Overview

Based on the highly-integrated Intel 440FX PCIset, the KN-6010 combines blistering Pentium® II processor performance with support for intelligent diagnostic and power management features like Hardware Monitoring, DMI (Desktop Management Interface) and ACPI (Advanced Configuration and Power Interface), to provide a powerful and versatile ATX-size platform for leading-edge PC '97 compliant systems.

With its switching voltage regulator, the KN-6010 runs a range of Intel Pentium® II processors and can be easily upgraded with its 242-pin slot. For added power and performance, the KN-6010 takes up to 512KB Pipeline Burst Level II cache and up to 768MB DRAM via six-72 SIMM sockets which accept high-speed EDO memory types.

The KN-6010 comes with a full set of I/O features conveniently integrated on the rear I/O panel, including two USB connectors. The board also has an integrated PCI Bus Master Enhanced IDE controller with existing PIO Mode 3, PIO Mode 4 and DMA Mode 2 devices.

Compliant with the Microsoft PC'97 standard at both the hardware and BIOS levels, the KN-6010 comes with support for intelligent Hardware Monitoring and DMI features which continuously check the thermal status of your system and reduce the cost of ownership through improved manageability.

Chapter 1 of this manual gives you a brief overview of the KN-6010 mainboard, including its main components and features. Chapter 2 contains advice on how to upgrade and install key components on the mainboard, while Chapter 3 provides detailed information about the board's BIOS settings. For the most up-to-date information about your mainboard and the latest FAQs and BIOS updates, visit FIC Online at www.fic.com.tw.

Package Checklist

Please check that your package contains all the items listed below. If you discover any item is damaged or missing, please contact your vendor.

■ The KN-6010 mainboard

■ This user manual

■ Software utility (DMI)

■ One IDE device cable

■ One floppy disk drive cable

Main Features

The KN-6010 mainboard comes with the following high-performance features:

■ **Easy Installation**
   AMI BIOS with support for auto-detection of Hard Disk Drives, Plug and Play devices, and PS/2 keyboard and mouse, and to facilitate the installation of HDDs, expansion cards and other peripheral devices.

■ **Flexible Processor Support**
   Onboard 242-pin Slot1 supports leading-edge processors:
   Intel Pentium® II 233/266 MHz with MMX™ technology.

■ **Leading Edge Chipset**
   Intel 82440FX PCIset includs a CPU interface controller, advanced cache controller, integrated DRAM controller, synchronous ISA bus controller, integrated power management unit, concurrent PCI (PCI 2.1), and USB.

■ **Ultra-fast Level II Cache**
   Supports 256/512KB L2 synchronous PBSRAM cache memory on Pentium® II card.

■ **Versatile Main Memory Support**
   Accepts up to 768MB RAM in three banks using 72-pin SIMMs of 4, 8, 16,
   32, 64, 128MB with support for FPM and EDO memory.

■ **ISA & PCI Expansion Slots**
   Three 16-bit ISA and five 32-bit PCI expansion slots provide all the room you need to install a full range of add-on cards.

■ **USB Support**
   Two USB ports integrated in the rear I/O panel allow convenient, high-speed Plug and Play connections to the growing number of USB compliant external peripheral devices on the market.

■ Enhanced PCI Bus Master IDE Controller Support

Integrated Enhanced PCI Bus Master IDE controller features two dual-channel connectors that accept up to four Enhanced IDE devices, including CD-ROM and Tape Backup Drives, as well as Hard Disk Drives.

■ Super Multi I/O

Integrated Winbond W83977AF Plug and Play multi-I/O chipset features two high-speed 16550A compatible serial ports, one IR port, one EPP/ECP capable parallel port, and one FDD connector.

■ IrDA Connector

An onboard IR connector and FIR connector for wireless infrared connections is available.

Advanced Features

SDRAM support, Hardware Monitoring, DMI and ACPI, that not only optimize the performance of the latest processors but also enhance the manageability, power management capabilities, and user-friendliness of your system. This section provides detailed information on these features, and how they are implemented on the mainboard.

1). Enhanced Performance Features

■   Optimized Intel MMX™ Performance

The mainboard utilizes the advanced features of the Intel 440FX PCIset to optimize the unrivaled performance of the Intel Pentium® II processor with MMX™ technology, allowing you to enjoy a richer video, audio, digital imaging and communications experience from the latest generation of multimedia software.

■   Blistering IDE Performance

With the integrated Enhanced PCI Bus Master IDE controller you can connect up to four Enhanced IDE peripheral devices to your system. All devices are categorized in the same way that IDE hard disks were configured in the past, with one device set as the master device and the other as the slave device. We recommend that Hard Disk Drives use the primary IDE connector and that CD-ROM Drives utilize the secondary IDE connector for optimum system performance.

■   Concurrent PCI Architecture

The mainboard's Concurrent PCI Architecture enables more efficient operation of CPU, PCI and ISA transactions for faster and smoother multimedia performance. It also allows the use of PCI 2.1 and 2.0 compatible add-in cards for long system life, built-in scalability and the flexibility to adapt your system to future applications.

2). Intelligent Features

This mainboard is equipped with highly-sophisticated intelligent Hardware Monitoring features that prevent potential damage to your system by warning you when the system is overheated and automatically slowing down the processor clock speed and activating the system fan to restore the system to its optimum temperature. Other intelligent features include system BIOS virus protection and a switching voltage regulator.

■ CPU Thermal Monitoring Alert

A special heat sensor located under the CPU monitors the CPU temperature to make sure that the system is operating at a safe heat level. If the temperature is too high, the sensor automatically generates an SMI (System Management Interrupt) to turn on the system fan and slow down the CPU clock frequency. At the same time, the system warns you that the CPU is overheating. CPU utilization is restored to normal levels when the temperature returns to a safe level.

■ Switching Voltage Regulator

This mainboard features a switching voltage regulator, which significantly reduces the temperature of the CPU and regulator itself. The switching voltage regulator also ensures full upgradability to the next generation of SLOT1 processors, which will require more electrical current and generate more heat both in the processor and the system.

■ System Over-Voltage Protection

This mainboard features a protection to automatically shut down the system if system voltage proceeds is over 5% of the following four types of voltages: +12V, +5V, +3.3V, and the CPU voltage (+2.8V, in this manual).

PC '97 Compliant

This mainboard is fully compliant with the new PC '97 standard at both the BIOS and hardware levels. PC '97 is a set of hardware, bus and device design requirements set by Microsoft in conjunction with other industry leaders aimed at making PCs easier to use by maximizing cooperation between the operating system and hardware.

The system design requirements under PC '97 support a synergy among PC hardware, Microsoft Windows® Operating Systems, and Windows®-based software. Key elements include support for Plug and Play compatibility and power management for configuring and managing all system components, and 32-bit device drivers and installation procedures for both Windows® 95 and Windows® NT.

ACPI Ready

This mainboard fully implements the new ACPI (Advanced Configuration Power Interface) standard, an open PC hardware, Operating System and peripheral device interface specification that is supported by such industry leaders as Microsoft and Intel. ACPI enables PCs to come on instantly when accessed by a user and remain available to perform certain tasks even after the PC is turned off. Additional benefits of ACPI include improved thermal management, reduced energy consumption, and OS directed Plug and Play capabilities.

ACPI is currently being implemented in forthcoming versions of Microsoft Windows® 95 and Windows® NT code-named "Memphis". Key ACPI features implemented on this mainboard include:

■ Soft-Off Support
   The mainboard's Soft-Off feature allows you to turn off your computer using the Operating System (Windows® 95). The feature requires a power supply with a soft-off power controller.

■ Remote Ring-On
   The Remote Ring-On function allows your computer to be turned on remotely via a modem while it is in Sleep Mode. This feature is particularly useful when, for example, you are expecting a fax late at night and leave only your modem on to minimize power consumption. As soon as the phone rings, the modem automatically turns on the system, which answers the phone and downloads the fax. Then the computer shuts off again, thereby minimizing its consumption of power. The Remote Ring-On function requires a power supply with a soft-off power controller.

Please see the AMI BIOS Setup Section for more information on how to use these features.

DMI (Desktop Management Interface)

Enhanced system manageability is becoming an increasingly important factor in reducing the total cost of ownership of systems, particularly in a corporate environment. To provide this capability, this mainboard supports DMI at the BIOS level and includes a DMI Configuration Utility to maintain the Management Information Format Database.
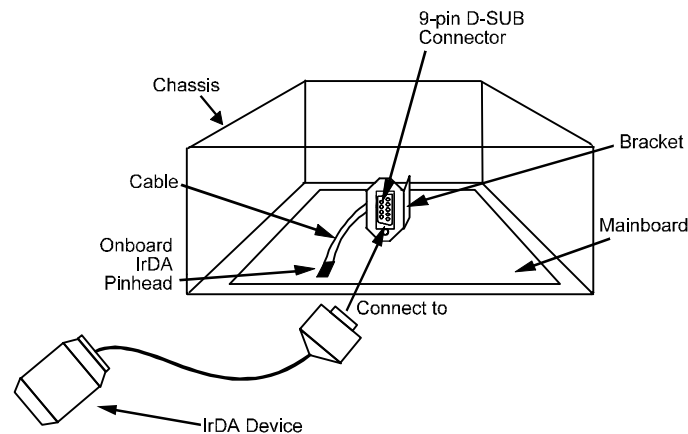
DMI is able to auto-detect and record important information about your system, including the CPU type, CPU speed, internal/external frequencies, and memory size. The BIOS detects this information in 4KB block in the mainboard's Flash EPROM and allows the DMI to retrieve this data from the database. To allow dynamic real-time updating of the DMI information, this mainboard uses the same technology implemented for Plug and Play, which eliminates the need to create a new BIOS image file and for the user to update the whole BIOS.

The board's DMI Configuration Utility also allows the system integrator or end-user to add additional information to the database, such as serial numbers and housing configurations. This information has to be manually entered using the DMI Configuration Utility and updated into the database. For detailed instructions on how to use the DMI Configuration Utility, please refer to page 59 of this manual.

Infrared Connections

This mainboard features support for highly-sophisticated IR technology, which allows bi-directional and cordless data transactions with other IrDA compliant computers and peripheral devices using infrared as a medium. This transmission is carried out in either Full Duplex Mode or Half Duplex Mode. The former allows simultaneous data transmission and reception, while the latter disables the reception when transmission occurs.

The I/O chipset on this mainboard features onboard IR and FIR interfaces that are fully compliant with the IrDA standard. An IrDA device can be installed via a 9-pin D-type connector in the rear panel of the computer which is linked by a cable to the onboard either IR or FIR pinhead, as shown in the illustration below.
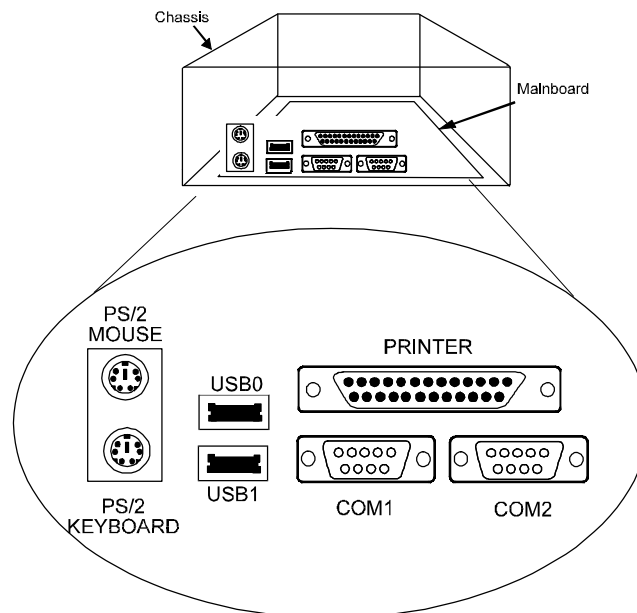

If you want to connect a device that supports FIR, please set the ribbon cable on the FIR pinhead and adjust the BIOS option for higher-speed performance. Please read page 53 of this manual.

Highly Convenient Integrated I/O Connectors

This mainboard features has an integrated rear I/O panel that incorporates a full set of I/O ports to allow simple and convenient connections to a complete selection of external peripheral devices.

In addition to two 16550A UART compatible serial ports and one EPP/ECP capable parallel port, the panel features two USB connectors that provide high speed connections to the new generation of USB peripheral devices. PS/2 keyboard and PS/2 mouse connectors provide additional I/O connectivity.

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