



PLTW Engineering

**12/Career Exploration – Computer  
Hardware Engineer**

April 24, 2020



12/EDD

Lesson: 4/24/2020

**Objective/Learning Target: Students will be able to explain the career path of a computer hardware engineer**



## What do computer hardware engineers do?

Computer hardware engineers ensure that computer hardware components work together with the latest software. Therefore, hardware engineers often work with software developers. For example, the hardware and software for mobile phones and other devices frequently are developed at the same time.

Many hardware engineers design devices used in manufactured products that incorporate processors and other computer components and that connect to the Internet. For example, many new cars, home appliances, and medical devices have Internet-ready computer systems built into them.



## Typical Job Duties

Computer hardware engineers typically do the following:

- Design new computer hardware, creating schematics of computer equipment to be built
- Test the computer hardware they design
- Analyze the test results and modify the design as needed
- Update existing computer equipment so that it will work with new software
- Oversee the manufacturing process for computer hardware



## Work Environment

Computer Hardware Engineers work in offices, laboratories, or manufacturing firms. They conduct most of their work at computer workstations. Others may spend time overseeing the installation or testing of equipment.

Engineers may also be required to work under sterile conditions.



## How to become a Computer Hardware Engineer

Most computer hardware engineers need a bachelor's degree from an accredited computer engineering program.

Most entry-level computer hardware engineers have a bachelor's degree in computer engineering, although a degree in electrical engineering or computer science also is generally acceptable.

A computer engineering major is similar to a major in electrical engineering but with a heavy emphasis on computer science.



## Education Requirements

Many engineering programs are accredited by ABET. Employers may prefer candidates who have graduated from an accredited program. To prepare for a major in computer or electrical engineering, students should have a solid background in math and science.

Because hardware engineers commonly work with computer software systems, a familiarity with computer programming is usually expected. This background may be obtained through computer science courses.

Some large firms or specialized jobs may require a master's degree in computer engineering. Some experienced engineers obtain a master's degree in business administration (MBA). All engineers must continue their learning over the course of their careers in order to keep up with rapid advances in technology.



## How much do hardware engineers get paid?

The median annual wage for computer hardware engineers was \$114,600 in May 2018. The median wage is the wage at which half the workers in an occupation earned more than that amount and half earned less. The lowest 10 percent earned less than \$66,700, and the highest 10 percent earned more than \$172,630.





## Quiz yourself

1. What other types of professionals do hardware engineers most often work with?
2. List 2 typical job duties associated with a hardware engineer.
3. What types of clothing would a hardware engineer need to wear if they were working in a sterile environment?
4. What is the minimum education level for a hardware engineer?
5. What is the median pay for a hardware engineer?



## Helpful links

[How computer science relates to hardware engineering](#)

[How to become a Computer Hardware Engineer](#)