What is Microsoft DirectX?

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What is Microsoft DirectX?

Microsoft DirectX is a collection of application programming interfaces (APIs) that handle multimedia-related tasks, especially game and video programming on the Microsoft platform. Initially, the names of all these APIs started with Direct, such as Direct3D, DirectDraw, DirectMusic, DirectPlay, DirectSound, and so on. The DirectX name is set as an abbreviated term for all these APIs (X represents specific API names) and quickly becomes the name of the collection. When Microsoft set up to develop a gaming machine, X was used as the basis for the Xbox name to refer to DirectX technology-based gaming machines. Initially X stood before the names of APIs designed for the Xbox such as the XInput and Cross-platform Audio Creation Tool (XACT) while the DirectX model continued for Windows API such as Direct2D and DirectWrite.

Direct3D (3D graphics API in DirectX) is widely used in developing video games for Microsoft Windows and Xbox gaming consoles. Direct3D is also used by other graphics software applications such as CAD / CAM technology. Since Direct3D is DirectX's most widely published component, it is common to see "DirectX" and "Direct3D" names being used interchangeably.

DirectX Software Development Kit (SDK) includes Runtime libraries in binary form that can be redistributed, along with accompanying documents and titles used in encryption. Initially, the runtime was only installed by certain games and users. Windows 95 does not have DirectX, but DirectX is included in Windows 95 OEM Service Release 2. Windows 98 and Windows NT 4.0 both have DirectX and are included in Windows versions released since then. SDK is available as a free download. Although the runtime is proprietary, but closed source software, source code is provided for most SDK models. Starting with the release of Windows 8 Developer Preview, DirectX SDK has been integrated into the Windows SDK.

DirectX components

DirectX is divided into three layers (layers): Foundation Layer (Foundation Layer), media layer (Media Layer) and component layer (Components Layer)

*** Foundation class:**

Foundation is a core part of DirectX, it is a low-level API set that forms the basis for high-performance multimedia activities in Windows. Through the foundation layer can impact the following APIs:

+ **DirectDraw:** Managing graphic surfaces.

+ **Direct3D:** Provide low-level 3D features.

+ **DirectInput:** Support input devices, including new generation Joystick.

+ **DirectSound:** Provides sound effects and voice mixers.

+ **DirectSound 3D:** Help create 3D sound effects from conventional 2D speakers.

+ **DirectSetup:** Help install software, drivers automatically

*** Vehicle class:**

DirectX's Media Layer includes application-level APIs, leveraging the capabilities of the platform layer. These media class services are independent of the devices. This means class includes:

+ **Direct3D:** Provides a set of 3D performance features.

+ **DirectPlay:** Support many people to join the game online.

+ **DirectShow:** Manage the Slide Show.

+ **DirectAnimation:** Provides animation capabilities.

+ **DirectModel:** Provides 3D simulation capabilities.

*** Component class:**

Components Layer is the top layer of DirectX, it can take advantage of the features of the two layers above (Media and Foundation) including:

+ **NetMeeting:** Support teamwork in computer networks.

+ **ActiveMovie:** Set of MPEG movie management and presentation tools, support for playing audio and video files.

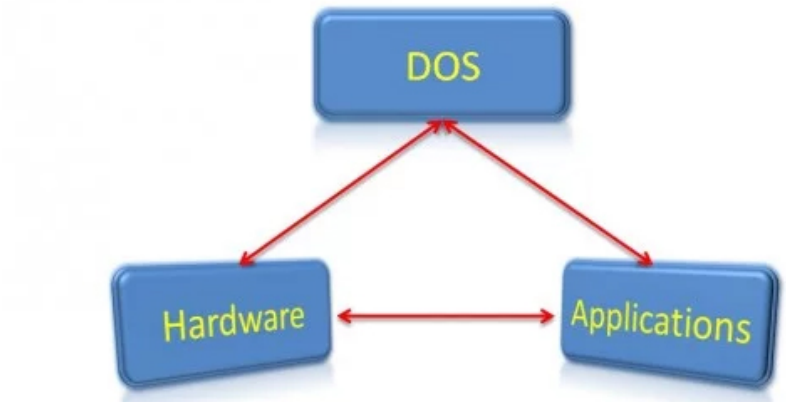
+ **NetShow:** Support the transmission of multimedia content over the Internet.

How does DirectX work?

As mentioned above DirectX is built by Microsoft as a collection of APIs for multimedia processing purposes. It includes a large DLL library, allowing software developers especially games to have direct access to computer hardware. Therefore developers can create high quality graphics but fast speed, rich sound and no programming problems for input devices. However, in case the necessary hardware is not in a specific PC computer configuration, DirectX will simulate the required functionality from the software side.

It is important to gain direct access to the computer. You can clearly see this when the DOS (Disk Operating System) is at glory. At that time, developers could turn their dreams into reality in a computer environment. Because they have no trouble accessing VGA cards, input devices, sound cards, etc.

Communication between DOS, hardware and applications

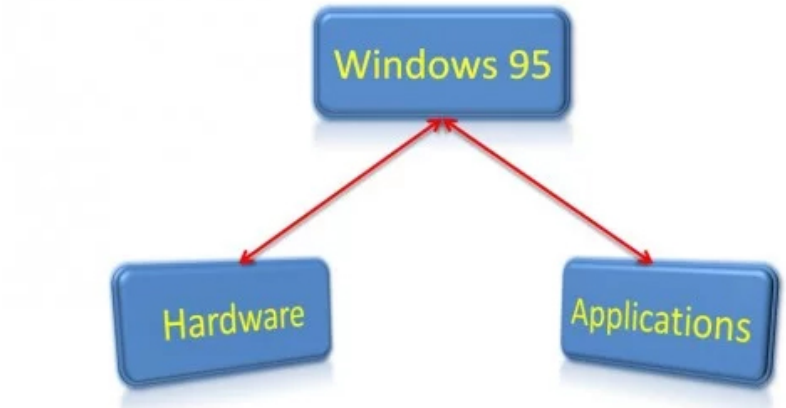


However, when computer manufacturers started developing more complex hardware, software developers had difficulty writing the right code to access specific hardware.

Recognizing this problem, Microsoft introduced Windows 95 operating system. They promised that this computer would be simpler than ever, thanks to the introduction of Plug and Play technology. With this technology, all PC users just need to plug in any new hardware to the computer and the system will automatically detect it.

Windows 95 also comes with a standalone device management system, however, most software developers at this time do not find it attractive to develop applications for this platform. As a result, they still use DOS mode to run the software they develop. This requires users to boot the computer into DOS mode before running the application. In addition, developers will have to write their system similar to DOS.

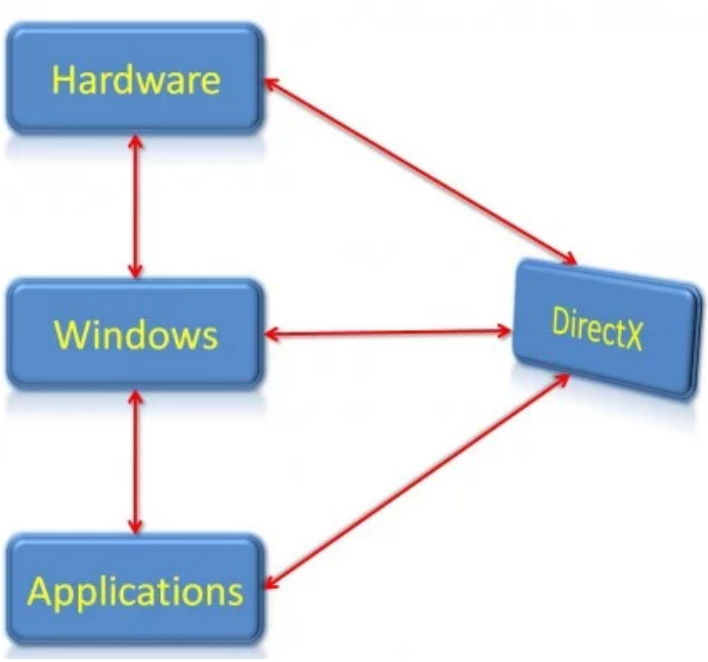
Communication between hardware and applications via Windows 95



From these problems, computer software manufacturers create device drivers and are used to this day. The driver is used to ensure new hardware devices are compatible with any possible PC configuration combination.

Therefore DirectX becomes handy. Most computer systems today have the ability to run applications that use DirectX and applications simultaneously in a convenient way. In addition, software developers can write their applications for Windows as do with DOS.

DirectX in the game



DirectX has a collection of important commands and tools required by applications or software to communicate with hardware. This is why games using DirectX often have very high photorealistic graphics (realistic images). With DirectX, developers can make the most of 3D capable graphics processing units, sound cards and other hardware thanks to low-level language support.

When do you need DirectX?

Most of the time you need DirectX is when you want to play games designed for Windows 98 or newer operating systems. However, you need to know the version of DirectX to use. Fortunately, if the game you want to play requires a version of DirectX not available in the system, you don't need to worry. Games usually come with the installer for the required DirectX version. Also, be sure to install the latest drivers for your hardware, especially graphics cards and sound cards. Refer to the article 5 basic ways to update and update drivers for computers.

See more:

1. How to download Direct X and install DirectX on your computer
2. What is DirectX 12? How important?
3. The reasons why the game does not run on PC

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