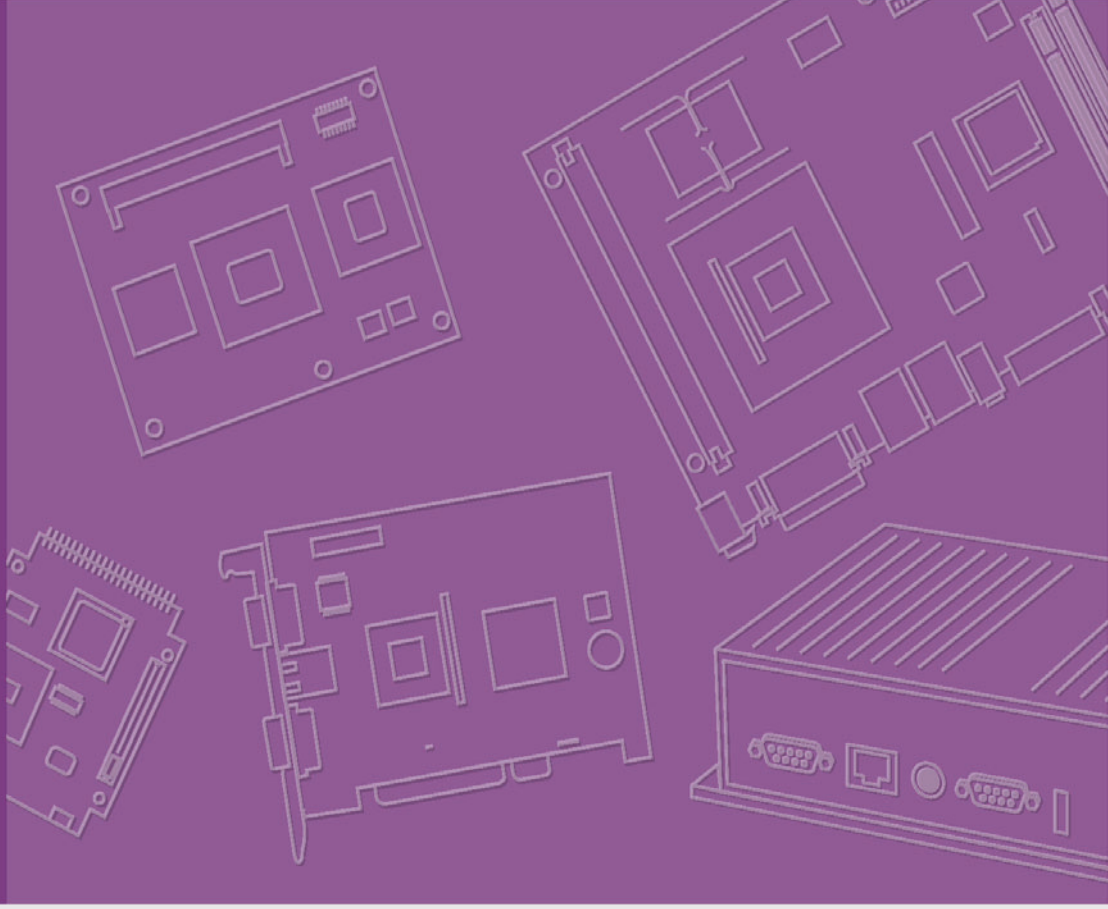

User Manual

MIC-3927

CompactPCI Intelligent Chassis Management Module (PICMG 2.9)

Trusted ePlatform Services

ADVANTECH

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A Message to the Customer

Advantech customer services

Each and every Advantech product is built to the most exacting specifications to ensure reliable performance in the harsh and demanding conditions typical of industrial environments. Whether your new Advantech equipment is destined for the laboratory or the factory floor, you can be assured that your product will provide the reliability and ease of operation for which the name Advantech has come to be known. Your satisfaction is our primary concern. Here is a guide to Advantech customer services. To ensure you get the full benefit of our services, please follow the instructions below carefully.

Technical support

We want you to get the maximum performance from your products. So if you run into technical difficulties, we are here to help. For the most frequently asked questions, you can easily find answers in your product documentation. These answers are normally a lot more detailed than the ones we can give over the phone. So please consult this manual first. If you still cannot find the answer, gather all the information or questions that apply to your problem, and with the product close at hand, call your dealer. Our dealers are well trained and ready to give you the support you need to get the most from your Advantech products. In fact, most problems reported are minor and are able to be easily solved over the phone. In addition, free technical support is available from Advantech engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products.

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Product Warranty

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, type of PC, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Initial Inspection

Before you begin installing your card, please make sure materials listed in the packing list have been shipped:

- One MIC-3927 kernel board (CMM) mounted on a carrier board
- One 9-pin RS-232 null-modem cable for MIC-3927 connection (P/N: 1700091803)

If any items are missing or damaged, contact your distributor or sales representative immediately.

We have carefully inspected the product mechanically and electronically before shipment. It should be free of marks and scratches and in perfect working order upon receipt.

As you unpack the product, check it for signs of shipping damage. (For example: damaged box, scratches, dents, etc.) If it is damaged or it fails to meet the specifications, notify our service department or your local sales representative immediately. Also notify the carrier. Retain the shipping carton and packing material for inspection by the carrier. After inspection, we will make arrangements to repair or replace the unit.

Contents

Chapter 1

Introduction

1.1 Introduction

The MIC-3927 is a proprietary form factor Chassis Management Module (CMM) intended for use with PICMG* 2.1, 2.16 and 2.9-compliant systems (the CompactPCI* Hot Swap, Packet Switching Backplane, and System Management specifications respectively). The MIC-3927 plugs into a dedicated slot in compatible systems. It provides centralized management and alarm notification for system power supplies and fans as well as single board operation status. CMM provides for reception of remote commands through a browser to set system configuration via BMC. The communication between CMM and BMC follows IPMI 2.0 specification. The CMM may be paired with a backup for high-availability applications.

The MIC-3927 is essentially a special-purpose single board computer with a CPU, some memory, a PCI bus, an operating system and peripherals. The MIC-3927 monitors and configures IPMI-based components in the chassis. When the thresholds for temperature and voltage limitations are reached or when failure occurs, the CMM will capture an event. At the same time, the MIC-3927 sends SNMP traps and drives the Telco alarm relays that trigger onboard LEDs. The CMM can query FRU information (such as serial number, model number, manufacture date, etc.), detect presence of components (such as fan tray, CPU board, etc.), and monitor the status of each component.

The MIC-3927 also has a built-in Web-based administration interface that allows users to monitor the system's operation from any place with Internet connectivity. The MIC-3927 adds another dimension to the reliability of your most critical applications.

*IPMI function is only supported on the CompactPCI CPU boards with BMC modules (such as Advantech's MIC-3390-AE and MIC-3392 series).

- Powerful, Easy to Use

The MIC-3927 can detect a wide variety of internal system conditions, including temperature, voltage, fan rotation, power supply or CPU operations. Through its I2C interface it can even monitor CPU temperature and voltages of Advantech's CompactPCI CPU boards. Depending on the alarm severity or user setup, it can generate several different alarm outputs, including SNMP trap, e-mail, acoustic signal, or digital signal output. The web-based user interface allows users to set the alarm criteria, and select alarm outputs for each sensor input independently to meet users requirements. The onboard backup battery enables the MIC-3927 to perform its alarm function even during total system power failure.

- Web-enabled, No Driver Needed

The onboard 10/100 Mbps Fast Ethernet interface enables the MIC-3927 to be connected to an existing network, independent of the system's connection. It supports multiple network protocols such as TCP/IP, SNMP, HTTP and Telnet, allowing users to manage their systems simply with a web browser. No special software driver is needed thus eliminating compatibility issues with different operating systems.

- Flexible Integration through Hot-swap

The MIC-3927 provides flexible integration with Advantech's CompactPCI enclosures, such as MIC-3042 and MIC-3043 series. With its hot-swappable capability, users can upgrade the system easily for advanced environment monitoring. The system can be value added for high-end chassis management.

1.2 Specification

1.2.1 Hardware Specification

- Kernel board
  - CPU: RDC2880
  - Embedded Flash ROM and SDRAM
  - Embedded 10/100 Mbps Ethernet adapter
  - 1 UART serial port up to 9600 baud rate
  - 1 IPMB bus interface for system healthy status monitoring
  - 1 SM bus interface for up to 8 external temperature sensors
  - 9 fan tachometer inputs
  - 1 on-board temperature sensor
  - 4 power good signals
  - 4 digital inputs (reserved for option)
  - 4 digital outputs (reserved for option): 3 are used for Advantech Chassis's LED board
  - Buzzer support via carrier board
- Dimension
  - Kernel module: 40.5 x 93 mm (1.6" x 3.7")
  - Carrier module: 100 x 95 mm (3.9" x 3.7") (Front panel is not included)

1.2.2 Sensor Input Specification

- Voltage Inputs:
  +3.3 V_{DC}, +5 V_{DC}, -5 V_{DC}, +5V_{SB}, +12 V_{DC}, -12 V_{DC}, VBat
- Temperature Sensors:
  Thermistor digital temperature sensor, I2C interface,
  -40 ~ +120° C (-40 ~ +248° F)
- Fan Speed Monitor:
  Up to 9 fans, 700 ~ 10000 RPM
- Power Good Input:
  High: > 2.4 V_{DC}
  Low: < 0.8 V_{DC}
- CPU Card Healthy:
  CPU Vcore, CPU fan, CPU temperature (up to 2 CPUs), +5 V_{DC}, -5 V_{DC}, $V_{I/O}$, +12 V_{DC}, -12 V_{DC}

1.2.3 Firmware Specification

- System Status Monitoring and Management
  - System Alerts: Trap format is IPMI 2.0 compliant.
  - Fan Fail Alert
  - Temperature Fail Alert
  - Voltage Fail Alert
  - Watchdog Timeout
  - Real-time system status monitoring: Provides real-time status display in HTTP/Java graphical format
  - History log up to 600 records. Data can be down loaded through network or sent by e-mail

  - Alarm event record display
- Alarm Notification
  - E-mail: Can set up to 4 addresses to receive e-mails
  - Audible alarm sound
  - SMS support for receiving short message through mobile phone
- Supported Protocols
  - TCP, UDP, IP, ICMP, DHCP, BOOTP, ARP, SNMP, HTTP, Telnet
- Management Function
  - Web-based remote configuration, control and monitoring
  - Remote power up and power down, and control reset pin of motherboard to reset system individually
  - Firmware upgrade from serial port and Ethernet port
  - Supports Time Sync with system board
  - SSL and SSH secure communications across Internet
- Backup battery:
  - Charge time: 24 hr
  - Battery type: Ni-MH
  - Battery capacity: 1500 mA-H (full charged, for 15 ~ 20 minutes operation, depends on the system configuration)
  - Battery life: 80% capacity @ 20° C after 1000 cycles of charge and discharge
- Power Consumption
  - 5 V @ 550 mA

1.2.4 Environmental Specifications

- Storage temperature: -20 ~ 70° C (-4 ~ 158° F)
- Operating temperature: 0 ~ 60° C (-32 ~ 140° F)
- Relative humidity: 5 ~ 95% RH non-condensing

Chapter 2

Hardware Installation

2.1 Kernel Module Installation

The MIC-3927 modular design eases the I/O connection. The kernel module is to be mounted on an I/O extension/carrier module. There are several available extension modules designed for specific application needs. If your extension module is not identical to the one depicted in this section, please refer to the user's note of your extension module for details.

The kernel module has two 34-pin connectors: CN1 and CN2. The extension module has two 34-pin connectors: CN1 Kernel_CONN and CN2 Kernel_CONN. CN1 of kernel module is to be mounted to CN1 Kernel_CONN of the extension module, and CN2 of kernel module is to be mounted to CN2 Kernel_CONN of extension module.

- KJ2: Short this jumper to bypass the password protection. It should be left open under normal operation. (Figure 2-2)
- CN1 and CN2: Sensor and I/O interface

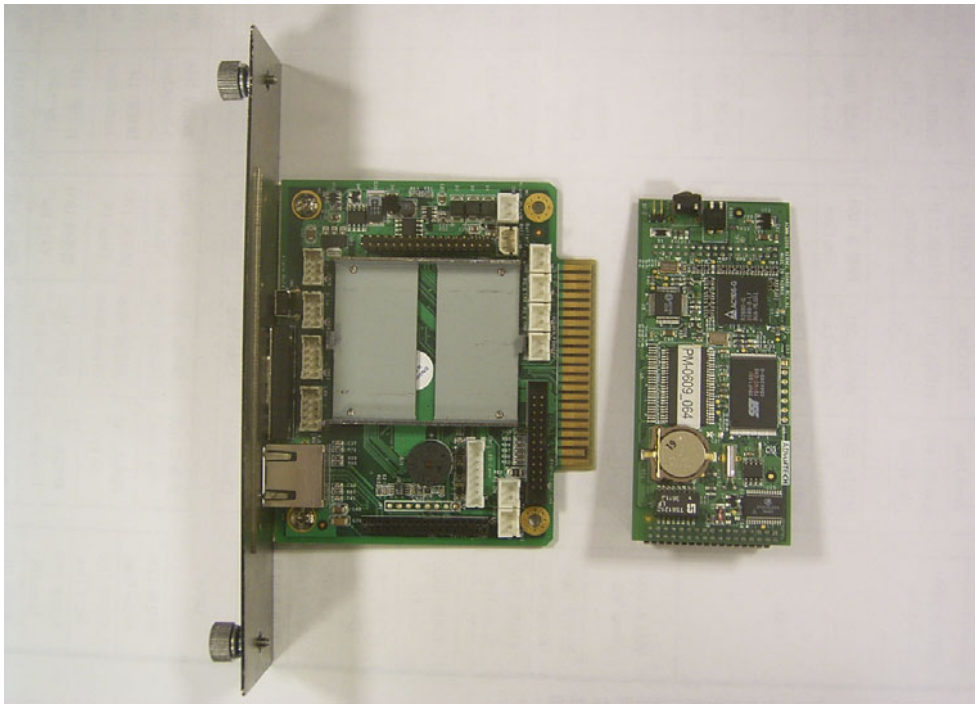


Figure 2.1 MIC-3927 Components

2.2 Connecting sensors and I/O ports

The MIC-3927 carrier module is designed to have an ISA-like edge which supports hot-swap function. Another adaptor module works as the interface between MIC-3927 and the system, to detect the bus voltages and other relevant parameters. But since the MIC-3927 does not communicate with the system through any system bus, no driver is required.

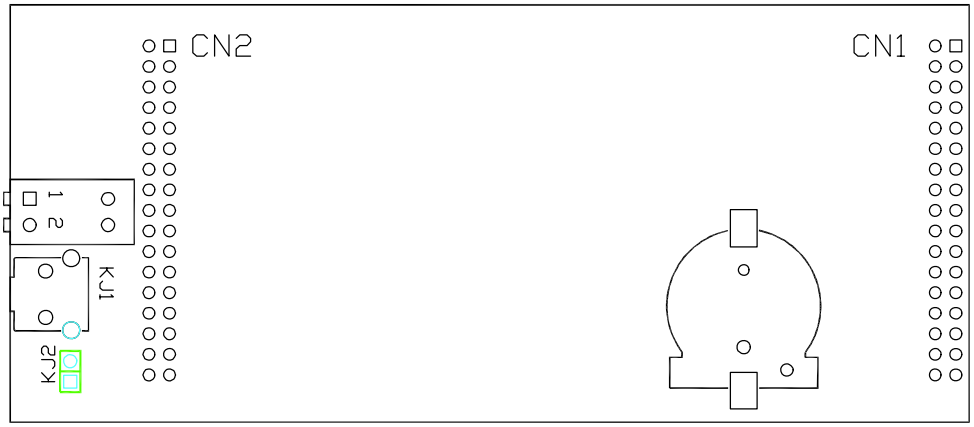


Figure 2.2 Location of the connectors on the MIC-3927 kernel module

2.3 Jumper and Connector Locations

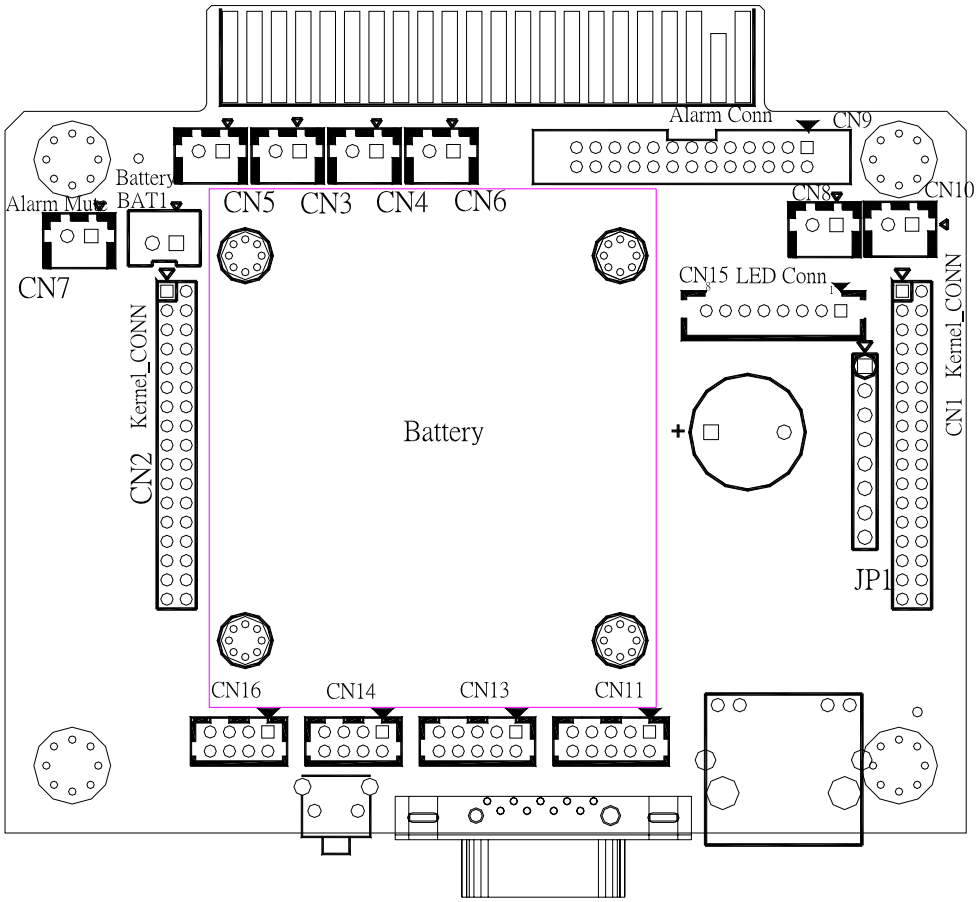


Figure 2.3 Location of the connectors on the MIC-3927 carrier module

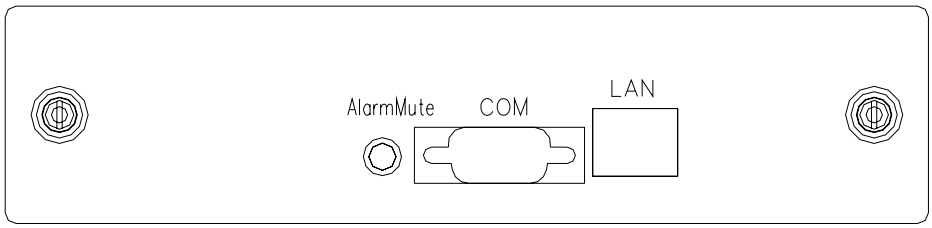


Figure 2.4 Location of the button and connectors on the MIC-3927 front panel

See detailed pin definitions of jumper/connector in appendix A

2.4 Interface Backplane (MIC-3925)

An interface backplane is required to support the MIC-3927 with its hot-swappable kernel board. This MIC-3925 interface backplane is provided in the Advantech chassis. Please see the figures below for the backplane illustration.

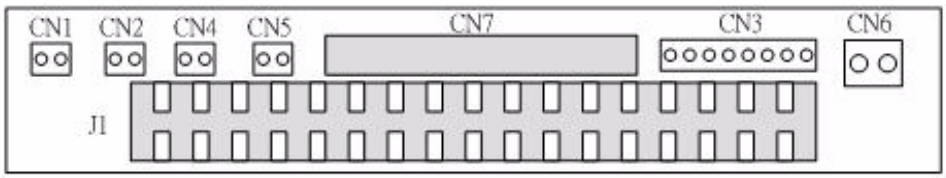


Figure 2.5 Location of the connectors on the MIC-3925 interface backplane

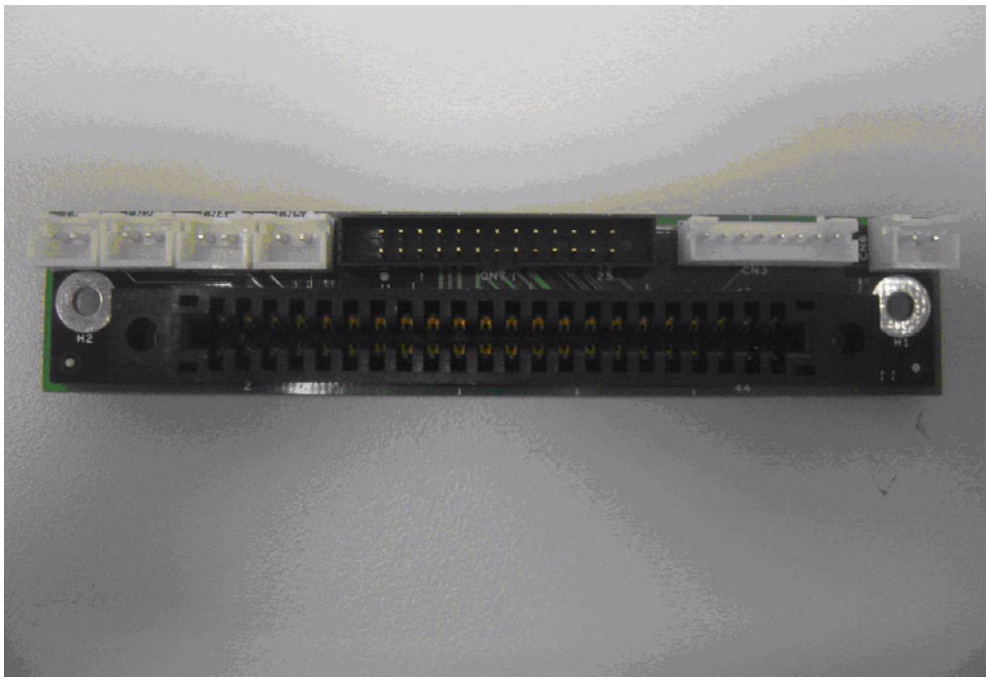


Figure 2.6 Appearance of MIC-3925 interface backplane

Chapter 3

Getting Started

3.1 Configuring the MIC-3927

Before using your MIC-3927 intelligent system manager, you will need to configure it. Configuration can be done through a PC serial port with terminal emulator software such as Windows® XP Hyperterminal. You can also configure it from the Ethernet port by using Telnet or by using a browser such as Netscape Communicator or Microsoft® Internet Explorer. Due to security issues, some parameters can only be set through the serial port.

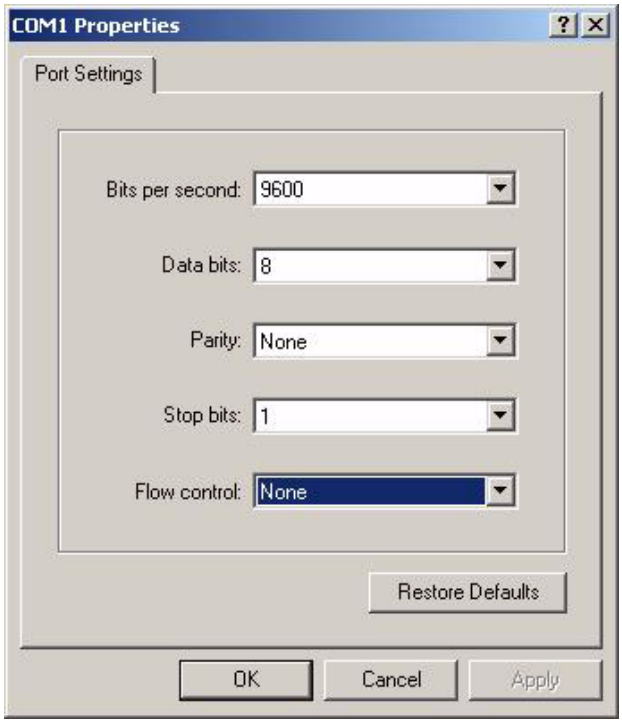
Before you can configure your MIC-3927 module, you need first install your MIC-3927 and power it up. Connect it to a network through its LAN port, or connect its serial port to your PC using a "null modem" cable with reversed Tx & Rx signals. This cable is available from Advantech. (Part number: 1700091803)

When all the cables are well connected, you can power up the MIC-3927. It takes around 5 seconds, then it is ready to work.

3.1.1 Configuration through the serial port

Take the following Hyperterminal of Windows (95, 98, Me, NT, 2000 or XP) as an example.

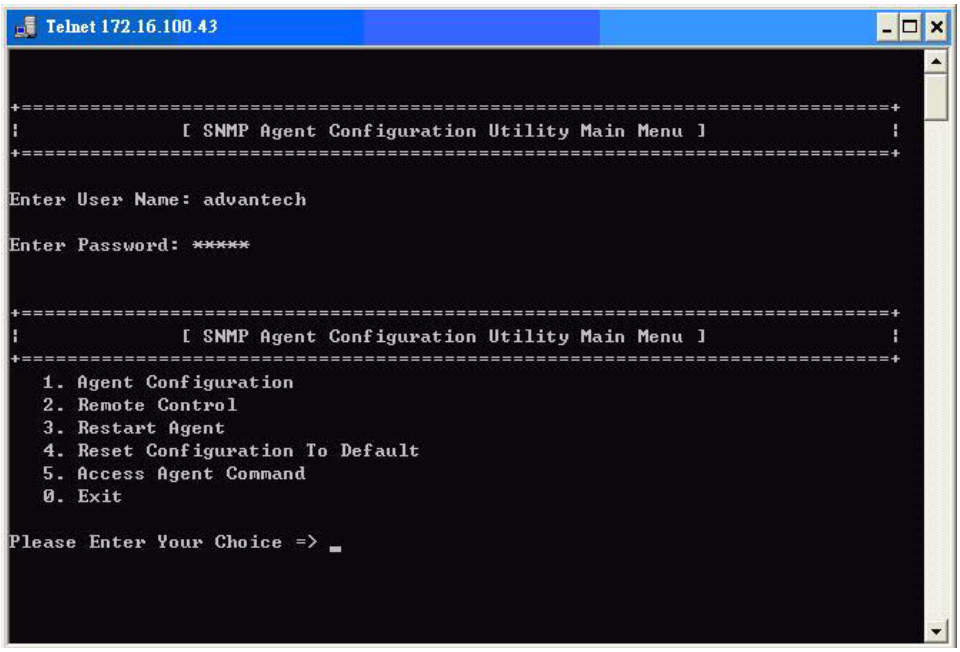
1. Start Hyperterminal by clicking on "Accessories" program group.
2. Enter a name and choose an icon for the connection.
3. In the "Connect using" box, select "Direct to COMx". Here x is the number of COM port you are using to connect to the MIC-3927.
4. Set the serial port of your PC to be 9600 bps, 8 data bits, no parity, 1 stop bit with no flow control.



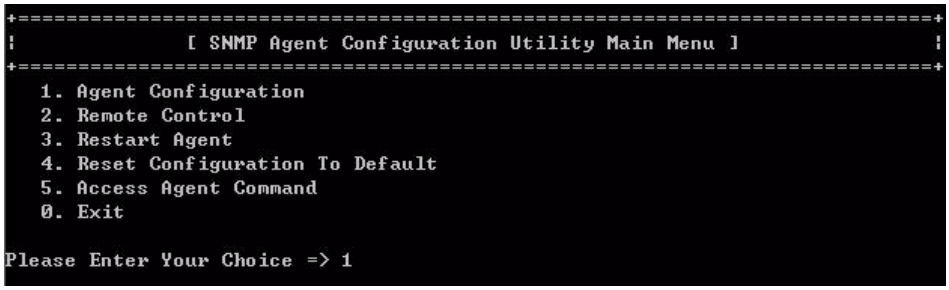
5. Press the "Enter" key on your PC and the MIC-3927 will prompt you to enter the administrator user name and password. The default administrator user name is "advantech" and password is "admin".

Note:

1. The default IP address is 172.17.82.144.
   Enter “Agent Configuration”, and you will be able to change all the IP addresses to suit your requirements.
2. Access through Telnet or serial port is permitted only with the “Admin User Name” and “Admin User Password” set in Control Group.
   Default admin user name is “advantech”.
   Default admin user password is “admin”.



After entering password, you can choose one of following items:

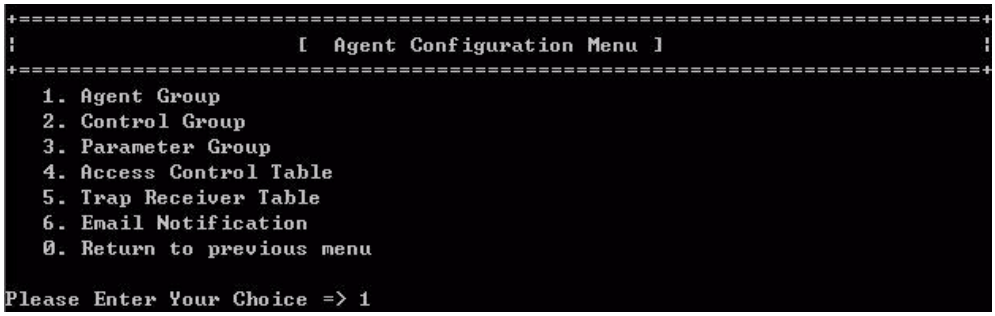


3. Troubleshooting of COM connection:
   a. During Hyperterminal connection staying stage, do NOT unplug the null-modem cable or turn off the system power (when the battery is not connected) or close the “terminal” WITHOUT going through the “disconnect” process. Such improper process will invalidate the connection and the firmware of the kernel board will keep the last failure stage until the host computer restarts and re-runs the Hyperterminal.
   b. The MIC-3927 kernel module will need a few seconds to process its firmware, so be patient on power up; COM connection occurs right after that. If the connection shows no response for over 30 seconds, please take this diagnostic action:

Turn off the chassis power => disconnect the battery on MIC-3927 => Turn on the chassis power => Restart host computer => Execute “Hyperterminal”

3.2 Agent Configuration

Select "1" to enter the Agent Configuration function.

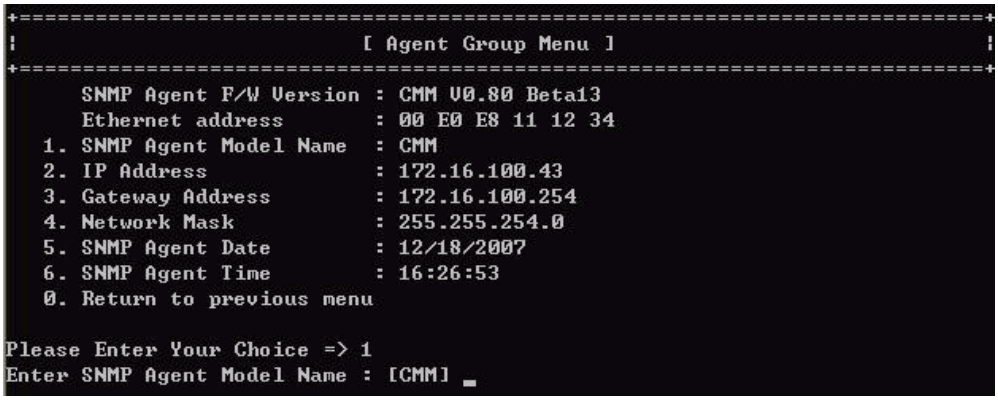


3.2.1 Agent group:

The following items can be set under this command:

- SNMP Agent Model Name: The model name of the SNMP controller. Default value is CMM. It is advisable not to change the default model name.
- IP Address: The IP address of the MIC-3927.
- Gateway Address: The network default gateway address.
- Network Mask: The sub-net mask setting
- SNMP Agent Date: The internal date of MIC-3927. Format: mm/dd/yyyy
- SNMP Agent Time: The internal time of MIC-3927. Format: hh:mm:ss

Enter the number you desire to change and follow the instructions to enter the changed value



3.2.2 Control Group:

The following items can be set under this command:

- Admin User Name: The user name of MIC-3927 administrator. Only the administrator is allowed to enter the console mode. Default user name is "advantech".
- Admin User Password: The administrator password. With this password a user is allowed to read and write to MIC-3927. Default password is "admin".
- Community Read-Only: A general password for read-only access. Default read only password is "public".
- BOOTP/DHCP Control: Enables/disables the BOOTP/DHCP protocol.
- Telnet Control: Enables/Disables the Telnet protocol.
- TFTP Upgrade Control: Enables/disables the TFTP protocol for firmware upgrade through the local network
- HTTP Security Control: Enables/disables the HTTP login password request.

```
+=============================================================================+
!                          [ Control Group Menu ]                             !
+=============================================================================+
   1. Admin User Name       : advantech
   2. Admin User Password   : *
   3. Community Read-Only   : public
   4. BOOTP/DHCP Control    : Enable
   5. Telnet Control        : Enable
   6. TFTP Upgrade Control  : Enable
   7. HTTP Security Control : Enable
   0. Return to previous menu

Please Enter Your Choice =>
```

3.2.3 Parameter Group:

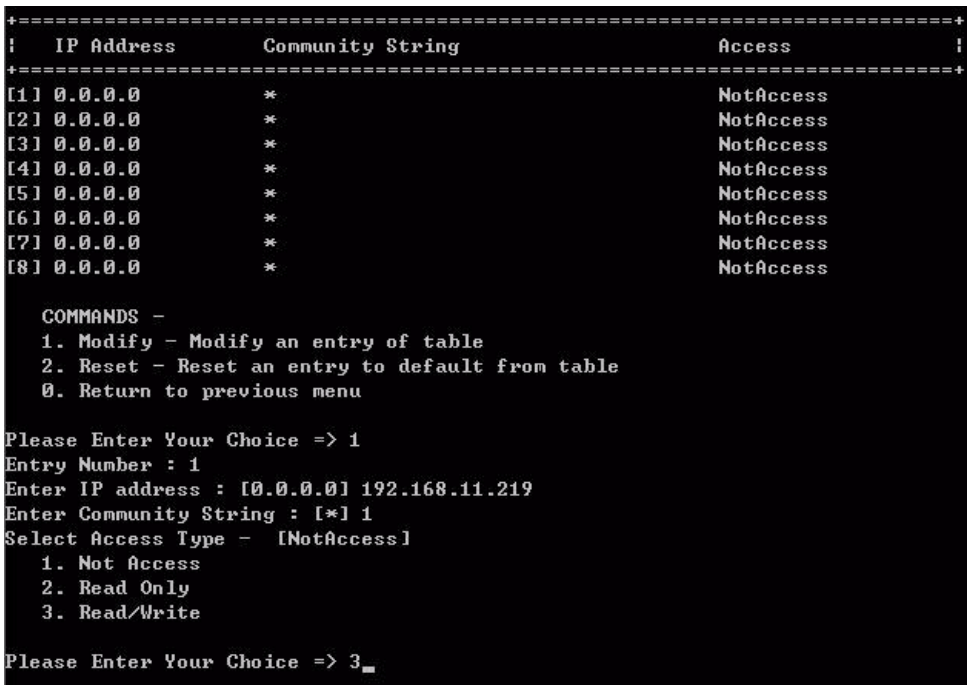
The following items can be set under this command:

- sysDescription: A description for this system. This is an alphanumeric string up to 31 bytes. Default is empty.
- sysContact: The contact information of the entity that manages the system. This is an alphanumeric string up to 15 bytes. Default is empty.
- sysName: The name of this system. This is an alphanumeric string up to 15 bytes. Default name is "Advantech".
- sysLocation: The location of this system. This is an alphanumeric string up to 15 bytes. Default is empty.

```
+=============================================================================+
!                          [ Parameter Group Menu ]                           !
+=============================================================================+
   1. sysDescription : N/A
   2. sysContact     : N/A
   3. sysName        : Advantech
   4. sysLocation    : N/A
   0. Return to previous menu

Please Enter Your Choice => _
```

3.2.4 Access Control Table

This table allows you to set restrictions to some IP addresses to access the MIC-3927. You can add IP addresses and set an access control. Available choices are: NotAccess, Read Only, or Read/Write. A workstation will not be able to display any information when its IP address is set as "NotAccess". Press "1" to modify a line in the table. Press "2" to delete data on a line. Note this table is used for the access using SNMP and HTTP. Access through Telnet or serial port is permitted only with the "Admin User Name" and "Admin User Password" in Control Group.



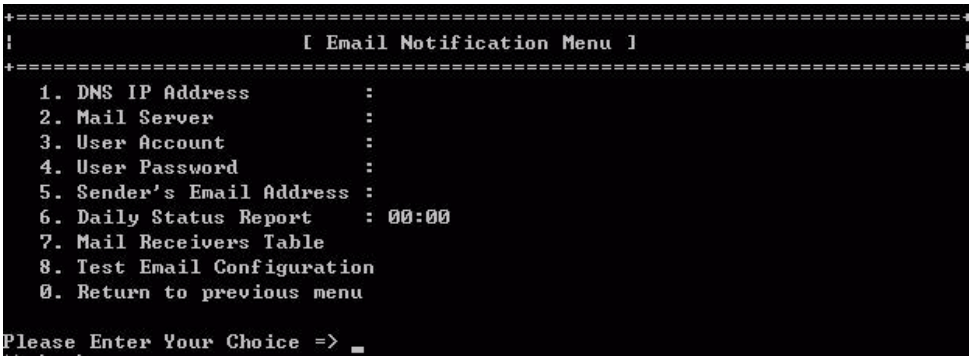
3.2.5 Trap Receiver Table

The MIC-3927 can be managed via SNMP compatible software from a remote server connected to the network. The IP addresses of SNMP trap receivers can be added to this list if SNMP compatible management software is available at these addresses. Press "1" to modify a line in the table. Press "2" to delete data on a line. The "Severity Level" allows you to specify an alarm level. Trap will not be sent if the alarm severity is lower than specified level.

```
+=============================================================================+
!   IP Address       Community String            NMS-Severity                 !
+=============================================================================+
[1] 0.0.0.0          *                           Disable
[2] 0.0.0.0          *                           Disable
[3] 0.0.0.0          *                           Disable
[4] 0.0.0.0          *                           Disable
[5] 0.0.0.0          *                           Disable
[6] 0.0.0.0          *                           Disable
[7] 0.0.0.0          *                           Disable
[8] 0.0.0.0          *                           Disable

   COMMANDS -
   1. Modify - Modify an entry of table
   2. Reset - Reset an entry to default from table
   0. Return to previous menu

Please Enter Your Choice => 1
Entry Number : 1
Enter IP address : [0.0.0.0] 192.168.11.219
Enter Community String : [*] admin
Select Severity Level :  [Disable]
   1. Disable
   2. Critical
   3. Major
   4. Minor

Please Enter Your Choice => 2
```

3.2.6 E-mail Notification Menu

The MIC-3927 can send e-mail to specified mail addresses daily at a fixed time or upon an alarm.



Under this menu you can set the following items:

- DNS IP Address: The IP address of the network domain name server in dotted format.
- Mail Server: The IP address of the mail server is in dotted format.
- User Account: The account name for the MIC-3927 to log into the mail server.
- User Password: The password for the MIC-3927 to log into the mail server.
- Sender's Email Address: Users can specify a sending e-mail address to the specified accounts. This will appear in the "From:" line.
- Daily Status Report: Users can specify the time for the MIC-3927 to send out daily log in e-mail to the specified accounts.
- Mail Receivers Table: Users can set the e-mail addresses under this entry.

```
+=============================================================================+
!   Mail Receiver                    Mail Type       Alarm Level              !
+=============================================================================+
[1]                                  None            Critical
[2]                                  None            Major
[3]                                  None            Minor
[4]                                  None            Minor

   COMMANDS -
   1. Modify - Modify a table entry
   2. Reset - Reset a table entry to default
   0. Return to previous menu

Please Enter Your Choice => 1
Entry Number : 1
Enter Mail Account : [] support@advantech.com
Select Mail Type -  [None]
   1. None
   2. Alarm
   3. Dialy Logs
   4. Alarm and Log

Please Enter Your Choice => 2
Select Alarm Level -  [Critical]
   1. Critical
   2. Major
   3. Minor

Please Enter Your Choice => 1
```

Mail condition: The conditions that initiate sending e-mail. Choices are:

- Alarm: Send e-mail when there is an alarm.
- Daily Logs: Send daily log at specified time.
- Alarm and Log: Send both alarm notification and daily log.
- Alarm Level: Sends depending on the severity of alarm notification, if higher than or equal to set level. Takes effect when the Mail Condition is set to "Alarm" or "Alarm and Log" only.

3.3 Communication through Ethernet

To communicate with the MIC-3927 through Ethernet, you need a computer with an Ethernet and a TCP/IP network installed. You need to know the IP address of the MIC-3927 before you can communicate with it through the Ethernet.

To find out the current IP address:

A. The default IP address is 172.17.82.144.

B. You can read the IP address in the console mode under "Agent Configuration" as described in 3.2.1.

3.3.1 LAN Port LED Indication

ACT/LINK LED		SPEED LED	
Status	**Description**	**Status**	**Description**
OFF	No link	OFF	10 mbps connection
GREEN	Linked	ORANGE	100 mbps connection
BLINKING	Data activity		

3.4 Configuration using Telnet

Configuration using Telnet is basically same as using a serial port connection. First make sure your computer has a TCP/IP network and a web browser installed. In the address line type in "Telnet xxx.xxx.xxx.xxx", here xxx.xxx.xxx.xxx is the IP address of the MIC-3927. Then the MIC-3927 will prompt you for user name and password.

3.5 Configuration using a Web Browser

Before using web browser to manage the system, user will need a cross-over CAT-5 Ethernet cable (when doing the peer to peer control) or just use a regular standard CAT-5 Ethernet cable uplink to a hub or switch for other host computer monitoring.

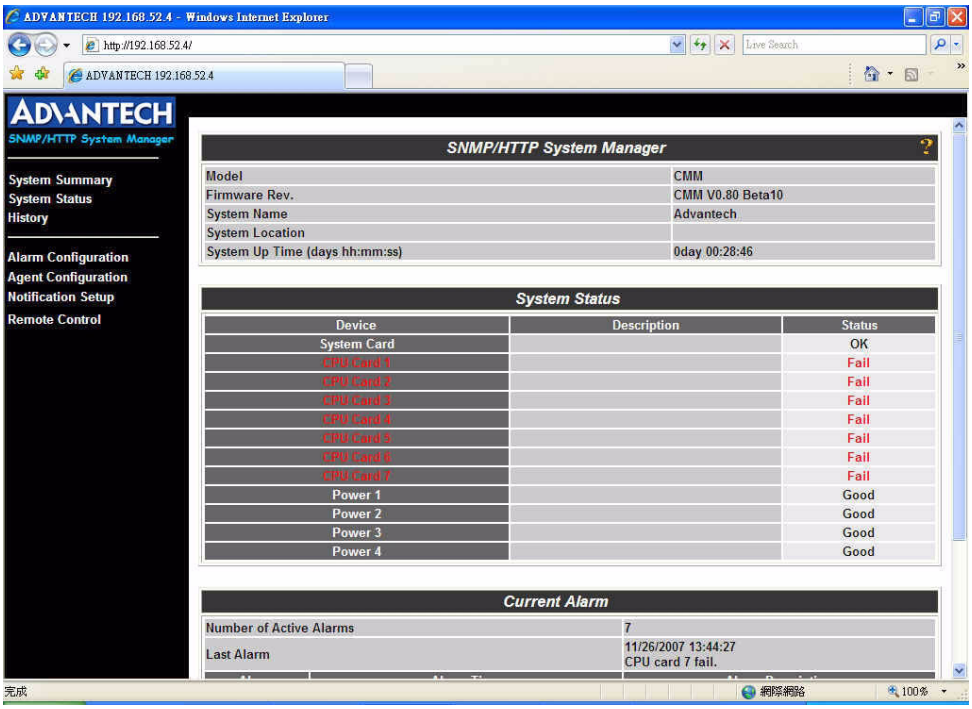
Using a web browser is the easiest way to configure the MIC-3927. Type in the URL "http://xxx.xxx.xxx.xxx", here xxx.xxx.xxx.xxx is the IP address of the MIC-3927. Then the MIC-3927 will prompt you to enter user name and password.

Note:

1. If the LAN connection fails, then please check:
   a. If the LAN LED is active or not when a cable is plugged in.
   b. If the IP address given is correct. (Check the IP by COM as above)
   c. If proper type of cable is being used. (Cross over? or Cable quality?)
2. When the changes in all web-base management items are submitted, the user may find some changes did not update. But refresh the page, then the new settings show; this is caused by the browser cache, and can be corrected by refreshing the cache.

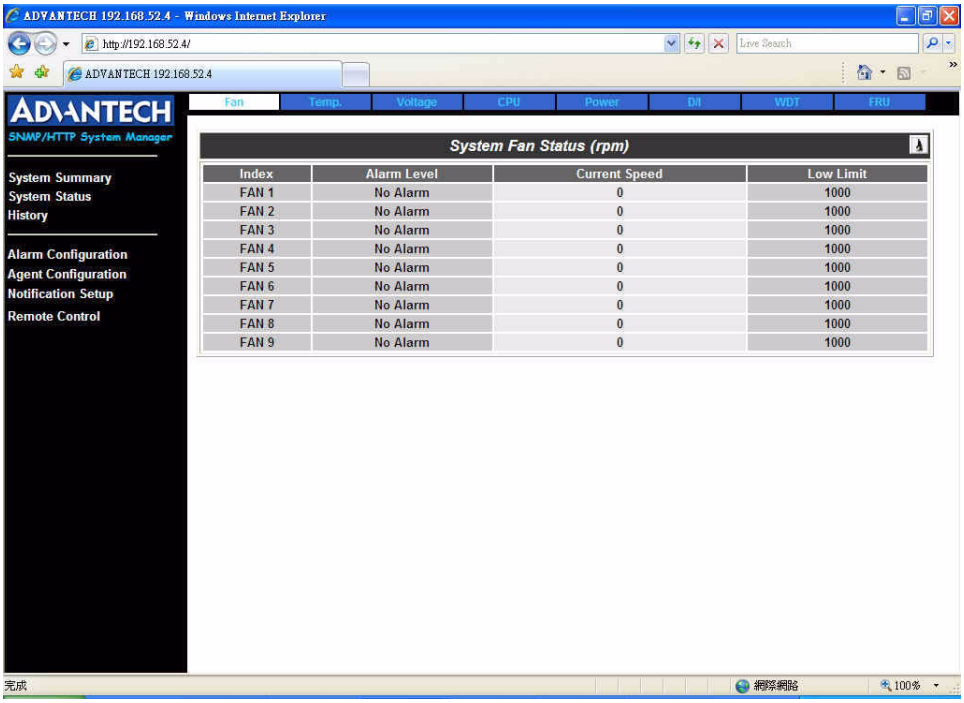
3.5.1 System Information

After logging in with the web browser, the left hand navigator includes seven items for programming and monitoring. System information shows the brief environment information and also the most recent alarm record.



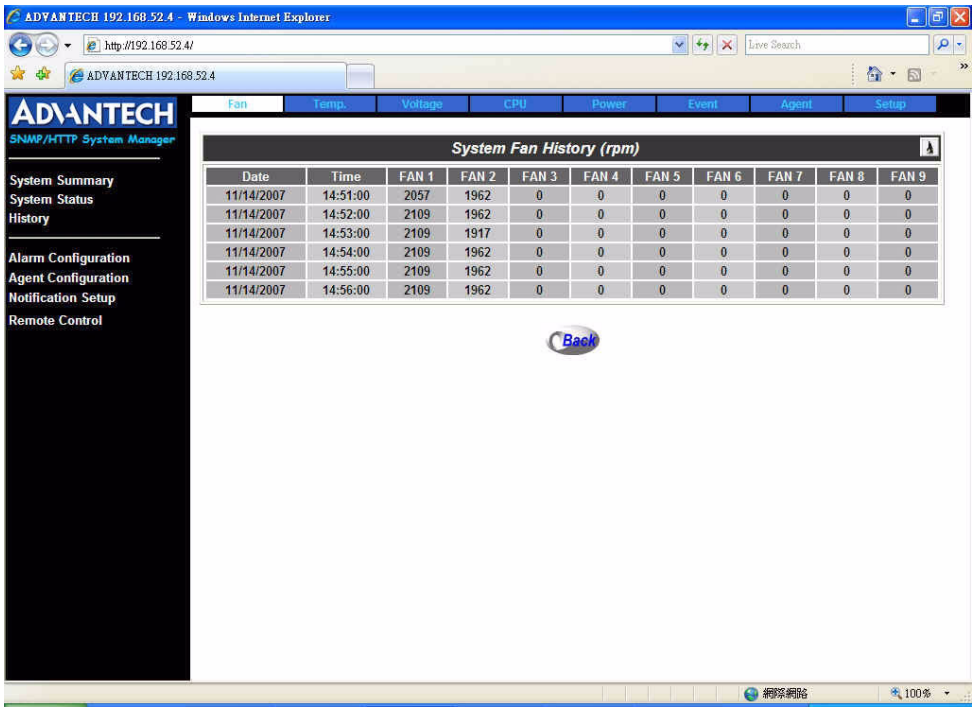
3.5.2 System Status

System status displays the real-time parameters that users set up in the alarm configuration, including Fans, Temperature, Voltages, CPUs, Power Supplies, Digital Inputs, Watchdog timers and System FRUs. Note that for the MIC-3927 kernel firmware, "WDT" has no functions in this board.



3.5.3 History

The history has the records of Fans, Temperatures, Voltages, CPUs, and Power supplies, all of them in different pages for user's reference. Click on the event user can see the details of alarm record. Note the "Setup" page allow users to clean up or save/download the history file.



3.5.4 Alarm Configuration

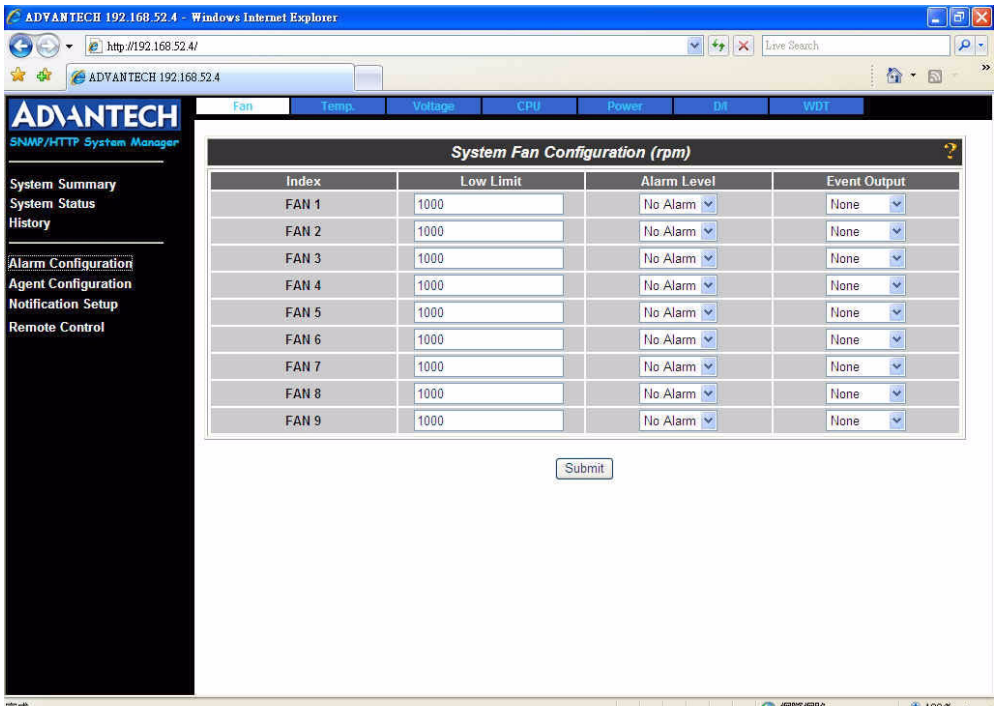
This function is the main page for user to configure all the environment parameters for monitoring. There are seven pages for setting up as well as "System Status". Please set the alarm levels (Four levels: None, Minor, Major, Critical) properly. Click on "Submit" to upload after each parameter is set.

There are four D/Os for relay output controls or LED lighting. However, a MIC-3927 applied on a CompactPCI chassis would use three D/Os for LED lighting (Power, Temp, and FAN) on most platforms, leaving only one D/O for user's application.

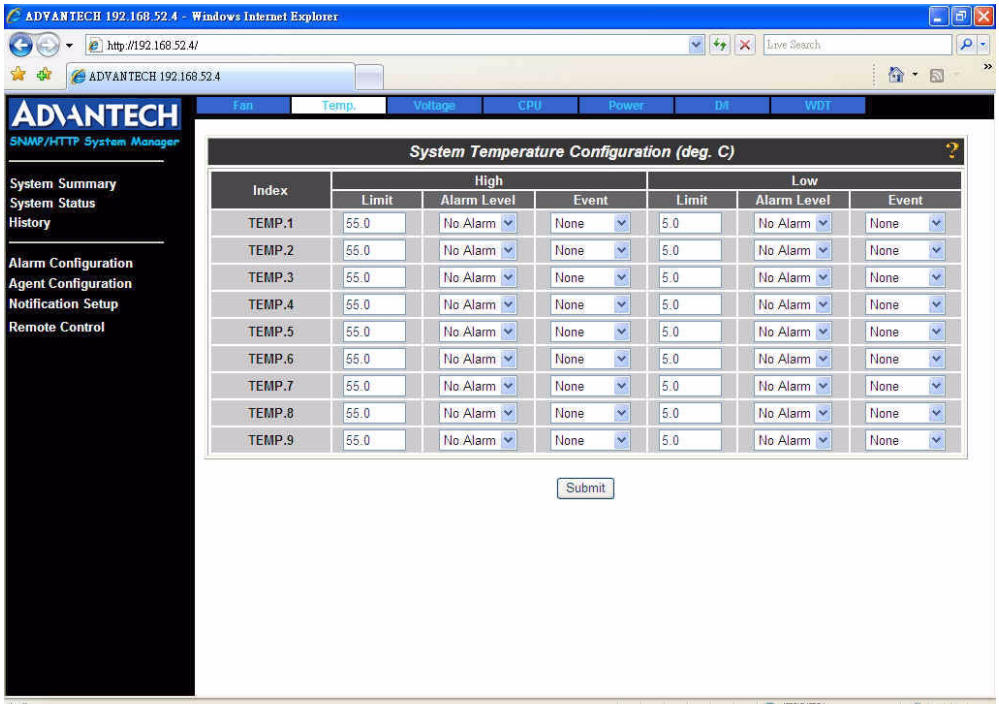
When an alarm event occurs, user can choose either D/O control, or command the system to power off. These settings are in the "Event output" in each setting page.

Note: WDT has no function in the MIC-3927 series.

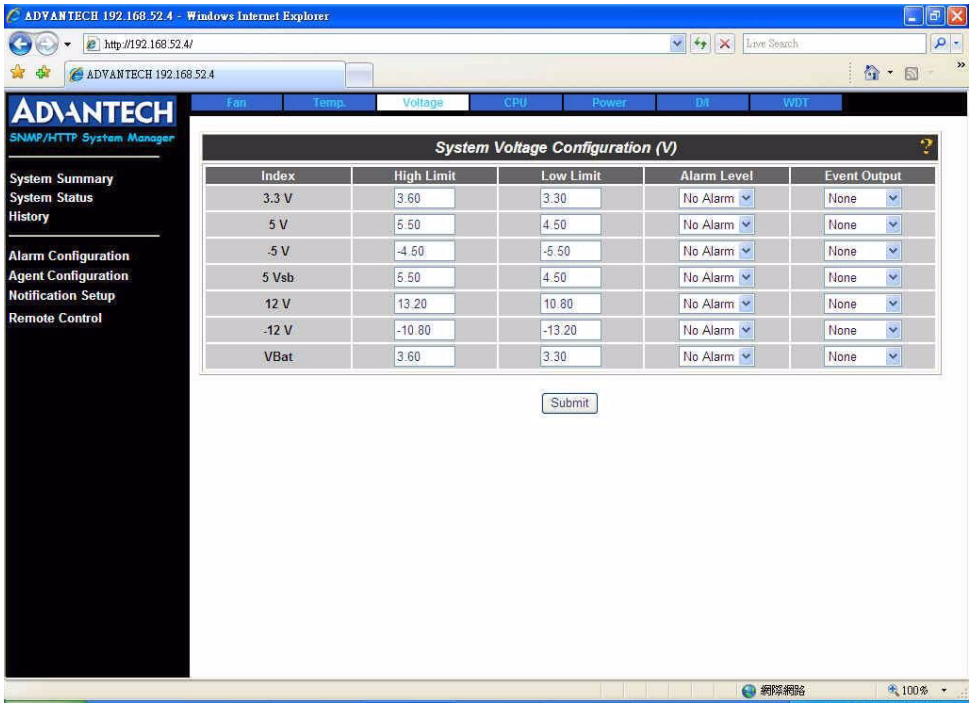
- Fan: To monitor status of chassis fans. Total capacity is up to 9 fans for users' setting, but only 6 fans can be used for CompactPCI chassis.



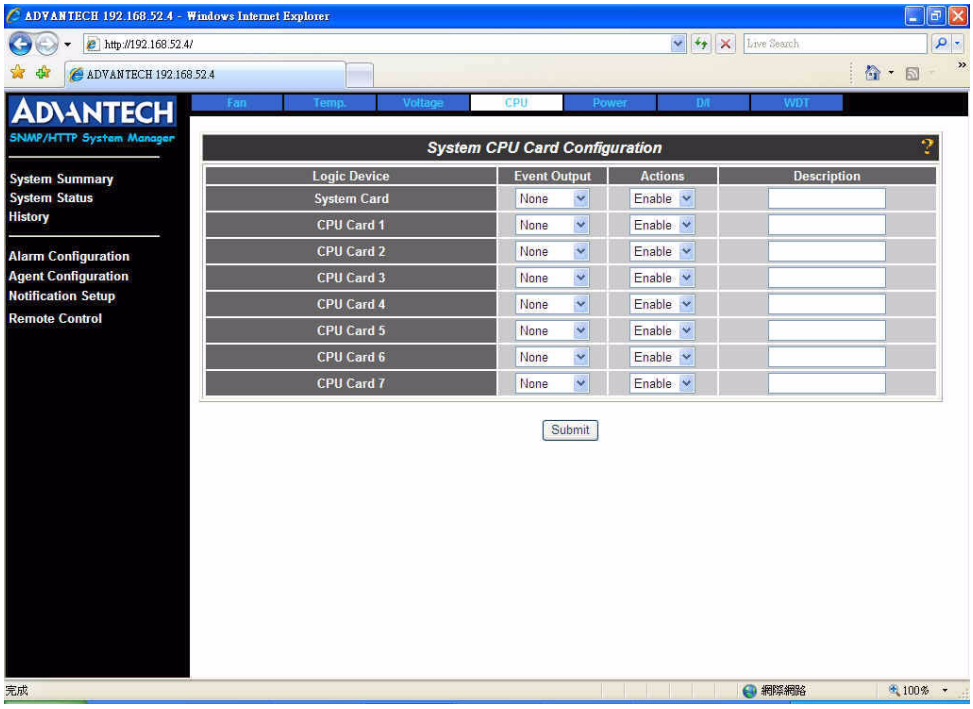
- Temp: To monitor the chassis temp. Total capacity up to 9 Temps for users' setting, but since there is only one onboard temp sensor on the MIC-3927, no other extended temp sensor can be used.



- -- Voltage: To monitor the system DC output status. Total capacity up to 7 different DC outputs can be set. Note the high and low limit settings in this page.



- CPU: To monitor the CPU card status, including CPU Voltages and Fans on the CPU board.



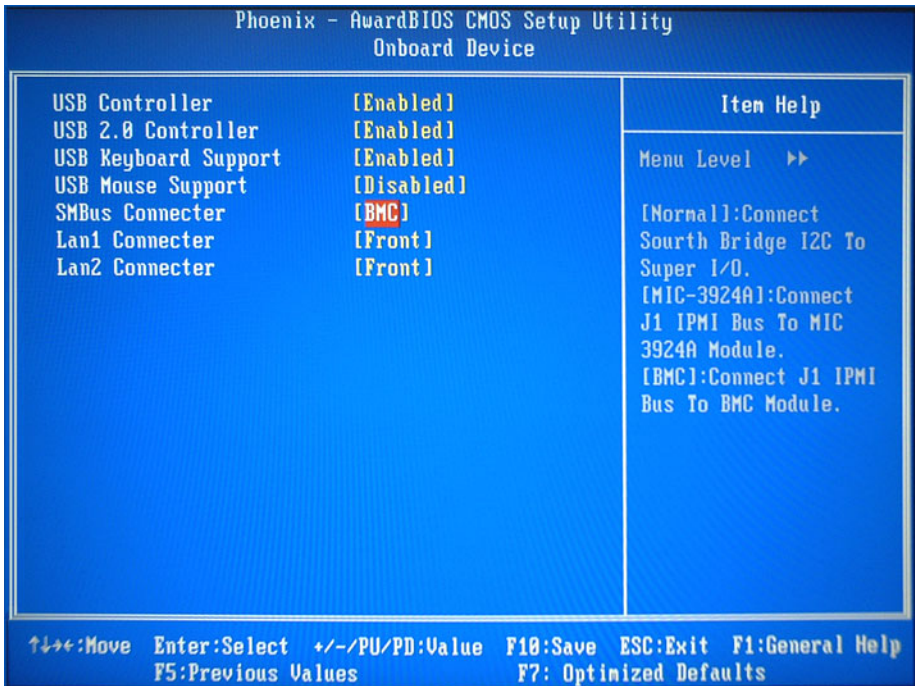
Note 1:

CPU fans, temperatures and voltages which are directly monitor by Winbond controller can be set for monitoring as well as for full-size PICMG CPU card application. However, CompactPCI CPU boards usually use passive cooling design by chassis fans, so there will be no function on the CPU fan monitoring.

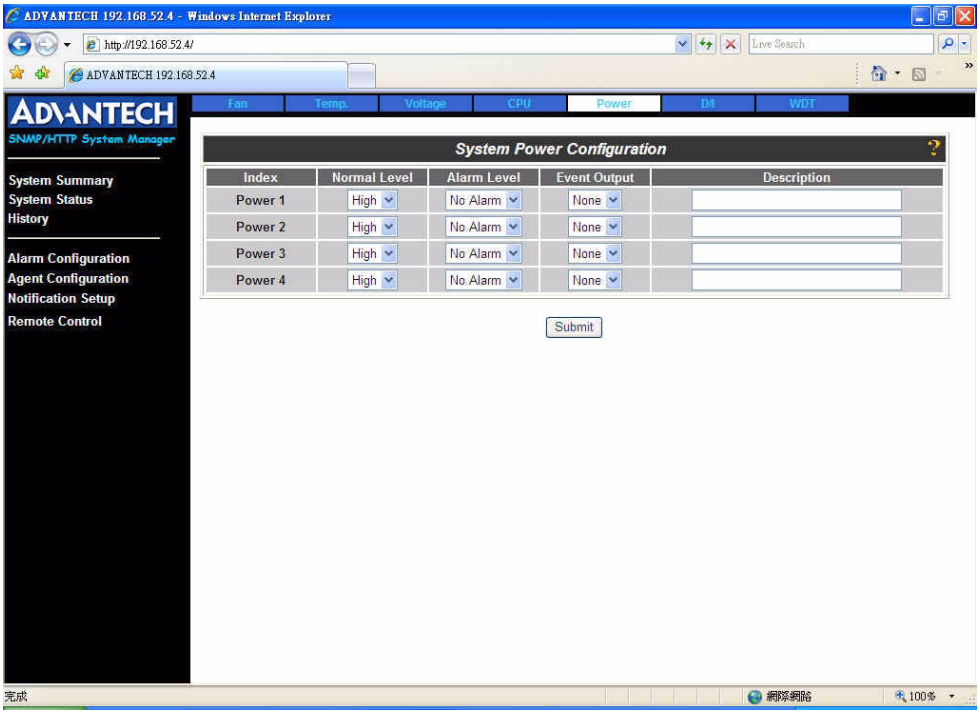
Note 2:

MIC-3927 can monitor and configure more than one IPMI-based CPU board in the chassis. To enable this function, IPMI bus shall be connected to BMC module. You may set the SMBus Connector to the BMC mode in the BIOS. Following is an example that is applied to Advantech CPU boards.

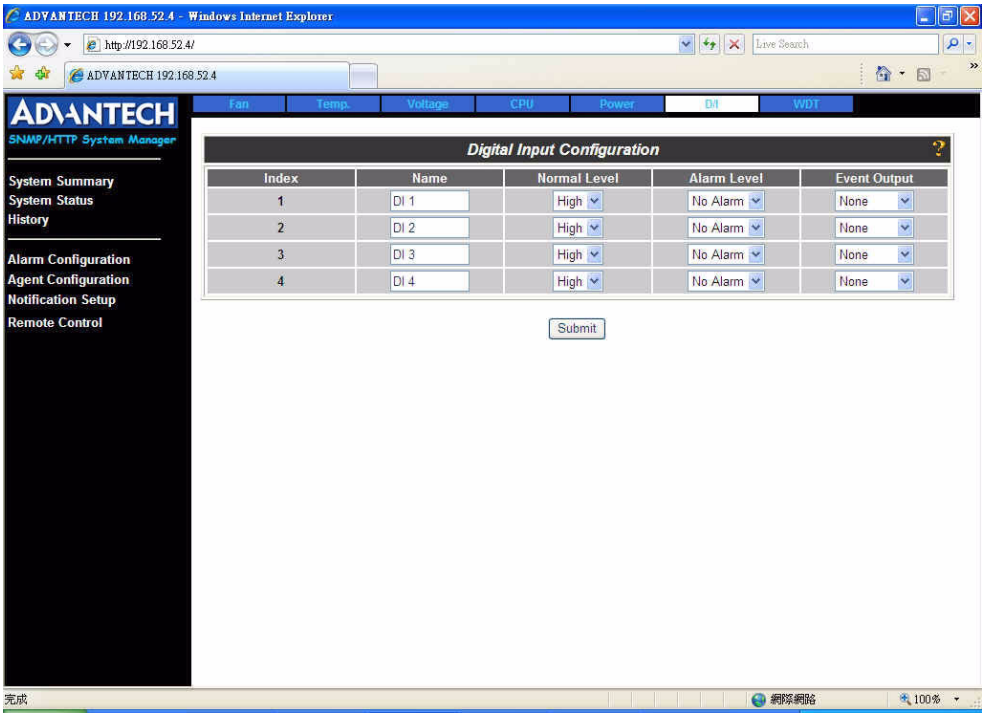
Main Page -- > Integrated Peripherals -- > Onboard Device [Press Enter] -- > SMBus Connector [BMC]



- Power: To monitor the chassis power supplies. Total capacity up to 4 Power Supplies may be set.



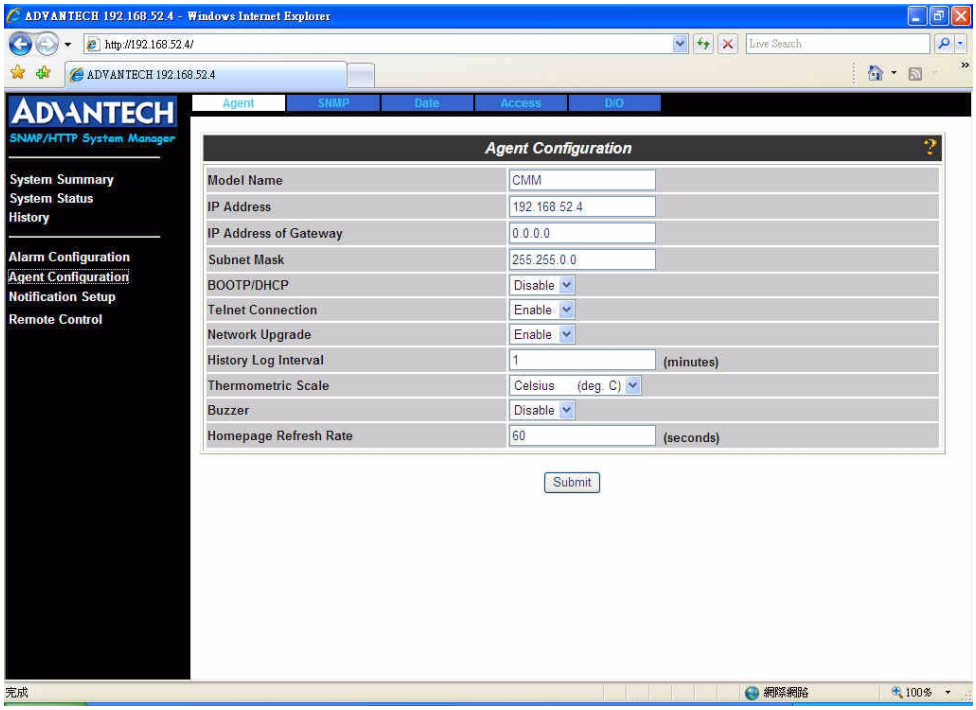
- D/I: To monitor the external Digital Input events. Total capacity up to 4 Temps for users' setting, but default is reserved for optional.



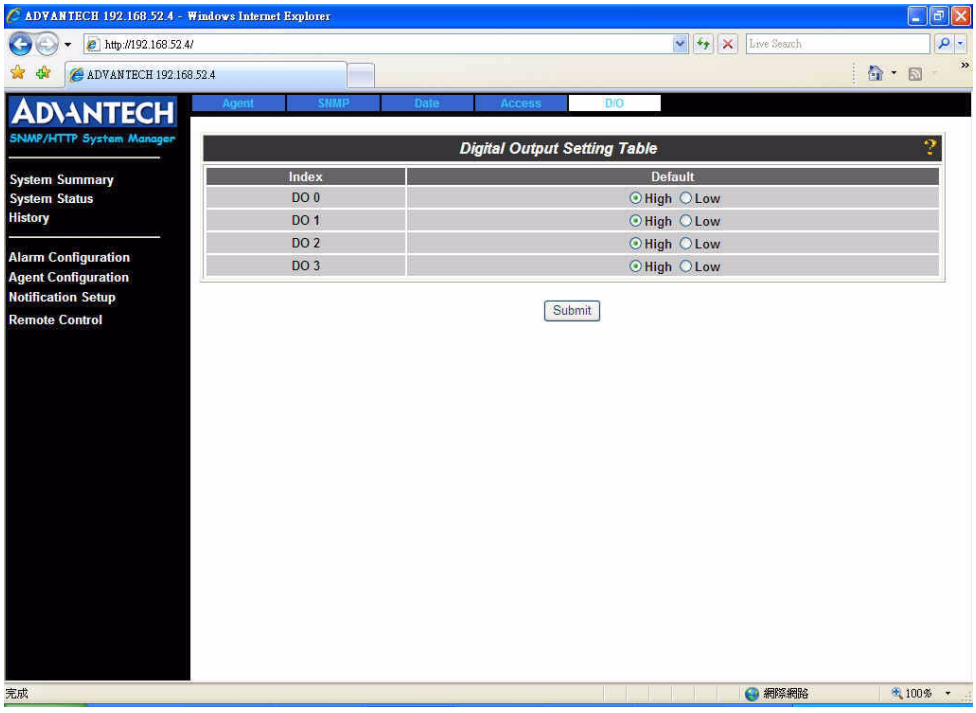
3.5.5 Agent Configuration

This function is for alarm agent parameter settings; it includes IP address, Date, Browser configurations.

- Agent: To set up the IP address and connection enable/disable. The IP address can be also configured by Telnet (RS-232) connection.



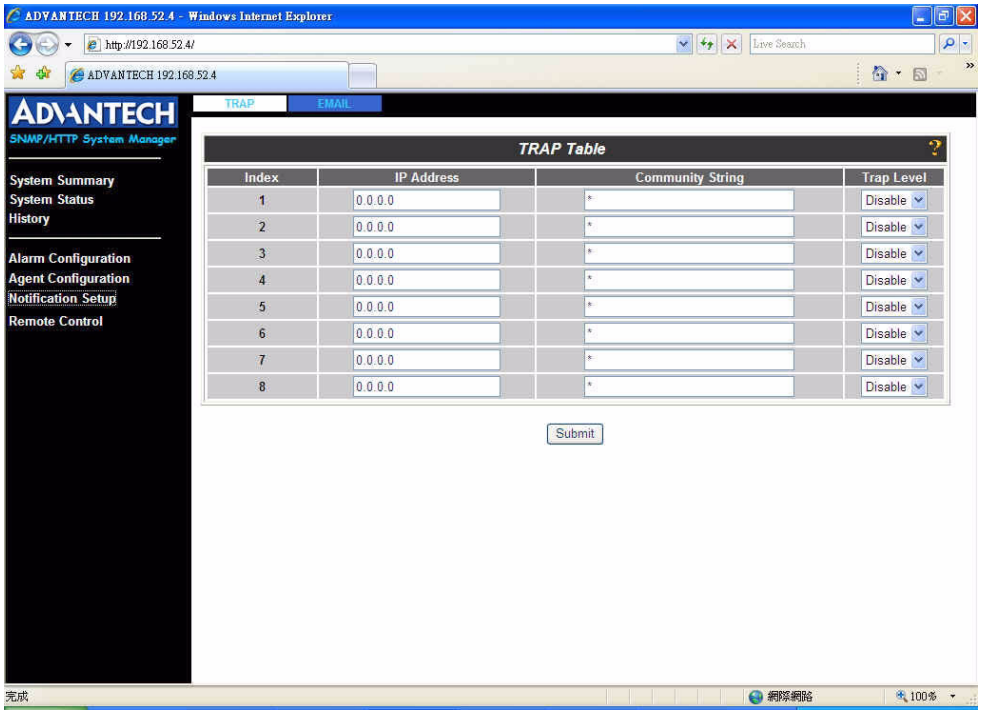
- D/O: To set up each Digital Output level (High/Low).



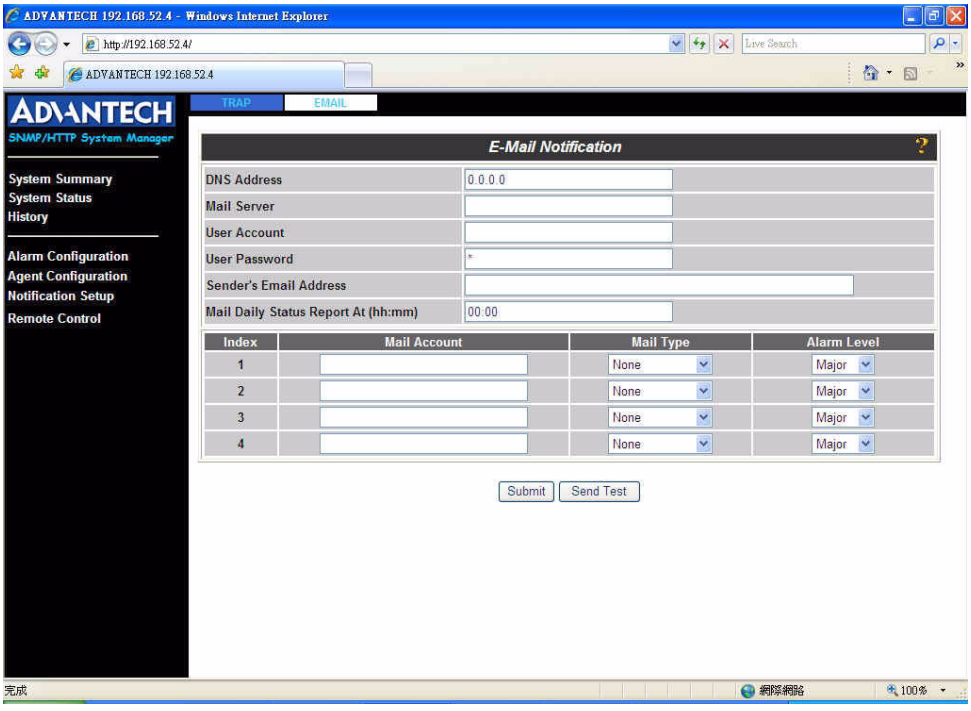
3.5.6 Notification Setup

This function is for alarm notification setting includes traps and emails.

- Trap: To set up traps for event outputs; users can be notified by remote terminal immediately with alarm string on screen.



- Email: To set up email for event output, users can be notified by automatic email immediately to up to four receivers (administrators).



Note:

The email notification would act according to the alarm level setting priority. In each “Alarm Configuration” page, the user can set the alarm level for all the monitored objects. When those priorities in “Alarm Configuration” are higher than or equal to the level set in this page, then the email would be sent to assigned mail accounts. For example:

Alarm Configuration	Alarm Level	Email Receiver	Alarm Condition	Alarm Level
FAN1	Major	192.168.1.5 (IP#1)	Alarm	Minor
FAN2	Minor	202.16.7.23 (IP#2)	Alarm	Major
POWER1	Critical	172.20.5.143 (IP#3)	Alarm	Critical

When FAN1 fails: Only IP#1 and IP#2 will be notified.

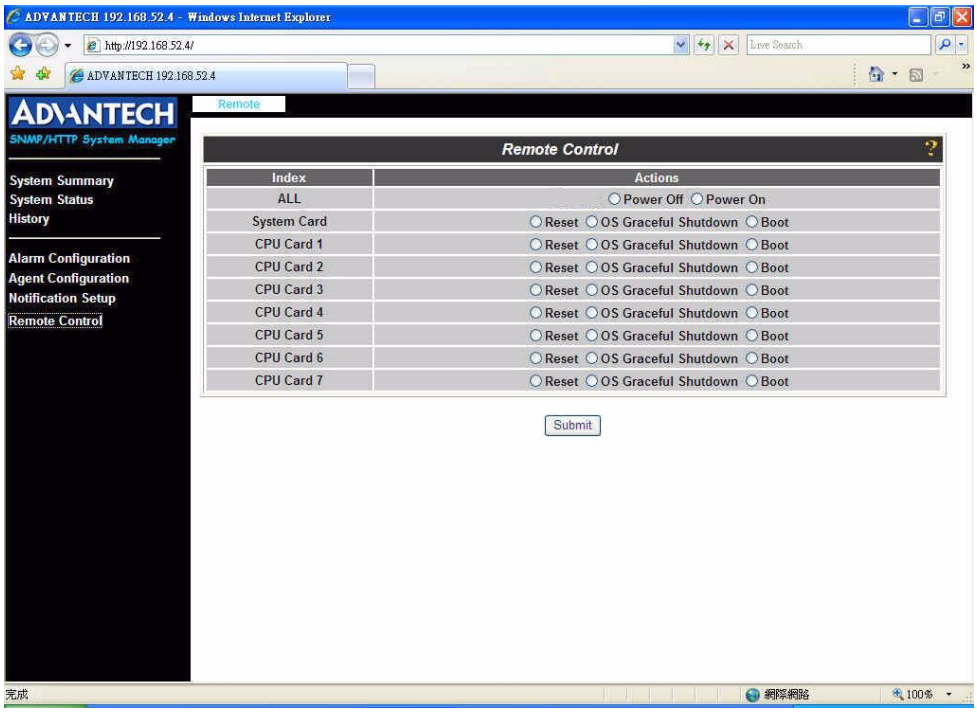
When FAN2 fails: Only IP#1 will be notified.

When POWER1 fails: All IP#1, IP#2, and IP#3 will be notified

3.5.7 Remote Control

This function is for remote management of system shutdown and power on.

Note the "OS Graceful Shutdown" and "Boot" do not function for chassis with CompactPCI power supply (such as Advantech's MIC-3042, MIC-3043 series) before the chassis power is turned on, because CompactPCI power supply does not provide $+5V_{SB}$ signal.



Chapter 4

Programming MIC-3927

4.1 Introduction

The MIC-3927 kernel board (CMM) can be accessed and controlled by direct command input. With this function, CMM can be easily controlled and integrated into user's system by user's program.

4.2 Entering the pass through command mode

Before you can program the CMM you need first to set up a connection from the host computer to the CMM through serial port or Telnet. Follow the steps below to enter the pass through command mode.

1. Turn on CMM then CMM will send identification string "\nAdvantech v0.xx (SNxxxxxx) Ready \n" to PC through COM port.
2. On PC side press Enter key.
3. CMM will send main menu title and Enter User Name message to PC.

"\n\n
+==+
| [SNMP Agent Configuration Utility Main Menu] |
+==+
\n
Enter User Name:"

4. On PC side input user name \r then CMM will respond user name \n\n and Enter Password:.

EX.

PC side input: "advantech\r"

CMM response: "advantech\n\n Enter Password:"

5. On PC side input password \r then CMM will respond password \n\n\n and main menu.

EX.

PC side input: "admin\r"

CMM response: "*****\n\n
+==+
| [SNMP Agent Configuration Utility Main Menu] |
+==+
1. Agent Configuration
2. Remote Control
3. Restart Agent
4. Reset Configuration To Default
5. Access Agent Command
0. Exit

Please Enter Your Choice => "

6. On PC side input 5\r then CMM respond 5\n\n and CMM will enter pass through mode.

EX.

PC side input: "5\r"

CMM response: "5\n
Command : "

4.3 Syntax of command and response

1. On PC side input write Fan 1 low limit to 1000 PRM command.

EX.

PC side input: “WCF1LL 1000\r”

CMM response: “WCF1LL 1000\n” Response: Done\n Command:”

2. On PC side input read Fan 1 low limit command.

EX.

PC side input: “RCF1LL\r”

CMM response: “Response: 1000\n Command:”

3. Repeat 7 or 8 for other requests.
4. If input command is incorrect then CMM will respond invalid message.

EX.

PC side input: “RCF10LL\r” -- support 9 fans

CMM response: “Invalid”

5. CMM pass through command sets description.

a. WDDnnSI xxxx

W : Write command

DDnn : device identification

CF1 : agent Card Fan 1

:

CF9 : agent Card Fan 9

CT1 : agent Card Temperature 1

:

CT9 : agent Card Temperature 9

CV1 : agent Card Voltage 1

:

CV7 : agent Card Voltage 7

CP1 : agent Card Power 1

:

CP4 : agent Card Power 4

CI1 : agent Card DI 1

:

CI4 : agent Card DI 4

CWD : agent Card WatchDog

M1F1 : Motherboard 1 Fan 1

M1T1 : Motherboard 1 Temperature 1

M1V1 : Motherboard 1 Voltage 1

:

:

M7F2 : Motherboard 7 Fan 2

M7T2 : Motherboard 7 Temperature 2

M7V6 : Motherboard 7 Voltage 6

:

:

SI :

LL : Low Limit
HL : High Limit
LA : Low Alarm level
HA : High Alarm level
LE : Low Event out
HE : High Event out
CV : Current Value
NL : Normal Level
AL : Alarm Level
EO : Event Out

xxxx :
wrote value

b. RDDnnSI
R : Read command

4.4 List of Device Code and Device Sub-Code

Device Code									
Device	Fan 1	Fan 2	Fan 3	Fan 4	Fan 5	Fan 6	Fan 7	Fan 8	Fan 9
Code	CF1	CF2	CF3	CF4	CF5	CF6	CF7	CF8	CF9

Device	Temp 1	Temp 2	Temp 3	Temp 4	Temp 5	Temp 6	Temp 7	Temp 8	Temp 9
Code	CT1	CT2	CT3	CT4	CT5	CT6	CT7	CT8	CT9

Device	3.3 V	5 V	-5 V	5 Vsb	12 V	-12 V
Code	CV1	CV2	CV3	CV4	CV5	CV6

Device	Power 1	Power 2	Power 3	Power 4
Code	CP1	CP2	CP3	CP4

Device	D In 1	D In 2	D In 3	D In 4
Code	CI1	CI2	CI3	CI4

Device	Watch-dog
Code	CWD

Device	D Out 1	D Out 2	D Out 3	D Out 4
Code	CO1	CO2	CO3	CO4

Device	SysBoard Fan 1	SysBoard Fan 2	SysBoard Fan 3
Code	SBF1	SBF2	SBF3

Device	SysBoard Temp 1	SysBoard Temp 2	SysBoard Temp 3
Code	SBT1	SBT2	SBT3

Device	Sys-Board Volt 1	Sys-Board Volt 2	Sys-Board Volt 3	Sys-Board Volt 4	Sys-Board Volt 5	Sys-Board Volt 6	Sys-Board Volt 7	Sys-Board Volt 8	Sys-Board Volt 9	Sys-Board 10
Code	SBV1	SBV2	SBV3	SBV4	SBV5	SBV6	SBV7	SBV8	SBV9	SBV10

Device	M1 Fan 1	M1 Fan 2	M1 Fan 3

Code	M1F1	M1F2	M1F3

Device	M1 Temp 1	M1 Temp 2	M1 Temp 3
Code	M1T1	M1T2	M1T3

Device	M1 Volt 1	M1 Volt 2	M1 Volt 3	M1 Volt 4	M1 Volt 5	M1 Volt 6	M1 Volt 7	M1 Volt 8	M1 Volt 9	M1 Volt 10
Code	M1V1	M1V2	M1V3	M1V4	M1V5	M1V6	M1V7	M1V8	M1V9	M1V10

Device	M2 Fan 1	M2 Fan 2	M2 Fan 3
Code	M2F1	M2F2	M2F3

Device	M2 Temp 1	M2 Temp 2	M2 Temp 3
Code	M2T1	M2T2	M2T3

Device	M2 Volt 1	M2 Volt 2	M2 Volt 3	M2 Volt 4	M2 Volt 5	M2 Volt 6	M2 Volt 7	M2 Volt 8	M2 Volt 9	M2 Volt 10
Code	M2V1	M2V2	M2V3	M2V4	M2V5	M2V6	M2V7	M2V8	M2V9	M2V10

Device	M3 Fan 1	M3 Fan 2	M3 Fan 3
Code	M3F1	M3F2	M3F3

Device	M3 Temp 1	M3 Temp 2	M3 Temp 3
Code	M3T1	M3T2	M3T3

Device	M3 Volt 1	M3 Volt 2	M3 Volt 3	M3 Volt 4	M3 Volt 5	M3 Volt 6	M3 Volt 7	M3 Volt 8	M3 Volt 9	M3 Volt 10
Code	M3V1	M3V2	M3V3	M3V4	M3V5	M3V6	M3V7	M3V8	M3V9	M3V10

Device	M4 Fan1	M4 Fan 2	M4 Fan 3
Code	M4F1	M4F2	M4 Fan 3

Device	M4 Temp 1	M4 Temp 2	M4 Temp 3
Code	M4T1	M4T2	M4T3

Device	M4 Volt 1	M4 Volt 2	M4 Volt 3	M4 Volt 4	M4 Volt 5	M4 Volt 6	M4 Volt 7	M4 Volt 8	M4 Volt 9	M4 Volt 10
Code	M4V1	M4V2	M4V3	M4V4	M4V5	M4V6	M4V7	M4V8	M4V9	M4V10

Device	M5 Fan 1	M5 Fan 2	M5 Fan 3

Code	M5F1		M5F2		M5F3				

Device	M5 Temp 1		M5 Temp 2		M5 Temp 3				
Code	M5T1		M5T2		M5T3				

Device	M5 Volt 1	M5 Volt 2	M5 Volt 3	M5 Volt 4	M5 Volt 5	M5 Volt 6	M5 Volt 7	M5 Volt 8	M5 Volt 9	M5 Volt 10
Code	M5V1	M5V2	M5V3	M5V4	M5V5	M5V6	M5V7	M5V8	M5V9	M5V10

Device	M6 Fan 1		M6 Fan 2		M6 Fan 3				
Code	M6F1		M6F2		M6F3				

Device	M6 Temp 1		M6 Temp 2		M6 Temp 3				
Code	M6T1		M6T2		M6T3				

Device	M6 Volt 1	M6 Volt 2	M6 Volt 3	M6 Volt 4	M6 Volt 5	M6 Volt 6	M6 Volt 7	M6 Volt 8	M6 Volt 9	M6 Volt 10
Code	M6V1	M6V2	M6V3	M6V4	M6V5	M6V6	M6V7	M6V8	M6V9	M6V10

Device	M7 Fan 1		M7 Fan 2		M7 Fan 3				
Code	M7F1		M7F2		M7F3				

Device	M7 Temp 1		M7 Temp 2		M7 Temp 3				
Code	M7T1		M7T2		M7T3				

Device	M7 Volt 1	M7 Volt 2	M7 Volt 3	M7 Volt 4	M7 Volt 5	M7 Volt 6	M7 Volt 7	M7 Volt 8	M7 Volt 9	M7 Volt 10
Code	M7V1	M7V2	M7V3	M7V4	M7V5	M7V6	M7V7	M7V8	M7V9	M7V10

Device Sub-Item Code	
Item	**Code**
Low Limit	LL
High Limit	HL
Low Alarm Level	LA
High Alarm Level	HA
Low Event Out	LE
High Event Out	HE
Current Value	CV
Normal Level	NL
Alarm Level	AL
Event Out	EO

Appendix A

Connector Pin Assignments

A.1 External Buzzer (CN10)

Pin	Signal
1	+5 V
2	Buzzer

A.2 10/100-BaseT LAN Connector (CN11)

Pin	Signal	Pin	Signal
1	SPLED (LAN speed LED)	2	LANGND
3	RX+	4	RX-
5	GND	6	VCC
7	TX+	8	TX-
9	LILED (LAN link LED)	10	LANGND

(RJ1)

Pin	Signal	Pin	Signal
1	TX+	2	TX-
3	RX+	4	LANGND
5	LANGND	6	RX-
7	LANGND	8	LANGND

A.3 RS-232 Serial Port (CN13)

Pin	Signal	Pin	Signal
1	DCD#	2	DSR#
3	RX	4	RTS#
5	TX	6	CTS3
7	DTR#	8	RI#
9	GND	10	N/C

(CN12)

Pin	Signal	Pin	Signal
1	DCD#	2	RX
3	TX	4	DTR#
5	GND	6	DSR#
7	RTS#	8	CTS#
9	RI#	10	NC
11	NC	12	GND
13	GND		

A.4 Kernel Module Interface (CN1)

Pin	Signal	Pin	Signal
1	VBAT	2	WDG_IN
3	DO_System 4 reset	4	DO_System 3 reset
5	DO_System 2 reset	6	DO_System 1 reset
7	GND	8	CTS#
9	RTS#	10	DSR#
11	DTR#	12	SOUT
13	SIN	14	DCD#
15	GND	16	LAN Speed
17	DI1	18	LAN Active
19	DI2	20	LAN Link
21	DI3	22	TERMPLANE
23	DI4	24	TX- (LAN)
25	DO1	26	TX+ (LAN)
27	DO2	28	RX- (LAN)
29	DO3	30	RX+ (LAN)
31	DO4	32	Remote Power On
33	T_SCLK (Clock of I2C to sensor)	34	T_SDAT (Data of I2C to sensor)

A.5 Kernel Module Interface (CN2)

Pin	Signal	Pin	Signal
1	B_SCLK (Clock of IPMB)	2	B_SDAT (Data of IPMB)
3	GND	4	Alarm Reset
5	Temp Good/Fail	6	PWR Good/Fail
7	FAN Good/Fail	8	GND
9	VCC	10	GND
11	VCC	12	GND
13	BEEP	14	Power Good D
15	Power Good C	16	Power Good B
17	Power Good A	18	+12 V
19	+5 V	20	-12 V
21	-5 V	22	+3.3 V
23	5 V_{SB}	24	GND
25	GND	26	FAN7
27	FAN6	28	FAN8
29	FAN5	30	FAN9
31	FAN3	32	FAN4
33	FAN2	34	FAN1

A.6 Backplane Connector (CN9 on MIC-3927 carrier and CN7 on MIC-3925 interface backplane)

Pin	Signal	Pin	Signal
1	+5 V	2	+5 V
3	+5 V	4	NC
5	+5 V	6	+3.3 V
7	FAN1	8	NC
9	FAN2	10	-12 V
11	FAN3	12	FAN7
13	FAN4	14	+12 V
15	+5 V_{SB}	16	FAN8
17	FAN5	18	T_SDAT (Data of I2C bus to temperature sensor)
19	FAN6	20	T_SCLK (Clock of I2C bus to temperature sensor)
21	B_SCLK (Clock of I2C bus to system)	22	POWER_ATX_ON#
23	B_SDAT (Data of I2C bus to system)	24	FAN9
25	GND	26	GND

A.7 SW_ATX_ON (CN8 on MIC-3927 carrier and CN6 on MIC-3925 interface backplane)

Pin	Signal
1	SW_ATX_ON#
2	GND

A.8 Digital Input (CN14)

Pin	Signal	Pin	Signal
1	DI 1	2	GND
3	DI 2	4	GND
5	DI 3	6	GND
7	DI 4	8	GND

A.9 Digital Output (CN16)

Pin	Signal	Pin	Signal
1	DO 1 (for fan_alarm)	2	GND
3	DO 2 (for thermal_alarm)	4	GND
5	DO 3 (for Power_Supply _Alarm)	6	GND
7	DO 4 (for System2 Remote Control)	8	GND

A.10 LED Connector (CN15 on MIC-3927 carrier and CN3 on MIC-3925 interface backplane)

Pin	Signal	Pin	Signal
1	+3.3 V	2	FAN_ALARM
3	+5 V	4	THERMAL_ALARM
5	Power_Supply_Alarm	6	GND
7	GND	8	NC

A.11 Power Fail Signal Input (CN5/CN3/CN4/CN6 on MIC-3927 carrier and CN1/CN2/CN4/CN5 on MIC-3925 interface backplane)

	Pin	Signal	Pin	Signal
CN5	1	Power Good A	2	GND
CN3	1	Power Good B	2	GND
CN4	1	Power Good C	2	GND
CN6	1	Power Good D	2	GND

A.12 Interface Connector (Golden finger on MIC-3927 carrier and J1 on MIC-3925 interface backplane)

Pin	Signal	Pin	Signal
1	GND	2	GND
3	GND	4	GND
5	GND	6	NC
7	PG_A	8	POWER_STATE
9	PG_B	10	POWER_ATX_ON#
11	PG_C	12	ALARM_MUTE
13	PG_D	14	FAN9
15	FAN1	16	+3.3 V
17	FAN2	18	Fan 6
19	FAN3	20	-12 V
21	FAN4	22	Fan 5
23	T_SDAT	24	+12 V
25	T_SCLK	26	NC
27	B_SCLK	28	+5 V
29	B_SDAT	30	+5 V
31	Power_Supply_Alarm	32	+5 V
33	THERMAL_ALARM	34	+5 V
35	FAN_ALARM	36	+5 V_{SB}
37	FAN8	38	NC
39	FAN7	40	GND
41	RELAYS_STATE	42	GND
43	SW_ATX_ON#	44	GND

A.13 Alarm Mute Push Button (SW1)

Pin	Signal
1	Alarm_Mute
2	GND

A.14 Alarm Mute Connector (CN7)

Pin	Signal
1	Alarm_Mute
2	GND

A.15 Battery Connector (BAT1)

Pin	Signal
1	Battery In
2	GND

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