СПб ГБПОУ «Колледж информационных технологий»

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How to Build a PC ?

System case

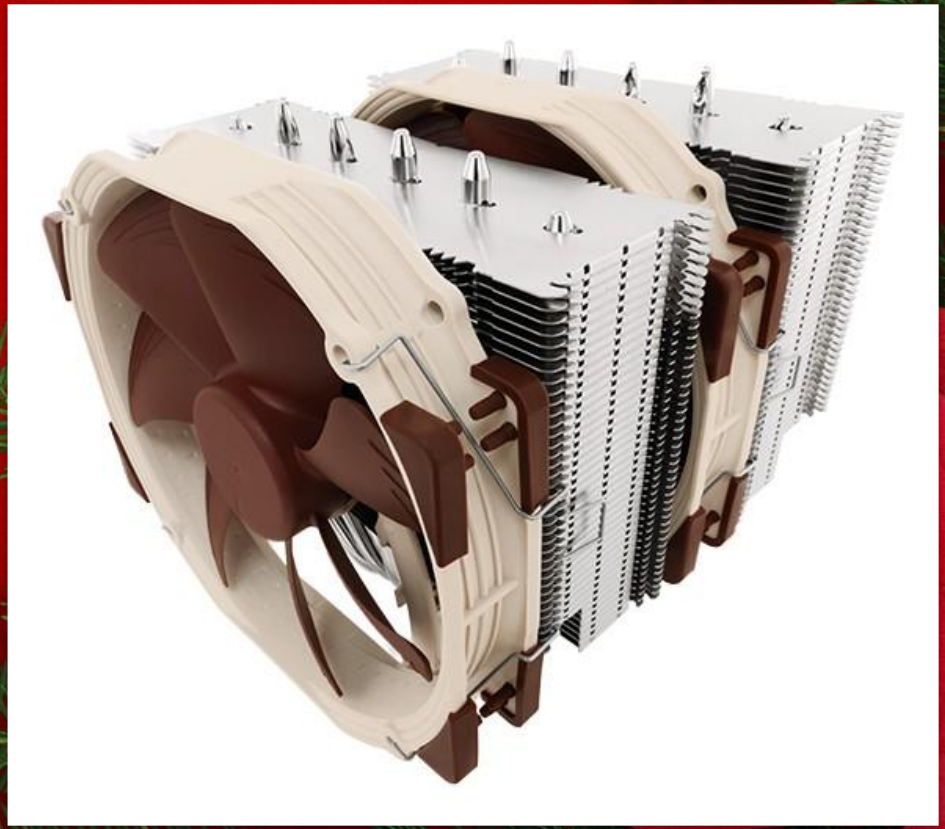
- While components like the CPU and GPU will determine what your machine can do in an absolute sense, which chassis you pick is still important. The PC case determines what type of motherboard you can install ,what your peripheral and storage options are, and what cooling equipment can be installed.

System case

- Cases tend to be marketed as one of several types of tower — full tower, mid tower, and mini tower are the three basic categories.

Cooling

- PC cooling options range from the heatsinks AMD and Intel ship with their own boxed processors to various esoteric multi-stage freon units and fanless oil immersion rigs. Most enthusiasts opt for more prosaic air cooling methods.



Motherboard

- The motherboard you pick shapes what your system is capable of and how much expandability you can expect in the future. There are three basic motherboard types in the consumer market, in order of size: Mini-ITX, Micro-ATX (mATX), and ATX.

Motherboard

- ATX motherboards are full-sized standard consumer products, with a typical seven expansion slots. mATX boards are shorter and offer fewer slots, while ITX boards have the fewest expansion and memory slots of all. If you’re not sure which you want, consider this: Most users won’t notice the difference between an ATX versus an mATX board as far as useful onboard features or capabilities, while an ITX board does require various meaningful tradeoffs even on low-level features.

CPU

- The CPU you pick determines your motherboard. The motherboard you pick determines your CPU (and your RAM type).

- CPUs fit into sockets on motherboards, which means the motherboard has to have the appropriate number of pins (or holes, in AMD's case). This is commonly referred to as a socket standard. Intel's current socket standard is LGA1151, while AMD's is Socket AM4.

CPU

- The combination of the CPU and motherboard you choose determines your RAM type. We have to say “in combination,” because in some cases, CPUs have supported multiple types of DRAM, which meant which standard you used was a question of which your motherboard supported. Generally speaking, the motherboard box will tell you which is which, and given that DDR3 is on its way out, DDR4 should be the only solution you really have to worry about as far as DRAM is concerned.

CPU

- Past the question of socket compatibility, which CPU you choose has knock-on effects on the rest of the system build. Higher-end CPUs typically draw more power and you may want to use a better cooler with top-end models. Always make sure to match your CPUs listed TDP with the TDP of the cooler you are using.

GPU

- GPUs are typically defined in terms of the number of slots they take up inside the chassis and the physical length of the card. Dual-slot cards are now the norm across most of the market, since this design allows for larger, quieter coolers, but this also means you need a certain minimum footprint within your case.

- When picking out a motherboard you'll want to account for this. Not all boards use this layout style, but it's a useful way to illustrate this issue. In this case, the motherboard manufacturer has chosen to space the first slots out, to allow for a double-sized cooler for each of two GPUs.

GPU

- The other physical constraint to be aware of when buying a GPU is length — and this plays into what kind of chassis you buy. Any ATX chassis should hold an ATX motherboard, but ATX motherboards are only 9.6 inches wide. Because some smaller chassis allow the drive bays to partially overlap the motherboard tray, you can wind up with a case that has less than 9.6-inches of room for a GPU, even though the case itself claims compliance with the ATX standard.

Power Supply

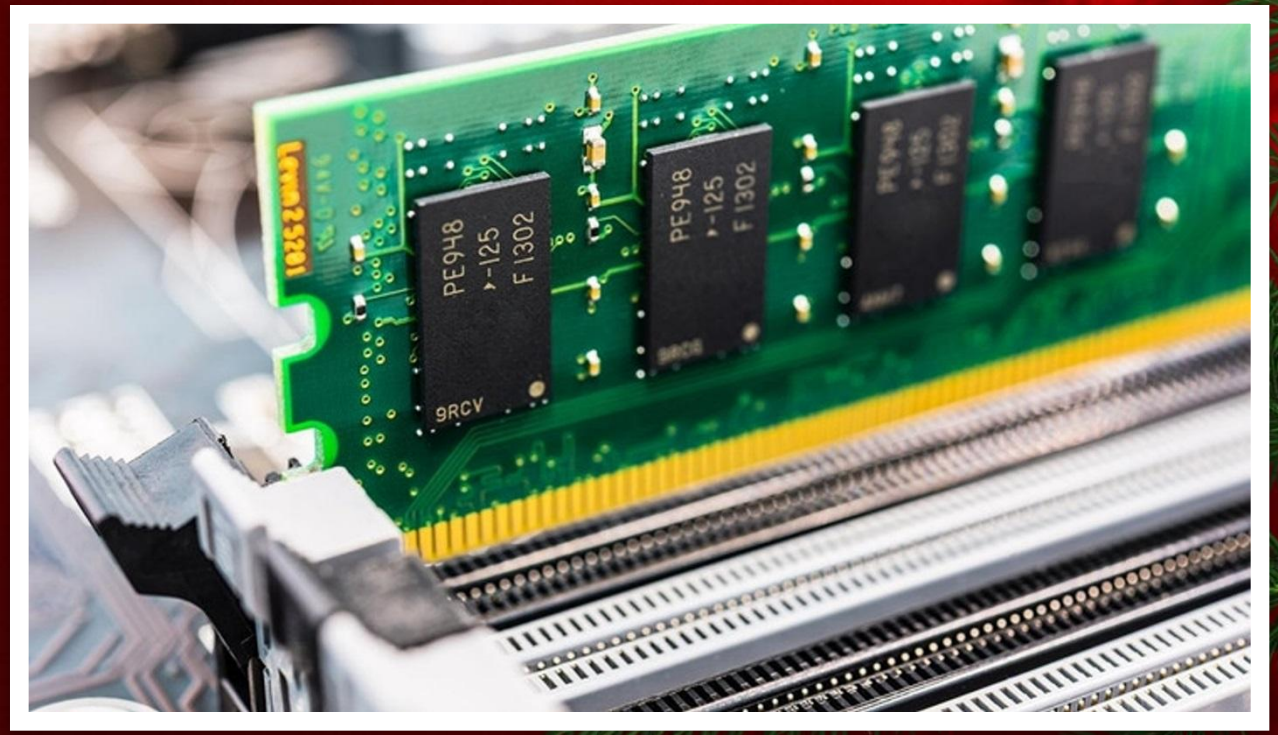
- When choosing a power supply, you'll need to pay attention to several aspects of the situation. First, the PSU (See on Amazon) needs to provide sufficient power for all the components in the system, with some additional room on top for a safety margin. Sites like Newegg have their own power supply calculators, with varying degrees of complexity depending on how far down this particular rabbit hole you want to jump. Generally speaking, 300W will run a desktop without a GPU, 550W will handle a midrange GPU or below, and a high-end GPU needs at least six hundred watts.

Power Supply

- Second, consider the number of six or eight-pin plugs for powering GPUs. Two eight-pin plugs (or one six-pin/eight-pin combo) will drive a single GPU, while four or more may be needed for multi-GPU configurations. Again, don’t assume that more plugs means the power supply can feed whatever GPU you’re considering — the wattage and pinouts both need to match the card. The PSU also needs to provide enough power over the 12V rails for a high-end GPU, though this shouldn’t be an issue for any single GPU system provided you follow the advice above.

RAM

- You must choose your RAM according to the characteristics of your processor and motherboard.



Storage

- For storage you have two choices — larger, but much slower hard drives, or faster and smaller SSDs.

- SSDs based on the M.2 standard that interface via PCI Express are also available. These are faster than traditional SSDs, which use SATA (so do HDDs) but require motherboard support. If you are interested in an M.2 PCI Express SSD, make certain your motherboard has the appropriate slot and level of support.

- If you want to include a Blu-ray drive in your build you certainly can, provided you pick a case that supports one.

MaDonna

computer

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Purchased pc

Advantages:

1. Greater reliability
2. Balanced configuration
3. Technical support
4. Long-term warranty service

Disadvantages:

1. High price
2. Upgrade Difficulty
3. Impossibility of fine tuning the configuration

Back

Laptops

Advantages:

1. Mobility
2. Internet access (WI-FI)
3. Offline mode
4. Installed operating system

Disadvantages:

1. Fragility
2. Capricious rechargeable battery
3. Overheat
4. Dust
5. Technical capabilities, software and cost

Back

Peripherals

Monitor
~10 000 Rub.

Desktop
microphone
~200 Rub.

Keyboard
~1500 Rub.

Mouse
~1000 Rub.

TOTAL:12700

Back

Office pc

Motherboard	MSI B250M PRO-VD LGA 1151
CPU	Intel Pentium G4560
RAM	Patriot DDR4 4Gb 2400MHz
Power Supply	Gigabyte GZ-EBN35N-C3 – 350 Вт
HDD	Toshiba E300 – 2 Тб
GPU	Intel HD Graphics 610
System case	Linkworld VC-13M33, mATX
Total:	35000 rubles

Back

Average performance PC

Motherboard	Gigabyte GA-AB350-Gaming (AM4, ATX)
CPU	AMD Ryzen 5 2600X (OEM)
RAM	Patriot Viper Elite [PVE416G280C6KRD], 2x8 Gb
Power Supply	Be Quiet! System Power 9 500W
HDD	Seagate 6TB BarraCuda
GPU	MSI AMD Radeon RX 580 ARMOR OC 8Gb
System case	Genesis Titan 800
CPU cooler	Arctic Cooling Freezer 12
Total:	58600 rubles

Back

Maximum performance PC

Motherboard	ASUS ROG MAXIMUS XI HERO
CPU	Intel® Core™ i9-9900K
RAM	4 x 16GB HyperX Predator DDR4-3000
Power Supply	Corsair HX1200i 1200W
HDD	Seagate 6TB BarraCuda
GPU	2 x ASUS GeForce RTX 2080 Ti Dual
System case	Corsair Graphite Series 780T Black
Total:	577 700 rubles

Back