ASMA

ASUS System Monitoring Agent

USER'S MANUAL

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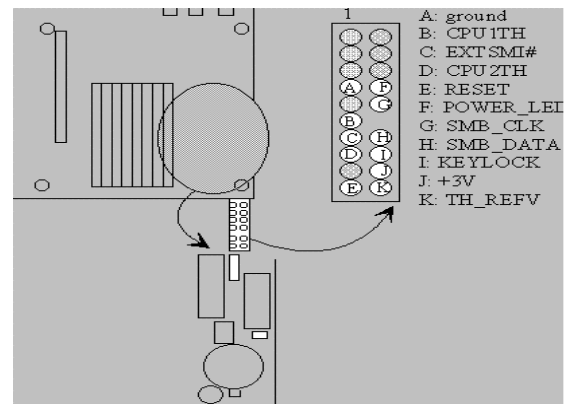
TABLE OF CONTENT

1. INTRODUCTION

ASMA contains ASMA driver for different motherboards and its SNMP agent. Through SNMP Agent, Network management software such as NT performance monitor and HP OpenView can monitor the system's fan speeds, working voltage and system temperature. SNMP Agent will report to Network Management Station immediately to in case of an error to prevent problems from getting worse when the server's in an abnormal state.

1.1 ASMM Overview

ASUS System Monitoring Module, is a hardware portion of this management environment. There are two kinds of implementation for this part. One is ISA card implementation, the other one is mainboard implementation.

Basically the ASMM card is a 8 bit ISA Server Monitoring Card which includes a 20-pin external feature connector for ASUSTek SMH (Server Monitoring Header).

A: ground
B: CPU1TH
C: EXTSMI#
D: CPU2TH
E: RESET
F: POWER_LED
G: SMB_CLK
H: SMB_DATA
I: KEYLOCK
J: +3V
K: TH_REFV

The connections are classified into 2 categories: Chassis Intrusion and Fan Monitor: Chassis Intrusion: Chassis Intrusion permits the activation of a user-installed alarm. One 3 wires cable supports the external customized chassis intrusion alarm. The pin definition are : RED (battery power), YELLOW (intrusion signal), and BLACK (ground). The external intrusion signal should be open-drained. Fan Monitor: The fan monitor provides power for up to 3 fan while monitoring the connected fans' rotation through the specially designed tachometer. Three 3 wire cables are used to extend the length of each fan connection. The pin definitions are: YELLOW (tachometer signal), RED (+12V) , and BLACK (ground).

The system will be notified when the voltage/temperature/fan speed exceeds the predefined thresholds. The notification mechanism can be as simple as polling or through SMI#/IRQ service routine, depending on the programming of LM78. Five different choices of ISA IRQ can be selected (IRQ 3,4,5,6,7) through hardware jumper. ASMM function includes the Chassis Fan, CPU1Fan, CPU2 /Power Fan, +3.3V, +5V, -5V, +12V, -12V, System Temperature, Chassis Intrusion, and Automatic Server Restart.

1.2 ASMA Overview

ASUS System Monitoring Agent is a SNMP agent. This software enable the computer to be managed by Network Management Station (NMSs) through Internet. ASUS System Monitoring Agent can report the computer fan speeds, working voltage, system temperature and chassis intrusion to NMS, it can also enable or disable Automatic Server Restart (ASR) function from NMS through the Internet. ASR is a function that reboot the computer system automatically when the computer system is hang. ASR and Chassis Intrusion functions must have ASMM card or its hardware circuit/components installed on the mainboard. There are several manageable environments for ASMA:

NT Performance Monitor
NT Event Viewer
NT Web Administration
LANDesk Server Manager
HP Openview
CA-TNG
Microsoft System Management Server (SMS)
Other SNMP Management Stations

ASUS System Monitoring Agent - it can record the history of ASUS System Monitoring Agent progress status. The status includes the time during which alert events (fan/voltage/temperature) occur and what type alert events (fatal/warning/normal) occur. The status also log the time ASR/Remote Reboot/Chassis Intrusion is enabled or disabled. These status events are all logged in the Windows NT Application event log file. Users can view these event log easily from Windows NT event viewer. These status events can be displayed in different colors (for example, red for critical events, yellow for warning events and blue for normal indication events). Through different color usage, one quick look at the screen will cover the whole scope of every computer status across the enterprise. Users can view another computer's ASUS System Monitoring Agent's event log remotely through the network by Windows NT event viewer too. ASUS System Monitoring Agent provides extensions to the Windows NT Performance Monitor utility that allow you to monitor the computer fan speeds, voltage level and system temperature on either local or remote machines without using a NMS, all you needed is the Windows NT Performance Monitor.

NT Performance Monitor Extension Counters - Performance Monitor groups the counters by object type. After install the ASMA into NT system, a unique set of counters exist for the ASMA system temperature, CPU temperature, Chassis Intrusion and other object types that produce statistical information. Certain object types and their respective counters are present on all systems.

ASUS ASMM Driver **-** SNMP extension agent and NT performance monitor extension counters must use this driver to access and control the ASMM hardware.

1.3 SNMP Overview

Simple Network Management Protocol (SNMP) is the most popular network management protocol in the TCP/IP protocol suite. SNMP lets TCP/IP-based network management clients exchange information about the configuration and status of nodes on a TCP/IP-based Internet. The information available is defined by a set of managed objects referred to as the SNMP. The example of SNMP in a network environment is illustrated as follows.

SNMP Management means a server can control other clients via SNMP. (like HP Openview)
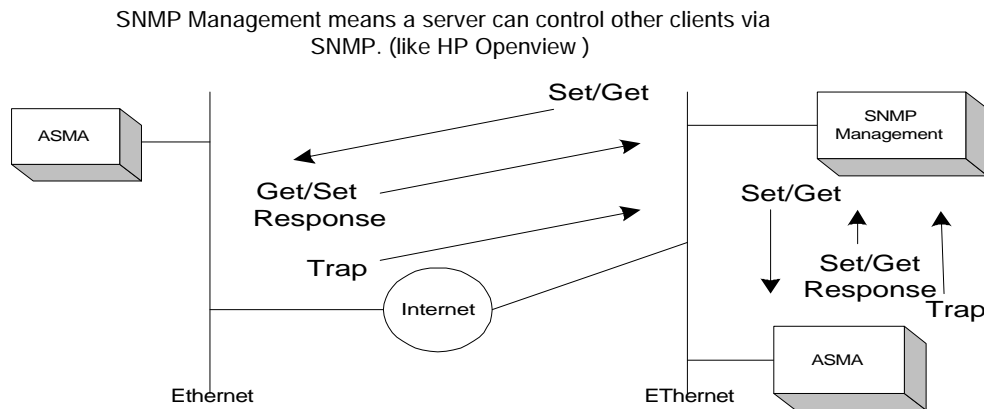
As mentioned above, we will introduce several terminology of SNMP.

Management Information Base (MIB). The subset of managed objects comprising the TCP/IP portion of the MIB is maintained by each TCP/IP node. SNMP also generates trap messages used to report significant TCP/IP events asynchronously to interested clients.

SNMP Get – let SNMP NMS get the value of attribute of managed system, such as fan speed, working voltage and system temperature.

SNMP GetNext – allows the NMS to retrieve the next object instances from a table with an agent.

SNMP Set – set the value of attribute of managed system, such as fan speed threshold, working voltage threshold and system temperature threshold from SNMP NMS.

SNMP Response – be responsible for the response of SNMP GET, SNMP GETNext and SNMP Set.

SNMP Trap – managed computer system can inform some event to the NMS (when the interested attributes, such as fan/voltage/temperature, over or lower the thresholds) asynchronously.

2. FUNCTION DESCRIPTION

There are several functions in ASMA. These functions are described as follows.

ASMA
- is a SNMP agent, and has full SNMP operations.
- has Windows NT performance monitor extensions counter.
- use Windows NT event log to record the important events.
- is more convenient to install.
- has auto detection function for monitoring hardware of different system (such as the number of fans of mainboard).

ASMA consists of full set SNMP operations, such as SNMP Get, SNMP GetNext , SNMP GetResponse, SNMP Set and SNMP Trap, so it can be managed by any kind of SNMP management software. Even, if there is not any SNMP management software in your business, it can also be managed by Windows NT Performance Monitor. Through the ASMA driver, the system information can be retrieved and be shown to the system administrator, so the system administrator can deal with the abnormal activities to avoid the system crash. Furthermore, ASMA is easy to install, and you do not need to reboot your system when the installation is completed.

ASMA provides several different function under hardware requirements, such as monitoring system temperature, fan speed, and voltages, to enhance system stability. And then these functions are separately explained as follows.

1. Temperature monitor: system temperature, CPU 1 temperature and CPU 2 temperature. These recommendation values are illustrated in table 2-1.

Table 2-1 Default Value of Temperature Monitor

	Fatal Low Value	Warning Low Value	Warning High Value	Fatal High Value
System Temp.	-10	0	60	70
CPU1 Temp.	-10	0	60	70
CPU2 Temp.	-10	0	60	70

(Note: The unit specified in the table is in centigrade.)

2.Fan speed monitor: The fan monitor provides power for up 3 fans while monitoring the connected fans' rotation through the specially designed tachometer. The recommendation values are illustrated in Table 2-2.

Table 2-2 Default Value of Fan Speed Monitor

	Fatal Low Value	Warning Low Value
Chassis Fan	1500 rpm	2000 rpm
CPU1 Fan	1500 rpm	2700 rpm
CPU2/Power Fan	1500 rpm	2700 rpm

Note: User must use the CPU2/Power fan with at least 2800 rpm in order to work properly.

3.Voltages monitor: +12V, -12V, +5V, -5V, +3.3V, V_{core1} (CPU 1 voltage), V_{core2} (CPU 2 voltage). In general, the high/low warning value is (normal value $\pm 10\%$), and the high/low fatal value is (normal value $\pm 15\%$). These recommendation values are illustrated in the following table.

Table 2-3 Default Value of Voltages Monitor

	Fatal Low Value	Warning Low Value	Warning High Value	Fatal High Value
Vcore 1 (2.8v)	2380 mv	2520 mv	3080 mv	3220 mv
Vcore 2 (2.8v)	2380 mv	2520 mv	3080 mv	3220 mv
+3.3 v	2805 mv	2970 mv	3630 mv	3795 mv
+5.0 v	4250 mv	4500 mv	5500 mv	5750 mv
-5.0 v	-5750 mv	-5500 mv	-4500 mv	-4250 mv
+12.0 v	10200 mv	10800 mv	13200 mv	13800 mv
-12.0 v	-13800 mv	-13200 mv	-10800 mv	-10200 mv

4.Chassis intrusion: Chassis intrusion permits the activation of a user-installed alarm. Furthermore, optical chassis detection circuit is also built-in (or external intrusion detection connector is also provided).

5.ASR(Automatic Server Restart): Server can be hard reset after a system hang is detected.

6.Remote reboot: SNMP management can reboot the managed SNMP agent via network.

Besides, due to the different characteristics of each mainboard, there are different functions provided by the hardware. Table 2-4 illustrates the differences.

Table 2-4 ASMA function for ASMM card and ASUS mainboard

Model / Function	P2B-LS Rev. 1.03 P2B-S Rev. 1.03	P2L97-DS	P2B-DS Rev. 1.03 P2B-D2 Rev. 1.02	P65Up8 / with ASMM card Rev. 1.04
Chassis Fan	X	X	X	X
CPU 1 Fan Speed	X	X	X	X
CPU 2 / Power Fan Speed	X (Power Fan)	X (CPU 2 Fan)	X (CPU 2 Fan)	X (CPU 2 Fan)
CPU 1 Vcore	X	X	X	
CPU 2 Vcore		X	X	
+3.3V	X	X	X	X
+5V	X	X	X	X
-5V	X	X	X	X
+12V	X	X	X	X
-12V	X	X	X	X
CPU 1 Temperature	X		X	
CPU 2 / Regulator Temperature	X (Regulator Temp.)		X (CPU 2 Temp.)	
ASR	X		X	X
Chassis Intrusion	X		X	X
Remote Reboot Management	X	X	X	X
System Temperature	X	X	X	X

(Notes: **X** is mean its VALUE is VALID in this mainboard)

For ASUS Server, there are two method to detect Chassis Intrusion. One is Photo Sensor, another is Micro Switch. Table 2-5 describe the difference method for ASUS Server.

Table 2-5 Chassis Intrusion Detection Method for ASUS Server

ASUS Server Type	Chassis Intrusion detection Method
AP100	Photo Sensor
AP2000	Micro Switch
AP2500	Micro Switch
AP6000	Micro Switch
AP7000	Photo Sensor
AP7500	Micro Switch

Finally, frequencies generated by different SNMP traps are described as follows.
The Fatal SNMP Trap duration is 10 sec by default. The Warning SNMP Trap duration and the Chassis Intrusion SNMP Trap duration are 20 sec and 60 sec individually. The Fatal SNMP Trap duration can be changed via set-operation of SNMP from smPollFreq MIB object. But the Warning SNMP Trap duration and the Chassis Intrusion SNMP Trap duration can not be changed to any value, and they must be the 2 and 6 multiples of the Fatal SNMP Trap duration respectively.

3. INSTALLATION PROCEDURES

ASMM card

1. Plug the ASMM card onto your computer.
2. Make sure the ASMM card is in a ISA slot correctly.
3. Be sure the server monitor signal connector is connecting to motherboard server connector.
4. Be sure the CPU1 Fan and CPU 2 Fan connector is connected properly.
5. Be sure the Reset signal connector is connecting to motherboard Panel connections.
6. Be sure the Chassis connector is connecting to motherboard external micro-switch.
Important! If your motherboard is equipped with the LM78 chipset, your system will report a warning since both LM78 use the same I/O address. Please refer to ASMM user's manual for more information.

Motherboards embedded ASMM

1. Make sure the motherboard is P2B-LS, P2B-DS, P2B-D2.
2. Be sure the CPU Temp. cable is connecting to motherboard connector.
   (for P2B-LS –> TRCPU connector)
   (for P2B-DS –> JP4 and JP5 connector)
   (for P2B-D2 –> J1601 and J1602)

3.1 Operation System Requirements

ASMA can support both Windows NT Server and Windows NT Workstation, but you must install the SNMP service first before you install the ASMA to a NT system. If you already installed a previous version of ASMA in the NT system, you must uninstall the older version before you installing the new version of ASMA into a NT system.

(Please install the NT SNMP service first)
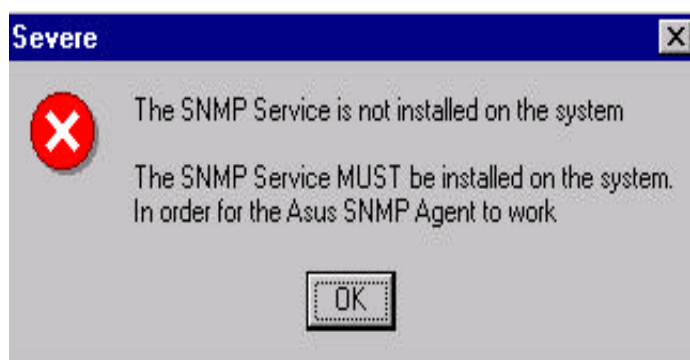
3.2 Installation ASMA into NT system
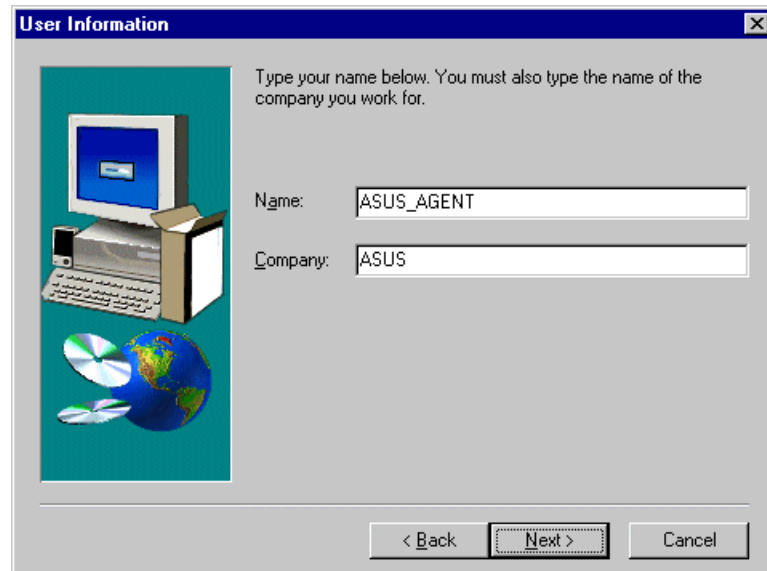
1. Insert the ASUS installation CD or disk. The ASUS install shell will appear. If it does not appear, run \setup.exe. You will presented with a list of installed options.

2. Click the install ASMA and a welcome message appears.
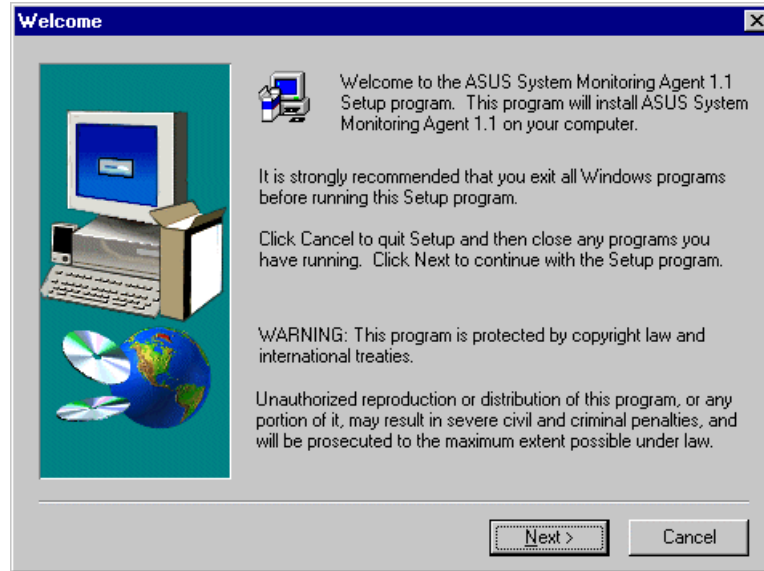
3. ASMA program will stop and restart your NT SNMP service.

3. Please type your name and company.
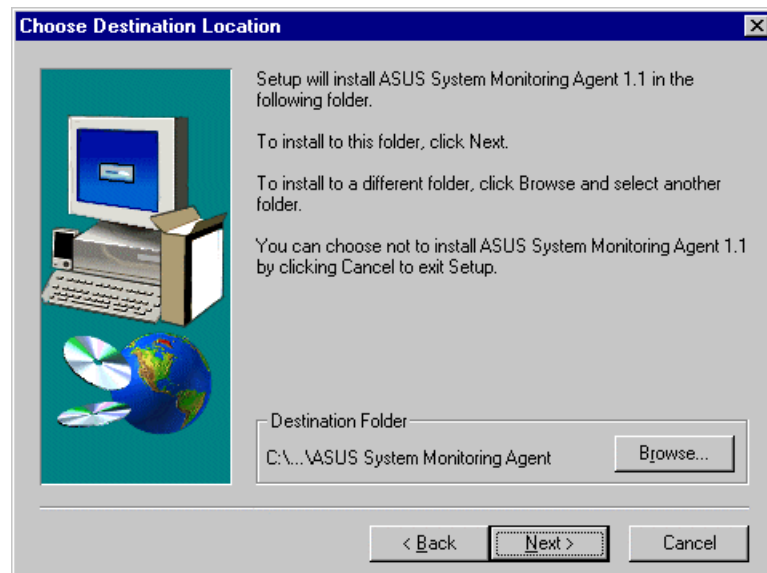
4. Choose a destination location.

5. Select program folder.

Select Program Folder

Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the existing Folders list. Click Next to continue.

Program Folders:

ASUS System Monitoring Agent

Existing Folders:

Administrative Tools (Common)
Adobe Acrobat
Startup

< Back   Next >   Cancel

6. Select the Chassis Intrusion detection Method. (Reference Table 2-5)
    a. AP100 support Photo Sensor.
    b. AP2000, AP2500, AP6000,AP7500 support Micro Switch.
    c. AP7000 will not appear this dialog box, it support Photo Sensor Only.

Choose The Chassis Intrusion Detection Method

Select the Chassis Intrusion detection method from the options below.

○ Micro-Switch
◉ Photo-Sensor
○ No Chassis Intrusion

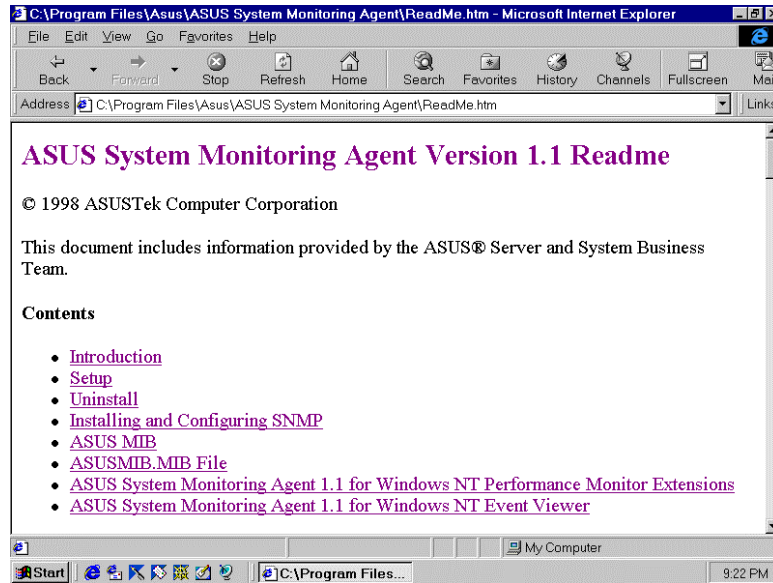< Back   Next >   Cancel
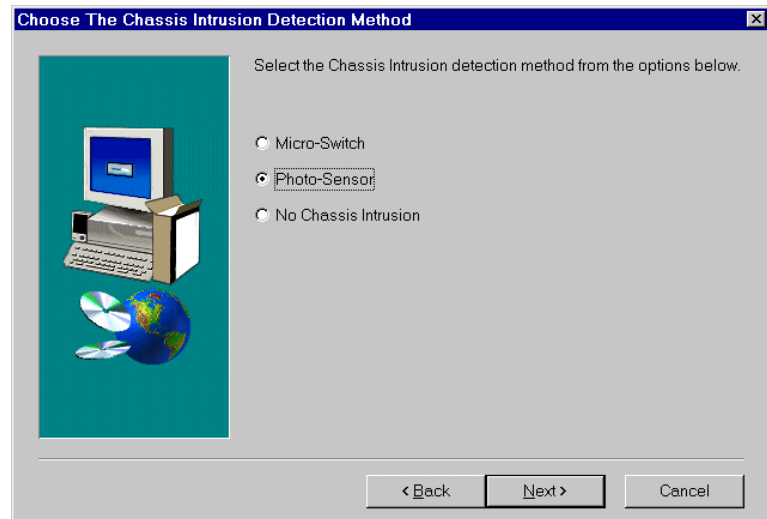
7. Start to copy files to system.
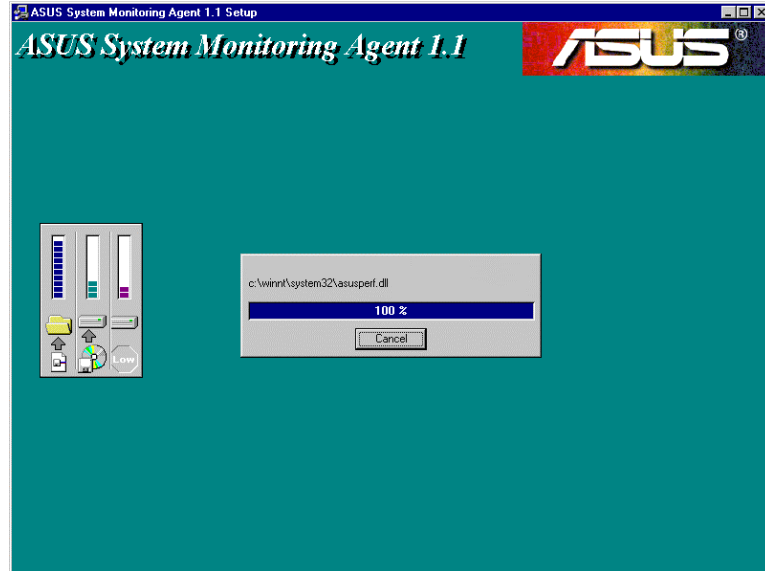
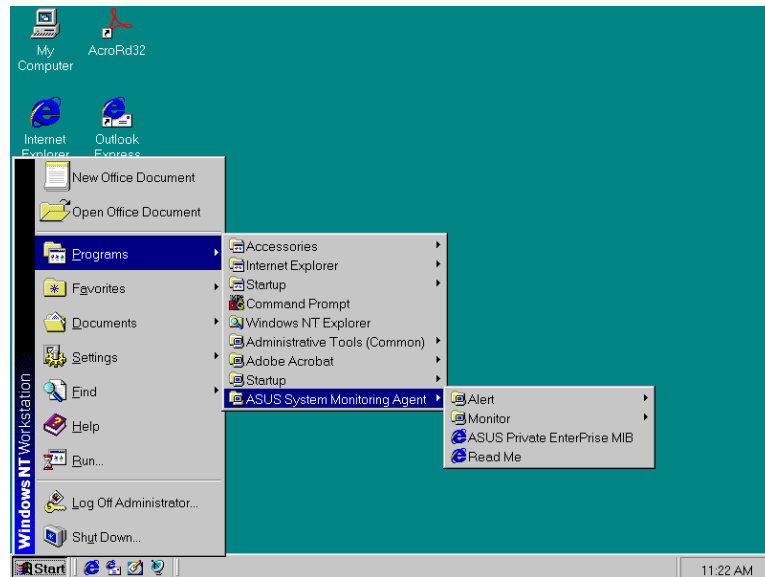
8. Click **I would like to view the Readme file**, if you want to view it.
   A setup complete dialog box appears, click Finish to complete the setup.
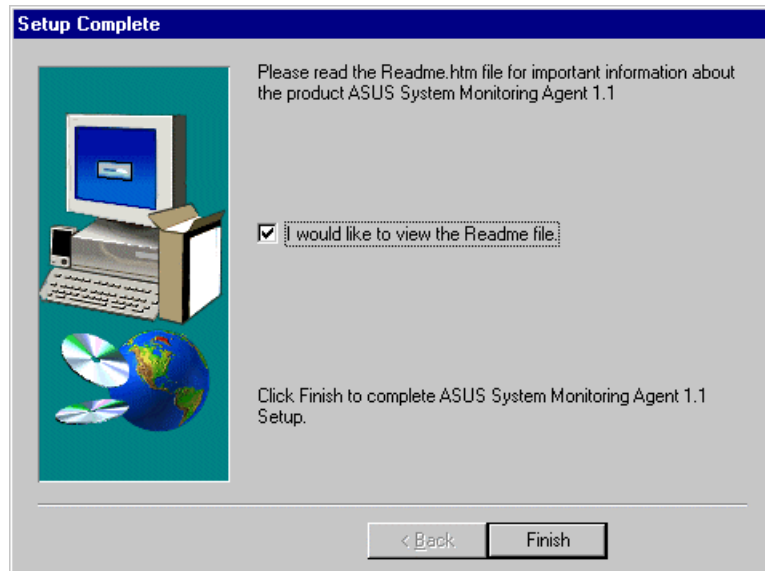
9. Show readme.htm in web browser.

10. After the program installation is completed, you should be able to see it from the application program list menu invoked by the START button.

4.1 Configuring ASMA on Windows NT

If you monitor your PC or network by using Simple Network Management Protocol (SNMP), you can use the SNMP Management Information Bases (MIBs) provided by ASMA software program. You will need to compile the MIB files using the MIB compiler that comes with your SNMP Management software.

* Configuring SNMP Service on NT Server
1. At the Microsoft SNMP Properties dialog, click the **Traps** tab.
2. In the **Community Name** box, type a name for the SNMP community, such as public.
3. Click the **Add** button.
4. Below the **Trap Destinations** box, click the Add button.
5. Type the **IP address** or **computer name** of your network's SNMP management station
6. Click the **Add** button.
7. Click the **OK** button.
8. Click the **Close** button.
9. When prompted , click the **Yes** button to restart your computer.
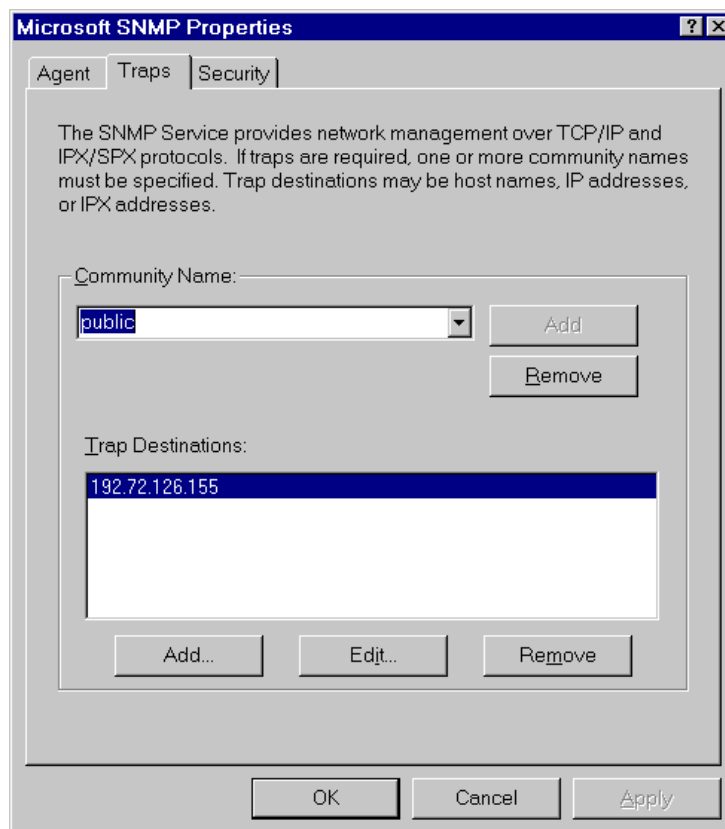
Notes: User can use the SNMP Management software to control or change those values from remote site. We strongly suggest users to use the SNMP Management Software to change the threshold value, ASR enable and Chassis Intrusion enable value. The default function of ASR and chassis intrusion are disable.

To turn ON/OFF the Automatic Server Restart:
Hkey_Local_Machine\System\CurrentControlSet\Services\ASR\Parameter\ASREnable
(for P65UP8 + ASMM card)
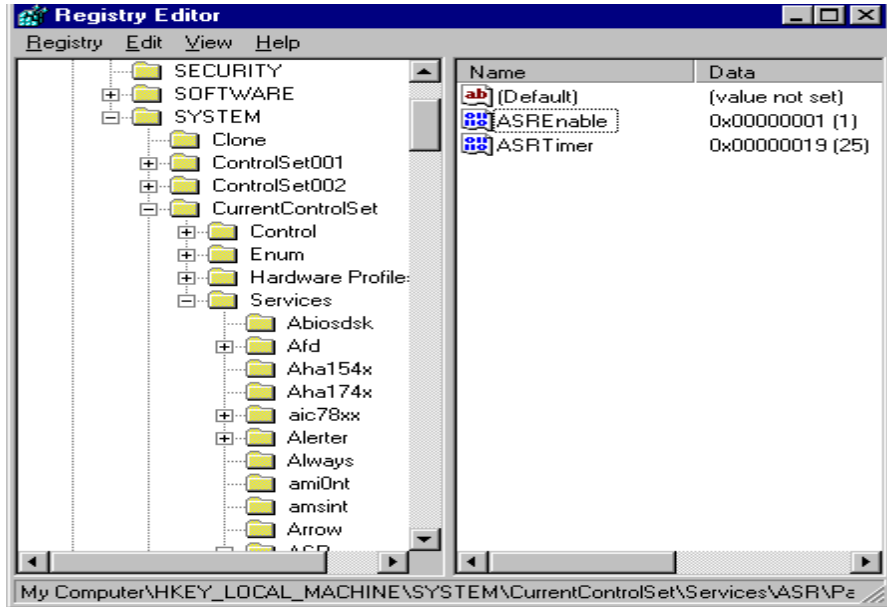
Hkey_Local_Machine\System\CurrentControlSet\Services\WASR\Parameter\ASREnable
(for P2B series)
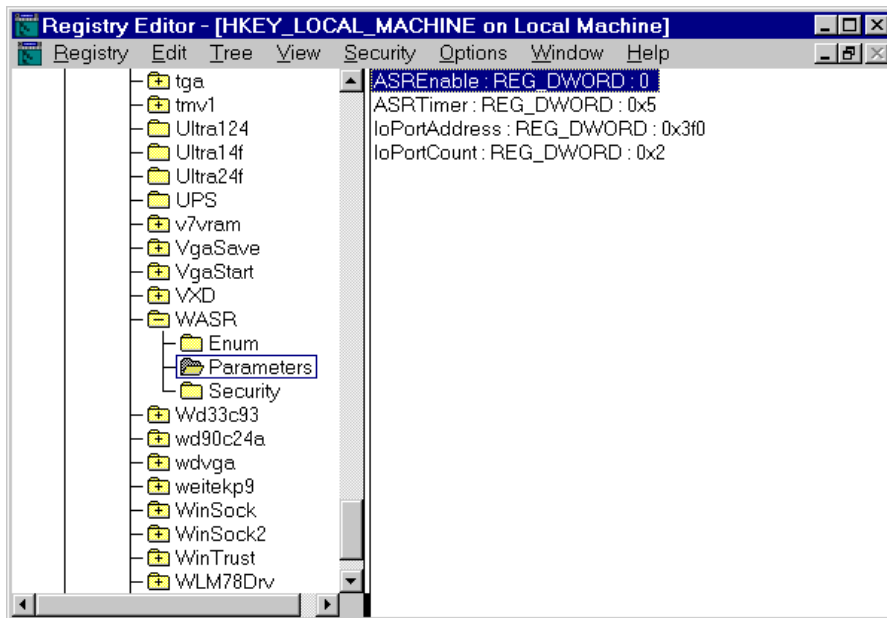
To turn ON/OFF the Reboot System function:
Hkey_Local_Machine\Software\ASUS\ASUSMIB\RebootSystemEnable

```
Registry Editor - [HKEY_LOCAL_MACHINE on Local Machine]        _ □ ×
Registry   Edit   Tree   View   Security   Options   Window   Help    _ 日 ×
📁 HKEY_LOCAL_MACHINE          LM78IN3HighLimit : REG_DWORD : 0x1676
├ ⊞ HARDWARE                  LM78IN3LowLimit : REG_DWORD : 0x109a
├ ⊞ SAM                       LM78IN3WarningHighLimit : REG_DWORD : 0x157c
├ 📁 SECURITY                  LM78IN3WarningLowLimit : REG_DWORD : 0x1194
├ 📁 SOFTWARE                  LM78IN4HighLimit : REG_DWORD : 0x35e8
│  ├ ⊞ Adobe                  LM78IN4LowLimit : REG_DWORD : 0x27d8
│  ├ 📁 Asus                   LM78IN4WarningHighLimit : REG_DWORD : 0x3390
│  │  ├ ⊞ ASUS System Monitoring  LM78IN4WarningLowLimit : REG_DWORD : 0x2a30
│  │  ├ 📂 AsusMIB             LM78MinusIN5HighLimit : REG_DWORD : 0xffffd828
│  │  └ 📁 HardwareConfig      LM78MinusIN5LowLimit : REG_DWORD : 0xffffca18
│  ├ ⊞ Classes                LM78MinusIN5WarningHighLimit : REG_DWORD : 0xffffd
│  ├ ⊞ Clients                LM78MinusIN5WarningLowLimit : REG_DWORD : 0xffffcc
│  ├ ⊞ Compaq                 LM78MinusIN6HighLimit : REG_DWORD : 0xffffef66
│  ├ ⊞ Description            LM78MinusIN6LowLimit : REG_DWORD : 0xfffffe98a
│  ├ ⊞ Intel                  LM78MinusIN6WarningHighLimit : REG_DWORD : 0xffffe
│  ├ ⊞ Microsoft              LM78MinusIN6WarningLowLimit : REG_DWORD : 0xffffea
│  ├ ⊞ ODBC                   LM78PollFreq : REG_DWORD : 0xa
│  ├ 📁 Program Groups         LM78TemperatureHighLimit : REG_DWORD : 0x46
│  ├ 📁 Secure                 LM78TemperatureLowLimit : REG_DWORD : 0xfffffff6
│  └ ⊞ Windows 3.1 Migration Status  LM78TemperatureWarningHighLimit : REG_DWORD : 0x
└ ⊞ SYSTEM                     LM78TemperatureWarningLowLimit : REG_DWORD : 0
                              RebootSystemEnable : REG_DWORD : 0
```
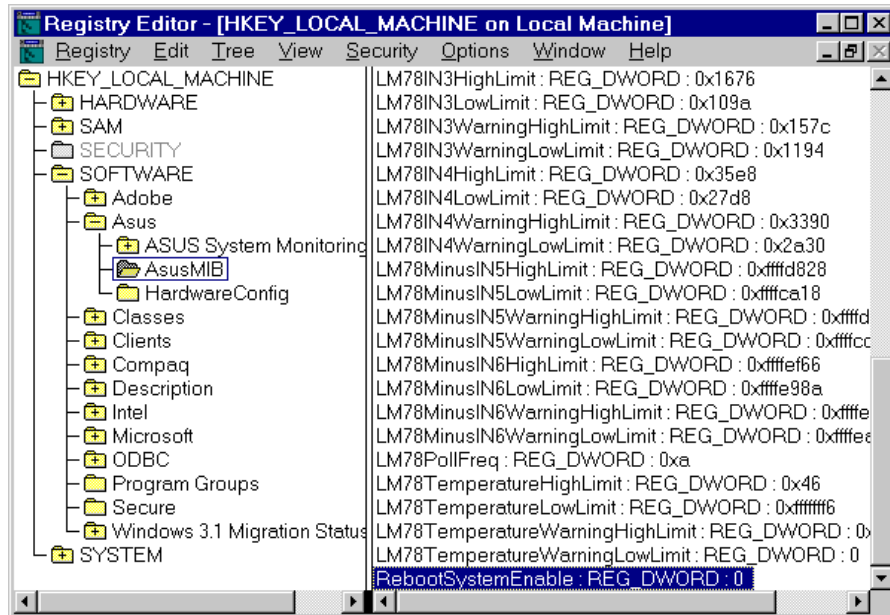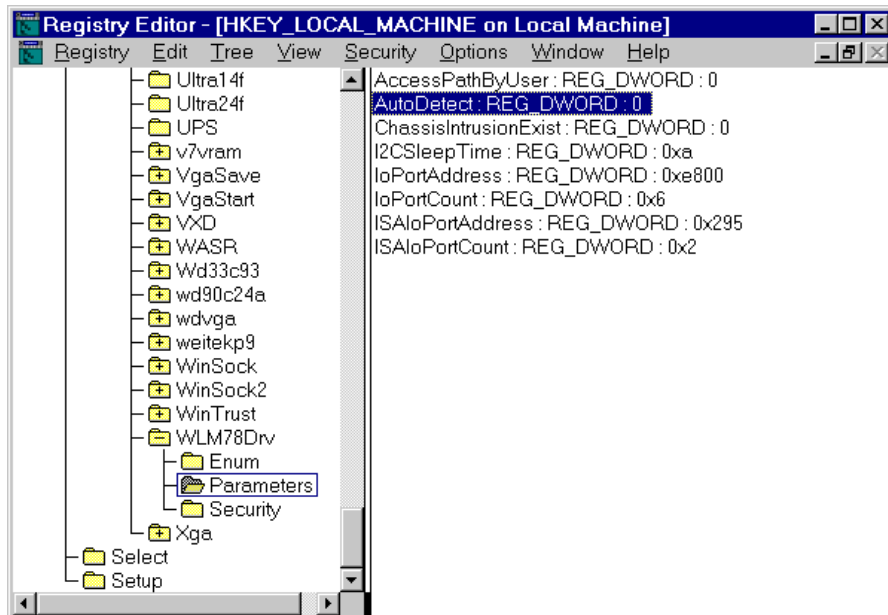
To enable the Auto hardware detect function:
Hkey_Local_Machine\System\CurrentControlSet\Services\WLM78Drv\Parameter\AutoD
ect   (for P2B series).
Hkey_Local_Machine\System\CurrentControlSet\Services\LM78Drv\Parameter\AutoDet
ect   (for P65UP8 & P2L97-DS).

Notes: If you want to add addition hardware (like FAN) to system, you can modify the
        value of AutoDetect from 0 to 1 without re-install the ASMA. After you modify
        the value of AutoDetect, please reboot your system..

```
Registry Editor - [HKEY_LOCAL_MACHINE on Local Machine]        _ □ ×
Registry   Edit   Tree   View   Security   Options   Window   Help    _ 日 ×
├ 📁 Ultra14f                 AccessPathByUser : REG_DWORD : 0
├ 📁 Ultra24f                 AutoDetect : REG_DWORD : 0
├ 📁 UPS                      ChassisIntrusionExist : REG_DWORD : 0
├ ⊞ v7vram                   I2CSleepTime : REG_DWORD : 0xa
├ ⊞ VgaSave                  IoPortAddress : REG_DWORD : 0xe800
├ ⊞ VgaStart                 IoPortCount : REG_DWORD : 0x6
├ ⊞ VXD                      ISAIoPortAddress : REG_DWORD : 0x295
├ ⊞ WASR                     ISAIoPortCount : REG_DWORD : 0x2
├ ⊞ Wd33c93
├ ⊞ wd90c24a
├ ⊞ wdvga
├ ⊞ weitekp9
├ ⊞ WinSock
├ ⊞ WinSock2
├ ⊞ WinTrust
├ 📁 WLM78Drv
│  ├ 📁 Enum
│  ├ 📂 Parameters
│  └ 📁 Security
└ ⊞ Xga
├ 📁 Select
└ 📁 Setup
```
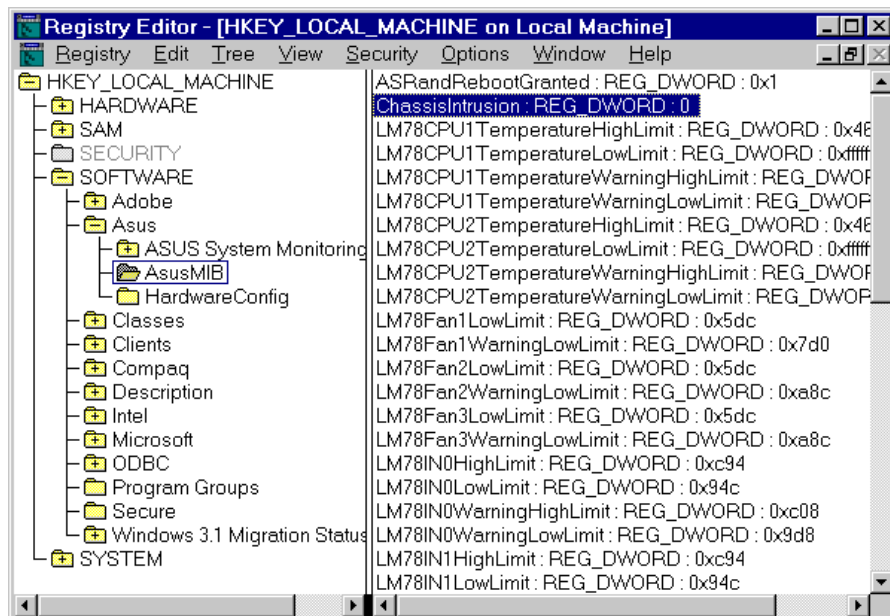
To enable the Chassis Intrusion Exist function:
Hkey_Local_Machine\System\CurrentControlSet\Services\WLM78Drv\Parameter\ChassisIntrusionExist,
Set 0 to disable, 1 to enable Photo sensor, 2 to enable micro switch.
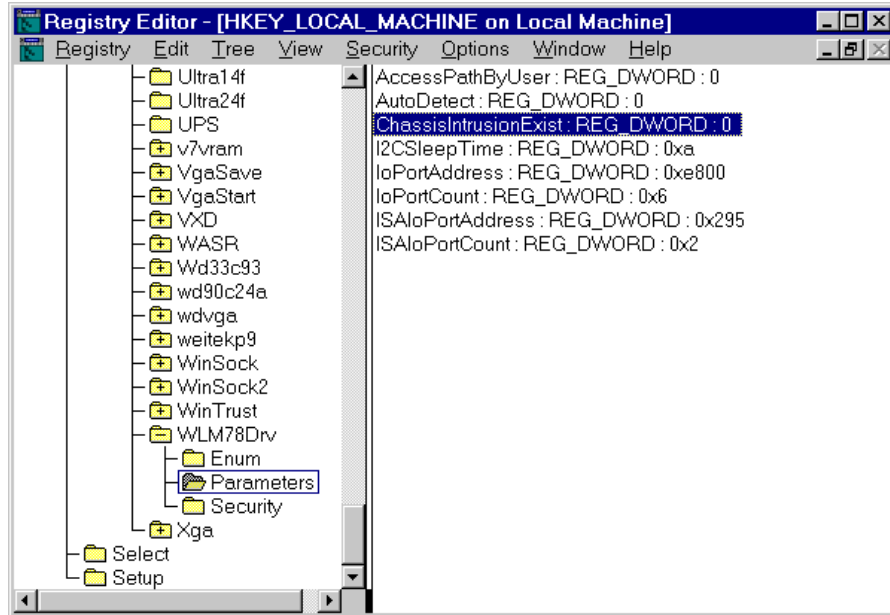
To turn ON/OFF the Chassis Intrusion function:
 Hykey_Local_Machine\Software\ASUS\ASUSMIB\ChassisIntrusion

5. ASMA MANAGEMENT ENVIRONMENTS

In here, we introduce some ASMA management environments only. For more information or detailed description , please refer to ASUS System Management Application note.

5.1 NT Performance Monitor

NT Performance Monitor - is a graphical tool for measuring the performance of your own computer or other computers on a network. On each computer, you can view the behavior of objects, such as processors, memory, cache, threads, and processes.

The following overview lists how you use Performance Monitor to view the performance of objects: Simultaneously view data from any number of computers. View and dynamically change charts reflecting current activity and showing counter values that are updated at a user-defined frequency. Export data from charts, logs, alert logs, and reports to spreadsheet or database programs for further manipulation and printing. Add system alerts that list events in the Alert Log and notify you either by reverting to Alert view, logging the event in Event Viewer's Application log, or issuing a network alert. Run a predefined program either every time or only the first time a counter value goes over or under a user-defined value. Create log files containing data about objects on different computers. Append selected sections of existing log files to a single file, forming a long-term archive.

Performance Monitor consists of four main windows, which you display by clicking Chart, Alert, Log, or Report on the View menu. These windows contain different information and have only the menu bar, status bar, and toolbar in common. You can press the F1 key to see Help about any Performance Monitor command. On the Options menu, Data From is available in any of the four windows. Use this command to switch from working with current values for current activity (real time data) to viewing and manipulating existing log files. The default is current activity.

There are two ways that user can monitor system temperature, working voltages and fan speed from NT Performance Monitor.
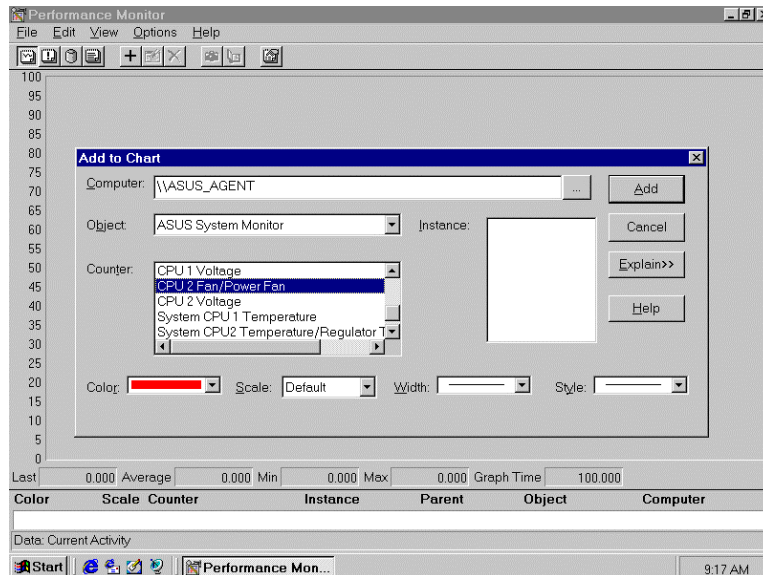
Method I:
1. From the Windows NT desktop, choose **Start** select **Programs**, Select **ASUS System MonitorAgent**, Select **Monitor**.
2. From the **Monitor**, you can monitor the status of system's temperature, voltage and fan speed.

Method II:
1. From the Windows NT desktop, choose **Start | Programs | Administrative Tools | Performance Monitor.**
2. Choose **Edit** menu, Select **Add to Chart**
3. Select the computer that you want to monitor, click **OK**.
4. From the **Object Box**, select **ASUS System Monitor**. It will displays ASUS System Monitor performance list in the **Counter Box**.

5. To see a description of a counter, click the **Counter** in the Computer list box, and click the **Explain** button. This displays a **Counter Definition** panel that describes the counter.

6. In the **Counter** list box, click a performance counter you want to monitor, and click the **Add** button. Repeat this step for all counters you want to monitor.


7. When you are finished adding counters to the chart, close the **Add to Chart** dialog box., You can now observe the color-codes graphs of the counters you have choosen as they Illustrate current.
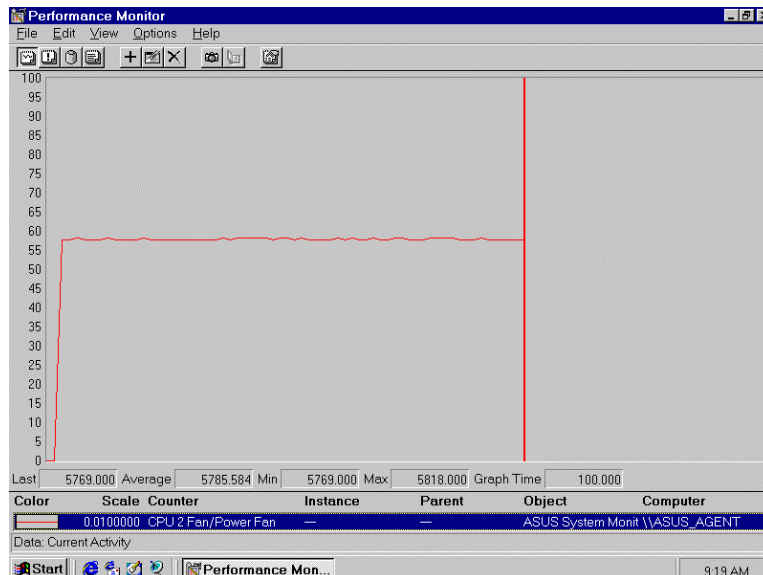
Note: Using Method II, you can monitor another computer that installed ASUS system monitor agent remotely from the network.

To configure the threshold of Fan/Voltage/Temperature in NT performance monitor extension

1. From **Start**, Select **Programs**, Select **ASUS System Monitoring Agent**, Select **Alert**, choose the threshold you want to monitor.
2. Choose **Edit** menu, Click Add to **Alert**
3. Select **Computer**, **object**, **counter**, Set Alert threshold value, click **Add**, click **done**.
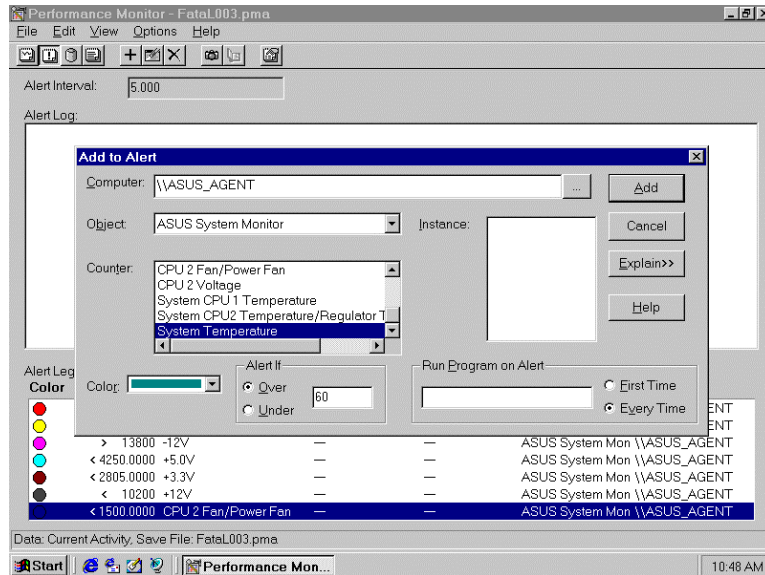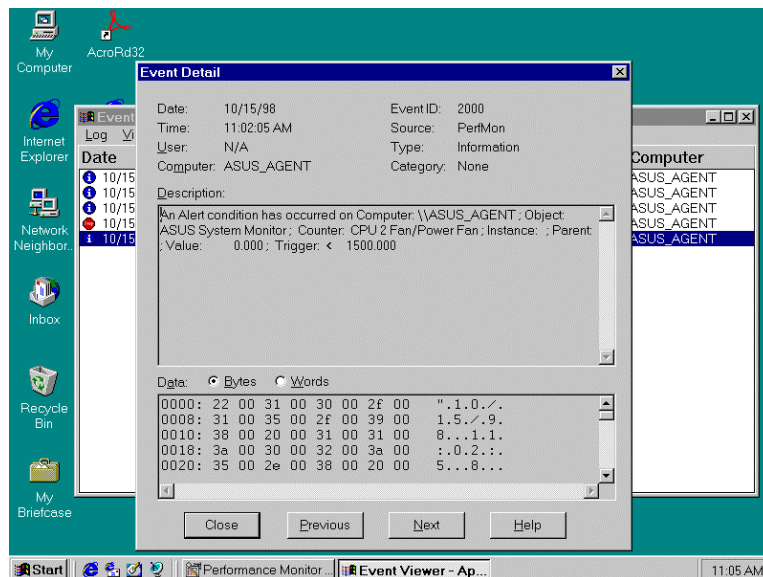

4. Choose **Options** menu, click **Alert**.
5. Select **Send network message**, Type the computer name where the alert message you want to sent.
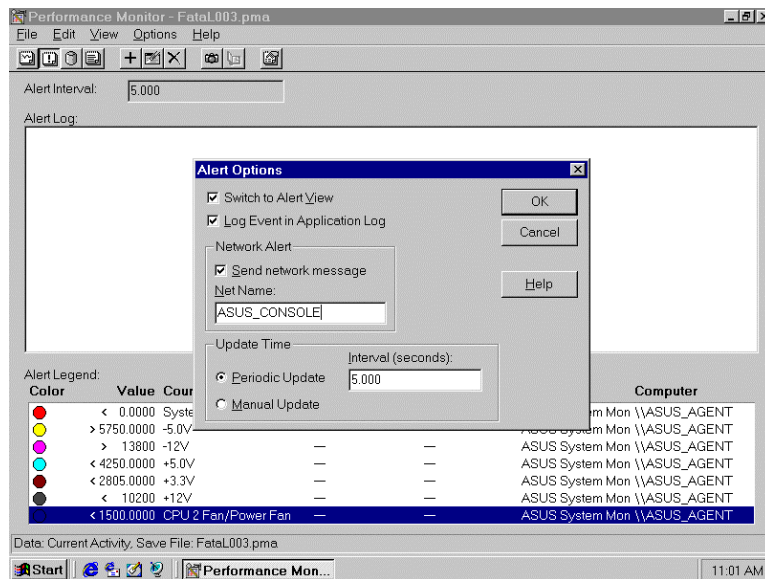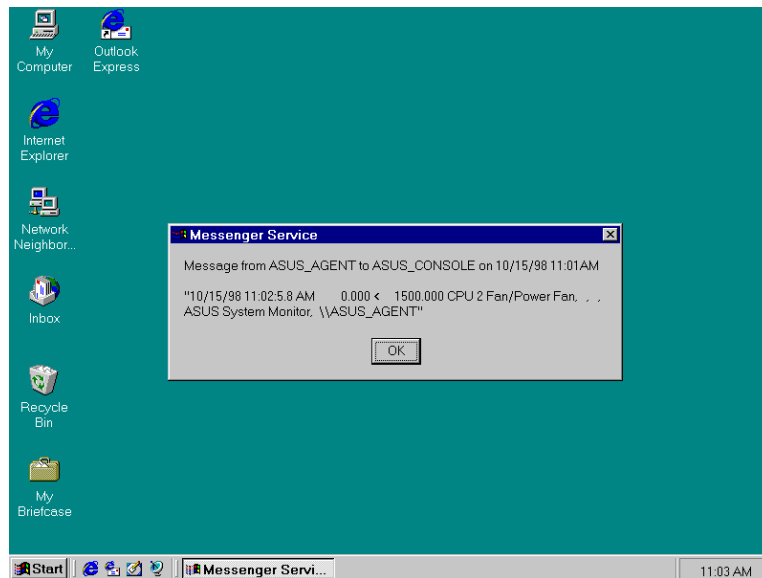
6. You can stop the CPU fan to generate a alert.
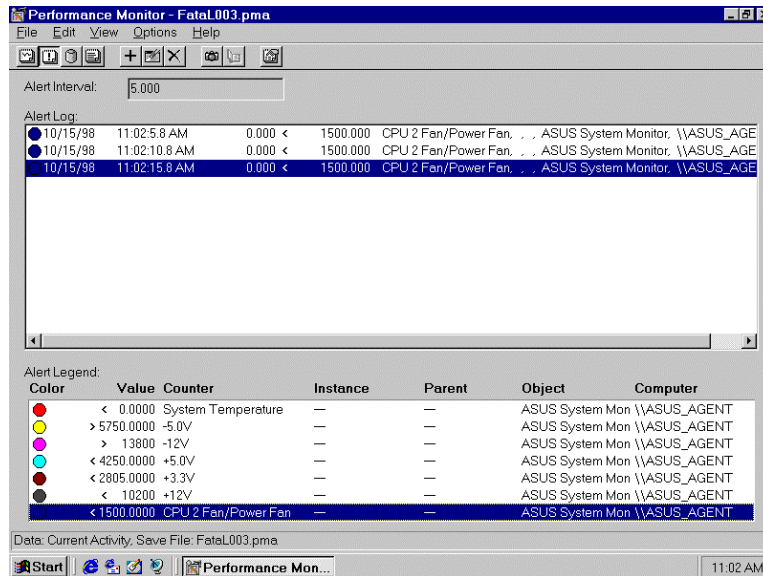
7. Using Event viewer to view this alert message.

8. This alert message will send to CONSOLE.

5.2 NT Event Viewer

Event Viewer - is the tool you can use to monitor events in your system. You can use Event Viewer to view and manage System, Security, and Application event logs.
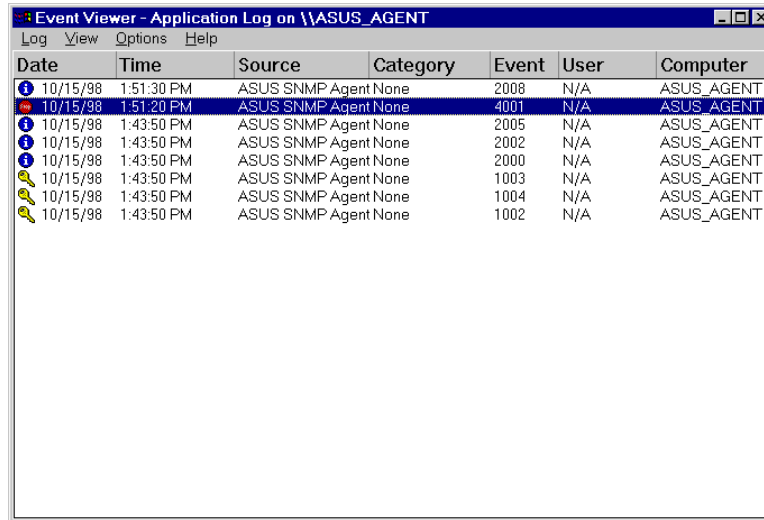
Event: In the Windows NT operating system, an event is any significant occurrence in the system or in an application that requires users to be notified. For critical events such as a full server or an interrupted power supply, you may see a message on screen. For many other events that do not require immediate attention, the Windows NT operating system adds information to an event-log file to provide information without disturbing your usual work. This event logging service starts automatically each time you start you computer running Windows NT.

System Log: The System log records events logged by the Windows NT system components. For example, the failure of a driver or other system component to load during startup is recorded in the System log.

Security Log: The Security log records security events. This helps track changes to the security system and identify any possible breaches to security. For example, attempts to log on the system may be recorded in the Security log, depending on the Audit settings in User Manager. You can view the Security log only if you are an Administrator for a
computer.

Application Log: The Application log records events logged by applications. For example, a database application might record a file error in the Application log. ASUS ASMA will generate some special events in this log.
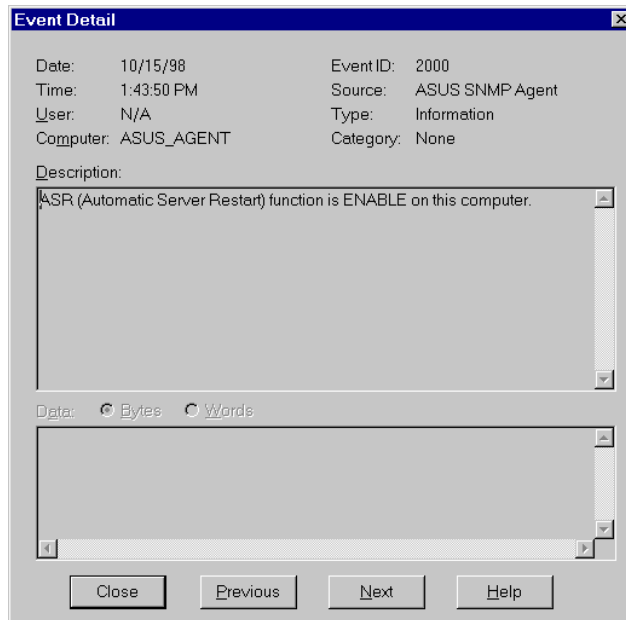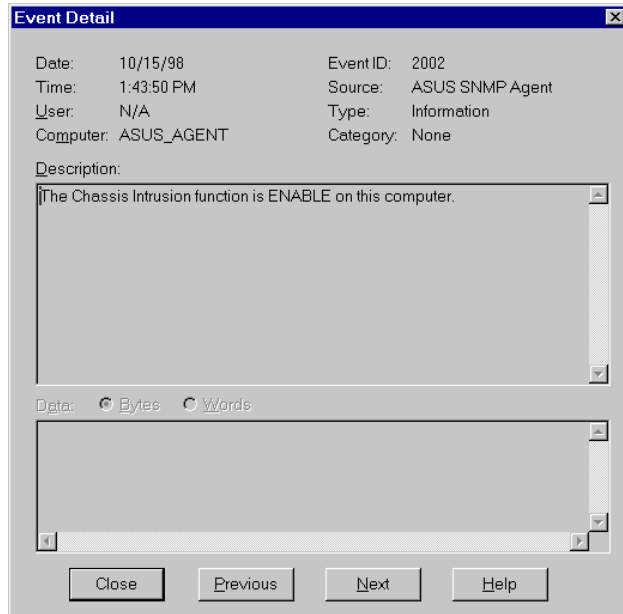
25

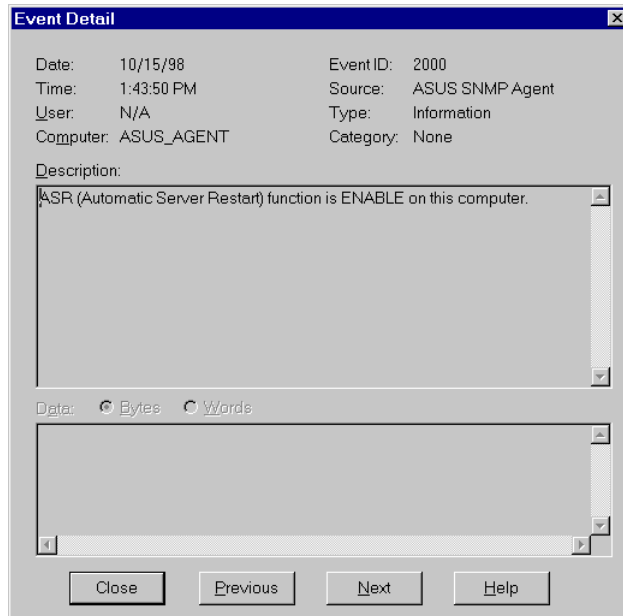ASMA events information in Event Viewer:

To show a Automatic Server Restart Function Enable/Disable event in Event Viewer:
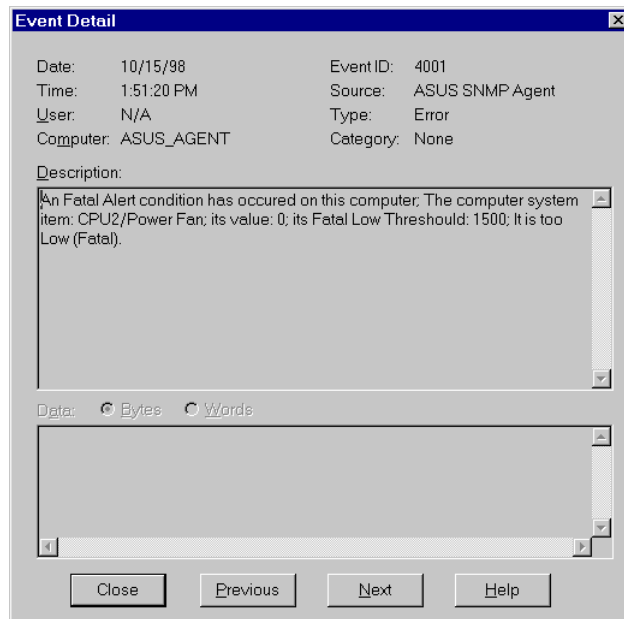
To show a Chassis Intrusion Function Enable/Disable event in Event Viewer

To show a Reboot Management function Enable/Disable event in Event Viewer:

ASMA will generate the SNMP Trap and a event of NT event log , if an alert occurs.

```
Event Detail                                          [X]

  Date:       10/15/98         Event ID:   4001
  Time:       1:51:20 PM       Source:     ASUS SNMP Agent
  User:       N/A              Type:       Error
  Computer:   ASUS_AGENT       Category:   None

  Description:
  An Fatal Alert condition has occured on this computer; The computer system
  item: CPU2/Power Fan; its value: 0; its Fatal Low Threshould: 1500; It is too
  Low (Fatal).



  Data:    O Bytes    O Words




     Close        Previous        Next        Help
```

5.3 NT Web Administration
Web Administration for Microsoft Windows NT Server enables you to remotely administer Microsoft Windows NT Server using existing HTML browsers. Web Administration is not designed to replace existing administrative tools for Windows NT servers; instead, it is to enable you to perform limited administrative tasks when you are roaming, away from your usual workstation. Web administration is a tool that is implemented to work in conjunction with Microsoft Internet Information Server 2.0. User can monitor system temperature, working voltages and fan speed from Web Performance Monitor. You can install the Web Administration software on any server that run Windows NT server 4.0 and Microsoft Internet Information Server (IIS). Installing the Web Administration software on the server causes the server to publish web pages that include forms you can use to administer that particular server. The Web Administration tool is intended for existing Windows NT server administrators who have performed tasks with the regular administrative tools on Windows NT 3.51 and NT 4.0.

You may download the Web Administration program from Microsoft Web site at following URL: http:// www.microsoft.com/ntserver/webadmin/dlnowdl.htm?

To manage the ASMM in Web Administration program:

1. Run Web Browser (IE or Netscape).

2. Type the address at your Browser such as
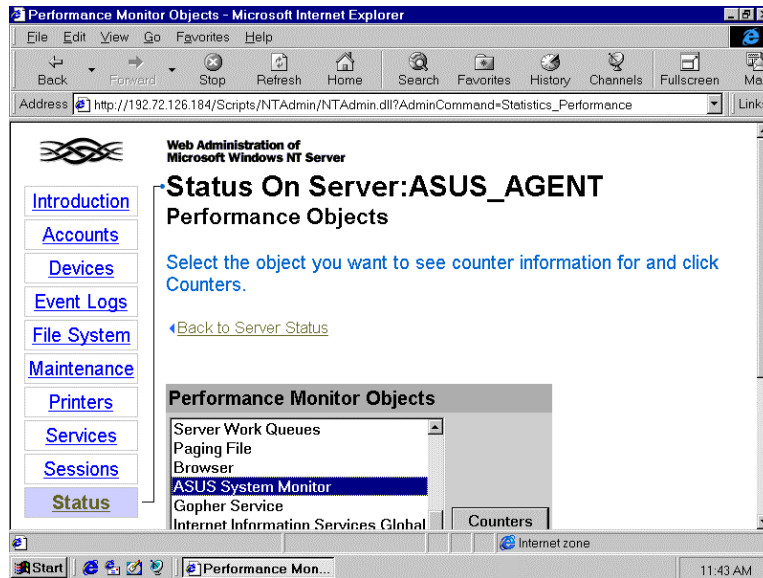   http://server_name or IP address/ntadmin/ntadmin.htm.

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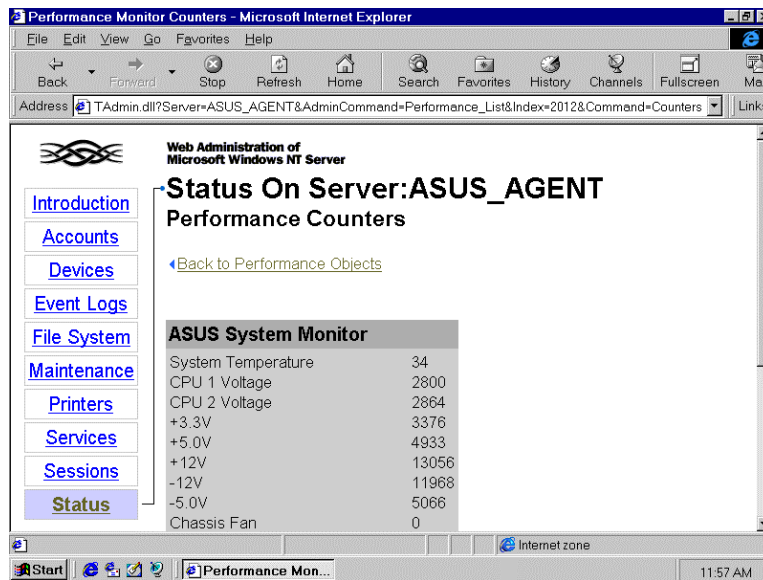3. Click the **Status**. Type your user name, password.
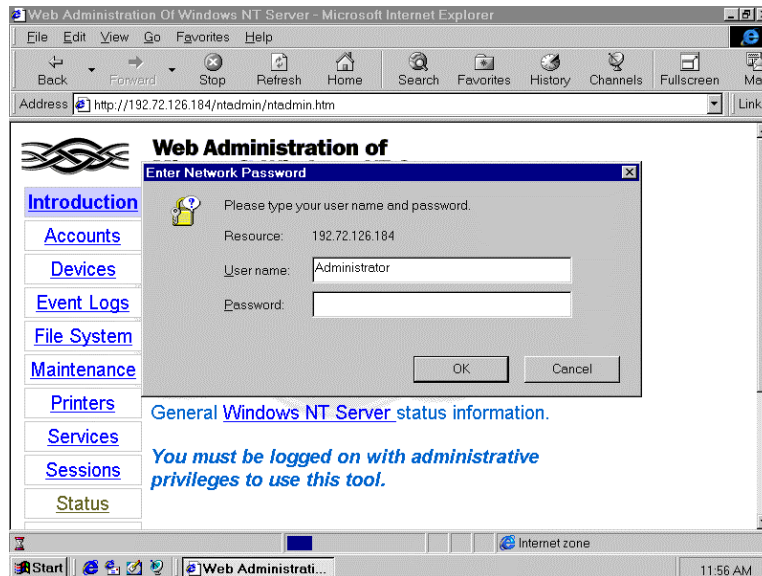
4. Click **Performance Statistics**.
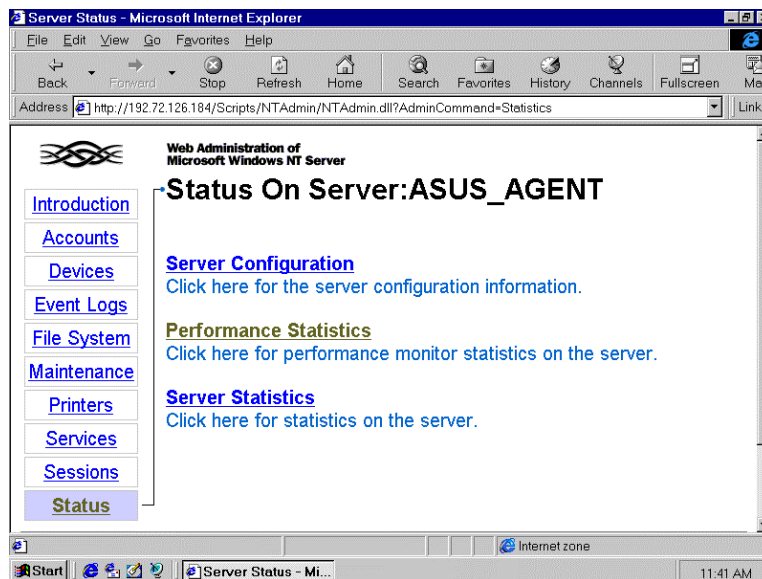
5. Select **ASUS System Monitor** and Click **Counter** button

6. When prompted, you can observe the status of system's temperature, voltages fan speed, and so on.

5.4 HP Openview

The HP Openview SNMP program broadens the capabilities of SNMP-based management applications to control basic network devices and critical systems and applications. In addition to managing devices like routers, bridges, and hubs, the Extensible SNMP Agent allows you to manage applications, printers, users, and databases that are central to business success. The ability to control access to network and system resources and effortlessly monitor important network components gives you unprecedented visibility and control of your network infrastructure.

User may use HP Openview program to compile the ASUS MIB file, then user adds the compiled ASUS MIB file module to HP Openview to manage and operate the ASUS private Enterprise MIB with the computer system has installed ASUS System Monitoring Agent .

Notes: Please find the ASUS MIB file at following location:
1.   From local installation directory.
   (\program_files\asus\Asus System Monitoring Agent\asusmib.mib)
    OR

2.   From ASUS CD or disk. (\Asmamib\ )
    (Asusall.mib file can be used when there are several different motherboards in same
     network)
    (Asusp2b.mib for P2B-LS & P2B-DS & P2B-D2)
    (Asusp2c.mib for P2L97)
    (Asusup8.mib for P65UP8 + ASMM)

Installing ASUS MIB file to HP Openview
1. Click **Control** menu.
2. Select **SNMP Manager**.
3. Select **Manage Database**.
4. Click **Import**.

5. Select ASUS MIB file into **File Name**, Click **OK** button.

Add File

File name:

asusall.mib

```
asusall.mib
asusp2b.mib
asusp2l.mib
asusup8.mib
```

List files of type:

MIB Files (*.mib)

Folders:
d:\asmamib

```
d:\
asmamib
```

Drives:

d: ASMA11_LDSM601

OK

Cancel

Network...
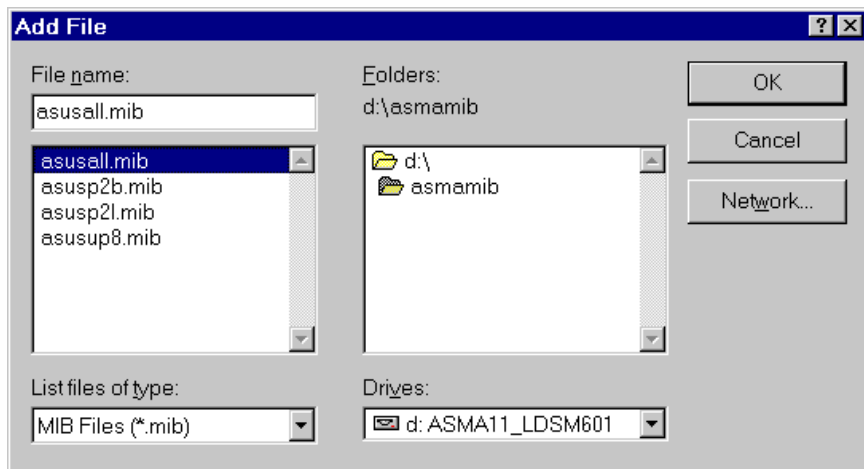
6. From Available MIB files box, select **ASUSMIB.MIB** and click **ADD** button.

SNMP Manager - Manage Database

Files successfully added to database.

Available MIB Files:

ASUSALL.MIB	09/25/98
IANAIF.MIB	09/11/97
RFC1213.MIB	09/11/97
RFC1229.MIB	09/11/97
RFC1230.MIB	09/11/97
RFC1231.MIB	09/11/97
RFC1232.MIB	09/11/97
RFC1233.MIB	09/11/97
RFC1238.MIB	09/11/97
RFC1243.MIB	09/11/97
RFC1253.MIB	09/11/97

Add —>

Files in MIB Database:

ASUSALL.MIB	09/25/98

Import...   Clear Database   Close   Help

Using HP Openview to monitor ASUS Server

1. From **Control** menu, Select **SNMP Manager**, Select **Defined Query**.
2. Using **Up** and **Down** to \iso\org\dod\internet\private\enterprise\asus\systemMonitor
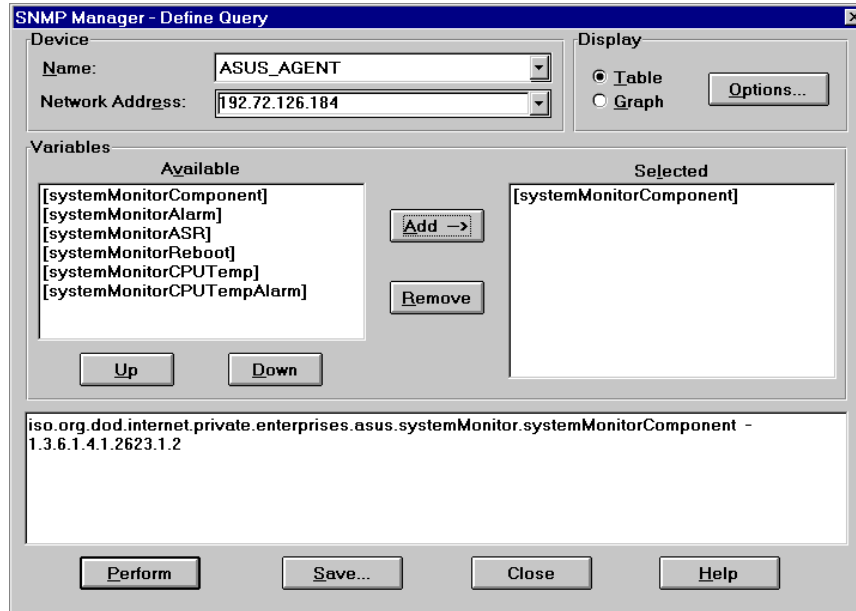
3. Select the Server name from **Name** box.
4. From **Available** box, Select **systemMointorComponent**, Click Add, Click **Perform.**
   Then you can view the information about ASMA
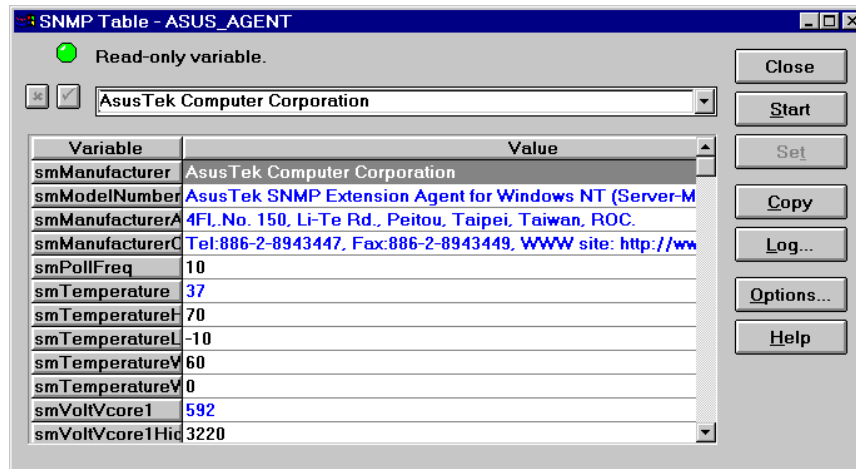
(View / Monitor ASMA Information)

5. Select the **systemMonitorReboot**, Click **Add**, Click **Perform**.
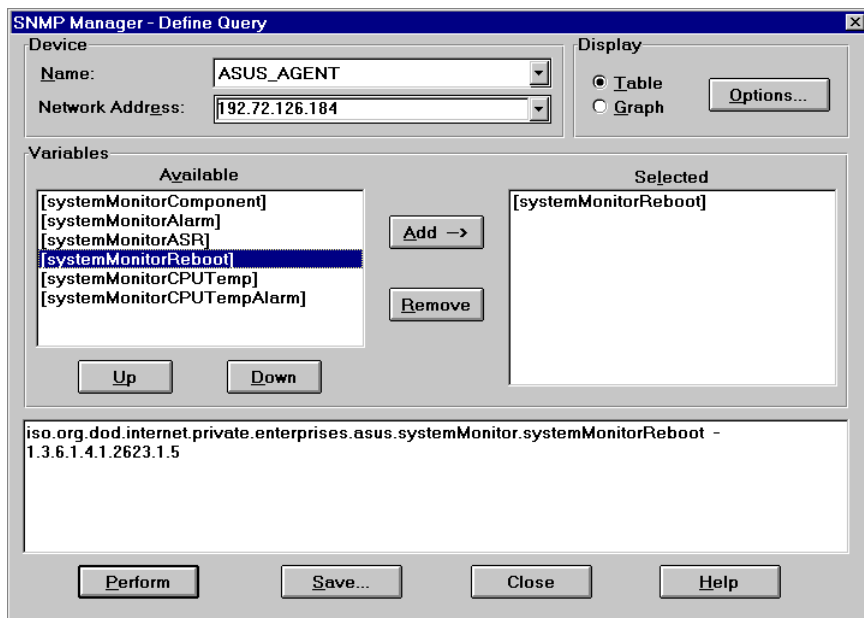
6. Modify the rmRebootSystemEnable variable from 0 to 1 and click SET.
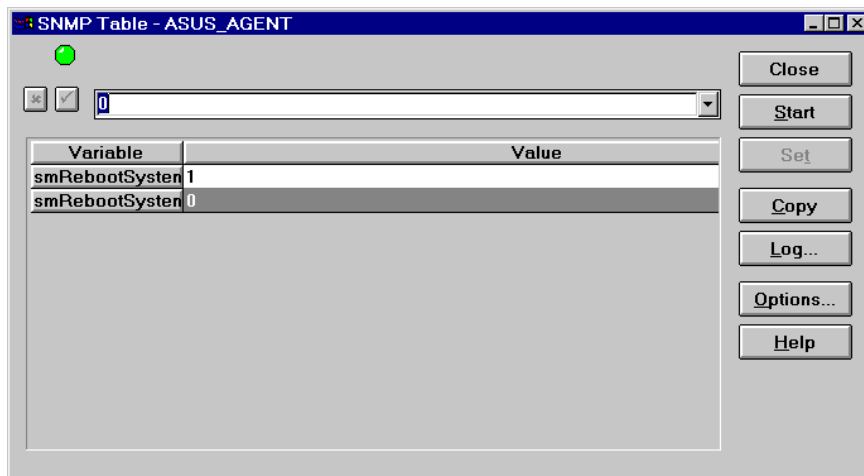
(Configure ASMA information)

Configuring SNMP Trap for HP Openview:

1. From **Auto Discovery** menu, Select **Layout**, Select **Do Basic Layout**

2. From **Options** menu, Select **Customize Trap**

3. Select **Unconfigured/Default**, **Default**, Click **Add**.

4. From **Extended Description box**, Type $*, Click **OK**.

Receiving SNMP Trap

1. From **Monitor** menu, Select **Alarm Log**
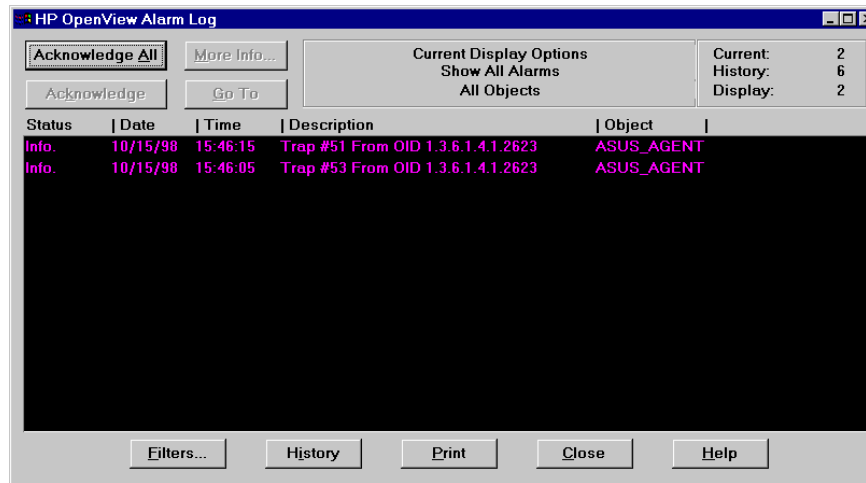
2. Click **more info** to view the detail information.
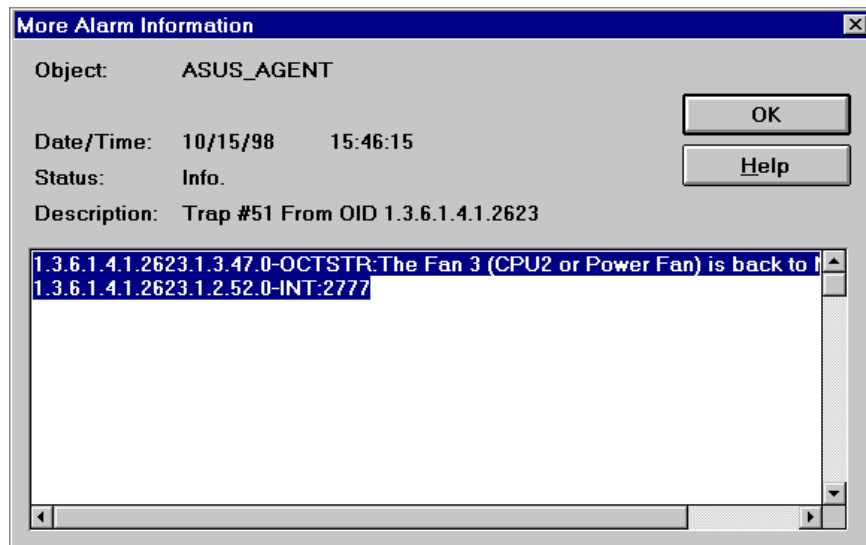
Appendix A. ASMA SNMP MIB OBJECT

For different version of SNMP agents from other vendor, there are different vendor specific enterprise MIB objects. As for ASMA, it is compatible for several platforms, such as HP OpenView, Microsoft SMS, Intel LDSM, SunSoft Solstice Site/SunNet/Domain Manager, CA TNG and so on. A copy of our ASMA MIB file can be obtained from the path \ASMAMIB inside our CD , we will separately describe our MIB object as follows:

I. ASUS Private Enterprise MIB Description:

- smManufacturer :
    The name of the computer system manufacturer. For instance, AsusTek Computer Inc. This MIB is Read-Only.

- smModelNumber :
    The name of the computer system model. For instance, 1 Pentium CPU. This MIB is Read-Only.

- smManufacturerAddress :
    The Address of the computer system manufacturer. This MIB is Read-Only.

- smManufacturerContact :
    The Contact method of the computer system manufacturer. For instance, Telephone, Fax, WWW site, E-Mail Address etc. This MIB is Read-Only.

- smPollFreq :
    This variable informs the monitor of the system frequency. The timer unit is second. This MIB is Read-Write. User can set the value to change the monitor frequency for the computer system. The value range that user can set is from 1 to 10000. The default value is 10.

- smTemperature :
    This variable informs the current temperature of the system. The temperature unit is centigrade. This MIB is Read-Only.

- smTemperatureHighLimit :
    This variable is the threshold value for the fatal upper bound of temperature value of the system. The temperature unit is centigrade. This MIB is Read-Write. The value range that user can set is from -55 to 125. The default value is 70.

- smTemperatureLowLimit :
    This variable is the threshold value for the fatal lower bound of temperature value of the system. The temperature unit is centigrade. This MIB is Read-Write. The value range that user can set is from -55 to 125. The default value is -10.

- smTemperatureWarningHighLimit :

This variable is the threshold value for the warning upper bound of temperature value of the system. The temperature unit is centigrade. This MIB is Read-Write. The value range that user can set is from -55 to 125. The default value is 60.

- smTemperatureWarningLowLimit :
  This variable is the threshold value for the warning lower bound of temperature value of the system. The temperature unit is centigrade. This MIB is Read-Write. The value range that user can set is from -55 to 125. The default value is 0.

- smVoltVcore1 :
  This variable informs the current VCORE1 (CPU 1) voltage of the system. The voltage unit is milli-voltage. This MIB is Read-Only.

- smVoltVcore1HighLimit :
  This variable is the threshold value for the fatal upper bound of VCORE1's (CPU 1) voltage value of the system. The voltage unit is milli-voltage. This MIB is Read-Write. The value range that user can set is from 1000 to 3900. The default value is 3220 (when CPU uses 2800 millivoltage). Otherwise the default value is 3795 (when CPU uses 3300 millivoltage).

- smVoltVcore1LowLimit :
  This variable is the threshold value for the fatal lower bound of VCORE1's (CPU 1) voltage value of the system. The voltage unit is milli-voltage. This MIB is Read-Write. The value range that user can set is from 1000 to 3900. The default value is 2380 (when CPU uses 2800 millivoltage). Otherwise the default value is 2805 (when CPU uses 3300 millivoltage).

- smVoltVcore1WarningHighLimit :
  This variable is the threshold value for the warning upper bound of VCORE1's (CPU 1) voltage value of the system. The voltage unit is milli-voltage. This MIB is Read-Write. The value range that user can set is from 1000 to 3900. The default value is 3080 (when CPU uses 2800 millivoltage). Otherwise the default value is 3630 (when CPU uses 3300 millivoltage).

- smVoltVcore1WarningLowLimit :
  This variable is the threshold value for the warning lower bound of VCORE1's (CPU 1) voltage value of the system. The voltage unit is milli-voltage. This MIB is Read-Write. The value range that user can set is from 1000 to 3900. The default value is 2520 (when CPU uses 2800 millivoltage). Otherwise the default value is 2970 (when CPU uses 3300 millivoltage).

- smVoltVcore2 :
  This variable informs the current VCORE2 (CPU 2 if have otherwise the same as VCORE1) voltage of the system. The voltage unit is milli-voltage. This MIB is Read-Only.

- smVoltVcore2HighLimit :
  This variable is the threshold value for the fatal upper bound of VCORE2's

(CPU 2 if have) voltage value of the system. The voltage unit is milli-voltage. The value range that user can set is from 1000 to 3900. The default value is 3220 (when CPU uses 2800 millivoltage). Otherwise the default value is 3795 (when CPU uses 3300 millivoltage).

- smVoltVcore2LowLimit :
  This variable is the threshold value for the fatal lower bound of VCORE2's (CPU 2 if have) voltage value of the system. The voltage unit is milli-voltage. The value range that user can set is from 1000 to 3900. The default value is 2380 (when CPU uses 2800 millivoltage). Otherwise the default value is 2805 (when CPU uses 3300 millivoltage).

- smVoltVcore2WarningHighLimit :
  This variable is the threshold value for the warning upper bound of VCORE2's (CPU 2 if have) voltage value of the system. The voltage unit is milli-voltage. The value range that user can set is from 1000 to 3900. The default value is 3080 (when CPU uses 2800 millivoltage). Otherwise the default value is 3630 (when CPU uses 3300 millivoltage).

- smVoltVcore2WarningLowLimit :
  This variable is the threshold value for the warning lower voltage of VCORE2's (CPU 2 if have) voltage value of the system. The voltage unit is milli-voltage. The value range that user can set is from 1000 to 3900. The default value is 2520 (when CPU uses 2800 millivoltage). Otherwise the default value is 2970 (when CPU uses 3300 millivoltage).

- sm3V :
  This variable informs the current +3.3 voltage of the system. The voltage unit is milli-voltage. This MIB is Read-Only.

- sm3VHighLimit :
  This variable is the threshold value for the fatal upper bound of +3.3 voltage value of the system. The voltage unit is milli-voltage. This MIB is Read-Write. The value range that user can set is from 2700 to 4100. The default value is 3995.

- sm3VLowLimit :
  This variable is the threshold value for the fatal lower bound of +3.3 voltage value of the system. The voltage unit is milli-voltage. This MIB is Read-Write. The value range that user can set is from 2700 to 4100. The default value is 2805.

- sm3VWarningHighLimit :
  This variable is the threshold value for the warning upper bound of +3.3 voltage value of the system. The voltage unit is milli-voltage. This MIB is Read-Write. The value range that user can set is from 2700 to 4100. The default value is 3830.

- sm3VWarningLowLimit :
  This variable is the threshold value for the warning lower bound of +3.3 voltage

value of the system. The voltage unit is milli-voltage. This MIB is Read-Write. The value range that user can set is from 2700 to 4100. The default value is 2970.

- sm5V :
  This variable informs the current +5.0 voltage of the system. The voltage unit is milli-voltage. This MIB is Read-Only.

- sm5VHighLimit :
  This variable is the threshold value for the fatal upper bound of +5.0 voltage value of the system. The voltage unit is milli-voltage. The voltage unit is milli-voltage. This MIB is Read-Write. The value range that user can set is from 4200 to 5800. The default value is 5750.

- sm5VLowLimit :
  This variable is the threshold value for the fatal lower bound of +5.0 voltage value of the system. The voltage unit is milli-voltage. The voltage unit is milli-voltage. This MIB is Read-Write. The value range that user can set is from 4200 to 5800. The default value is 4250.

- sm5VWarningHighLimit :
  This variable is the threshold value for the warning upper bound of +5.0 voltage value of the system. The voltage unit is milli-voltage. The voltage unit is milli-voltage. This MIB is Read-Write. The value range that user can set is from 4200 to 5800. The default value is 5500.

- sm5VWarningLowLimit :
  This variable is the threshold value for the warning lower bound of +5.0 voltage value of the system. The voltage unit is milli-voltage. The voltage unit is milli-voltage. This MIB is Read-Write. The value range that user can set is from 4200 to 5800. The default value is 4500.

- sm12V :
  This variable informs the current +12.0 voltage of the system. The voltage unit is milli-voltage. This MIB is Read-Only.

- sm12VHighLimit :
  This variable is the threshold value for the fatal upper bound of +12.0 voltage value of the system. The voltage unit is milli-voltage. This MIB is Read-Write. The value range that user can set is from 10000 to 14000. The default value is 13800.

- sm12VLowLimit :
  This variable is the threshold value for the fatal lower bound of +12.0 voltage value of the system. The voltage unit is milli-voltage. The voltage unit is milli-voltage. This MIB is Read-Write. The value range that user can set is from 10000 to 14000. The default value is 10200.

- sm12VWarningHighLimit :
  This variable is the threshold value for the warning upper bound of +12.0 voltage value of the system. The voltage unit is milli-voltage. The voltage unit is

milli-voltage. This MIB is Read-Write. The value range that user can set is from 10000 to 14000. The default value is 13200.

- sm12VWarningLowLimit :
  This variable is the threshold value for the warning lower bound of +12.0 voltage value of the system. The voltage unit is milli-voltage. The voltage unit is milli-voltage. This MIB is Read-Write. The value range that user can set is from 10000 to 14000. The default value is 10800.

- sm-12V :
  This variable informs the current -12.0 voltage of the system. The voltage unit is milli-voltage. This MIB is Read-Only.

- sm-12VHighLimit :
  This variable is the threshold value for the fatal upper bound of -12.0 voltage value of the system. The voltage unit is milli-voltage. This MIB is Read-Write. The value range that user can set is from -14000 to -10000. The default value is -10200.

- sm-12VLowLimit :
  This variable is the threshold value for the fatal lower bound of -12.0 voltage value of the system. The voltage unit is milli-voltage. This MIB is Read-Write. The value range that user can set is from -14000 to -10000. The default value is -13800.

- sm-12VWarningHighLimit :
  This variable is the threshold value for the warning upper bound of -12.0 voltage value of the system. The voltage unit is milli-voltage. This MIB is Read-Write. The value range that user can set is from -14000 to -10000. The default value is -10800.

- sm-12VWarningLowLimit :
  This variable is the threshold value for the warning lower bound of -12.0 voltage value of the system. The voltage unit is milli-voltage. This MIB is Read-Write. The value range that user can set is from -14000 to -10000. The default value is -13200.

- sm-5V :
  This variable informs the current -5.0 voltage of the system. The voltage unit is milli-voltage. This MIB is Read-Only.

- sm-5VHighLimit :
  This variable is the threshold value for the fatal upper bound of -5.0 voltage value of the system. The voltage unit is milli-voltage. This MIB is Read-Write. The value range that user can set is from -5800 to -4200. The default value is -4250.

- sm-5VLowLimit :
  This variable is the threshold value for the fatal lower bound of -5.0 voltage value of the system. The voltage unit is milli-voltage. This MIB is Read-Write.

The value range that user can set is from -5800 to -4200. The default value is -5750.

- sm-5VWarningHighLimit :
  This variable is the threshold value for the warning upper bound of -5.0 voltage value of the system. The voltage unit is milli-voltage. This MIB is Read-Write. The value range that user can set is from -5800 to -4200. The default value is -4500.

- sm-5VWarningLowLimit :
  This variable is the threshold value for the warning lower bound of -5.0 voltage value of the system. The voltage unit is milli-voltage. This MIB is Read-Write. The value range that user can set is from -5800 to -4200. The default value is -5500.

- smFan1 :
  This variable informs the current Fan 1 (Chassis Fan) of the system. The fan rotation unit is RPM (Rotate Per Minute). This MIB is Read-Only.

- smFan1LowLimit :
  This variable is the threshold value for the fatal lower bound of Fan 1 (Chassis Fan) value of the system. The fan rotation unit is RPM (Rotate Per Minute). This MIB is Read-Write. The value range that user can set is from 1500 to 2000. The default value is 1500.

- smFan1WarningLowLimit :
  This variable is the threshold value for the warning lower bound of Fan 1 (Chassis Fan) value of the system. The fan rotation unit is RPM (Rotate Per Minute). This MIB is Read-Write. The value range that user can set is from 1500 to 2000. The default value is 2000.

- smFan2 :
  This variable informs the current Fan 2 (CPU1 Fan) of the system. The fan rotation unit is RPM (Rotate Per Minute). This MIB is Read-Only.

- smFan2LowLimit :
  This variable is the threshold value for the fatal lower bound of Fan 2 (CPU1 Fan) value of the system. The fan rotation unit is RPM (Rotate Per Minute).The values range that user can set is from 1500 to 2700. The default value is 1500.

- smFan2WarningLowLimit :
  This variable is the threshold value for the warning lower bound of Fan 2 (CPU1 Fan) value of the system. The fan rotation unit is RPM (Rotate Per Minute).The values range that user can set is from 1500 to 2700. The default value is 2700.

- smFan3 :
  This variable informs the current Fan 3 (CPU2 or Power Fan) of the system. The fan rotation unit is RPM (Rotate Per Minute). This MIB is Read-Only.

- smFan3LowLimit :
  This variable is the threshold value for the fatal lower bound of Fan 3 (CPU2 or Power Fan) value of the system. The fan rotation unit is RPM (Rotate Per Minute). The value range that user can set is from 1500 to 2700. The default value is 1500.

- smFan3WarningLowLimit :
  This variable is the threshold value for the warning lower bound of Fan 3 (CPU2 or Power Fan) value of the system. The fan rotation unit is RPM (Rotate Per Minute). The value range that user can set is from 1500 to 2700. The default value is 2700.

- smAutomaticServerRestart :
  This variable is for Automatic Server Restart enable(1)/disable(0) when computer system hangs. The value range that user can set is either 1 (enable) or 0 (disable). The default value is 0, i.e. the ASR (Automatic Server Restart) is disable.

- smChassisIntrusionEnable :
  This variable is for the computer system Chassis Intrusion enable(1)/disable(0). The values range that user can set is either 1 (enable) or 0 (disable). The default value is 0, i.e. the Chassis Intrusion is disable. If the MIB object can not be set, the chassis intrusion function is not support on the system.

- smChassisIntrusionStatus :
  This variable is for detect the computer system Chassis Intrusion flag status Intrusion(1)/No Intrusion(0).

- smRebootSystemEnable :
  This variable enable(1)/disable(0) the current system remote reboot function. The Default value is 0.

- smRebootSystemNow :
  This variable reboots the system. The set value is 1.

- smCPU1Temperature :
  This variable informs the current CPU1 temperature of the system. The temperature unit is centigrade. This MIB is Read-Only.

- smCPU1TemperatureHighLimit :
  This variable is the threshold value for the fatal upper bound of CPU1 temperature value of the system. The temperature unit is centigrade. This MIB is Read-Write. The value range that user can set is from -55 to 125. The default value is 70.

- smCPU1TemperatureLowLimit :
  This variable is the threshold value for the fatal lower bound of CPU1 temperature value of the system. The temperature unit is centigrade. This MIB is Read-Write. The value range that user can set is from -55 to 125. The default

value is -10.

- smCPU1TemperatureWarningHighLimit :
  This variable is the threshold value for the warning upper bound of CPU1 temperature value of the system. The temperature unit is centigrade. This MIB is Read-Write. The value range that user can set is from -55 to 125. The default value is 60.

- smCPU1TemperatureWarningLowLimit :
  This variable is the threshold value for the warning lower bound of CPU1 temperature value of the system. The temperature unit is centigrade. This MIB is Read-Write. The value range that user can set is from -55 to 125. The default value is 0.

- smCPU2Temperature :
  This variable informs the current CPU2 (or Regulator) temperature of the system. The temperature unit is centigrade. This MIB is Read-Only.

- smCPU2TemperatureHighLimit :
  This variable is the threshold value for the fatal upper bound of CPU2 (or Regulator) temperature value of the system. The temperature unit is centigrade. This MIB is Read-Write. The value range that user can set is from -55 to 125. The default value is 70.

- smCPU2TemperatureLowLimit :
  This variable is the threshold value for the fatal lower bound of CPU2 (or Regulator) temperature value of the system. The temperature unit is centigrade. This MIB is Read-Write. The value range that user can set is from -55 to 125. The default value is -10.

- smCPU2TemperatureWarningHighLimit :
  This variable is the threshold value for the warning upper bound of CPU2 (or Regulator) temperature value of the system. The temperature unit is centigrade. This MIB is Read-Write. The value range that user can set is from -55 to 125. The default value is 60.

- smCPU2TemperatureWarningLowLimit :
  This variable is the threshold value for the warning lower bound of CPU2 (or Regulator) temperature value of the system. The temperature unit is centigrade. This MIB is Read-Write. The value range that user can set is from -55 to 125. The default value is 0.
  PS : User must always set the threshold's values as following:.
  smXXXHighLimit > smXXXWarningHighLimit >
  smXXXWarningLowLimit > smXXXLowLimit

II. ASUS Private Enterprise Alarm MIB Description :

- smTemperatureNormalAlarm :
  This variable is for trap to inform when the Normal temperature of the system is occurred.

- smTemperatureHighLimitAlarm :
  This variable is for trap to inform when the fatal high temperature of the system is occurred.

- smTemperatureLowLimitAlarm :
  This variable is for trap to inform when the fatal low temperature of the system is occurred.

- smTemperatureWarningHighLimitAlarm :
  This variable is for trap to inform when the warning high temperature of the system is occurred.

- smTemperatureWarningLowLimitAlarm :
  This variable is for trap to inform when the warning low temperature of the system is occurred.

- smVoltVcore1NormalAlarm :
  This variable is for trap to inform when the Normal VCORE1's (CPU 1) voltage of the system is occurred.

- smVoltVcore1HighLimitAlarm :
  This variable is for trap to inform when the fatal high VCORE1's (CPU 1) voltage of the system is occurred.

- smVoltVcore1LowLimitAlarm :
  This variable is for trap to inform when the fatal low VCORE1's (CPU 1) voltage of the system is occurred.

- smVoltVcore1WarningHighLimitAlarm :
  This variable is for trap to inform when the warning high VCORE1's (CPU 1) voltage of the system is occurred.

- smVoltVcore1WarningLowLimitAlarm :
  This variable is for trap to inform when the warning low VCORE1's (CPU 1) voltage of the system is occurred.

- smVoltVcore2NormalAlarm :
  This variable is for trap to inform when the Normal VCORE2's (CPU 2 if have otherwise CPU 1) voltage of the system is occurred.

- smVoltVcore2HighLimitAlarm :
  This variable is for trap to inform when the fatal high VCORE2's (CPU 2 if have otherwise CPU 1) voltage of the system is occurred.

- smVoltVcore2LowLimitAlarm :
  This variable is for trap to inform when the fatal low VCORE2's (CPU 2 if have otherwise CPU 1) voltage of the system is occurred.

- smVoltVcore2WarningHighLimitAlarm :
  This variable is for trap to inform when the warning high VCORE2's (CPU 2 if have otherwise CPU 1) voltage of the system is occurred.

- smVoltVcore2WarningLowLimitAlarm :
  This variable is for trap to inform when the warning low VCORE2's (CPU 2 if have otherwise CPU 1) voltage of the system is occurred.

- sm3VNormalAlarm :
  This variable is for trap to inform when the Normal +3.3 voltage of the system is occurred.

- sm3VHighLimitAlarm :
  This variable is for trap to inform when the fatal high +3.3 voltage of the system is occurred.

- sm3VLowLimitAlarm :
  This variable is for trap to inform when the fatal low +3.3 voltage of the system is occurred.

- sm3VWarningHighLimitAlarm :
  This variable is for trap to inform when the warning high +3.3 voltage of the system is occurred.

- sm3VWarningLowLimitAlarm :
  This variable is for trap to inform when the warning low +3.3 voltage of the system is occurred.

- sm5VNormaltAlarm :
  This variable is for trap to inform when the Normal +5.0 voltage of the system is occurred.

- sm5VHighLimitAlarm :
  This variable is for trap to inform when the fatal high +5.0 voltage of the system is occurred.

- sm5VLowLimitAlarm :
  This variable is for trap to inform when the fatal low +5.0 voltage of the system is occurred.

- sm5VWarningHighLimitAlarm :
  This variable is for trap to inform when the warning high +5.0 voltage of the system is occurred.

- sm5VWarningLowLimitAlarm :
  This variable is for trap to inform when the warning low +5.0 voltage of the system is occurred.

- sm12VNormalAlarm :

This variable is for trap to inform when the Normal +12.0 voltage of the system is occurred.

- sm12VHighLimitAlarm :
  This variable is for trap to inform when the fatal high +12.0 voltage of the system is occurred.

- sm12VLowLimitAlarm :
  This variable is for trap to inform when the fatal low +12.0 voltage of the system is occurred.

- sm12VWarningHighLimitAlarm :
  This variable is for trap to inform when the warning high +12.0 voltage of the system is occurred.

- sm12VWarningLowLimitAlarm :
  This variable is for trap to inform when the warning low +12.0 voltage of the system is occurred.

- sm-12VNormalAlarm :
  This variable is for trap to inform when the Normal -12.0 voltage of the system is occurred.

- sm-12VHighLimitAlarm :
  This variable is for trap to inform when the fatal high -12.0 voltage of the system is occurred.

- sm-12VLowLimitAlarm :
  This variable is for trap to inform when the fatal low -12.0 voltage of the system is occurred.

- sm-12VWarningHighLimitAlarm :
  This variable is for trap to inform when the warning high -12.0 voltage of the system is occurred.

- sm-12VWarningLowLimitAlarm :
  This variable is for trap to inform when the warning low -12.0 voltage of the system is occurred.

- sm-5VNormaltAlarm :
  This variable is for trap to inform when the Normal -5.0 voltage of the system is occurred.

- sm-5VHighLimitAlarm :
  This variable is for trap to inform when the fatal high -5.0 voltage of the system is occurred.

- sm-5VLowLimitAlarm :
  This variable is for trap to inform when the fatal low -5.0 voltage of the system

is occurred.

- sm-5VWarningHighLimitAlarm :
  This variable is for trap to inform when the warning high -5.0 voltage of the system is occurred.

- sm-5VWarningLowLimitAlarm :
  This variable is for trap to inform when the warning low -5.0 voltage of the system is occurred.

- smFan1NormalAlarm :
  This variable is for trap to inform when the Normal Fan 1 (Chassis Fan) of the system is occurred.

- smFan1LowLimitAlarm :
  This variable is for trap to inform when the fatal low Fan 1 (Chassis Fan) of the system is occurred.

- smFan1WarningLowLimitAlarm :
  This variable is for trap to inform when the warning low Fan 1 (Chassis Fan) of the system is occurred.

- smFan2NormalAlarm :
  This variable is for trap to inform when the Normal Fan 2 (CPU1 Fan) of the system is occurred.

- smFan2LowLimitAlarm :
  This variable is for trap to inform when the fatal low Fan 2 (CPU1 Fan) of the system is occurred.

- smFan2WarningLowLimitAlarm :
  This variable is for trap to inform when the warning low Fan 2 (CPU1 Fan) of the system is occurred.

- smFan3NormalAlarm :
  This variable is for trap to inform when the Normal Fan 3 (CPU2 or Power Fan) of the system is occurred.

- smFan3LowLimitAlarm :
  This variable is for trap to inform when the fatal low Fan 3 (CPU2 or Power Fan) of the system is occurred.

- smFan3WarningLowLimitAlarm :
  This variable is for trap to inform when the warning low Fan 3 (CPU2 or Power Fan) of the system is occurred.

- smChassisIntrusionNormalAlarm :
  This variable is for trap to inform when the computer system Chassis Intrusion is resolved.

- smChassisIntrusionAlarm :
  This variable is for trap to inform when the computer system Chassis Intrusion is occurred.

- smCPU1TemperatureNormalAlarm :
  This variable is for trap to inform when the Normal CPU1 temperature of the system is occurred.

- smCPU1TemperatureHighLimitAlarm :
  This variable is for trap to inform when the fatal high CPU1 temperature of the system is occurred.

- smCPU1TemperatureLowLimitAlarm :
  This variable is for trap to inform when the fatal low CPU1 temperature of the system is occurred.

- smCPU1TemperatureWarningHighLimitAlarm :
  This variable is for trap to inform when the warning high CPU1 temperature of the system is occurred.

- smCPU1TemperatureWarningLowLimitAlarm :
  This variable is for trap to inform when the warning low CPU1 temperature of the system is occurred.

- smCPU2TemperatureNormalAlarm :
  This variable is for trap to inform when the Normal CPU2 (or Regulator) temperature of the system is occurred.

- smCPU2TemperatureHighLimitAlarm :
  This variable is for trap to inform when the fatal high CPU2 (or Regulator) temperature of the system is occurred.

- smCPU2TemperatureLowLimitAlarm :
  This variable is for trap to inform when the fatal low CPU2 (or Regulator) temperature of the system is occurred.

- smCPU2TemperatureWarningHighLimitAlarm :
  This variable is for trap to inform when the warning high CPU2 (or Regulator) temperature of the system is occurred.

- smCPU2TemperatureWarningLowLimitAlarm :
  This variable is for trap to inform when the warning low CPU2 (or Regulator) temperature of the system is occurred.