

Computer Users Group of Greeley Presentation
Building a New High End Computer
Ron Mettler February 11, 2017

Why do it?

Assembling your own computer from purchased parts can be rewarding in a number of ways and can be relatively simple and quick to do so. There are numerous advantages to a home-assembled computer as follows:

- You can customize the system by selecting what you need for your use. Do you really need a DVD writer, do you want USB 2, 3, or 3.1?
- You will generally end up with a system that has component warranties of 3 years to lifetime as opposed to 90 days to a year. There is no need for costly extended warranties.
- You can install any operating system you choose such as Windows 7 or 10, Linux, or both. The manufacturer will not inundate the system with crapware. The end result will be more bang for the dollars spent especially if extended warranty costs are considered.

What components are required?

Case
Motherboard
CPU (Central Processing Unit)
Cooler System for CPU (may be included with the CPU)
Hard Drive
Memory Chips
Power Supply
Optional Memory Card Reader
Optional DVD Writer/Player
Operating System Install DVD or USB
Optional Keyboard and Mouse
Optional Monitor
Optional Video Card if not a part of the motherboard

What I chose for my latest build

NZXT Phantom 410 Case, Gun Metal Finish
Asus Motherboard ROG STRIX Z270E Gaming (Intel Z270 Chipset) with LGA1151 Socket
Intel i7, 7th Gen, Kaby Lake i7-7700K CPU, LGA Socket
Corsair Hydro Series H105 Liquid CPU Cooler
Samsung 960 PRO Series, 512 GB M.2 SSD hard drive
Corsair Memory Kit, Platinum Series, 16 GB (2x8GB) DDR4 3200 MHz
EVGA Supernova G3 750 Watt modular Power Supply

Cost

For the above components all purchased from Amazon.com I paid \$1486 including 7.01% sales tax.

Existing Components to be Reused

HP 23" DVI/HDMI 23" Monitor
Gateway 23" HDMI Monitor
Logitech M525 Mouse
Microsoft Wired Keyboard
LB Lansing Speakers
Logitech Webcam C510

Unpacking and Assembly

I used my tablet to take pictures of all of the component box labels containing the serial numbers and part numbers. I printed to a PDF file all of the invoices for the components. Downloaded all user guides and quick start guides.



All user guides, pictures and invoices are contained in a folder for future reference and warranty information.

1. Install the standoff mounting nuts in the case for mounting the motherboard.
2. Set the motherboard on the anti-static bag. Install the CPU with the CPU cooler and memory chips. Plug the CPU cooler fan into the motherboard.
3. Install the motherboard I/O plate into the case.
4. Mount the motherboard in the case and insert the screws to the mounting nuts.

5. Install the power supply into the case and plug the two motherboard power connectors in.
6. Install the preferred hard drive. The Samsung M.2 hard drive was installed on the motherboard in step 2. above. A conventional hard drive or a SATA Solid State hard drive would normally be installed at this stage. Note that for hard drives other than an M.2 drive, a SATA cable would connect from the drive to the motherboard and the power supply would be connected to the hard drive.
7. Connect any additional fans if supplied to the power supply.
8. Install optional DVD drive and other accessories.
9. Boot and install the operating system.

References

<http://www.wikihow.com/Build-a-Computer>

<http://www.pcworld.com/article/2987057/computers/how-to-build-a-pc-a-step-by-step-comprehensive-guide.html>

<http://www.tomshardware.com/reviews/build-your-own-pc,2601.html>

<http://www.pcgamer.com/how-to-build-a-gaming-pc-a-beginners-guide/>