PCMCIA, CardBus & PC Cards Explained

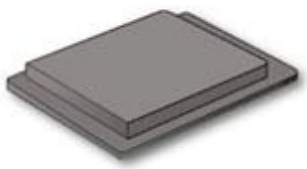
PC cards, or PCMCIA cards as they are sometimes referred to, now offer a wide range of devices and interfaces, some of which include, RAM memory, data/fax modems, sound cards, CD-ROM, SCSI controllers, USB 1.0/1.1/2.0 cards, Global Positioning System (GPS), RS-232, LAN interfaces, wireless interface cards and hard drives, to name but a few.

The Personal Computer Memory Card International Association (PCMCIA for short) was formed by a group of PC card manufacturers in the late 1980's in order to define the PC card's physical design, computer socket design, electrical interface, and associated software.

The current PC card specification describes three card types, all of which measure the same length and width and use the same 68-pin socket connector. One of the main differences between each card type is the thickness. Type I is the original design and is 3.3mm thick, and generally used for memory devices, Type II is slightly thicker 5.0mm, and is the most common in use today, and usually used for I/O devices. Type III cards expand the thickness to 10.5mm, and are primarily used for miniature hard drives.

Type I Card

Type II Card



Type III Card

CardBus Cards

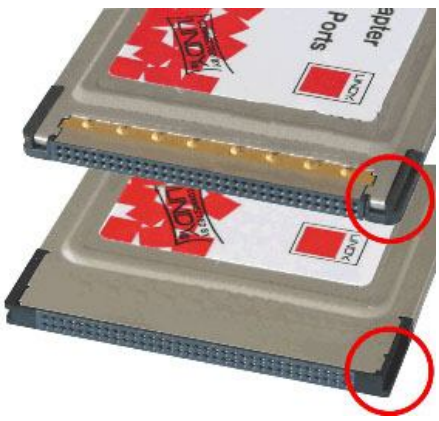
The PC card specification has undergone a number of enhancements over the past few years, one of which specifies a low voltage operating design using 3.3 Volt electronics; this in turn permits energy and battery savings when used with portable battery operated computers and PDAs.

CardBus is the latest enhancement to the PCMCIA standard, and has refined, and enhanced the PCMCIA bus structure. The main purpose of CardBus was to extend the existing PCMCIA bus to allow more powerful devices, and also provide support for 32 Bit I/O, bus mastering, and the ability to operate at speeds up to 33MHz.

Before choosing or buying a PC card it is very important to know which type of PC card slot your computer has. Older computers with Type 1 slots will not accept the new CardBus architecture. Some earlier Type II slots also do not support CardBus cards, and to prevent possible damage, a physical keying mechanism for 3.3 Volt cards prevents them from being installed into an older 5 Volt slot (see picture below).

With desktop computers there is an ISA bus (8 or 16 Bit slot) and a PCI bus (32 Bit slot). You can think of standard PCMCIA as the ISA bus and CardBus as the PCI bus for notebooks. A 16 Bit PCMCIA card will work in a notebook with CardBus support. This is because the Card Services interface is also defined for 16 Bit PC Cards; this allows the same Card Services client to be used to manage both CardBus and non-CardBus PC Cards. However, most CardBus cards will not work in non-CardBus or 16 Bit slots.

Please click here to view our full range of CardBus Adaptor Cards and PC Cards (referred to as PCMCIA Adaptor Cards).



Shows different keying for 5V and 3.3V PC & CardBus cards. *Top card:* PCMCIA CardBus Card (32 Bit, 3.3V) *Bottom card:* PCMCIA Type II Card (16 Bit, 5V)