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80 Port Frequently Asked Questions

Below is a list of some basic POST Codes, possible problems and solutions. For more detailed information about POST Codes, refer to Appendix C in this manual.

POST CODE	Problem	Solution
FFh or CFh	1.BIOS chip inserted incorrectly 2. Incorrect BIOS update version 3. Mainboard problem 4. Add-on card inserted incorrectly.	1. Reinsert the BIOS chip 2. Download the correct BIOS version update from the manufacturer's Web site. 3. Replace mainboard 4. Remove and replace the add-on card
C1h - C5h	1. Memory module inserted incorrectly 2. Memory compatibility problem 3. Memory module damaged	1. Reinsert memory module 2. Replace memory with correct type 3. Replace memory module
2Dh	1. Error occured in VGA BIOS 2. VGA card inserted incorrectly	1. Replace VGA card 2. Reinsert the VGA card
26h	Overclock error	Clear CMOS or press the insert key to power on the system
07h - 12h	1. [redacted] controller error 2. RTC error	1. Ensure that the keyboard and mouse are connected correctly. 2. Replace the RTC battery.

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Section 1
INTRODUCTION

1-1 Package Contents

Contents

A. Mainboard

B. User's manual

C. Floppy drive cable

D. HDD drive cable

E. CD (drivers and utilities)

F. I/O Shield

G .S-ATA data and power cable

Powerpack items (Optional)

H. Mini heatsink

I. Tool Pen

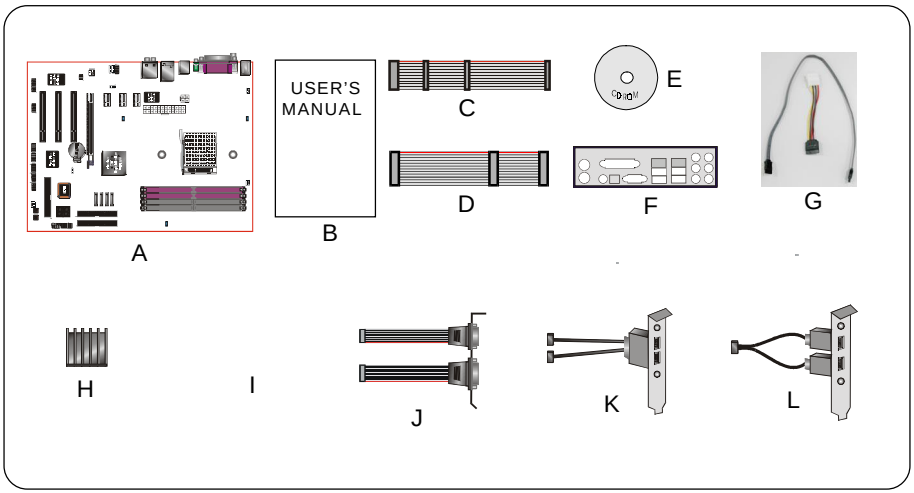
Optional Items

J. Game & COM bracket cable

K. IEEE 1394 two ports cable

L. Extra USB2.0 port cable

If you need the optional item, please contact your dealer for assistance.



1-2 Mainboard Features

Brief Introduction

★ Socket 939

Socket 939-based motherboards are designed to provide performance enhancements for AMD Athlon 64/ Athlon 64 FX processor-based systems, and it also expected to be the next-generation of platform innovations.

For more information about all the new features Athlon™ Processor deliver, check out the AMD website at http://www.amd.com

★ Chipset

The board is designed with NVIDIA nForce4 Ultra or nForce4 chipset, featuring performance and stability with the most innovative technology and features, including the world's first and only native Gigabit Ethernet interface and hardware-optimized Firewall security solution. A chipset designed for the enthusiast class/high-end PCs running AMD Athlon 64 FX 53 processors.

For more details about the NVIDIA nForce4, please visit the NVIDIA Web site at http://www.nvidia.com.

★ PCI-Express (PCI-E)

Next generation peripheral interface to succeed to current PCI bus for the next decade. With smaller slot size and 250MB/sec (PCI-E*1) or 4GB/sec(PCI-E*16) maximum transfer, PCI-Express overcomes PCI bus bottleneck.

★ DDR400

Supports dual channel of DDR400 memory to give you twice the memory bandwidth for greater system performance.

★ Hardware Monitoring

Hardware monitoring enables you to monitor various aspects of the system operation and status. This includes CPU temperature, voltage and fan speed in RPMs.

★ GbE LAN

This mainboard is optionally equipped with the NVIDIA Gigabit ethernet LAN feature. The new Gigabit Ethernet LAN allows data transmission at 1,000 megabits per second (Mbps), which runs 10 times faster than conventional 10/100BASE-T Ethernet LANs.

★ Serial ATA II (Optional)

The second generation SATA interface with double the transferring speed up to 300MB/sec. It supports NCQ to provide faster reading speed for your storage devices. Hot-plug has also become its standard function to plug/unplug whenever you want.

★ Serial ATA

Support Serial ATA, an evolutionary replacement for Parallel ATA IDE storage interface. Increases the peak data transfer speed up to 150MB/sec and allows future enhancements to the computing platform.

★ S-ATA RAID

RAID function available on chipset S-ATA, S-ATA ports.

★ IEEE 1394 (Optional)

Supports IEEE 1394a (or Firewire) for easy connection to Video Camcorder and external drives. The IEEE1394a specifications defines a transfer rate of up to 400Mbps.

★ USB2.0

A popular USB standard for plugging in peripherals with up to 480Mbps transfer speed while maintaining backward compatibility with older USB1.1 device.

★ 8ch

Delivers 8 channel audio to bring you the latest in audio realism from DVD movies and games. Perfect for your home theatre system.

★ AMD Cool'n'Quiet ™ Technology

AMD's Cool'n'Quiet™ Technology lowers CPU operating voltage when the system is in idle mode. This helps to reduce heat dissipation and in effect lowers the fan speed to noise from your PC. To enable Cool'n'Quiet™, the BIOS must support this feature.

★ NVIDIA ActiveArmor ™ (only supported in the NVIDIA nForce4 Ultra MCPs)

Enhances networks security while delivers the highest system performance by off-loading CPU-intensive packet filtering tasks in hardware, providing users with a PC networking environment that is both fast and secure.

- NV Firewall
  An unprecedented addition design for nForce product, provide high performance & enhanced reliability of PC security solution to the users. The features would be more advanced than many stand-alone firewalls can provide!

Special Features

BIOS Features:

- Magic Health

  Reports your system hardware status for every boot-up to help detect faults early. Monitor hardware status including CPU temperature, CPU/Memory/ Chipset voltage, fan RPM speed for chassis fan, CPU fan & Power supply fan.

- EZ-Boot

  Simply press “ESC” to select your bootable device. No more hassle to search the BIOS menu, change and re-start.

- PowerBIOS

  Supporting a full range of overclocking setting via BIOS. Various adjustable feature include FSB/Chipset/Memory voltage tweaking.

H/W Features:

- 80 Port

  An onboard LED-display trouble-shooting device, facilitating user to detect boot-up problems.

- QuickSPDIF

  On board SPDIF-out connector for quick connection to multi-channel speakers. Not only removes cable cluttering but also delivers loss-free digital audio to let you enjoy DVD movies and games with crystal clear sound.

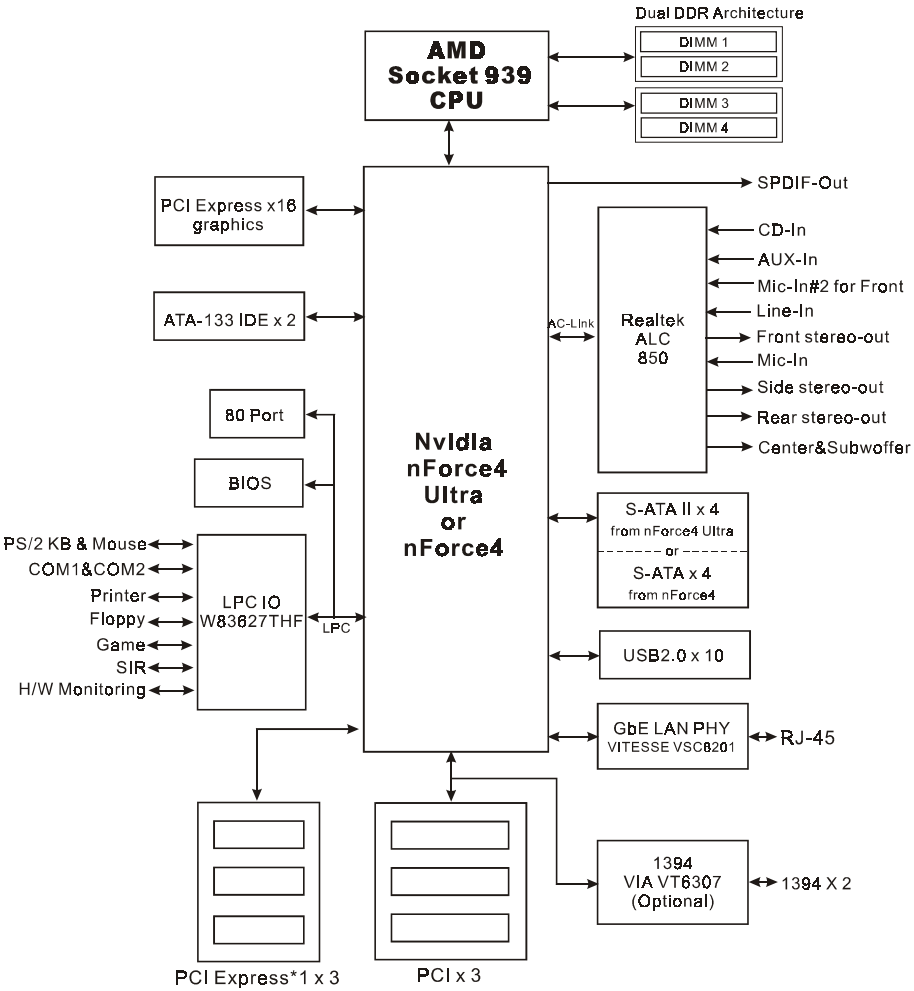
- EZ-Button

  A handy power-on button located onboard to turn on/off the system easily, especially while debugging or testing the system.

- LEDION

  Onboard LED indicators to show the power status CPU, Chipset and DRAM. You know immediately where to look if the system fails to start.

1-3 System Block Diagram



Section 2
SPECIFICATION

Mainboard Specification

- Processor
  - Support Socket-939 based AMD Athlon-64/ Athlon-64 FX up to 4000+ with 2.0GT/s Hyper Transport
- Chipset
  - nVidia nForce4 Ultra or nForce4 Chipset
- Main Memory
  - Four 184-pin DDR SDRAM DIMM sockets
  - Support single-sided or double-sided 2.5v DDR-266/333/400 DIMMs with dual channel architecture in 128/256/512Mb technologies
  - Supports up to 4GB memory size
- Expansion Slots
  - Three PCI connectors compliant with PCI v2.3
  - Three PCI-E x1 connectors compliant with PCI Express 1.0a
  - One PCI-E x16 connectors compliant with PCI Express 1.0a
- USB
  - Ten USB connectors compliant with USB2.0 from embedded USB controller (4 connectors at rear panel)
- P-ATA IDE
  - Two IDE interface (up to 4 IDE devices) with UDMA-33, ATA-66/100/133 support from embedded IDE controller
- 1394a (Optional)
  - Two 1394a ports with up to 400Mbps bandwidth from onboard VIA VT6307 1394 controller

- S-ATA RAID
  - Š S-ATA II ---> Four S-ATA ports with up to 300MBps bandwidth from nForce4 Ultra with RAID 0, 1, 0+1, JBOD support, or
  - Š S-ATA ---> Four S-ATA ports with up to 150MBps bandwidth from nForce4 with RAID 0, 1, 0+1, JBOD support
- LAN
  - Š 1Gbps Ethernet from VITESSE VSC8201 LAN PHY supports:
    - nVidia Fireware
    - nVidia ActiveArmor Secure Network Engine (only supported in the NVIDIA nForce4 Ultra MCPs)
- Audio
  - Š Selectable 2, 6 or 8-CH audio from onboard ALC850 AC'97 v2.3 compliant CODEC
    - Support CD-In
    - Optical & Coaxial S/PDIF-out available on rear panel
    - Support Jack detection for fool-proof audio device installation
    - Rear panel audio jacks configuration:

Audio Jack Color			
	Line-in	Line-in	Line-in
	Line-out	Front stereo-out	Front stereo-out
	Mic-in	Mic-in	Mic-in
			Side stereo-out
		Rear stereo-out	Rear stereo-out
		Center&Subwoofer	Center&Subwoofer

- I/O
  - Š Onboard Winbond W83627THF LPC bus I/O controller
  - Š Legacy peripheral interface for PS/2 keyboard & mouse, FDD, Parallel, Serial, Game and IrDA (v1.0 compliant)
  - Š Support Hardware Monitoring for fan speed monitoring, CPU/System temperature
  - Š Intelligent fan speed control for quiet operation

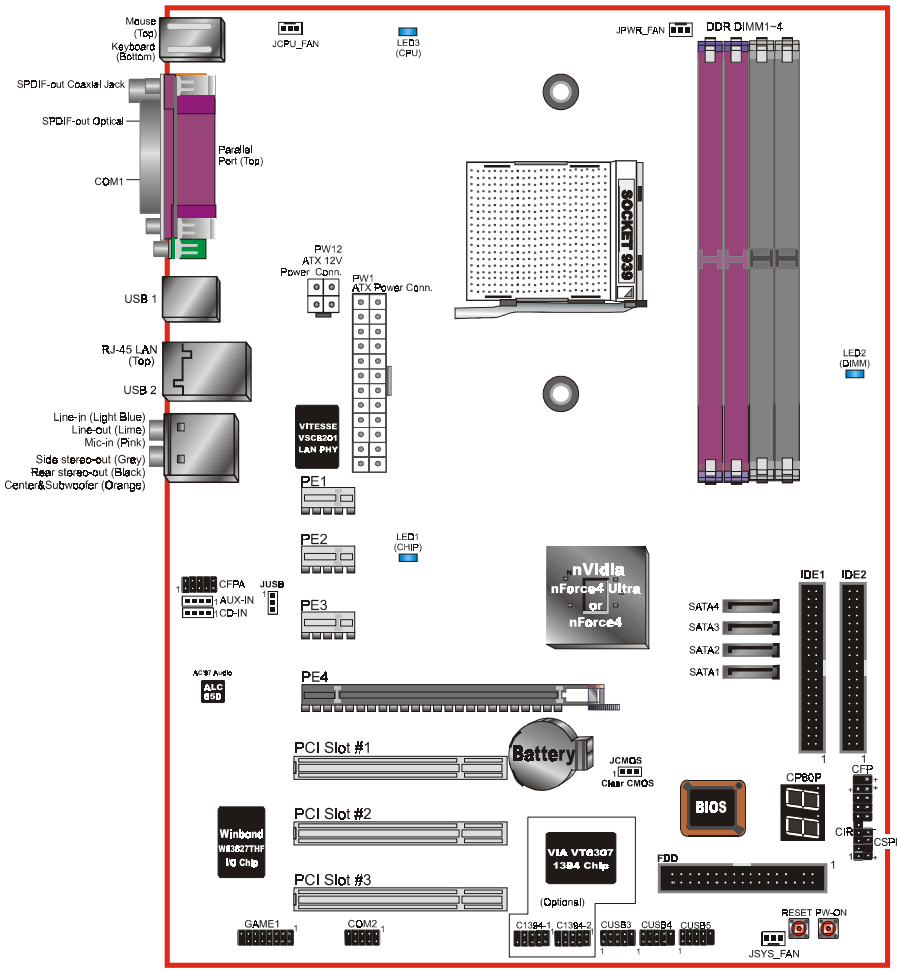
- BIOS
  - Flash EEPROM with Award Plug&Play BIOS
  - Support ACPI S3 (Suspend To RAM) mode in ACPI compliant O/S
  - Support EZ Boot for fast bootable device selection
  - Support Magic Health for system hardware status report during system boot-up

- Peripheral Interfaces
  - At Rear Panel
    - PS/2 keyboard and mouse ports
    - One Parallel (printer) port
    - One S/PDIF-Out Coaxial jack
    - One S/PDIF-Out Optical
    - One Serial port
    - One RJ45 LAN connector
    - Four USB2.0 ports
    - Six Audio jacks
  - Onboard connector and pin-header
    - One floppy drive connector
    - Two ATA-100/133 IDE connector
    - Six extra USB2.0 ports
    - One CD-IN connector
    - One IR connector
    - One Game port connector
    - One Serial Port (COM2) connector
    - Two 1394a connectors (Optional)
    - Four S-ATA connectors
    - Three Fan connectors
    - One RESET and One PW-ON button

- Front Panel Controller
  - ŠSupports Reset & Soft-Off switches
  - ŠSupports HDD & Power LEDs
  - ŠSupports PC speaker
  - ŠSupports Front Panel Audio connector
- Special Features
  - ŠSupport KBPO function – Keyboard power on, turn on the computer from keyboard
  - ŠSupport Wake-On-LAN by PME
  - ŠSupport USB resume in S3
  - ŠOnboard 80 Port LED display for system debugging
  - ŠPowerBIOS for excellent overclocking capabilities through
    - Programmable FSB, PCI-E and PCI Clock output frequency with 1MHz fine tuning
    - Support BIOS adjustable CPU multiplier & Core voltage, FSB clock, PCI-E x16 voltage & clock, Chipset voltage, DIMM frequency and voltage settings
  - ŠSupport LEDION – onboard LED power indicator for CPU, DDR and PCI-E
- Form Factor
  - Š305mm x 245 mm ATX size

Section 3
INSTALLATION

Mainboard Layout



Note: Depending on the model you purchased, some components are optional and may not be available.

Easy Installation Procedure

The following must be completed before powering on your new system:

3-1. CPU Installation

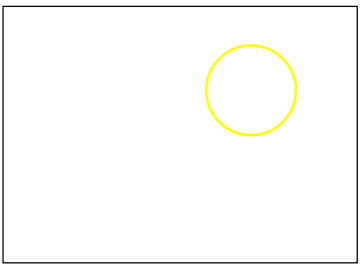
3-2. Jumper Settings

3-3. System Memory

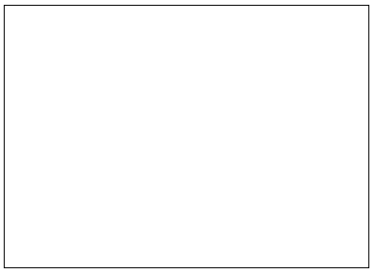
3-4. Expansion Slots

3-5. Device Connectors

3-1 CPU Installation



<Figure 1>



<Figure 2>

Step 1

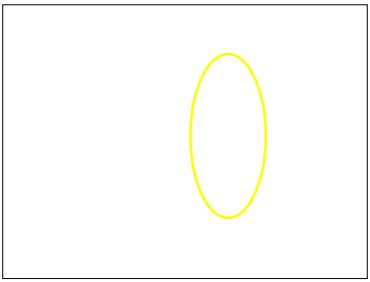
Open the socket by raising the actuation lever.

Step 2

Align pin 1 on the CPU with pin 1 on the CPU socket and gently insert the CPU. The CPU is keyed to prevent incorrect insertion. Do not force the processor into the socket. If it does not go in easily, check for mis-orientation and reinsert the CPU.

Make sure the processor is fully inserted into the socket.

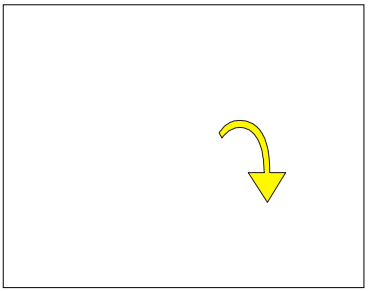
Note:
Thermal compound and qualified heatsink recommended by AMD are a must to avoid CPU overheat damage



<Figure 3>

Step 3

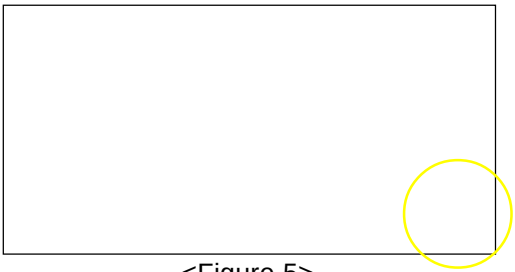
Close the socket by lowering and locking the actuation lever.
Apply thermal compound to the top of the CPU.



<Figure 4>

Step 4

Insert the heatsink as shown above. Press the clips in the direction of the arrows shown in Figure 4 to secure the assembly to the CPU socket.



<Figure 5>

Step 5

Plug the CPU fan power into the mainboard's CPU fan connector.

The installation is complete.

User's Manual

nVIDIA *nForce4 Ultra* / nVIDIA *nForce4* mainboard for AMD Socket 939 based Athlon 64 processor

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