Note that this application subjects the ferrite to a net DC bias current. As discussed in the previous section, the impedance and resulting noise attenuation of a ferrite drops with increasing net DC or low frequency AC bias current; therefore, the amount of attenuation obtained from a ferrite DC filter circuit will depend upon the current requirements of the active device and the impedance versus forward DC current characteristic of the ferrite.
需注意此應用令鐵氧磁體受到一淨直流偏壓電流，如前所討論，其阻抗及所造成雜訊減低能力會隨著淨直流或低頻交流偏低電流而降低，因此一鐵氧磁體直流濾波電路對減低雜訊的大小會隨著主動元件所需的電流及鐵氧磁體的阻抗對直流電流的特性曲線而異。

Time-to-market design pressures have inspired a new generation of modular electronic products whose features can be easily upgraded with cost-effective interchangeable PC boards. For successful EMI control of such product architecture, EMC engineers must design in a type of "configuration independence" in which any possible combination of product features and hardware options will always pass mandatory Taiwan and international EMI requirements. Since high frequency noise is often produced on and conducted through a PC board's power distribution bus, the tendency of interchangeable circuit boards to create EMI problems can be substantially reduced by filtering the power input to each circuit board, as shown in Figure 11.
縮短上市時間的設計壓力，開啟了新一代模組化的電子產品，其具有可以簡易地以經濟且可互換的基板來作升級，為了成功地控制此種產品架構的電磁波干擾，EMC工程師必需設計一種與"組裝無關"而能使產品功能和選擇硬體的所有可能組合皆能通過台灣及國際的電磁波干擾要求，因為高頻雜訊通常由基板上的電源分佈匯流排產生併藉其傳導，此種因可交換的電路板而產生之電磁波干擾問題的趨勢，可藉由對各個電路板的電源輸入端作濾波而得到有效的降低,如圖例十一。

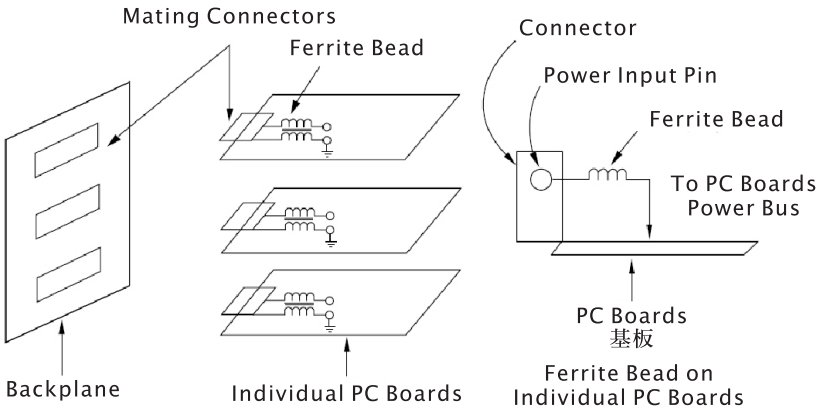

FIGURE 11: Using ferrites to filter the DC power input of interconnect- ed PC boards

This design approach can also substantially reduce "common frequency" type problems where the noise output of multiple circuit boards with indentical operating frequencies combine at one or more frequencies to create large radiated emission test failures. Examples of DC power filtering can be found in notebook computers, where external battery packs, AC adapters, and facsimile, printer, and other communication options must connect to an "EMI-noisy" main system module. Other applications include backplane/daughter board arrangements as found in low cost computer network hardware, where multiple PC boards receive power and data from a single high frequency backplane arrangement.Since the described DC filter applications will subject the ferrite components to DC bias current, the maximum in-circuit impedance (and hence maximum noise attenuation) achieved will be less than that obtained under zero bias conditions. In applications involving DC bias above 300 milliamperes, the greater cross-sectional area and higher zero bias impedance of these devices will provide better performance than smaller radial and surface mount devices.
此種設計方式亦可明顯的降低"共同頻率"型式的問題，指數個電路板上的雜訊輸出與其相同的操作頻率在單一或數個頻率相結合而造成嚴重的幅射放射測試失效，直流電源濾波的例子可於筆記型電腦上發現，在其外接的電池組，交流整流器，傳真機，列表機及其他的可連接的通訊設備皆必需接連到一"電磁波干擾-雜訊"的主要系統模組，其他的應用，包括如在低價的電腦網路硬體中的背板/子板方式， 其數個板由單一的高頻背板接收電源及資料，因此描述的直流濾波應用會使鐵氧磁體元件承受一直流偏壓電流，故最大之通電流阻抗(及可說是最大雜訊降低)會比在零偏壓狀況下來的小，對直流偏壓大於300毫安的應用，用較大截面積及高零偏壓阻抗的元件會比小的徑向且表面黏著的元件來的好。

Filtering Of Input/Output (I/O) Data Conductors(輸入/輸出訊號導線的率波)

One of the most common and cost effective applications of ferrites is the filtering of conductors that must bring signals into and out of an EMI noisy environment such as the inside of a high speed personal computer enclosure. For example, energy radiated from a central processor (CPU) integrated circuit (IC) may couple into the "driver' IC that sends to and receives data from the system's external keyboard and mouse, as shown in Figure 12. The long external cables of these devices then radiate the noise that previously was confined to the shielded enclosure of the computer. Gausstek ferrites can be used between the driver IC and the key board and mouse connector to insert a large signal loss in series with the high frequency CPU noise on the data lines. Since the keyboard and mouse signals have essentially zero signal energy above 1 MHz, they will pass through the ferrite filter undisturbed.