Expansion Cards

# Lesson Overview.

In this lesson, we will cover:

* The why of expansion cards.
* Types of expansion cards.
* Expansion card installation.

# The why of expansion cards.

Thanks to the highly modular nature of the PC, expansion cards are a great way to increase the functionality or capabilities of a system.

Expansion cards can extend the capability of a system by adding more resources. Expansion cards can increase functionality by adding abilities that were not in the original system. Expansion cards are often a fairly inexpensive solution to a multitude of issues that may occur.

# Types of expansion cards.

## Sound cards.

Sound cards expand the sound capabilities of a PC. They are popular with gamers and those who watch videos, and/or television, on their PCs. With a sound card, a system can go from mono sound, to stereo sound, to surround sound.

## Video cards.

Video cards can increase the overall performance of a system, depending upon the card that is installed. They can also allow the addition of multiple monitors. One of the ways that they increase performance is by taking the workload off of the CPU and transferring it to the video card. A good video card is a wise investment.

## Network cards.

Most motherboards have built in network cards; however, they can fail or they might not connect to the right type of network in your situation. Additionally, you might need to connect with another or different type of network or make multiple network connections. Those are a few examples of situations where a network expansion card could prove useful.

## Serial and parallel cards.

Another reason to add expansion cards would be the need to expand the life of legacy applications. Most systems nowadays do not come with a serial or parallel port; however, some applications and situations still call for those types of connections. You can add an expansion card that has a serial and/or parallel port in your system.

## USB cards.

An expansion card will allow you to add more USB ports to a system. You can also add newer versions of USB by using an expansion card.

## FireWire cards.

You can also add more FireWire ports to your system. If you don’t have FireWire, you can use an expansion card to add it, and, by installing an expansion card, you can update your system.

## Storage cards.

A variety of storage solutions are available through the use of expansion cards. If you need to add a SCSI tape array, you can add an expansion card that allows you to connect to SCSI devices. There are also expansion cards that are solid-state drives in their own right. They are an extremely unique solution for storage and they are very fast; however, they tend to be fairly expensive.

## Modem cards.

Most systems no longer come with built-in modems. However, some virtual private networks require the client to dial-in in order to connect and a modem is needed to do so. An expansion card that has a modem built into it will resolve this problem.

## Wireless/Cellular cards.

Wireless and cellular network cards allow you to take advantage of wireless networks and a cellular card can take advantage of LTE or 4G networks. Caution: additional data charges may apply.

## TV tuner cards.

A TV tuner card allows a PC to make a cable television connection. This is a popular option for a home theater PC. Cable television can be routed through, or watched, on the PC.

## Video capture cards.

Video capture cards are used to capture video images. Specialized cards are used to capture video and/or still images that cross through the PC and they may be combined with a TV tuner card.

## Riser cards.

The riser card is used as an adapter for other cards. They are plugged in and offer the ability to install another card at a 90-degree angle. They are used when space is tight.

# Expansion card installation.

When installing an expansion card, some planning should be undertaken prior to the physical installation. A good plan will prevent problems from occurring.

## Planning Steps

1. **First determine what you are trying to accomplish.** There are often multiple ways to solve the issue; which one is right for this situation?
2. **Is there an open slot?** If there is not, then a decision has to be made on how to free one up.
3. **Is there enough physical space?** Check the dimensions of the proposed card.
4. **Is there a better option?** Do your research. Plan for the future (it can be less expensive in the long run).
5. **Read the documentation.** Specifically look for when the driver needs to be installed (now or later).

## Physical Steps

1. **Power down and open the case.** Make sure that you follow all safety procedures.
2. **Determine which slot to use.** If an open slot, install the card, making sure it is firmly seated. If an occupied slot, remove the old card and then install the new one, making sure it is firmly seated.
3. **Close the case, and power up.** Once the system is powered up, test for functionality to make sure it works correctly.
4. **Check the manufacturer’s website.** Often there is an updated driver or firmware that you may want to install to make sure that you have all the functionality that is required.

# What was covered.

## The why of expansion cards.

Because of the modular nature of the PC, expansion cards can increase capabilities or extend the functionality of a system.

## Types of expansion cards.

There are a plethora of expansion cards available. These include: sound, video, serial and parallel, USB, FireWire, storage, modem, wireless/cellular, TV tuner, and video capture cards. A riser card is used when space is tight; it allows for the installation of another card at a 90 degree angle from the rest.

## Expansion card installation.

Determine what you are trying to accomplish and other considerations. Read the documentation for the card, power down, install the card, power up, and then check for updates.