush up before continuing.

Motherboard Naming Scheme

Form Factor

Form-factor is typically indicated in a board name as a single letter attached to the end of the chipset. “M” is used for Micro-ATX, while “I” is for Mini-ITX. Sometimes “E” will be used for EATX, although not consistently.

Consider the Gigabyte B660M DS3H AX DDR4. We can tell that it’s a Micro-ATX motherboard since it has an “M” affixed to the chipset (B660).

Motherboard Naming Scheme

Form Factor

Note that these form-factor-indicating suffixes are almost always attached directly to the chipset, with no hyphen in between. If there is a hyphen, as is the case with the Asus ROG Strix B660-A Gaming WiFi D4, it doesn't refer to form-factor, but rather model.

Motherboard Naming Scheme

Form Factor

As mentioned earlier, ATX boards don't have a suffix. In cases where there's no suffix it's usually safe to assume it's an ATX model unless otherwise specified in the product title. For instance, it would be reasonable to assume that the MSI MAG B660 Tomahawk WiFi DDR4 is an ATX board simply by the title.

Motherboard Naming Scheme

Model

Technically speaking, the entire name of the motherboard could be considered the model. However, in our case we're considering the portion that's unique from the other categories we've listed. Looking at the previously mentioned MSI MAG B660 Tomahawk WiFi DDR4, then, the model is "*Tomahawk*."

Motherboard Naming Scheme

DDR Type

Finally, we have DDR type. This refers to the generation of RAM that's compatible with a motherboard. Since DDR4 and DDR5, the two most recent RAM revisions, have different form-factors, motherboards can only support one or the other.

Motherboard Naming Scheme

DDR Type

Some platforms, like AMD's 600-series chipsets, only support one type of RAM (in this case DDR5), and thus don't need to specify DDR type in the motherboard name since it can be determined by the chipset alone.

However, some motherboard generations, namely Intel's 600 and 700-series makes, feature both DDR4 and DDR5 models. When this happens, it's useful for manufacturers to specify which of these is used in the motherboard's name.

Motherboard Naming Scheme

DDR Type

This will usually be specified in the name with either “DDR4” or “DDR5”, or the abbreviations “D4” or “D5.”

Thus, Asus’s TUF Gaming B660M-PLUS WiFi D4 is, naturally, a DDR4 motherboard.

Unfortunately *this rule isn’t always followed*, so sometimes you’ll have to read through the specs or look up the specific model to find out what type of RAM is used in a specific board.

Motherboard Naming Scheme

(4)

ASUS ROG STRIX B650E-F GAMING WiFi Socket AM5 (LGA 1718) Ryzen 7000 gaming...

$299.99 (5 Offers)

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Compare

BRAND

BOARD SERIES

CHIPSET

MODEL

WIFI Status

ASUS ROG STRIX B650E-F GAMING WiFi

Socket AM5 (LGA 1718) Ryzen 7000 gaming

Motherboard Naming Scheme

(18)

msi

MSI PRO Z790-P WIFI DDR4 LGA 1700 Intel Z790 SATA 6Gb/s DDR4 ATX Motherboard

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$229.99 after $10.00 rebate card

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Compare

BRAND MODEL WIFI CHIPSET

MSI PRO Z790-P WIFI DDR4 LGA 1700 Intel Z790 SATA 6gb/s DDR4 ATX Motherboard

DDR Form Factor

Motherboard Naming Scheme

(8) GIGABYTE

GIGABYTE B660M AORUS PRO AX DDR4 B660 Intel LGA 1700 Micro-ATX Motherboard with DDR4,...

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BRAND MODEL CHIPSET

GIGABYTE B660M AOROS PRO AX DDR4 B660 Intel LGA 1700 Micro-ATX Motherboard with DDR4

Form Factor

DDR

Activity:

Look at least 4 motherboard models on the internet. Identify the specifications of the listed devices. Do it in 30 minutes.

Evaluation

1. What is the importance of knowing the specifications of your device?
2. What is purpose of identifying the functions and capabilities of each motherboard components?

Foreword

Every bug in software and every flaw in hardware is just a puzzle waiting for a sharp mind to solve. Be the one who turns glitches into breakthroughs.

You are now ready to move in the next lesson.