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Network interface card pdf

James Gallagher is a self-taught programmer and technical content manager at Career Karma. He has experience in programming languages and extensive experience in Python, HTML, CSS and JavaScript. James has written hundreds of programming tutorials, and often contributes to publications such as Codecademy, Treehouse, Repl.it, Afrotech, among others. He also serves as a researcher at Career Karma, publishing comprehensive reports on the bootcamp market and income participation agreements. Read more [Comments \(0\)](#) Network interface card, short for NIC, is an important hardware component used to provide network connections. With its extensive applications, there are several types of network interface cards emerging on the market, such as PCIe card and server network card. In this post, we will have a complete exploration of this hardware component of what is a network interface card for its function, components and types. Before entering the nic setting, you need to know that there are some names for the network interface card based on habits in different regions, such as network interface controller, Ethernet card, LAN card, network adapter, or network adapter card (NAC). It seems a bit confusing, but no matter what names the NIC has, they all refer to the circuit board that allows devices such as computers and network servers to be connected to a network. Currently, the NIC card designed as a built-in style is commonly found on most computers and on some network servers. In addition, network cards such as server network card can also be inserted into device expansion slots. The NIC definition is very simple, but what does a network interface card do and what is the function of the NIC? Working as an interface in the TCP/IP layer, a NIC card can transmit signals in the physical layer and provide data packets in the network layer. No matter what layer the network interface controller is in, it acts as an intermediary between a computer/server and a data network. When a user requests a web page, the LAN card gets data from the user's device and sends it to the server on the internet, then receives the necessary data back from the Internet to display to users. Conventionally, a network adapter consists primarily of a controller, boot ROM jack, one or more NIC ports, a motherboard connection interface, LED indicators, a profile holder, and some other electronic components. Each component of a LAN card has its unique function: Controller: The controller is like a mini CPU, processing received data. As a central part of a network adapter, the controller directly decides the performance of the network adapter. Boot ROM system: This boot-on card allows for boot rom capability. Boot ROM allows disccuss workstations to become increasing security and reducing the cost of hardware. NIC port for cable/transceiver: Typically, this port will connect directly to an Ethernet cable or transceiver, which can generate and receive electronic electronics placed on the network cable or fiber cable. Bus interface: This interface is on the side of the circuit board, which serves for the connection between the NIC and the computer or server through being connected to its expansion slot. LED indicators: Indicators are used to help users identify the operating status of a network card if the network is connected and the data transmitted. Profile support: There are two types of profile media on the market. One is called a full height support with a length of 12 cm, and the other is the low profile bracket with a length of 8 cm. This support can help users fit the NIC in the expansion slot of a computer or server. Network interface cards can be classified into different types based on different features, such as host interface, transmission speed, and application fields. The next part gives the details. Network connection-based ratings Based on how a network card accesses the network, there are wired NIC and wireless NIC. As the name shows, a wired NIC usually has to connect a node on a network with a cable such as Ethernet cable and fiber optic cable. A wireless NIC card often comes with a small antenna, which uses radio waves to communicate with the access point to engage on a wireless network. Industry Standard Architecture (ISA) CARD (BUS)-based bus interfaces: The ISA bus was developed in 1981, which was a standard bar architecture for IBM-compliant. Due to the card's low 9Mbps speed, the ISA bus interface is now no longer a recognized type, and it is difficult to find it in current stores. PCI (Periféria Interconnect) network card : The PCI bus was developed in 1990 to replace the previous ISA standard. It has a fixed width of 32 bits (transmission data of 133MB/s) and 64 bits (transmission data of 266MB/s). Today, most PCs do not have expansion cards, but devices integrated into the motherboard. As a result, the PCI network card has been replaced by other bus interfaces, such as pci-x or USB interface. PCI-X Network Card (EXtended Interconnected Perivacation): PCI-X is an enhanced PCI bus technology. It operates at 64 bits and is capable of up to 1064 MB/s. In many cases, pci-x is backwardcompatible with PCI NIC cards. PCIe NETWORK CARD (Interconnect Express Component Peripheral): PCIe is the latest standard and is now popular on computer and server motherboards. The PCIe NIC card is now available in five versions, and each version supports five types of tracks at different speeds. Learn more about the PCIe network card, read the post: PCIe Card Tutorial: Everything you need to know about the PCI Express Card. PCIe Version Line Code x1 x2 x4 x8 x16 1.0 8b/10b 250MB/s 1.0GB/s 2.0GB/s 4.0GB/s 2.0 8b/10b 500MB/s 1.0GB/s 2.0GB/s 4.0GB/s 8.0GB/s 3.0 128b/130b 984.6MB/s 1.97GB/s 3.94GB/s 7.88GB/s 15.8GB/s 4.0 128b/130b 1969MB/s 3.94GB/s 7.88GB/s 15.75GB/s 31.5GB/s 5.0 5.0 3938MB/s 6.15GB/s 12.3GB/s 24.6GB/s 63.02GB/s USB (Universal Serial Bus) network interface card: The USB bus is an external bus standard. It has three versions with different data rates and can work in conjunction with a variety of devices. In addition, the wireless network card is also a type of NIC card, which is designed for Wi-Fi connection. Classifications based on the type of port According to different connected cables, four types of NIC ports can be found on the market. The RJ-45 port is used to connect with twisted pair cable (such as Cat5 and Cat6), AUI port used for thick coaxial cable (such as AUI transceiver cable), BNC port for thin coaxial cable (such as BNC cable), and optical port for transceiver (as 10G/25G transceiver). Transmission speed-based ratings Based on different speeds, there are 10Mbps, 100Mbps, 1000Mbps, 1000Mbps, 10GbE, 25G or even higher speed network cards on the market. Adaptive 10Mbps, 100Mbps and 10/100Mbps NIC cards are suitable for small lan, home uses or everyday offices. The 1000Mbps NIC provides higher bandwidth on the Gigabit network. As for the 10Gb/25Gb nic or even higher speed NIC cards, they are welcome by large companies or data centers. To learn more about the NIC 25G, you can read this post: 25G NIC - the highly Effective Path to the 100G Network. Application Fields Based Classifications Computer NIC card: Today, most new computers have the NIC embedded in the motherboard, so a separate LAN card is not required. It usually comes with 10/100Mbps, and 1Gbps speed, and allows a PC to communicate with other PCs or networks. Server network card: The primary function of a server network card is to manage and handle network traffic. Compared to the common PC network adapter, server adapters often require a faster data transmission speed such as 10G, 25G, 40G and up to 100G. In addition, server adapters have a low CPU occupancy rate, as it has a special network controller that can take many cpu tasks. To meet the different speed demands of server adapter users, FS has released PCIe 10G adapters and 25G/40G NIC cards. Built with the Intel controller, these PCIe adapters support multi-core processors and optimization for server and network virtualization. NIC card performance directly affects the data transfer rate of the global network. If you are looking for network adapters for home use, or a server network card for SMB or data centers, you need to understand what a network interface card, component, and NIC function is, as well as NIC types before purchasing a network interface card. To learn more about buying a network card, you can read this post: How to Choose a Network Card?. Engineering Computer NetworkKCA Computing A network interface card (NIC) is a hardware component without which a computer cannot be connected over a network. It is a circuit board installed on a computer that provides a dedicated network connection to the computer. It is also called a network interface network adapter or LAN adapter. PurposeNIC enables wired and wireless communications. The NIC enables communications between computers connected via lan (local area network), as well as large-scale network communications via the Internet Protocol (IP). Nic is a physical layer and a data link layer device, that is, provides the necessary hardware circuits so that physical layer processes and some data link layer processes can run on it. Types of NIC CardsNIC cards are of two types -internal network cardsOn internal network cards, the motherboard has a slot for the network card where it can be inserted. Requires network cables to provide network access. Internal network cards are of two types. The first type uses pci connection (Peripheral Component Interconnect), while the second type uses Industry Standard Architecture (ISA). External network cardsOn desktops and laptops that do not have an internal NIC, external nics are used. External network cards are of two types: wireless and USB-based. The wireless network card needs to be inserted into the motherboard, however, no network cable is required to connect to the network. They are useful during travel or access to a wireless signal. Published on 05-Feb 2019 17:23:18 17:23:18

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