

Overview

Based on the highly-integrated Intel 440LX AGPset, the KL-6011 combines blistering Pentium® II processor performance with support for the new Accelerated Graphics Port (AGP) interface which provides a dedicated path for memory-intensive graphics applications- delivering faster system performance and arcade-quality 3D graphics. The KL-6011 also supports intelligent diagnostic and power management features like ISMP™ (Intelligent System Management & Protection) 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 KL-6011 runs a range of Intel Pentium® II processors. For added power and performance, the KL-6011 supports up to 512KB Burst Level II cache and up to 384MB DRAM via three DIMM sockets which accept high-speed SDRAM memory types.

The mainboard comes with a full set of I/O features conveniently integrated on the rear I/O panel, including two USB connectors and an integrated PCI Bus Master Enhanced IDE controller with support for the new Ultra DMA/33 protocol, which doubles ATA-2 Hard Disk Drive data transfer rates to 33MB/s while maintaining full backwards compatibility 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 KL-6011 comes with support for ISMP™ which continuously checks the thermal and voltage status of your system changes where necessary and reports any discrepancies to a network administrator. The KL-6011 reduces the total cost of ownership with support for DMI (Desktop Management Interface) and Intel LANDesk® Client Manager (LDCM) software which allows for optimized system manageability across a network.

Chapter 1 of this manual gives you a brief overview of the KL-6011 mainboard, including its main components and features. Chapter 2 contains advice on how to upgrade and install key components on the mainboard. For the most up-to-date

KL-6011 Mainboard Manual

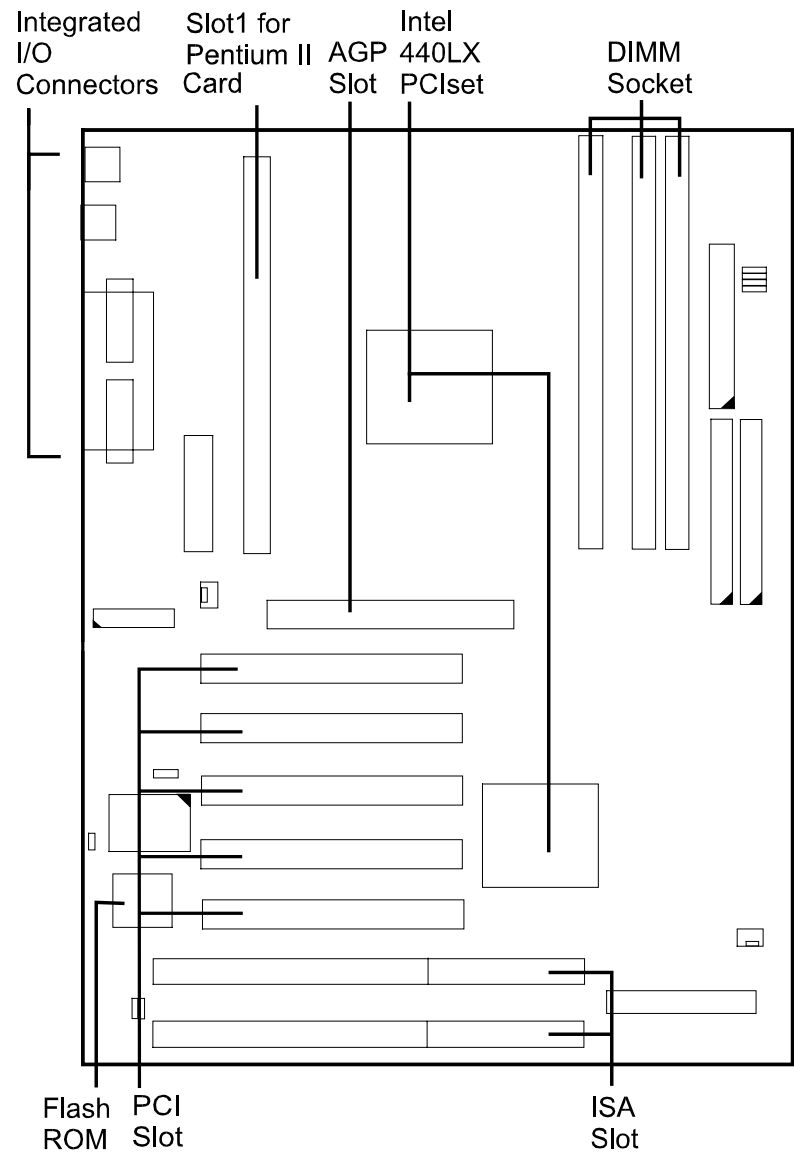
information about your mainboard and the latest FAQs and BIOS updates, visit FIC Online at www.fic.com.tw.

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 KL-6011 mainboard
- This user manual
- One IDE device cable
- One floppy disk drive cable
- Retention Module
- Software CD-ROM
 - Desktop Management Interface (DMI) software
 - BIOS Flash software
 - PIIX bus master IDE driver
 - USB supplement software
 - Intel INF update software
 - Intel LANDesk® Client Manager (LDCM) software (optional)
 - Anti-Virus tool (optional)

The KL-6011 Mainboard



Main Features

The KL-6011 mainboard comes with the following high-performance features:

- **Easy Installation**
BIOS with support for Plug and Play, auto detection of IDE hard drives, LS-120 drives, MS Windows™ 95, Windows™ NT, and OS2™.
- **Flexible Processor Support**
Onboard 242-pin Slot1 supports leading-edge processors:
Intel Pentium® II processors 233/266/300/333 MHz with MMX™ technology.
- **Leading Edge Chipset**
Intel 82440LX AGPset includes a CPU interface controller, advanced cache controller, integrated SDRAM controller, synchronous ISA bus controller, integrated power management unit, concurrent PCI (PCI 2.0 and 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 384MB RAM in three banks using DIMMs of 8, 16, 32, 64, 128MB with support for SDRAM memory.
- **Onboard Accelerated Graphics Port (AGP)**
One 32-bit AGP slot supports 1x/2x AGP VGA cards for superior 3D video and graphics performance with transfer speeds up to 264MB/second under 1x Transfer Mode and up to 528MB/second under 2x Transfer Mode.
- **ISA & PCI Expansion Slots**
Two 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.

- **IrDA Connector**
An onboard IR connector for wireless infrared connection is available.
- **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 W83977TF-A™ 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.
- **Remote Wake-Up Support**
One LAN Wake-up connector supports LAN cards equipped with either the AMD PCnet-ISA II™ (79C961A) or PCnet-PCI II™ (79C970A) chipsets for remote wake-up functionality.
- **Intel LANDesk® Client Manager (LDCM) Software Support**
LDCM is a DMI-compliant application for local and network management of desktop client systems. The application reduces the number of help desk calls by supplying the user with self diagnostics such as a PC health meter and local alert of potential problems.

Advanced Features

The mainboard 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.

1). Enhanced Performance Features

- **Optimized Intel Pentium II® Processor Performance**
The mainboard utilizes the advanced features of the Intel 440LX 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.

- **Onboard Accelerated Graphics Port (AGP)**
The 32-bit AGP bus provides a dedicated 66Mhz/133Mhz path from the graphics card to the system memory offering much greater bandwidth than the 32-bit PCI bus does which currently operates at a speed of 33Mhz. AGP enabled 3D graphics cards can directly access main memory across this fast path instead of using local memory. This is especially important for memory-intensive 3D graphics applications so as to produce more detailed 3D textures, greater clarity and higher levels of resolution without impacting on system performance. This mainboard is fully compliant with the AGP 1.0 specification. To make use of the improved AGP performance, the mainboard should be installed with SDRAM type memory and the VGA card and drivers should also be fully AGP compliant. Using Microsoft's forthcoming versions of Microsoft Windows™ 95 and Windows™ NT which implement DirectDraw™ will allow the system to take full use of AGP's benefits without the need to install additional drivers.

- **Enhanced PCI Bus Master IDE Controller with Ultra DMA/33 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 supporting the new Ultra DMA/33 protocol which doubles data transfer rates to 33MB/sec. Standard PIO Mode

- **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

ISMP™ (Intelligent System Management & Protection)

This mainboard features FIC's patent-pending ISMP™ (Intelligent System Management & Protection) which intelligently monitors the system hardware, making adjustments where necessary and reporting any discrepancies to a network administrator.

■ **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 and Report**

This mainboard features Voltage Protect which automatically shuts down the system if system or CPU voltage increases by more than 5%. The monitored range for system voltage is +12V, +5V, +3.3V, and the CPU voltage +2.8V.

■ **Chassis Intrusion**

This mainboard also features a special security feature which can detect if the chassis is opened, and alert a system administrator.

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, Windows™ NT, and Windows™ 98. 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.

- **RTC Alarm**

The RTC alarm feature allows you to preset the computer to wake-up at a certain time allowing you to implement a number of useful functions, such as automatically sending out a fax late at night.

- **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)

DMI (Desktop Management Interface) is a standard for organizing system configuration information. Using DMI, computer configuration can be made much simpler, quicker, and easier. Computer system configuration information can be read and modified from remote locations, permitting remote configuration and boot up. Please read Appendix A of this manual for more information.

Intel LANDesk® Client Manager (optional)

This mainboard comes with optional Intel LANDesk® Client Manager, a Desktop Management Interface (DMI) compliant application which simplifies local and network management of desktop client systems by monitoring PC health, and by alerting local and designated remote users of potential problems. For example, the application will indicate when memory usage is high or hardware components are likely to fail. This capability provides new levels of manageability to deliver a lower cost of PC ownership by maximizing system uptime, increasing user productivity and reducing the number of help desk calls. Because it is industry-standard DMI compliant, Intel LANDesk® Client Manager can be used with other DMI-based network management tools.



The LANDesk® Client Manager, including the client interface and the administrator's console used by the network administrator or manager, has a graphical user interface for ease-of-use and understanding and can be used for monitoring PC health, configuring key files and viewing inventory. Please read Appendix A of this manual for more information.

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 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.

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/ECF 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. The photo below shows the I/O connectors: 1. *PS/2 mouse*, 2. *PS/2 keyboard*, 3. *USB1*, 4. *USB2*, 5. *Printer*, 6. *COM1*, 7. *COM2*.

