Chapter 6 Introduction to the Latest Technologies

6.1   Intel® ViiV™ Technology

Intel® Viiv™ technology is a new-generation PC platform designed for digital home entertainment. PCs with the Intel® ViiV™ certification are equipped with the Intel® dual-core/quad-core processor and support critical components such 7.1-channel audio function, network connection and Windows® Vista™ Home Premium and Ultimate (32-bit) operating systems. These PCs are characterized by convenient operation simply with a remote control.

Using an Intel® ViiV™ compliant computer and peripherals that support this technology, users can sit on the couch and control various multimedia functions such as digital videos, photos, music playback, video games, as well as recording/pausing/replaying TV programs that are aired in real time. Moreover, Intel® continues to seek collaboration with digital entertainment providers around the world to provide consumers with on-demand digital content that can be accessed anytime, anywhere.

### Understanding Intel® ViiV™ Components

← Any Intel® Viiv™ technology-certified product gets this Viiv logo.

← The Intel® G31, G35, G33, P35 and X38 chipsets are equipped with ICH7DH, ICH8DH or ICH9DH South Bridge chips to provide 7.1-channel stereo surround sound output function, which is also a key feature of a ViiV™ system.

← The Intel® Core™2 Duo, Core™2 Extreme and Core™2 Quad multi-core processors play a vital part in promoting the efficiency of a ViiV™ system.

← Only a computer using the Windows® XP™ MCE (Update Rollup 2), Windows® Vista™ Home Premium or Windows Vista™ Ultimate (32-bit) operating system can fully display the digital home entertainment functionality designed by Intel®.

6.2 Intel® Turbo Memory

Intel® Turbo Memory is a NAND flash memory technology, formerly code-named "Robson", which Intel® launched in mid-2007. The technology adds a layer of NAND flash memory between the CPU and hard disk, in order to serve as a temporary area for data storage, reducing the amount of times your computer has to access data on the hard disk and increasing system startup speed and program activation. This is also an important technology for the fourth-generation Centrino computing platform, Intel® Centrino Pro, code-named "Santa Rosa," which is expected to add the desktop computer support in 2008 and will be included in the fifth-generation Centrino computing platform.

When the computer is running, the system will continue to retrieve data from the hard disk and temporarily store the data in the memory so that the processor can use the data in the memory for computation. To be more exact, Intel® Turbo Memory offers faster data access efficiency than the hard disk by installing an interface card and using NAND features that are not sensitive to power supply. The storage device provides a temporary space which is larger than the system memory, and when starting up, the computer can access from the flash memory the required boot-up files that have been loaded previously without having to wait for the hard disk to start up. Doing so can decrease the system startup time by half and can also save 50% of the time to activate programs or wake the system from sleep mode. As the computer does not always access the hard disk for data, the motor of the hard disk does not have to be frequently turned on, significantly saving power, reducing hard drive spin noise and prolonging hard disk life, while greatly improving startup speed.
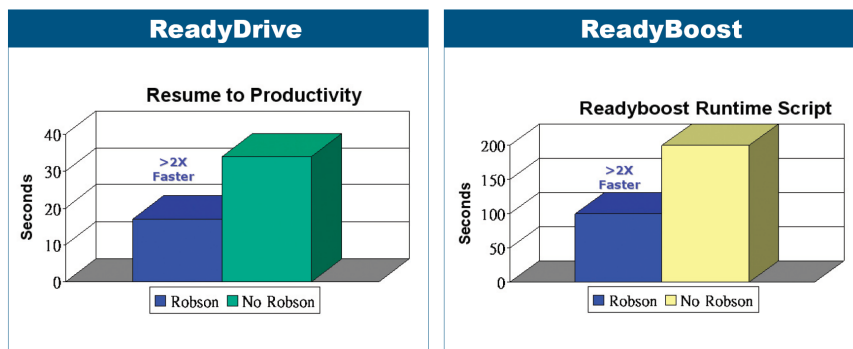
⬆ According to the official data, a computer equipped with the Intel® Turbo Memory technology can save over 50% time in startup or waking from the sleep mode.

6.3 Windows® Vista™

Vista™ is Windows® new operating system featuring a revolutionary new user interface with easy-to-use navigation, enhanced security and improved entertainment features. Windows® Vista™ also features the built-in Windows® Aero special effects UI (User Interface) with new 3D effects, making it easier than ever to navigate your computer. As computers are becoming the primary entertainment device in the home, Vista™ has been upgraded with a host of multimedia tools, making it easy to play digital photos, videos or music. Combined with Windows® Media Center™, the operating system transforms the computer into an all-in-one home theater device. To enhance the security of important files, Vista™ has an auto-schedule backup function to help users backup and restore their critical data at any time. The built-in Windows® Defender security monitoring software is able to prevent the system from attacks by vicious software, fraud web sites or phishing web sites. The operating system also allows parents to use parent monitoring functions to manage specific web sites and games, or to limit the weekly hours of computer use for children.

Analyzing Windows® Vista™ versions

Features	Home Basic edition	Home Premium edition	Business edition	Enterprise edition	Ultimate edition
Windows® Defender and Windows® firewall	●	●	●	●	●
Windows® Internet Explorer 7 and instant search	●	●	●	●	●
Windows® Aero desktop experience		●	●	●	●
Windows® Mobility Center and Tablet PC support		●	●	●	●
Shared assignments and documents		●	●	●	●
Windows® Media Center™ entertainment experience, production of high-resolution DVD movies		●			●
Auto-schedule backup of files		●	●	●	●
Network center and remote desktop			●	●	●
Windows® BitLocker Drive Encryption data protection				●	●

Note: The Windows® Vista™ Enterprise edition is available only to Volume License (EA/Select/Open Value) customers who have PCs covered by Microsoft Software Assurance, and is suitable for large global organizations with complicated IT infrastructures.
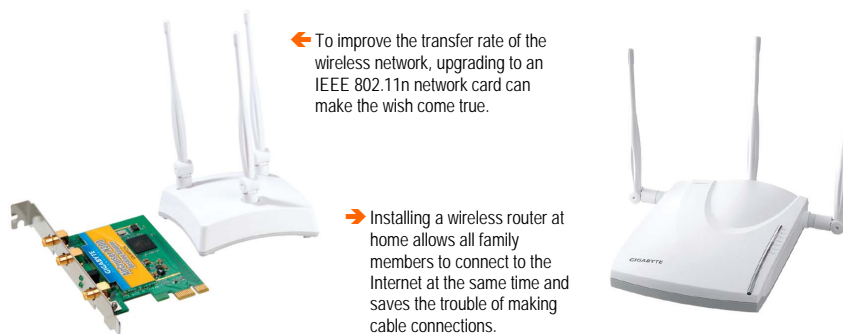
Microsoft® has provided different types of users with various editions of Windows® Vista™, including the Home Basic, Home Premium, Business, Enterprise and Ultimate editions. These editions provide solutions for word processing personnel, Internet users, enterprise users handling large amount of confidential data, or high-tech professionals.

6.4   Wireless Communication

Wireless data transfer technologies continue to develop at an ever faster rate. Currently, Wi-Fi technology is most popular home wireless solution, while personal solutions include Buletooth and IrDA.

Wi-Fi is a very important tool for Internet connectivity. The latest wireless technology is IEEE 802.11n with up to 300Mbps data transfer rate, five times of current 802.11g, and up to 200m transfer distance, twice that of the current generation. The latest technology has great improvement in reducing signal weakening caused by indoor blockage, as well as in increasing transfer quality. The high efficiency makes sharing high-definition videos via the wireless technology possible for future wireless digital home.

Bluetooth technology has replaced IrDA and has become the main tool for short-distance data transfer due to its efficient transfer with the rate up to 3Mbps, easy pairing procedure and lack of direction limitation. The latest Bluetooth 2.1 technology will be integrated with the Ultra-wideband (UWB) technology and support up to 480Mbps transfer rate, which is expected to promote short-distance file transfer via personal devices.

← To improve the transfer rate of the wireless network, upgrading to an IEEE 802.11n network card can make the wish come true.

→ Installing a wireless router at home allows all family members to connect to the Internet at the same time and saves the trouble of making cable connections.

Chapter 7 Troubleshooting DIY

Q I'd like to know the information on the warranty period and service locations for GIGABYTE products. How do I know the warranty period of the product I purchased? Can I find the related information on the Internet?

All GIGABYTE products provide a specific warranty. Please check with the store or online vendor from which you bought your GIGABYTE product to get complete warranty information.

Every GIGABYTE product has a label with a warranty serial number on it. The label provides the date of shipment. Users can find detailed information on GIGABYTE web site.

Month

Year
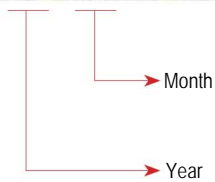
> **Q** What capacity of the hard disk is required to use Vista™? Sometimes other specifications are provided other than rotation speed and cache. What do these specifications mean? And, in addition, is the warranty of the hard disk important? Cheap hard disks without warranties can be found on the auction web sites.

According to the system requirements indicated by Microsoft, a 20GB hard disk with 15GB free space can be used for Vista™. Current mainstream hard disks have 320~400GB capacity, which is definitely sufficient for most users. For more information on Vista™ system requirements, please visit www.microsoft.com/taiwan/windowsvista/ getready/systemrequirements.mspx.

For most people, knowing the hard disc specifications beyond capacity, rotation speed and cache information isn't necessary. If users are interested in further information, it is recommended to visit the web sites of the major manufacturers where detailed specifications of the hard disk products can be found. As to the MTBF specification, a hard disk with an MTBF rating of 1 million hours (about 114 years) does not mean that the average unit will run for 114 years before it fails. The equation is MTBF=1/X, which means X=1/MTBF=1/114 and gives the result of 0.08% failure rate per year, representing that only 8 out of 10,000 hard disks may fail per year.

If the hard disk fails, it can be replaced with a new one during the warranty period. Some manufacturers even allow users to pay for an upgrade (under certain terms). It's not wise to purchase a hard disk without a warranty. The Hitachi brand hard disks co-distributed and sold by Weblink and Weikeng provide a 3-year warranty and assured after-services.

Users are advised not to purchase products without warranties. In such cases, no servicing is guaranteed should any damage happen. Purchase products from legitimate distributors to receive good after-services.