IPMICFG
User's Guide

Revision 1.11

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Document Revision History

Date	Revision	Description
2021/05/28	1.11	1. Added the "Liquid Cooling" and "Smart Speed" fan modes. 2. Modified the display format of firmware version. 3. Removed the function of putting a system in lockdown mode. 4. Added the IPv6 DHCPv6 disabled mode. 5. Supported a NVMe backplane. (Firmware information: 30 02) 6. Added the severity code and event ID fields to the "-sel list" command.
2020/07/03	1.10	1. Added the "-lockdown" command to put the system in lockdown mode. 2. Added the "-mel list" command to list maintenance event log. 3. Added the function of listing dynamic IPv6 addresses to the "-ipv6 list" command.
2020/06/23	1.9	1. Corrected errors in this document.
2020/01/21	1.8	1. Added options to the "-fd" command. 2. Added the "-addrptl" command to set up IP protocol. 3. Added a function to display sets of commands. (This function is not available on DOS.)
2019/07/01	1.7	1. Added the EFI version of IPMICFG. 2. Added the IPv6 routing functions. (option: -ipv6) 3. Supported the UEFI PXE boot options, including -reset and -soft commands. 4. Added the mel (Maintenance Event Log) command set. (option: -mel) 5. Removed the -fru 1m, 1p, 1s, 2m, 2p, 2s, 3s commands. 6. Added the auxiliary firmware revision in "-ver" command.

2018/03/02	1.6	1. Added IPv6 setting functions. 2. Supported BBP2 (BBP + PSU) module. 3. Supported MRC error code for Intel® Xeon® Scalable Processors with Intel® C620 Series Chipsets. 4. Fixed the known issues.
2017/09/01	1.5	1. Modified the NVME remove commands.
2017/06/20	1.4	1. Added the DCMI commands. 2. Removed the -recoverbiosinfo command.
2016/11/23	1.3	1. Modified description of the -fru DMI feature. 2. Modified description of the -pminfo feature. 3. Updated the “Operation Requirements” chapter.
2016/08/23	1.2	1. Added the Get/Set host name command.
2016/01/05	1.1	1. Added the TAS commands. (DOS was NOT supported) 2. Updated the NVME commands. (DOS was NOT supported) 3. Added the summary command.
2015/06/15	1. 0	Initial document.

Contents

1 IPMICFG Overview

IPMICFG is a command line tool utility, providing IPMI commands and Supermicro proprietary OEM commands to configure and monitor IPMI devices. It requires no pre-installation and is easy to use for basic IPMI configuration and BMC status reading and monitoring.

1.1 Features

- Setting up IPMI IP addresses
- Setting up IPMI configurations
- Configuring IPMI User Management
- Configuring IPMI FRU
- Managing the System Event Log (SEL)
- Managing IPMI with the node management (NM) protocol

1.2 Operation Requirements

To run basic operations, you must meet the following requirements.

1.2.1 System Requirements

Environment	Requirements
Hardware	Free Disk Space: 200 MB Available RAM: 64 MB Baseboard Management Controller (BMC) must support Intelligent Platform Management Interface (IPMI) version 2.0 specifications.
Operating System	• DOS 5.0 or later version • Microsoft Windows 10 / Server 2012 / Server 2016 / Server 2019 • Operating system must be pre-installed Microsoft Visual C++ 2008 SP1 Redistributable Package. Download Link: http://www.microsoft.com/en-us/download/details.aspx?id=29 • Linux Kernel version 2.6.x or higher. Red Hat Enterprise Linux (RHEL) 6.8 and later version SUSE Linux Enterprise Server (SLES) 12 SP4 and later version Ubuntu Server 16.04 LTS and later version • UEFI Shell • VMWare ESXi 6.5 or later version

1.2.2 Software Requirements

Program/Script	Description
\DOS\IPMICFG.exe	IPMICFG DOS (DOS 5.0)
\Linux\32bit\IPMICFG-Linux.x86	IPMICFG Linux 32bit
\Linux\64bit\IPMICFG-Linux.x86_64	IPMICFG Linux 64bit
\Windows\32bit\IPMICFG-Win.exe	IPMICFG Windows 32bit
\Windows\64bit\IPMICFG-Win.exe	IPMICFG Windows 64bit
\UEFI\IPMICFG.efi	IPMICFG UEFI
*.dat files	database for MB type and SEL event table
\SMC-IPMICFG-*-offline_bundle.zip	IPMICFG ESXi bundle package
\IPMICFG_*_ESXi.vib	IPMICFG ESXi vib package

1.2.3 Installing Additional Drivers

Linux:

The Linux version of IPMICFG will automatically use the built-in Linux IPMI driver from ipmitool to access BMC. If no IPMI driver is available, IPMICFG will use its internal API to access BMC, however the performance will be slow.

To load an IPMI driver, type the following commands to access the IPMI driver:

1. # modprobe ipmi_msghandler
2. # modprobe ipmi_devintf
3. # modprobe ipmi_si

1.3 Typographical Conventions

This manual uses the following typographical conventions.

`Courier-New font size 10` represents command line instructions (in CLI) in terminal mode.

Bold is used for emphasizing keywords.

Italic is used for variables and section titles.

< > enclose the parameters in syntax description.

`[ipmicfg_HOME]` represents the prompt for inputs in terminal mode.

| A vertical bar separates items in a list.

2 Installation and Setup

2.1 Installing IPMICFG

Get the IPMICFG_x.xx.x_build.xxxxxx.zip installer, and then unzip it in your environment. You will see the directory list:

DOS:

Execute `\DOS\IPMICFG.exe`

Linux 32bit:

Execute `/Linux/32bit/IPMICFG-Linux.x86`

Linux 64bit:

Execute `/Linux/64bit/IPMICFG-Linux.x86_64`

Windows 32bit:

Execute `\Windows\32bit\IPMICFG-Win.exe`

Windows 64bit:

Execute `\Windows\64bit\IPMICFG-Win.exe`

UEFI Shell:

Execute `\UEFI\IPMICFG.efi`

ESXi:

Install signed version of IPMICFG:

Execute `esxcli software vib install -d ~/IPMICFG_*offline_bundle.zip`

Install unsigned version:

Execute `esxcli software vib install -d ~/IPMICFG_*offline_bundle.zip --no-sig-check`

Execute `\opt\supermicro\ipmicfg\IPMICFG.esxi`

3 Basic User Operations

Usage:

```
[ipmicfg_HOME] > IPMICFG <command> [option/data...]
```

Note: To display sets of commands, use the command `[ipmicfg_HOME] > IPMICFG <command> -help`

Here is an example of displaying the set of `-sdr` commands to illustrate the steps.

Example:

```
[ipmicfg_HOME] > IPMICFG -sdr -help
Command: -sdr
Command(s):
 -sdr [full]                Show SDR records and reading
 -sdr del <sdr id>          Delete SDR record
 -sdr ver <v1> <v2>         Get/Set SDR version (v1, v2 are BCD
format)
```

3.1 Setting Up IPMI Addresses

Options for Using IPMICFG	
-m	Shows IPv4 address and MAC.
-m <ip>	Sets IPv4 address (format: ###.###.###.###).
-a <mac>	Sets MAC (format: ##:##:##:##:##:##).
-k	Shows Subnet Mask.
-k <mask>	Sets Subnet Mask (format: ###.###.###.###).
-dhcp	Gets the DHCP status.
-dhcp on	Enables the DHCP.
-dhcp off	Disables the DHCP.
-g	Shows a Gateway IP.
-g <gateway>	Sets a Gateway IP (format: ###.###.###.###).
-garp on	Enables the Gratuitous ARP.
-garp off	Disables the Gratuitous ARP.
-ipv6 mode	Shows the IPv6 mode.
-ipv6 mode <mode>	Sets the IPv6 mode.
-ipv6 autoconfig	Shows IPv6 auto configuration.
-ipv6 autoconfig on	Enables IPv6 auto configuration.
-ipv6 autoconfig off	Disables IPv6 auto configuration.
-ipv6 list	Lists IPv6 static and dynamic addresses.
-ipv6 duid	Show IPv6 DUID.
-ipv6 dns [IPv6 addr]	Gets/Sets IPv6 DNS server.
-ipv6 add <id> <IPv6 addr> <prefix>	Adds IPv6 static address.
-ipv6 remove <id>	Removes IPv6 static address.
-ipv6 route	Displays IPv6 static route.
-ipv6 route on	Enables IPv6 static route.
-ipv6 route off	Disables IPv6 static route.
-ipv6 route list	Lists IPv6 static router information.
-ipv6 route <id> <prefix value> <prefix length> <IPv6 addr>	Sets IPv6 static router information.
-ipv6 route clear <id>	Clears IPv6 static router information.
-addrptl [option]	Gets/Sets IP address protocol
-lockdown	Checks the system's lockdown mode.

3.1.1 Examples of Command Executions

The following are selected options from the above table to illustrate their execution.

- **Example 1. Showing IPv4 address and MAC.**

```
[ipmicfg_HOME] > IPMICFG.exe -m

IP=192.168.12.34

MAC=00:25:90:AB:CD:EF
```

- **Example 2. Setting IPv4 address.**

```
[ipmicfg_HOME] > IPMICFG.exe –m 192.168.56.78

IP=192.168.56.78
```

- **Example 3. Getting the DHCP status.**

```
[ipmicfg_HOME] > IPMICFG.exe –dhcp

DHCP is currently disabled.
```

- **Example 4. Showing Subnet Mask.**

```
[ipmicfg_HOME] > IPMICFG.exe –k

Subnet Mask=255.255.255.0
```

- **Example 5. Showing a Gateway IP.**

```
[ipmicfg_HOME] > IPMICFG.exe –g

Gateway=192.168.12.254
```

- **Example 6: Enabling the Gratuitous ARP.**

```
[ipmicfg_HOME] > IPMICFG.exe –garp on

Failed to enable Gratuitous ARP, Completion Code=80h
```

Note: Gratuitous ARP includes Gratuitous ARP requests and replies, updating ARP tables to map MAC addresses and IP addresses. Due to security concerns, it is not supported by default for most network devices. If you want to use this function, please make sure the Gratuitous ARP function is enabled on your network devices.

- **Example 7. Showing the IPv6 mode.**

```
[ipmicfg_HOME] > IPMICFG.exe -ipv6 mode

Current IPv6 mode is [Stateless]

Supported IPv6 modes:

0:Stateless

1:Stateful

2:Disabled
```

- **Example 8. Showing IPv6 auto configuration.**

```
[ipmicfg_HOME] > IPMICFG.exe -ipv6 autoconfig

Auto Configuration is currently enabled.
```

- **Example 9. Listing IPv6 static and dynamic addresses.**

```
[ipmicfg_HOME] > IPMICFG.exe -ipv6 list

Maximum number of IPv6 static address: 5

ID | IPv6 Static Address                       | Prefix

-- | ------------------                        | ------

 0 | FE80:0000:0000:0000:0225:90FF:FEEE:59E5 |    64

 1 | 3333:2222:0000:0000:0000:0000:0000:0000 |    32

 2 | Disabled                                  |   N/A

 3 | Disabled                                  |   N/A

 4 | FE80:0000:0000:0000:0225:90FF:FEEE:59E9 |    64


Maximum number of IPv6 dynamic address: 4

ID | IPv6 Dynamic Address                      | Prefix

-- | ------------------                        | ------

   | FE80:0000:0000:0000:0225:90FF:FEEE:59F1 |    64
```

- **Example 10. Displaying IPv6 static router info.**

```
[ipmicfg_HOME] > IPMICFG.exe -ipv6 route

Router 1:

        Prefix to Route: 0000:0000:0000:0000:0000:0000:0000:0000/255

         Router Address: 0000:0000:0000:0000:0000:0000:0000:0000

Router 2:

        Prefix to Route: 0000:0000:0000:0000:0000:0000:0000:0000/255

         Router Address: 0000:0000:0000:0000:0000:0000:0000:0000
```

- **Example 11. Showing IP address protocol.**

```
[ipmicfg_HOME] > IPMICFG.exe -addrptl

Address Protocol is [ Dual ]

Address Protocol Types:

1:IPv4

2:IPv6

3:Dual
```

- **Example 12. Setting up an IP address protocol.**

```
[ipmicfg_HOME] > IPMICFG.exe -addrptl 3

Done.
```

- **Example 13. Checking the system's status mode.**

```
[ipmicfg_HOME] > IPMICFG.exe -lockdown

System Lockdown Mode: Unlocked
```

3.2 IPMI Management Functions

Options	Descriptions
-r	Performs a BMC cold reset.
-fd <option>	Resets to the factory defaults without preserving configurations.
	*To meet various needs, set [option] to `1`, `2`, or `3`. `1`: Preserves the configurations in the "Users" section. `2`: Restores the factory defaults and the default password of the motherboard. `3`: Sets user's password to ADMIN.
-fdl	Resets IPMI to the factory default. (Clean LAN).
-fde	Resets IPMI to the factory default. (Clean FRU & LAN).
-d	Detects if a BMC reset was successfully performed on the IPMI device. **Note that this option can be only used after** `-r`, `-fd`, `-fdl` or `-fde`**.**
-ver	Gets firmware revision.
-vlan	Gets VLAN status.
-vlan on <VLAN tag>	Enables the VLAN and sets the VLAN tag. If VLAN tag is not given, it uses the previously saved value.
-vlan off	Disables the VLAN.
-selftest	Checks and reports the basic health status of the BMC.
-raw	Sends a RAW IPMI request and prints a response. *Command format: `NetFn/LUN Cmd [Data1 ... DataN]`
-fan	Gets the fan mode.
-fan <mode>	Sets the fan mode. *Mode parameters, such as 0 or 1, may vary by motherboards. .
-clrint	Clears chassis intrusion.
-reset <index>	Resets system and forces to boot from the selected device. *For the list of index options for a reboot device, please find it in the note below.
-soft <index>	Initiates a soft-shutdown for OS and forces system to boot from the selected device. *For the list of index options for a reboot device, please find it in the note below.
-summary	Displays FW and BIOS information.

Options	Descriptions
-hostname [value]	Gets/Sets a host name.
-mel list	Shows BMC maintenance event log.
-mel download <file>	Downloads a BMC maintenance event log to a file.
-mel clear	Clears a BMC maintenance event log.

Notes:

- This is the list of index options for a reboot device.

Index Option	Reboot Device
1	PXE
2	Hard-drive
3	CD/DVD
4	Bios
5	USB KEY
6	USB HDD
7	USB Floppy
8	USB CD/DVD
9	UEFI Hard-drive
10	UEFI CD/DVD
11	UEFI USB KEY
12	UEFI USB HDD
13	UEFI USB CD/DVD
14	UEFI PXE

3.2.1 Examples of Command Executions

The following are selected options from the above table to illustrate their execution.

- **Example 1. Performing a BMC cold reset.**

```
[ipmicfg_HOME] > IPMICFG.exe -r
BMC cold reset successfully completed!
```

- **Example 2. Resetting IPMI to the factory default.**

```
[ipmicfg_HOME] > IPMICFG.exe -fd 2
Reset to the factory default completed.
```

- **Example 3. Getting the firmware revision.**

```
[ipmicfg_HOME] > IPMICFG.exe –ver
Firmware Version: 01.87
```

- **Example 4. Getting the VLAN status.**

```
[ipmicfg_HOME] > IPMICFG.exe –vlan
VLAN is now disabled.
```

- **Example 5. Checking and reporting the basic health status of the BMC.**

```
[ipmicfg_HOME] > IPMICFG.exe –selftest
Selftest: Passed.
```

- **Example 6. Sending a RAW IPMI request and printing a response.**

```
[ipmicfg_HOME] > IPMICFG.exe -raw 6 1
20 01 03 19 02 BF 7C 2A 00 34 06
```

- **Example 7. Getting the fan mode.**

```
[ipmicfg_HOME] > IPMICFG.exe –fan
Current Fan Speed Mode is [ Optimal Mode ]

Parameter for setting:
0: Standard
1: Full
2: Optimal
```

Note: Eight types of fan modes are supported: 0: Standard, 1: Full, 2: Optimal, 3: PUE2 Optimal, 4: Heavy IO, 5: PUE3 Optimal, 6: Liquid Cooling and 7: Smart Speed. To find out the available fan modes on your system, use the "-fan" command.

- **Example 8. Setting the fan mode.**

```
[ipmicfg_HOME] > IPMICFG.exe –fan 0
Done.
```

- **Example 9. Clearing chassis intrusion.**

```
[ipmicfg_HOME] > IPMICFG.exe –clrint
Done.
```

- **Example 10. Resetting the system and forcing it to boot from the selected device.**

```
[ipmicfg_HOME] > IPMICFG.exe –reset 0
Done.
```

- **Example 11. Initiating a soft-shutdown for OS and forcing the system to boot from the selected device.**

```
[ipmicfg_HOME] > IPMICFG.exe –soft 0
Done.
```

- **Example 12. Displaying FW and BIOS information.**

```
[ipmicfg_HOME] > IPMICFG.exe –summary
Summary
-----------------------------------------
IP                      : 10.136.33.107
MAC Address             : 00:25:90:EE:58:E7
Firmware Revision       : 2.18
Firmware Build Date     : 09/17/2015
BIOS Version            : 1.0
BIOS Build Date         : 11/13/2013
System MAC Address 1    : 00:25:90:E8:70:64
System MAC Address 2    : 00:25:90:E8:70:65
```

- **Example 13. Setting a host name.**

```
[ipmicfg_HOME] > IPMICFG.exe –hostname dnsserver
Done.
```

- **Example 14. Listing BMC maintenance log .**

```
[ipmicfg_HOME] > IPMICFG.exe –mel list
---------------------------------------------------------------------------
Event:1    Time:2020/06/09 13:30:02 Interface:RMCP    User:ADMIN(ADMIN)
Source:10.159.128.244 Desc:IPMI configuration was restored to default
successfully.
---------------------------------------------------------------------------
Event:2    Time:2020/06/09 13:30:02 Interface:RMCP    User:ADMIN(ADMIN)
Source:10.159.128.244 Desc:BMC was reset successfully.
---------------------------------------------------------------------------
Event:3    Time:2020/06/09 14:00:34 Interface:KCS     User:ADMIN(ADMIN)
Source:Localhost Desc:SOL was configured enable successfully.
---------------------------------------------------------------------------
Event:4    Time:2020/06/09 14:01:08 Interface:Redfish  User:ADMIN(ADMIN)
Source:10.138.160.64 Desc:Redfish session was created successfully.
---------------------------------------------------------------------------
Event:5    Time:2020/06/09 14:01:08 Interface:Web     User:ADMIN(ADMIN)
Source:10.138.160.64 Desc:Web login was successful.
---------------------------------------------------------------------------
```

- **Example 15. Downloading a BMC maintenance log to a file.**

```
[ipmicfg_HOME] > IPMICFG.exe –mel download mel.txt
Downloaded file successfully.
```

Note: The "`-mel download`" command is not supported when you see the "Prepare download file timeout" message.

3.3 Node Management (NM) 2.0 Functions

Options	Descriptions
-nm nmsdr	Displays NM SDR.
-nm seltime	Gets SEL time.
-nm deviceid	Gets the ID of an ME device.
-nm reset	Reboots ME.
-nm reset2default	Forces ME to reset to default settings.
-nm updatemode	Forces ME to enter the update mode.
-nm selftest	Gets self-test results.
-nm listimagesinfo	Lists ME information of images.
-nm oemgetpower	OEM Power command for ME.
-nm oemgettemp	OEM Temp. command for ME.
-nm pstate	Gets the maximum allowed CPU P-State.
-nm tstate	Gets the maximum allowed CPU T-State.
-nm cpumemtemp	Gets CPU/memory temperature.
-nm hostcpudata	Gets the host CPU data.

3.3.1 Examples of Command Executions

The following are selected options from the above table to illustrate their execution.

- **Example 1. Displaying NM SDR.**

```
[ipmicfg_HOME] > IPMICFG.exe –nm nmsdr
Record ID           = A7 08
SDR Version         = 51h
Record Type         = C0h
Record Length       = 0Bh
OEM ID              = 57 01 00 h
Record Subtype      = 0Dh
Subtype Version     = 01h
Salve Address       = 2Ch
Channel             = 00h
Health Event Sensor Number              = 1Dh
Exception Event Sensor Number           = 1Eh
Operational Capabilities Sensor Number  = 1Fh
Alert Threshold Exceeded Sensor Number  = 20h
```

- **Example 2. Getting the ID of an ME device.**

```
[ipmicfg_HOME] > IPMICFG.exe –nm deviceid
Device ID          = 50h
Firmware Version   = 2.1.5.95
IPMI Version       = 2.0
Manufacturer ID    = 57 01 00
Product ID Minor Ver = Romley platform
Firmware implemented version = NM Revision 2.0
Image Flag = operational image 1
raw  = 50 01 02 15 02 21 57 01 00 02 0b 02 09 50 01
```

- **Example 3. Listing information of ME images.**

```
[ipmicfg_HOME] > IPMICFG.exe –nm listimagesinfo
Recovery Image:
Image Type = Recovery image
raw  = 57 01 00 02 01 02 09 55 00
```

- **Example 4. Getting self-test results.**

```
[ipmicfg_HOME] > IPMICFG.exe –nm selftest
PSU Monitoring service error. < 80 03 >
PSU[1] is not responding.
PSU[2] is not responding.
```

- **Example 5. Getting CPU and memory temperature.**

```
[ipmicfg_HOME] > IPMICFG.exe –nm cpumemtemp
CPU#0 = 43(c)
CPU#1 = 44(c)
[CPU#0]CHANNEL#1, DIMM#0 = 39(c)
[CPU#1]CHANNEL#3, DIMM#0 = 31(c)
```

- **Example 6. Getting the host CPU data.**

```
[ipmicfg_HOME] > IPMICFG.exe –nm hostcpudata
Host CPU data:
End of POST notification was received
Host CPU discovery data provided with that command is valid
Number of P-States = 10
Number of T-States = 15
Number of installed CPUs/socket = 2
Processor Discovery Data-1 = 19 19 18 18 17 17 17 17
Processor Discovery Data-2 = 00 00 00 00 00 00 00 00
```

3.4 IPMI User & Configuration Management Functions

Options	Descriptions
-pminfo [full]	Displays PMBus health information of power supply.
-psfruinfo	Displays FRU health information of power supply.
-psbbpinfo	Displays status of the backup battery.
-autodischarge <module> <day>	Sets auto discharge by days.
-discharge <module>	Manually discharges a battery.
-user list	Lists user privileges.
-user help	Shows a user privilege code.
-user add <user id> <user name> <password> <privilege>	Adds a user. * For the list of privilege levels, please find it in the note below.
-user del <user id>	Deletes users.
-user level <user id> <privilege>	Updates user privileges.
-user setpwd <user id> <password>	Updates a user password.
-conf download <file>	Downloads IPMI configuration to a binary file.
-conf upload <file> <option>	Uploads IPMI configuration from a binary file. *To bypass a warning message, use the option -p.
-conf tdownload <file>	Downloads IPMI configuration to a text file.
-conf tupload <file> <option>	Uploads IPMI configuration from a text file. *To bypass a warning message, use the option -p.

Note: The list of privilege levels

Level	Privilege
1	Callback
2	User
3	Operator
4	Administrator

3.4.1 Examples of Command Executions

The following are selected options from the above table to illustrate their execution.

- **Example 1. Displaying PMBus health information of the power supply.**

```
[ipmicfg_HOME] > IPMICFG.exe –pminfo
[SlaveAddress = 78h] [Module 1]
 Item                          |                Value
 ----                          |                -----
 Status                        |     [STATUS OK](00h)
 AC Input Voltage              |              121.5 V
 AC Input Current              |                0.56 A
 DC 12V Output Voltage         |              12.19 V
 DC 12V Output Current         |               3.18 A
 Temperature 1                 |             43C/109F
 Temperature 2                 |             41C/106F
 Fan 1                         |              224 RPM
 Fan 2                         |                0 RPM
 DC 12V Output Power           |                42 W
 AC Input Power                |                65 W
 PMBus Revision                |              0x8B22
 PWS Serial Number             |      P441PAC17GW2358
 PWS Module Number             |          PWS-441P-1H
 PWS Revision                  |               REV1.0
```

- **Example 2. Displaying FRU health information of the power supply.**

```
[ipmicfg_HOME] > IPMICFG.exe –psfruinfo
[SlaveAddress = 70h] [Module 1]
 Item                        |               Value
 ----                        |               -----
 Status                      |                  On
 Temperature                 |             41C/106F
 Fan 1                       |              229 RPM
 Fan 2                       |                0 RPM
```

- **Example 3. Displays status of the backup bettery.**

```
[ipmicfg_HOME] > IPMICFG.exe –psbbpinfo
[SlaveAddress = 70h] [Module 1]
Item                         |               Value
----                         |               -----
Manufacturer                 |           SUPERMICRO
Model Name                   |          PWS-206B-1R
Serial Number                |     TEST1234567890A
Product Version              |                 1.2
Firmware version             |                 1.0
-----                        |
Battery Voltage              |             16.27 V
Battery Current              |                0 mA
Battery Pack Temp            |             30C/86F
Board Temp                   |                 N/A
Power Wattage                |                200W
Cycle Count                  |                   6
-----                        |
Battery Power Status         |              Normal
Remaining Energy             |                 99%
Discharge Status             |                None
Discharge Setting            |       Auto (30 days)
Discharge Remaining Days     |              30 days
Battery Status               |              0xC0E0
                             |      [FULLY CHARGED]
                             |        [DISCHARGING]
                             |   [TERMINATE CHARGE]
```

- **Example 4. Listing user privileges.**

(In this example, two users are enabled by default, and one user is hidden in the command line.)

```
[ipmicfg_HOME] > IPMICFG.exe –user list
Maximum number of Users: 10
Count of currently enabled Users: 2
User ID | User Name      | Privilege Level | Enable
------- | -----------    | --------------- | ------
     2  | ADMIN          | Administrator   | Yes
```

- **Example 5. Adding a user.**

```
[ipmicfg_HOME] > IPMICFG.exe –user add 3 ADMINTEST TESTADMIN 4
Done.
```

- **Example 6. Downloading IPMI configuration to a binary file.**

```
[ipmicfg_HOME] > IPMICFG.exe –conf download ipmi.cfg.txt
Downloaded file successfully
```

- **Example 7. Uploads IPMI configuration from a binary file.**

```
[ipmicfg_HOME] > IPMICFG.exe –conf upload ipmi.cfg.txt
This function may reboot the IPMI device.
Do you want to proceed?[y/n]: y
Uploaded file successfully
Please wait for 1 minute to reboot the BMC.
```

Note: The "`–conf (t)download`" command is not supported when you see the "Prepare download file timeout" message.

The "`–conf (t)upload`" command is not supported when you see the "Upload file failed, Completion Code=xxh" message.

3.5 IPMI Sensor & System Event Management

Options	Descriptions
-sel info	Shows SEL information.
-sel list	Shows SEL records.
-sel del	Deletes all SEL records.
-sel raw	Shows SEL raw data.
-sdr [full]	Shows SDR records and readings.
-sdr del <sdr id>	Deletes the SDR record.
-sdr ver <v1> <v2>	Gets/Sets the SDR version. (<v1> and <v2> are BCD-format)

3.5.1 Examples of Command Executions

The following are selected options from the above table to illustrate their execution.

- **Example 1. Showing SEL records.**

```
[ipmicfg_HOME] > IPMICFG.exe –sel list
  1  | 2021/01/01 15:16:12 | Chassis Intru
     | General Chassis intrusion - Assertion
```

- **Example 2. Showing SEL raw data.**

```
[ipmicfg_HOME] > IPMICFG.exe –sel raw
SEL(   1) 01 00 02 48 00 00 00 20 00 04 05 51 6F F0 FF FF
```

- **Example 3. Showing SDR records and readings.**

```
[ipmicfg_HOME] > IPMICFG.exe –sdr
Status  | (#)Sensor             |     Reading | Low Limit   | High Limit
------  | ---------             |     ------- | ---------   | ----------
    OK  | (4) CPU1 Temp         |    44C/111F |    0C/32F   |   86C/187F
    OK  | (71) CPU2 Temp        |    44C/111F |    0C/32F   |   86C/187F
    OK  | (138) System Temp     |     31C/88F |   -5C/23F   |   80C/176F
    OK  | (205) Peripheral Temp |    44C/111F |   -5C/23F   |   80C/176F
    OK  | (272) PCH Temp        |    57C/135F |   -5C/23F   |   90C/194F
    OK  | (339) FAN1            |    1800 RPM |   600 RPM   |  18975 RPM
    OK  | (406) FAN2            |    1800 RPM |   600 RPM   |  18975 RPM
        | (473) FAN3            |         N/A |       N/A   |        N/A
        | (540) FAN4            |         N/A |       N/A   |        N/A
        | (607) FAN5            |         N/A |       N/A   |        N/A
        | (674) FAN6            |         N/A |       N/A   |        N/A
        | (741) FAN7            |         N/A |       N/A   |        N/A
        | (808) FAN8            |         N/A |       N/A   |        N/A
    OK  | (875) VTT             |      1.05 V |    0.91 V   |      1.34 V
    OK  | (942) CPU1 Vcore      |      0.89 V |    0.54 V   |      1.48 V
    OK  | (1009) CPU2 Vcore     |      0.76 V |    0.54 V   |      1.48 V
    OK  | (1076) VDIMM ABCD     |      1.48 V |    1.20 V   |      1.64 V
    OK  | (1143) VDIMM EFGH     |      1.50 V |    1.20 V   |      1.64 V
    OK  | (1210) +1.5 V         |      1.47 V |    1.34 V   |      1.64 V
    OK  | (1277) 3.3V           |      3.31 V |    2.92 V   |      3.64 V
    OK  | (1344) +3.3VSB        |      3.31 V |    2.92 V   |      3.64 V
    OK  | (1411) 5V             |      5.05 V |    4.48 V   |      5.50 V
    OK  | (1478) 12V            |     12.29 V |   10.81 V   |     13.25 V
    OK  | (1545) VBAT           |      3.26 V |    2.68 V   |      3.31 V
    OK  | (1612) HDD Status     |      0.00   |    2.68 V   |      3.31 V
  Fail  | (1679) Chassis Intru  | 01 C0 01 00 |       N/A   |        N/A
    OK  | (1746) PS1 Status     | 01 C0 01 00 |       N/A   |        N/A
```

3.6 FRU Management

Options	Descriptions
-fru info	Shows information of the FRU inventory area.
-fru list	Shows all FRU values.
-fru cthelp	Shows chassis type code.
-fru help	Shows help of FRU Write.
-fru <field>	Shows FRU field value.
-fru <field> <value>	Writes FRU.
-fru backup <file>	Backs up FRU to a file <Binary format>.
-fru restore <file>	Restores FRU from a file <Binary format>.
-fru tbackup <file>	Backs up FRU to a file <Text format>.
-fru trestore <file>	Restores FRU from a file <Text format>.
-fru ver <v1> <v2>	Gets/Sets the FRU version. *<v1> and ,<v2> are BCD-format.)
-fru dmi <$1> <$2> <$3> <$4> <$5> <$6> <$7> <$8> <$9> <$10> <$11> <$12> <$13> <$14>	Inputs 14 parameters and writes to FRU Chassis/Board/Product fields. $1 PRODUCT Manufacturer Name $2 PRODUCT Product Name $3 PRODUCT Part Number $4 PRODUCT Product Version $5 PRODUCT Serial Number $6 PRODUCT Asset Tag $7 BOARD mfg/DateTime $8 BOARD Board Manufacturer $9 BOARD Product Name $10 BOARD Part Number $11 BOARD Serial Number $12 CHASSIS Type (HEX value, ex:01,02,03 ...) $13 CHASSIS Part Number $14 CHASSIS Serial Number

3.6.1 Examples of Command Executions

The following are selected options from the above table to illustrate their execution.

- **Example 1. Showing information of the FRU inventory area.**

```
[ipmicfg_HOME] > IPMICFG.exe –fru info
FRU size: 1024 bytes
```

- **Example 2. Showing help of FRU Write.**

```
[ipmicfg_HOME] > IPMICFG.exe –fru help
Available Fields for FRU
Chassis Info Fields:
CT  ;Chassis Type
CP  ;Chassis Part Number
CS  ;Chassis Serial Number
Board Info Fields:
BDT ;Board Mfg. Date/Time (YYYYMMDDhhmm)
BM  ;Board Manufacturer
BPN ;Board Product Name
BS  ;Board Serial Name
BP  ;Board Part Number
Product Info Fields:
PM  ;Product Manufacturer
PN  ;Product Name
PPM ;Product Part/Model Number
PV  ;Product Version
PS  ;Product Serial Number
PAT ;Asset Tag
Example:
ipmicfg -fru PS                  ;read product serial number
ipmicfg -fru PS 123456789        ;write product serial number
```

- **Example 3. Writing FRU.**

```
[ipmicfg_HOME] > IPMICFG.exe –fru BDT 201211121631
Chassis Type (CT)               = Unknown(02h)
Chassis Part Number (CP)        =
Chassis Serial Number (CS)      = 0123456789
Board Mfg. Date/Time(BDT)       = 2012/11/12 16:31:00 (DF 5D 87)
Board Manufacturer (BM)         = Supermicro
Board Product Name (BPN)        = X9DRD-iF
Board Serial Number (BS)        = 0123456789
Board Part Number (BP)          =
Product Manufacturer (PM)       = Supermicro
Product Name (PN)               = X9DRD-iF
Product Part/Model Number (PPM) =
Product Version (PV)            =
Product Serial Number (PS)      = 0123456789
Product Asset Tag (PAT)         =
```

- **Example 4. Backing up FRU to a file.**

```
[ipmicfg_HOME] > IPMICFG.exe –fru backup fru.txt
Backed up FRU successfully.
```

- **Example 5. Setting the FRU version.**

```
[ipmicfg_HOME] > IPMICFG.exe –fru ver 1 1
Done.
FRU version is 01.01
```

3.7 Multi Node Management

Options	Descriptions
-tp info	Gets MCU infomation.
-tp info <type>	Gets information of MCU type. *Type parameters are 1, 2 and 3.
-tp nodeid	Gets a node ID.

3.7.1 Examples of Command Executions

The following are selected options from the above table to illustrate their execution.

- **Example 1: Getting MCU information.**

```
[ipmicfg_HOME] > IPMICFG.exe -tp info
Node | Power    | IP              | Watts | Current | CPU1 | CPU2 | System
---- | -------- | --------------- | ----- | ------- | ---- | ---- | ------
   A | Active   | 10.136.33.31    |   35W |    3.4A |  42C |  N/A |    31C
   B | Active   | 10.136.33.32    |   27W |    2.2A |  43C |  N/A |    31C
   C | Active   | 10.136.33.33    |   46W |    3.8A |  45C |  N/A |    29C
   D | Active   | 10.136.33.34    |   24W |    2.0A |  39C |  N/A |    30C

Node | Node P/N              | Node S/N
---- | --------              | --------
   A | X9DRT-P               | ZM141S022841
   B | X9DRT-P               | ZM141S023245
   C | X9DRT-P               | ZM141S022861
   D | X9DRT-P               | ZM141S022860

Configuration ID    : 4
Current Node ID     : B
System Name         : Test
System P/N          : (Empty)
System S/N          : (Empty)
Chassis P/N         : (Empty)
Chassis S/N         : (Empty)
BackPlane P/N       : (Empty)
BackPlane S/N       : (Empty)
Chassis Location    : 00 00 00 00 00
BP Location         : N/A (FBh)
```

```
MCU Version          : 1.06
BPN Revision         : 1.23
```

- **Example 2. Getting information of MCU type.**

```
[ipmicfg_HOME] > IPMICFG.exe –tp info 1
Node | Power    | IP              | Watts | Current | CPU1 | CPU2 | System
---- | -------- | --------------- | ----- | ------- | ---- | ---- | ------
   A | Active   | 10.136.33.31    |   35W |    3.4A |  42C |  N/A |    31C
   B | Active   | 10.136.33.32    |   27W |    2.2A |  43C |  N/A |    31C
   C | Active   | 10.136.33.33    |   46W |    3.8A |  45C |  N/A |    29C
   D | Active   | 10.136.33.34    |   24W |    2.0A |  39C |  N/A |    30C
```

- **Example 3. Getting a node ID.**

```
[ipmicfg_HOME] > IPMICFG.exe –tp nodeid
B
```

3.8 TAS Management

Options	Descriptions
-tas info	Gets TAS information.
-tas pause	Pauses a TAS service.
-tas resume	Resumes a TAS service.
-tas refresh	Triggers TAS to recollect data.
-tas clear	Clears collected TAS data in BMC.
-tas period <sec>	Sets the time length of a TAS update <limit 5 to 60 sec>.
-tas exec <cmd>	Executes a user's specified command.

Note: The "-tas" command set is not supported on DOS and UEFI Shell.

3.8.1 Examples of Command Executions

The following are selected options from the above table to illustrate their execution.

- **Example 1. Getting TAS information.**

```
[ipmicfg_HOME] > IPMICFG.exe –tas info
Item                  |                    Value
----                  |                    -----
Version               |                    1.1.1
Build Data            |                   150923
Protocol Version      |                     0x01
Status                |                  Running
TAS Start Time        |  Mon Nov 23 13:39:35 2015
Last Update Time      |  Thu Dec 10 17:21:00 2015
```

- **Example 2. Pausing a TAS service.**

```
[ipmicfg_HOME] > IPMICFG.exe –tas pause
Done.
```

- **Example 3. Resuming a TAS service.**

```
[ipmicfg_HOME] > IPMICFG.exe –tas resume
Done.
```

3.9 NVME Management

Options	Descriptions	Requirement of TAS running on management systems
-nvme list	Displays the existing NVME SSD list.	Yes
-nvme info	Displays NVME SSD information.	No
-nvme rescan	Rescans all devices by in-band.	Yes
-nvme insert <aoc> <group> <slot>	Inserts SSD by out-of-band.	No
-nvme locate <HDD name>	Locates SSD. (in-band)	Yes
-nvme locate <aoc> <group> <slot>	Locates SSD. (out-of-band)	No
-nvme stoplocate <HDD name>	Stops locating SSD. (in-band)	Yes
-nvme stoplocate <aoc> <group> <slot>	Stops locating SSD. (out-of-band)	No
-nvme remove <HDD name> [option1] [option2]	Removes NVME device. (in-band) *To disconnect an NVME device on the OS and then eject from BMC, use 0 for [option1]. (By default.) *To disconnect an NVME device on the OS but not eject from BMC afterwards, use 1 for [option1]. *To bypass a warning message, use -p for [option2].	Yes
-nvme remove <aoc> <group> <slot> [option]	Removes NVME device. (out-of-band) *To bypass a warning message, use the option -p.	No
-nvme smartdata [HDD name]	NVME S.M.A.R.T data.	Yes

Note: The "-nvme" command set is not supported on DOS and UEFI Shell.
The "-nvme insert" and "-nvme remove" commands are not supported on ESXi.

3.9.1 Examples of Command Executions

The following are selected options from the above table to illustrate their execution.

- **Example 1. Inserting a SSD by out-of-band access.**

```
 [ipmicfg_HOME] > IPMICFG.exe –nvme insert 0 0 0
Done
```

- **Example 2. Removing an NVME device.**

```
 [ipmicfg_HOME] > IPMICFG.exe –nvme remove nvme0 -p
Sending in band remove command...
Done.
Waiting for 10 secs to remove device...
Sending OOB eject command...
Done.
```

- **Example 3. Displaying the existing NVME SSD list.**

```
 [ipmicfg_HOME] > IPMICFG.exe –nvme list
Name  |              Vendor |   Capacity |   IB Temp. |   Locate |   Slot
----  |              ------ |   -------- |   -------- |   ------ |   ----
Nvme0 | INTEL SSDPE2ME400G4 |   372.6 GB |       25 C |       No |      0
```

- **Example 4. Displaying NVME SSD information.**

```
[ipmicfg_HOME] > IPMICFG.exe –nvme info
 [AOC Number: 0] [Firmware Info: 00 00]
 Item                        |                  Value
 ----                        |                  -----
 Slot                        |                      0
 Located                     |                     NO
 OOB Temp.                   |                  36 C
 Class Code                  |               02 08 01
 ID                          |                  80 86
 Serial Number               |     CVMD44500004400FGN
 Model Number                |    INTEL SSDPE2ME400G4
 Port0 Max Link Speed        |               8.0 GT/s
 Port0 Max Link Width        |                     x4
 Port1 Max Link Speed        |               8.0 GT/s
 Port1 Max Link Width        |                     x4
 Init Power Requirement      |              25 Watts
 Max Power Requirement       |              25 Watts
```

3.10 DCMI Management

Options	Descriptions
-dcmi cap	Lists information of DCMI capabilities.
-dcmi power	Gets the DCMI power readings.
-dcmi ctl [value]	Gets/Sets the DCMI management controller ID string.

3.10.1 Examples of Command Executions

The following are selected options from the above table to illustrate their execution.

- **Example 1. Listing info of DCMI capabilities.**

```
 [ipmicfg_HOME] > IPMICFG.exe –dcmi cap
Mandatory Platform Capabilities
-------------------------------
Temperature Monitor     | Compliant
Chassis Power           | Compliant
SEL Logging             | Compliant
Identification Support  | Compliant

Optional Platform Capabilities
------------------------------
Power Management        | Compliant

Manageability Access Capabilities
---------------------------------
VLAN Capable                         | Available
SOL Supported                        | Available
OOB Primary LAN Channel Available    | Available
OOB Secondary LAN Channel Available  | Not Present
OOB Serial TMODE Available           | Not Present
In-Band KCS Channel Available        | Available

SEL Attributes
--------------
SEL Automatic Rollover Enabled       | Not Present
Number Of SEL Entries                | 0

Identification Attributes
```

```
-------------------------
Asset Tag Support       | Available
DHCP Host Name Support  | Not Present
GUID Support            | Available

Temperature Monitoring
----------------------
Baseboard temperature   | At least 1
Processors temperature  | At least 1
Inlet temperature       | At least 1

Power Management Device Slave Address
-------------------------------------
7-bit I2C Slave Address Of Device On IPMB   | 10h

Power Management Controller Channel Number
------------------------------------------
Channel Number          | 00h
Device Revision         | 01h

Manageability Access Attributes
-------------------------------------
Mandatory Primary LAN OOB Support (RMCP+ Support Only)   | Supported
Optional Secondary LAN OOB Support (RMCP+ Support Only) | Not Supported
Optional Serial OOB TMODE Capability                     | Not Supported
```

- **Example 2. Getting the DCMI power readings.**

```
[ipmicfg_HOME] > IPMICFG.exe –dcmi power
Instantaneous Power Reading               | 14 Watts
Minimum During Sampling Period            | 6 Watts
Maximum During Sampling Period            | 86 Watts
Average Power Reading Over Sample Period  | 15 Watts
IPMI Timestamp                            | 2017/02/24 14:00:22
Sampling Period                           | 172705000 Milliseconds
Power Reading State                       | Activated
```

- **Example 3. Getting or setting the DCMI management controller ID string**.

```
 [ipmicfg_HOME] > IPMICFG.exe –dcmi ctl
(Empty)
```

4 Third Party Software

4.1 IPMI Tool

Please refer to http://sourceforge.net/projects/ipmitool for more information.

Contacting Supermicro

Headquarters

Address: Super Micro Computer, Inc.
980 Rock Ave.
San Jose, CA 95131 U.S.A.

Tel: +1 (408) 503-8000

Fax: +1 (408) 503-8008

Email: marketing@supermicro.com (General Information)
support@supermicro.com (Technical Support)

Web Site: www.supermicro.com

Europe

Address: Super Micro Computer B.V.
Het Sterrenbeeld 28, 5215 ML
's-Hertogenbosch, The Netherlands

Tel: +31 (0) 73-6400390

Fax: +31 (0) 73-6416525

Email: sales@supermicro.nl (General Information)
support@supermicro.nl (Technical Support)
rma@supermicro.nl (Customer Support)

Web Site: www.supermicro.com.nl

Asia-Pacific

Address: Super Micro Computer, Inc.
3F, No. 150, Jian 1st Rd.
Zhonghe Dist., New Taipei City 235
Taiwan (R.O.C)

Tel: +886-(2) 8226-3990

Fax: +886-(2) 8226-3992

Email: support@supermicro.com.tw

Web Site: www.supermicro.com.tw