Chapter 1 Specification

Introduction

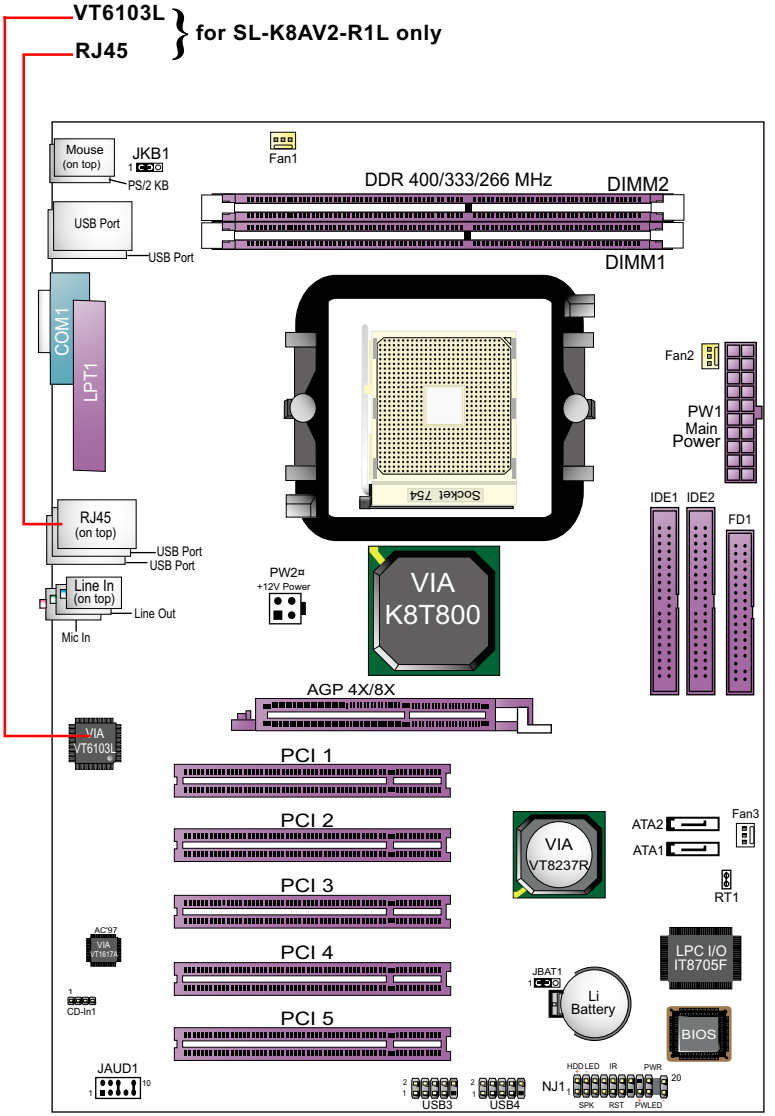
This mainboard features an integration of the powerful AMD Athlon 64 processors and the North Bridge VIA K8T800, with which the whole system performance supports Hyper Transport Speed up to 800MHz.

VIA K8T800 plus VT8237R supports on-board AMD Athlon 64 CPU to implement the 800MHz Hyper Transport speed, the AGP 8X/4X interface, LPC Super I/O, the DDR 400/333/266 MHz SDRAM, the 6-channel AC'97 Audio interface, the USB 2.0 interface, ATA 133/100/66 data transfer and the SATA/RAID interface. This chapter is to introduce to users every advanced function of these high performance integrations.

Topics included in this chapter are:

**** If any difference is found between the manual description and the Mainboard you are using, please look up the Errata/ Update Slip enclosed inside for the correction or updated information, or else contact the Mainboard Dealer or visit our Web Site for the latest manual update.**

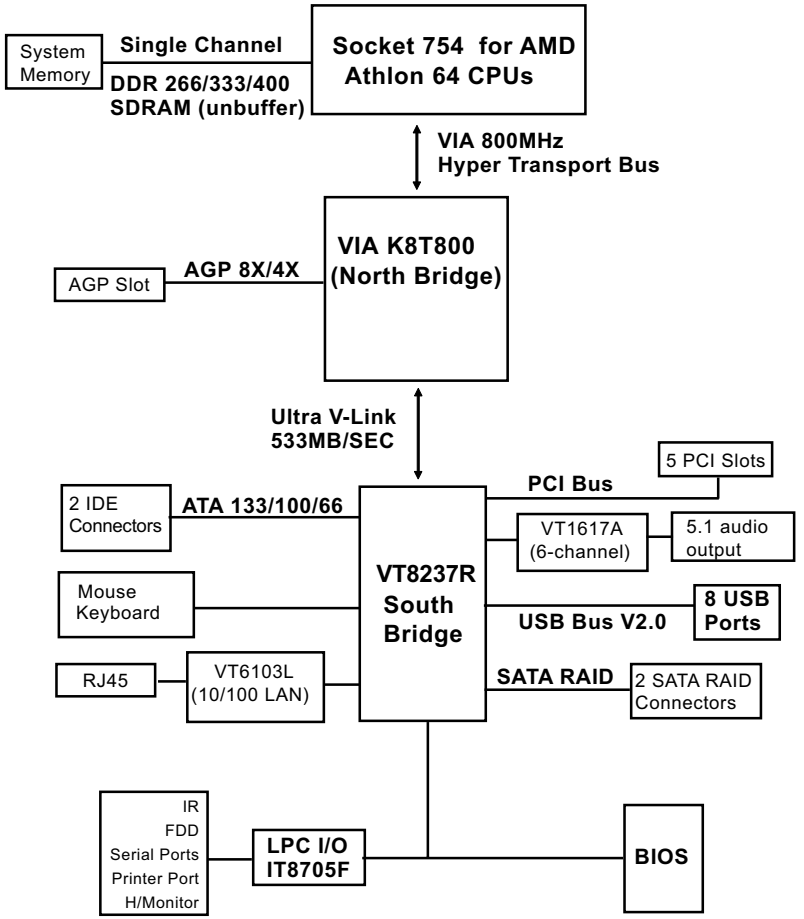
1-1 Mainboard Layout



1-2 Mainboard Specification Table

K8AV2-GR Specifications and Features	
CPU	Socket 754 for AMD Athlon 64 CPUs
North Bridge	K8T800, supporting up to 800MHz Hyper Transport
South Bridge	VT8237R, SATA RAID controller
Memory	Supporting unbuffered DDR 400/333/266 SDRAM, up to 2GB in 2 DDR SDIMM slots
I/O Chip	ITE IT8705F with Hardware Monitor support
AGP interface	AGP 8X/4X mode only
Audio	VIA VT1617A Audio Codec, 6-channel compliant
IDE Interface	2 ATA 133/100/66 IDE
Serial ATA RAID	2 SATA / RAID ports supported by VT8237R
PCI Slots	5 PCI Master slots on board
I/O Connectors	8 USB V2.0, 1 FDD port, 1 COM port, 1 LPT, 1 IrDA, 1 PS/2 K/B, 1 PS/2 Mouse,
LAN	VT6103L LAN, 10/100Mb transfer rate
Other common features	USB, PS/2 Keyboard/ Mouse Power On/Wake Up; ATX Power Supply V2.03; ATX form factor

1-3 Chipset System Block Diagram



Socket 754 + VIA K8T800 + VIA VT8237 Diagram

1-4 Mainboard Specifications

1-4.1 CPU Socket

CPU Socket 754 on board, supporting AMD Athlon 64 processors and implementing up to 800MHz Hyper Transport Speed.

1-4.2 System Chipsets

- North Bridge VIA K8T800 for managing and supporting up to 800MHz Hyper Transport speed, AGP 8X/4X interface and DDR400/333/266MHz Memory Interface
- South Bridge VIA VT8237R working with North Bridge K8T800 to support V-Link, LPC Super I/O, PCI interface, ATA133 interface, USB V2.0 interface, AC'97 Audio 6-channel interface as well as SATA/RAID interface.

1-4.3 Memory

2 DDR DIMM 184-pin slots on board :

- Supporting unbuffer DDR 400/333/266 SDRAM up to 2 GBs
- Supporting installation of different volume yet same type of DDR SDRAM Modules

1-4.4 Accelerated Graphics Port (AGP) Interface

AGP Controller embedded on board, supporting:

- 1.5V(8X/4X) power mode only, 1 AGP Slot supported
- 8 x 66MHz AD and SBA signaling; AGP pipelined split-transaction longburst transfers up to 2GB/sec.
- AGP 8X/4X supported, AGP V3.0 compliant

1-4.5 Expansion Slots

- 5 PCI Bus Master slots
- 1 AGP 8X/4X slot
- 2 DDR DIMM slots

1-4.6 BIOS (Basic Input Output System)

Flash Memory for easy upgrade, supporting BIOS Writing Protection, Year 2000 compliant, and supporting various hardware configuration during booting system (See Chapter 4 BIOS Setup):

- Standard CMOS Features (Times, Date, Hard Disk Type etc.)
- Advanced BIOS Features (Virus Protection, Boot Sequence etc.
- Advanced Chipset Features (AT Clock, DRAM Timing etc.)
- Power Management Features (Sleep timer, Suspend Timer etc.)
- PNP/PCI Configurations (IRQ Settings, Latency Timers etc.)
- Integrated Peripherals (Onboard IO,IRQ, DMA Assign. etc.)
- SmartDoc Anti-Burn Shield (CPU/System Temp.,Fan speed etc.)
- Frequency/Voltage (CPU clock, Voltage of CPU, DIMM, AGP etc.)

1-4.7 Multi-I/O Functions

- PCI EIDE Controller, supporting:
  -- 2 ATA 133 / 100 / 66 IDE connectors supporting up to 4 IDE devices
- Dedicated IR Functions:
  -- 1x5 IR connector dedicated to IR function with Infrared-IrDA (HPSIR) and ASK (Amplitude Shift Keyed) IR
- Multi-mode parallel data transfer:
  -- Standard mode, high speed mode ECP and enhanced mode EPP
- Floppy Drive Connector:
  -- 1 FDD connector supporting 2 floppy drives with drive swap support
- Universal Serial Bus Transfer Mode:
  -- USB V2.0 compliant, 480 MB/s USB Bus, supporting Win 98se and later operating systems; USB drivers provided in Support CD for installation
  -- 4 built-in USB connectors; 2 more USB pin-headers which require 2 additional USB cables to provide 4 more USB ports
  -- USB Wake-up function supported by USB ports
- PS/2 Keyboard and PS/2 Mouse
- UARTs (Universal Asynchronous Receiver / Transmitter):
  -- 1 serial ports (COM1) on board

1-4.8 SATA/RAID Interface

Serial ATA / RAID Interface supported by VT8237R:

- Supporting 2 SATA connectors for 2 SATA / RAID Hard Disks with 150MB/s transfer rate
- SATA / RAID Drivers enclosed in Support CD/Floppy Diskette for user's installation

1-4.9 Advanced System Power Management

Advanced Configuration and Power Interface incorporated in BIOS for reducing power consumption :

- ACPI 1.0 compliant (Advanced Configuration and Power Interface)
- APM V1.2 compliant (Legacy Power Management)
- ACPI Suspend function supported
- Supporting Ring Signal Power Up Control for Wake-on-LAN
- Real Time Clock (RTC) with date alarm, month alarm, and century field

1-4.10 Audio Codec on board

VIA VT1617A Audio Codec on board

- 18-bit 6 channel DAC performance
- Audio Codec Driver enclosed in Support CD for user's installation

1-4.11 LAN on board

Fast Ethernet Controller VT6103L on board:

- Supporting 10/100Mb Fast Ethernet Base T LAN
- LAN Driver enclosed in Support CD for user's installation

1-4.12 Hardware Monitor on board

- Hardware Monitor supported by LPC I/O IT8705F, to provide monitoring and desktop management of hardware voltage, temperatures and fan speeds
- Utility Software Soltek HM for displaying monitoring status is enclosed in Support CD for user's installation.

1-4.13 Form Factor

- ATX PCB, ATX power supply V2.03
- PCB size: 305mm x 220mm