



ASRockRACK TECHNICAL DOCUMENT (JUL/2025)

Q: How to adjust fan speed with IPMITool commands for ASRockRack AST2500 and AST2600 Series MotherBoards?

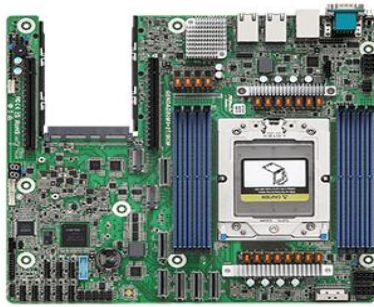
Preparation

1. Make sure the device you wish to adjust fan speed on has a well-functioning BMC, and has an Operating System where the IPMITool package could be installed.
2. All fans are properly powered and seated to the motherboard/ system so there would not be any unexpected errors. Make sure the fans have 4-pin or more to support manual speed configuration.

Notice

1. Please identify the model of your BMC Controller by checking out our Official Website: [ASRock Rack > Products](#)
Due to the ipmitool commands to execute could be different based on your BMC controller.

The screenshot shows the ASRock Rack website's product search interface. At the top, there is a navigation bar with links for PRODUCTS, NEWS & EVENTS, SUPPORT, COMPANY, WHERE TO BUY, and a search icon. Below this, the 'PRODUCTS' section is active, with tabs for AMPERE® ALTRA®, MAX/ALTRA®, 5TH & 4TH GEN INTEL XEON SCALABLE, AMD EPYC 9005/9004, and INTEL® XEON® E-2400. The 'Catalogs' tab is selected, and a search bar is highlighted with a green box and the number '1.'. Below the search bar, the 'Product Type' is set to 'Server Motherboards'. The search results are displayed under the 'Results' tab, showing 'RESULTS FOR [GENOAD8]' with a green box and the number '2.'. The first result is 'GENOAD8QM3-2T/BCM', which is also highlighted with a green box. To the left of the product name is a small image of the motherboard. Below the product name, there is a list of specifications: CEB (12" x 11"), Single Socket SP5 (LGA 6096), supports AMD EPYC™ 9005/9004 (with AMD 3D V-Cache™ Technology) and 97x4 series processors, 8 DIMM slots (1DPC), supports DDR5 RDIMM, RDIMM-3DS, 2 PCIe5.0 / CXL2.0 x16, 1 MCIO (PCIe5.0 / CXL2.0 x8 or 8 SATA 6Gb/s), 2 MCIO (PCIe5.0 x8 or 8 SATA 6Gb/s), 4 MCIO (PCIe5.0 x8), Supports 2 M.2 (PCIe5.0 / CXL2.0 x4 or SATA 6Gb/s), Up to 26 SATA 6Gb/s, 2 RJ45 (10GbE) by Broadcom BCM57416, 1 OCP NIC 3.0 (PCIe5.0 x16), and Remote Management (IPMI). A 'Remove Compare' link is located below the product image.



GENOAD8QM3-2T/BCM

- CEB (12" x 11")
- Single Socket SP5 (LGA 6096), supports AMD E V-Cache™ Technology) and 97x4 series process
- 8 DIMM slots (1DPC), supports DDR5 RDIMM, F
- 2 PCIe5.0 / CXL2.0 x16
- 1 MCIO (PCIe5.0 / CXL2.0 x8 or 8 SATA 6Gb/s), 6Gb/s), 4 MCIO (PCIe5.0 x8)
- Supports 2 M.2 (PCIe5.0 / CXL2.0 x4 or SATA 6
- Up to 26 SATA 6Gb/s
- 2 RJ45 (10GbE) by Broadcom BCM57416
- 1 OCP NIC 3.0 (PCIe5.0 x16)
- Remote Management (IPMI)



Specifications

Download

Manual

CPU Support List

Memory QVL

TPM QVL

Design In

SATA/SAS Storage

PCH Built-in Storage

AMD EPYC™ 9005/9004 (26 SATA 6Gb/s):
3 MCIO, 2 M.2

Ethernet

Additional GbE Controller

Broadcom BCM57416: 2 RJ45 (10GbE)

OCP slot

1 OCP NIC 3.0 (PCIe5.0 x16)

Server Management

BMC Controller

ASPEED AST2600

Steps

1. Open up an OS terminal, update system repositories and install IPMITool. Take Ubuntu for example, run “**sudo apt update**” and “**sudo apt install ipmitool**”.

```
sofiya@sofiya-VirtualBox:~$ sudo apt install ipmitool
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  ipmitool
0 upgraded, 1 newly installed, 0 to remove and 203 not upgraded.
Need to get 0 B/405 kB of archives.
After this operation, 1613 kB of additional disk space will be used.
Selecting previously unselected package ipmitool.
(Reading database ... 181402 files and directories currently installed.)
Preparing to unpack .../ipmitool_1.8.18-8_amd64.deb ...
Unpacking ipmitool (1.8.18-8) ...
Setting up ipmitool (1.8.18-8) ...
```

2. Fans are originally set to default mode. To change it to manually configurable, please run:

For AST2500

cmd

Mode of fan1 to 16

we run “`sudo ipmitool raw 0x3a 0xd8 0x1 0x1 0x1 0x1 0x1 0x1 0x1 0x1 0x1 0x1 0x1 0x1 0x1 0x1 0x1 0x1`”.

To return to default fan mode, simply change all of the 16 “0x1”s to “0x0”s, so that default mode would take over again.

For AST2600

cmd

Mode of fan1 to 16

we run “`sudo ipmitool raw 0x3a 0xd0 0x11 0x2 0x2 0x2 0x2 0x2 0x2 0x2 0x2 0x2 0x2 0x2 0x2 0x2 0x2 0x2`”.

To return to default fan mode, simply change all of the 16 “0x2”s to “0x0”s, so that default mode would take over again.

3. Under manual fan mode, we can set all fans to **100% duty** by running:

For AST2500

cmd

Duty of fan1 to 16

“`sudo ipmitool raw 0x3a 0xd6 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64`”

For AST2600

cmd

Duty of fan1 to 16

“`sudo ipmitool raw 0x3a 0xd0 0x0e 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64`”

To set all fans to **50% duty**, run:

For AST2500

“`sudo ipmitool raw 0x3a 0xd6 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32`”

For AST2600

“`sudo ipmitool raw 0x3a 0xd0 0x0e 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32`”

For AST2500

Run “`sudo ipmitool raw 0x3a 0xd7`” to see fan setting mode.

Run “`sudo ipmitool raw 0x3a 0xda`” to fetch current fan duty.

For AST2600

Run “`sudo ipmitool raw 0x3a 0xd0 0x12`” to see fan setting mode.

Run “`sudo ipmitool raw 0x3a 0xd0 0x0f`” to fetch current fan duty.

**To set fan duty to a specific value, just change the 0x64 or 0x32's above to 0xHexValue. As 64 in hex equals to 100 in decimal, 32 in hex equals to 50. Similarly, just input the hex value of any % fan duty you demand. e.g. Use 0x50 if you wish the fans to work at 80% duty.*

For AST2500

```
rootroot@rootroot-4U8G-ROME2-2T:~$ sudo ipmitool raw 0x3a 0xd8 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0
[sudo] password for rootroot:
rootroot@rootroot-4U8G-ROME2-2T:~$ sudo ipmitool raw 0x3a 0xd8 0x1 0x1 0x1 0x1 0x1 0x1 0x1 0x1 0x1 0x1 0x1 0x1 0x1 0x1 0x1 0x1
rootroot@rootroot-4U8G-ROME2-2T:~$ sudo ipmitool raw 0x3a 0xda < Checking current fan duty
32 32 32 32 32 32 32 00 00 00 00 00 00 00 00 00 00 00 < 32's indicate fans currently working at 50% duty
rootroot@rootroot-4U8G-ROME2-2T:~$ sudo ipmitool raw 0x3a 0xd6 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64
rootroot@rootroot-4U8G-ROME2-2T:~$ sudo ipmitool raw 0x3a 0xda
64 64 64 64 64 64 64 00 00 00 00 00 00 00 00 00 00 00 < Fan duty successfully adjusted to 100%
rootroot@rootroot-4U8G-ROME2-2T:~$ sudo ipmitool raw 0x3a 0xd7 < Checking manual fan duty settings
64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 < All fans set to 100% as we configured
rootroot@rootroot-4U8G-ROME2-2T:~$ sudo ipmitool raw 0x3a 0xd6 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32
rootroot@rootroot-4U8G-ROME2-2T:~$ sudo ipmitool raw 0x3a 0xda
32 32 32 32 32 32 32 00 00 00 00 00 00 00 00 00 00 00 < Fans set to working at 50% successfully
rootroot@rootroot-4U8G-ROME2-2T:~$
```

For AST2600

```
tsd@tsd-GENOADBUD-2T-X550:~/Desktop$ sudo ipmitool raw 0x3a 0xd0 0x11 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0
tsd@tsd-GENOADBUD-2T-X550:~/Desktop$ sudo ipmitool raw 0x3a 0xd0 0x12
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
tsd@tsd-GENOADBUD-2T-X550:~/Desktop$ sudo ipmitool raw 0x3a 0xd0 0x11 0x2 0x02 0x02 0x02 0x02 0x02 0x02 0x02 0x02 0x02 0x02 0x02 0x02 0x02
tsd@tsd-GENOADBUD-2T-X550:~/Desktop$ sudo ipmitool raw 0x3a 0xd0 0x12
02 02 02 02 02 02 02 02 02 02 02 02 02 02 02 02 02
tsd@tsd-GENOADBUD-2T-X550:~/Desktop$ sudo ipmitool raw 0x3a 0xd0 0x0e 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64
tsd@tsd-GENOADBUD-2T-X550:~/Desktop$ sudo ipmitool raw 0x3a 0xd0 0x0f
64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64
tsd@tsd-GENOADBUD-2T-X550:~/Desktop$ sudo ipmitool raw 0x3a 0xd0 0xe 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32 0x32
tsd@tsd-GENOADBUD-2T-X550:~/Desktop$ sudo ipmitool raw 0x3a 0xd0 0x0f
32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32
```

4. You can check the fan setting and mode configuration on the IPMI WebUI.
Please go to **Settings > FAN Setting > FAN mode**. Sensor Reading:

TEMP_CPU1	33 °C	
TEMP_PCH	48 °C	
TEMP_MB	43 °C	
TEMP_CARD_SIDE	44 °C	
TEMP_DDR4_C	32 °C	
TEMP_DDR4_G	35 °C	
FAN1	10100 RPM Fan speed at 100% duty	

FAN Mode:

ASRockRack

Host Online

UID Off

Dashboard

Sensor

System Information

Logs & Reports

Settings

Remote Control

Image Redirection

Power Control

Miscellaneous

Maintenance

Sign out

FAN Mode

Set Fan Duty For Manual Mode

Changing the Manual mode fan duty will show here

FAN	Duty
FAN1	50
FAN2	50
FAN3	50
FAN4	50
FAN5	50

Save manual mode

Set Fan Control Mode

Changing from Default to Manual will show here

Mode	Default	Manual	Customized
FAN1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FAN2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FAN3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For AST2600

To see your fan duty, go to **Settings > FAN Setting > Manual Speed Config**

Manual Mode Duty Setting

Fan	Duty (%)	Fan	Duty (%)
FAN1	<input type="text" value="50"/>	N/A	<input type="text" value="50"/>
FAN2	<input type="text" value="50"/>	N/A	<input type="text" value="50"/>
FAN3	<input type="text" value="50"/>	N/A	<input type="text" value="50"/>
FAN4	<input type="text" value="50"/>	N/A	<input type="text" value="50"/>
FAN5	<input type="text" value="50"/>	N/A	<input type="text" value="50"/>
FAN6	<input type="text" value="50"/>	N/A	<input type="text" value="50"/>
FAN7	<input type="text" value="50"/>	N/A	<input type="text" value="50"/>
FAN8	<input type="text" value="50"/>	N/A	<input type="text" value="50"/>

To check if the fan modes are on our demand, go to

Settings > FAN Setting > Fan Mode:

Fan Control Mode

Mode	<input type="text" value="Optim"/>	Customized	Manual
FAN1	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
FAN2	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
FAN3	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
FAN4	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
FAN5	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
FAN6	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
FAN7	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
FAN8	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

