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# ***Introduction***

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The MS6356 ATX S4 mainboard is a high-performance computer mainboard based on Intel® 815EP chipset. The MS-6356 is optimized to support the Intel® Celeron™/Pentium III(FC-PGA) processor for high-end business/personal server markets.

The Intel 815EP chipset contains two components: the 82815EP Memory Controller Hub (MCH) and the 82801BA I/O Controller Hub 2 (ICH2). The MCH integrates a 66/100/133-MHz, P6 family system bus controller, AGP (2X/4X) discrete graphics card, 100/133-MHz SDRAM controller, and a high speed accelerated hub architecture interface for communication with the ICH2. The ICH2 integrates an UltraATA/100 controller, 2 USB host controllers with a total of 4 ports, LPC interface controller, FWH interface controller, PCI interface controller, AC'97 digital link, integrated LAN controller, and a hub interface for communication with the MCH.

This chapter contains the following topics:

Mainboard Specifications	1-2
Mainboard Layout	1-4
Quick Components Guide	1-5
Key Features	1-6
MSI Special Features	1-7

## **Mainboard Specification**

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### **CPU**

- Support Socket370 for Intel® Celeron™/Pentium III(FC-PGA) processor.
- Support 500MHz, 550MHz, 600MHz, 633MHz, 667MHz and up to 1GHz

### **Chipset**

- Intel® Solano chipset. (544 BGA)
  - AGP 4x/2x universal slot
  - Support 66/100/133MHz FSB
- Intel® ICH2 chipset. (241 BGA)
  - AC'97 Controller Integrated
  - 2 full IDE channels, up to ATA100
  - Low pin count interface for SIO

### **Main Memory**

- Support three 168-pin DIMM sockets
- Support 32 to 512MB using 16/64/128/256Mbit technology.

### **Slots**

- One CNR(Communication Network Riser)
- One AGP(Accelerated Graphics Port) 2x/4x slot
- Six PCI 2.2 32-bit Master PCI Bus slots
- Support 3.3v/5v PCI bus Interface

### **On-Board IDE**

- An IDE controller on the ICH chipset provides IDE HDD/CD-ROM with PIO, Bus Master and Ultra DMA 66/100 operation modes.
- Can connect up to four IDE devices.

### **Onboard Ultra 160 SCSI Connector**

- Adaptec AIC-7899
  - supports high performance 160Mbytes/sec Dual Channel Ultra SCSI
  - supports Ultra(SE) devices

### **Audio**

- ICH2 chip integrated

## **On-Board Peripherals**

- On-Board Peripherals include:
  - 1 floppy port supports 2 FDD with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes.
  - 2 serial ports COMA & COMB
  - 1 parallel port supports SPP/EPP/ECP mode
  - 4 USB ports (Rear \* 2 / Front \* 2)

## **Network**

- Intel 82559 10/100M Ethernet (optional)
  - WFW baseline & NET PC specs compliant
  - Advanced Power Management (ACPI support)
  - ARP & Flexible frame filtering
  - Software drivers are backwards compatible

## **BIOS**

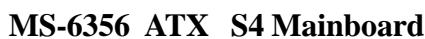
- The mainboard BIOS provides “Plug & Play” BIOS which detects the peripheral devices and expansion cards of the board automatically.
- The mainboard provides a Desktop Management Interface(DMI) function which records your mainboard specifications.

## **Dimension**

- ATX Form Factor

## **Mounting**

- 9 mounting holes



## Quick Components Guide

Component	Function	Reference
Socket 370	Installing CPU	p. 2-2
DIMM1~3	Installing memory module	p. 2-4
ATX Power Supply	Installing power supply	p. 2-6
FDD1	Connecting to floppy disk drive	p. 2-11
IDE1 & IDE2	Connecting to HDD drive	p. 2-12
SCSI1~3	Connecting to SCSI interface	p. 2-17
AGP1	Installing AGP card	p. 2-27
PCI1~6	Installing expansion cards	p. 2-27
CNR	Installing expansion cards	p. 2-27
PSFAN	Connecting to power supply fan	p. 2-16
CPUFAN	Connecting to processor fan	p. 2-16
SYSFAN	Connecting to system fan	p. 2-16
USB1	Connecting to USB interface	p. 2-11
JFP1	Connecting to case	p. 2-13
JMDM1	Connecting to modem card	p. 2-15
JWOL1	Connecting to LAN card	p. 2-15
J3	Connecting to thermistor	P. 2-18
J8	Connecting to chassis intrusion switch	P. 2-18
J11	Connecting to IR modules	P. 2-19
J16	Connecting to power saving switch	P. 2-19
JGL1	Connecting to power saving LED	p. 2-20
J5/J6/J7	AUX_IN/CD_IN/Modem_IN	p. 2-21
JBAT1	Setting clear CMOS	p. 2-22
SW1	Setting overclocking	p. 2-23
J1	Setting keyboard wake-up	p. 2-24
J15	Setting USB wake-up	p. 2-24
J14	Enable onboard Codec	p. 2-25
J9	Update BIOS	p. 2-25
J10	Setting write-protect	p. 2-26

## **Key Features**

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- PC99 Color Connector
- ATX Form Factor
- Audio Chip Integrated
- Support DMI(Desktop Management Interface) through BIOS
- AGP 4X Support
- LAN Wake Up Function
- Modem (Internal/External) Ring Wake Up Function
- STR (Suspend to RAM)
- Suspend to Disk
- Programmable FSB
- T.O.P Tech. III
- D-LED™ (Diagnostic LED)
- Auto/Manual setting of PCI/IRQ
- Support Fuzzy Logic III
- DIP Switching
- BIOS/Driver Internet Update
- Vcore/Vio Adjustable

## MSI Special Features

The MSI special features are designed by MSI R&D which are only available in MSI mainboards. The 6356 mainboard is equipped with PC Alert™ III , T.O.P Tech™ III and D-LED™.

### T.O.P TechIII™

The T.O.P Tech™ is a extended sensing device that can 100% accurately detect the CPU’s temperature. You can see the temperature on BIOS setup menu. The PC Alert™ also can provide the information.



### CPU temperature on Setup menu

CMOS Setup Utility - Copyright(C) 1984-2000 Award Software  
PC Health Status

Current CPU Temp. Current System Temp. Current CPUFAN Speed Current SYSFAN Speed Vcore 2.5V 3.3V 5V 12V	Item Help
	Menu Level >
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults	

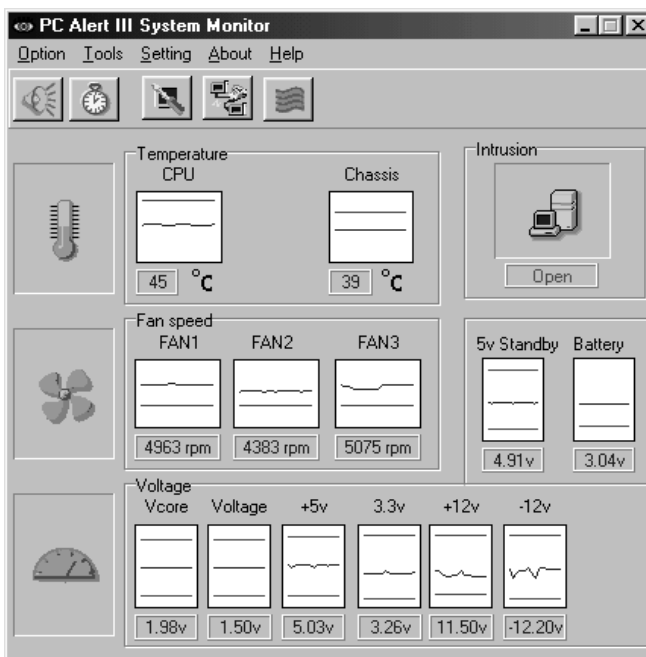
## Chapter 1

### PC Alert™ III

The PC Alert™ III is a utility you can find in the CD-ROM. The utility is just like your PC doctor that can detect the following PC hardware status during real time operation:

- \* monitor CPU & system temperature
- \* monitor fan speed
- \* monitor system voltage
- \* monitor chassis intrusion

If one of the items above is abnormal, the program main screen will be immediately shown on the screen, with the abnormal item highlighted in red. This will continue to be shown until user disables warning.







**Features:**

- Network Management
  - Monitoring & remote control
- Basic System Utilities
  - Scandisk & Defragment to maintain your HDD
- 3D Graphics Design
  - Enables a more friendly user interface
- Software Utilities
  - SoftCooler Optimized Cooling
  - Doctor Y2K diagnoses Y2K problems
  - BusRacing function adjusts F.S.B under Windows 95/98
  - MoSpeed speeds up your modem transmission

Chapter 1

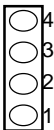
D-LED™

The D-LED™ uses graphic signal display to help you understand your system. There are 4 LEDs embedded in the mainboard which provides up to 16 combination of signals to debug system. The 4 LEDs can debug all problems that fail the system, such as VGA, RAM or other failures. This special feature is very useful for the overclocking users. The users can use this feature to detect if there are any problems or failures while doing the overclocking.



● Red

○ Green



D-LED	Description
1 2 3 4	
	System Power on -The D-LED will hang here if the processor is damaged or not installed properly.
	Early Chipset Initialization.
	Memory Detection Test -Testing onboard memory size. The D-LED will hang if the memory module is damaged or not installed properly.
	Decompressing BIOS image to RAM for fast booting.
	Initializing Keyboard Controller.
	Testing VGA BIOS -This will start writing VGA sign-on message to the screen.

## Introduction



### Processor Initialization

- This will show information regarding the processor (like brand name, system bus, etc...)



### Testing RTC (Real Time Clock)



### Initializing Video Interface

- This will start detecting CPU clock, checking type of video onboard. Then, detect and initialize the video adapter.}@



### BIOS Sign On

- This will start showing information about logo, processor brand name, etc....



### Testing Base and Extended Memory

- Testing base memory from 240K to 640K and extended memory above 1MB using various patterns.



### Assign Resources to all ISA.



### Initializing Hard Drive Controller

- This will initialize IDE drive and controller.



### Initializing Floppy Drive Controller

- This will initializing Floppy Drive and controller.



### Boot Attempt

- This will set low stack and boot via INT 19h.



### Operating System Booting

## ***Chapter 1***