Chapter 1

Overview

Based on the highly-integrated Intel 440FX PCIset, the KN-6000 combines the blistering performance of the Pentium® II processor with support for power management features such as DMI which reduces the cost of ownership through improved manageability, to provide a powerful and versatile Baby AT-size platform for high performance multimedia systems.

With its switching voltage regulator, the KN-6000 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-6000 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-6000 integrates a full set of I/O features onboard, including two 16550A UART compatible serial ports, one EPP/ECP capable parallel port, and one Floppy Disk Drive controller. It also comes with a built in Enhanced IDE controller that provides convenient, high-speed PCI Bus Master connections with up to four IDE devices, including Hard Disk and CD-ROM drives. Three 16-bit ISA slots and five 32-bit PCI slots provide ample room for further expansion. The mainboard also features support for the state-of-the-art Universal Serial Bus (USB) that provides ease-of-use and high-speed Plug & Play connections to future USB compliant peripheral devices. The IrDA compliant serial port and onboard SIR support further enhance system I/O connectivity.

Chapter 1 of this manual gives you a brief overview of the KN-6000 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-6000 mainboard
- This user manual
- DMI Software utility
- One IDE device cable
- One IDE device cable

Main 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, including a CPU interface controller, advanced cache controller, integrated DRAM controller, synchronous ISA bus controller, integrated power management unit, concurrent PCI (PCI 2.1).

- Ultra-fast Level II Cache
  Supports 256KB/512KB Level 2 synchronous PBSRAM cache memory.

- IrDA Connector
  An onboard IrDA connector for wireless infrared connections.

- 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 optional FIC's riser card allow convenient, high-speed Plug and Play connections to the growing number of USB compliant external peripheral devices on the market.

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- Enhanced PCI Bus Master IDE Controller
  Integrated Enhanced PCI local bus IDE controller with two connectors supports up to four IDE devices such as Hard Disk, CD-ROM or Tape Backup drives via two channels for high speed data throughput. This controller supports PIO Modes 3 and 4, and DMA Mode 2.

- Super Multi I/O
  Integrated Winbond 83C877F chipset features two 16550A UART compatible serial ports, one EPP/ECP capable parallel port, one IR port, and one Floppy Disk Drive connector.

Advanced Features

1). Enhanced Performance Features

- Optimized Intel MMX™ Technology 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.

- Lightning DMA HDD Performance
  With its integrated Enhanced PCI Bus Master IDE controller, the board provides 16MB/sec for conventional PIO Mode 3, PIO Mode 4, and DMA Mode 2 devices to increase CPU utilization and system performance when

running applications under Windows® 95 and Windows® NT environments.

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

- 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.

- 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.

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.

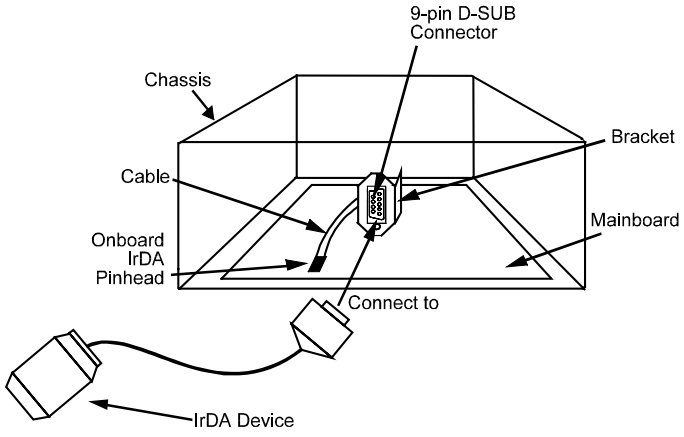
DMI is able to auto-detect and record important information about your system, including the CPU type, CPU speed, internal/external frequencies, and memory size. The BIOS detects this information in a 4KB block in the mainboard's Flash EPROM and allows the DMI to retrieve this data from the database. 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 (IR) Connections

This mainboard features support for highly-sophisticated SIR 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 an SIR interface that is 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 IrDA pinhead, as shown in the illustration below.



The serial port COM2 on this mainboard is designed to be a SIR compliant port. If you wish to install the SIR connection feature, you need to adjust the BIOS option for high-speed performance. Please read page 55 of this manual.

Universal Serial Bus (USB) Functionality

This mainboard features integrated support for state-of-the-art USB technology, which provides high-speed and easy-to-use Plug & Play connections to the future generation of external peripherals, such as keyboards, mouse, monitors, game devices, scanners, printers, and fax/modems.

USB overcomes conventional I/O bottlenecks by combining the I/O ports into a single dual-channel connector. For optimum ease of use and flexibility, USB not only allows the automatic detection and configuration of peripherals after installation, but also enables the simultaneous connection.

This mainboard features an optional USB riser card with bracket that can be installed in one of the I/O expansion slots on the rear panel of the system, as shown in the illustration below. It provides fast and convenient Plug and Play peripheral connections outside your computer, allowing you take full advantage of the universal functionality and flexibility of USB technology.