# ASRockRack Technical Document (JUL/2025)

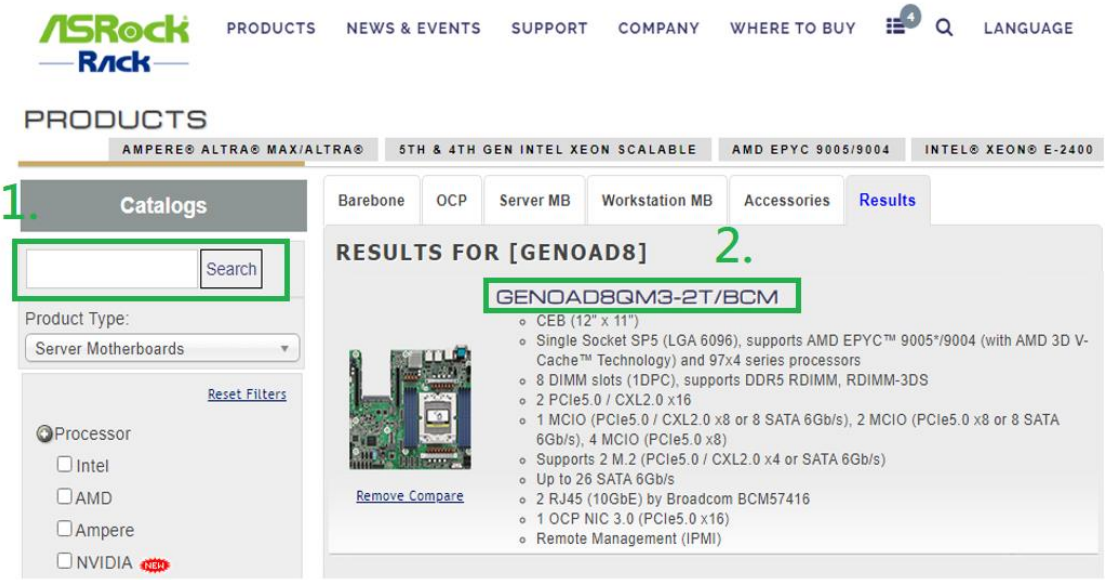
## Q: How to adjust fan speed with IPMItool commands for ASRockRack AST2500 and AST2600 Series MotherBoards?

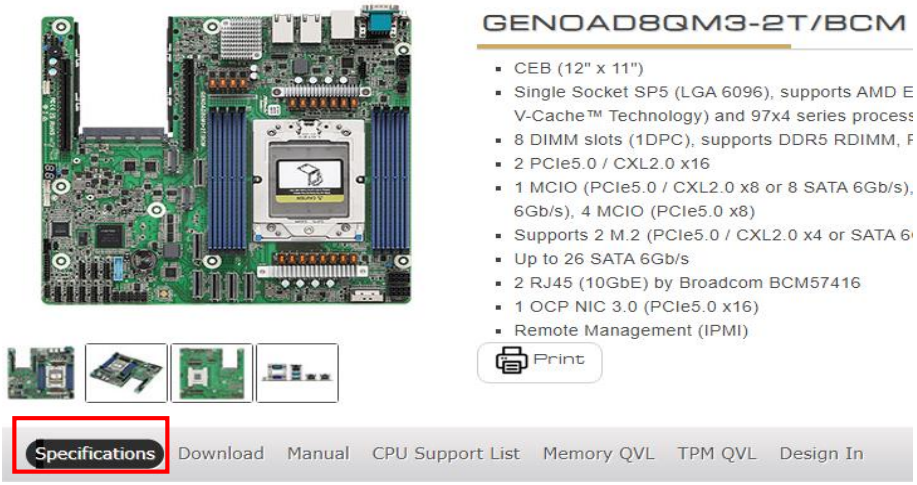
**Preparation**

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.






| SATA/SAS Storage | |
|---|---|
| PCH Built-in Storage | AMD EPYC™ 9005/9004 (26 SATA 6Gb/s):<br>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**".

```
sofija@sofija-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 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 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 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 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 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 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.

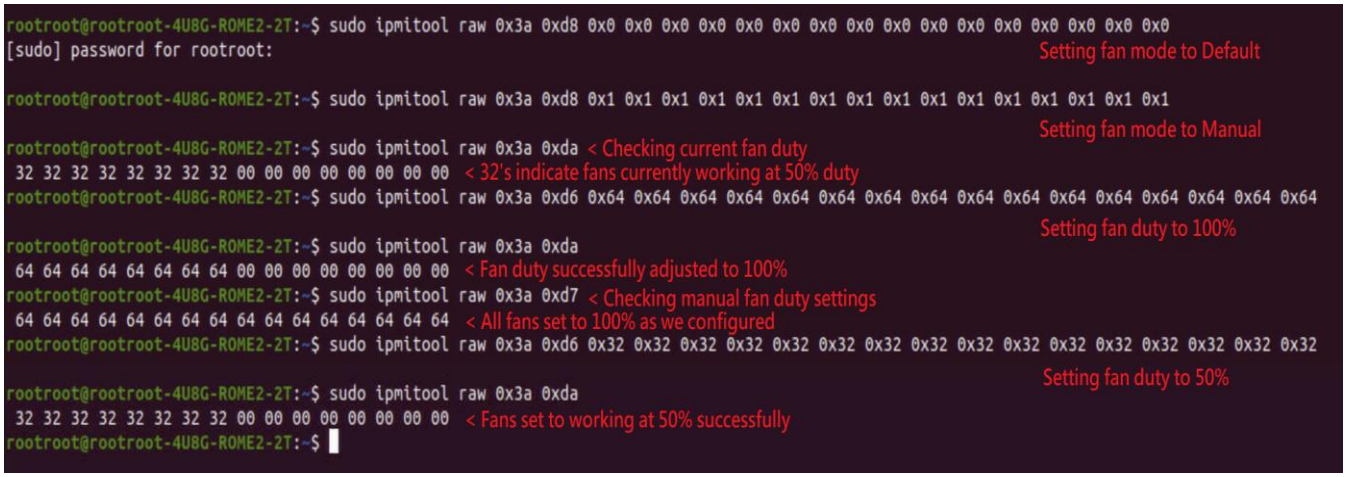
For AST2600

Run "**sudo ipmitool raw 0x3a 0xd0 0x12**" to see fan setting mode.

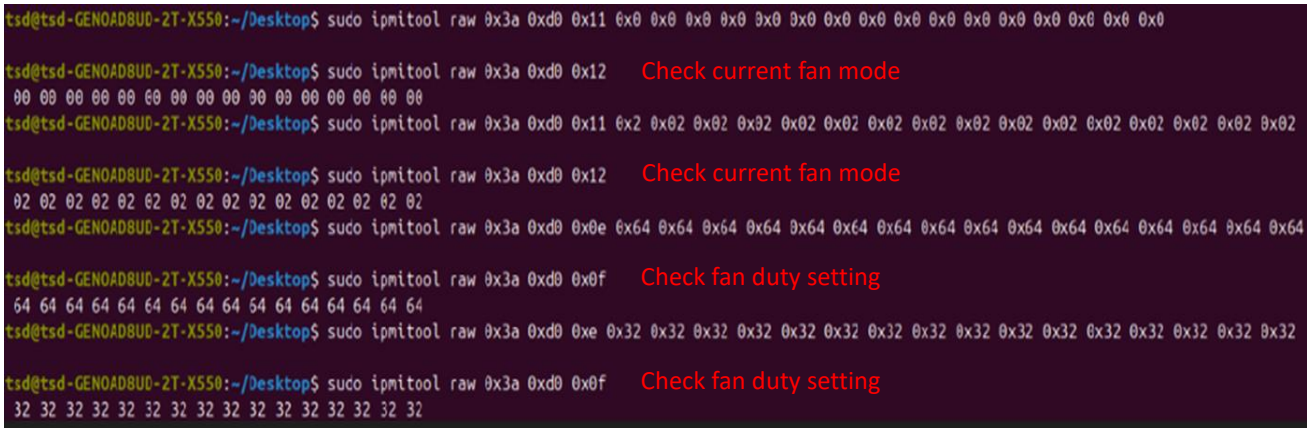
Run "**sudo ipmitool raw 0x3a 0xd0 0x0f**" to fetch current fan duty.

**To set fan duty to a specific value, just change the 0x64 or 0x32's above to 0x**HexValue**. 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



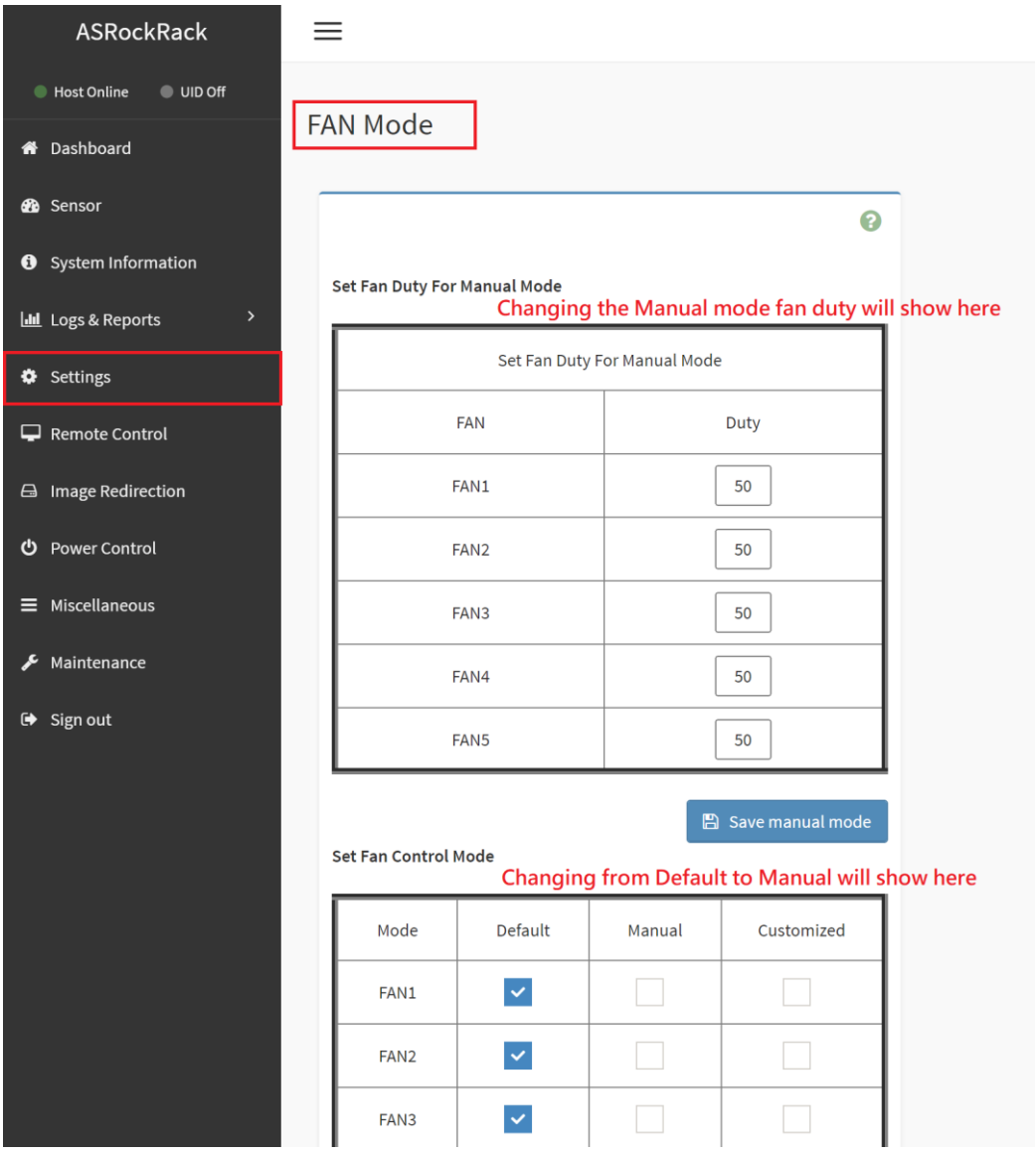

For AST2600




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<br>Fan speed at 100% duty | |

FAN Mode:



For AST2600

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

**Manual Mode Duty Setting**

| Fan | Duty (%) | Fan | Duty (%) |
|---|---|---|---|
| FAN1 | 50 | N/A | 50 |
| FAN2 | 50 | N/A | 50 |
| FAN3 | 50 | N/A | 50 |
| FAN4 | 50 | N/A | 50 |
| FAN5 | 50 | N/A | 50 |
| FAN6 | 50 | N/A | 50 |
| FAN7 | 50 | N/A | 50 |
| FAN8 | 50 | N/A | 50 |

To check if the fan modes are on our demand, go to **Settings > FAN Setting > Fan Mode:**

**Fan Control Mode**

| Mode | Optim | Customized | Manual |
|---|---|---|---|
| FAN1 | ○ | ○ | ✓ |
| FAN2 | ○ | ○ | ✓ |
| FAN3 | ○ | ○ | ✓ |
| FAN4 | ○ | ○ | ✓ |
| FAN5 | ○ | ○ | ✓ |
| FAN6 | ○ | ○ | ✓ |
| FAN7 | ○ | ○ | ✓ |
| FAN8 | ○ | ○ | ✓ |

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If you wish to run the **IPMItool commands** remotely, add "ipmitool -I lanplus -H <Host_IP> -U <Username> -P <Password>" before your commands:
e.g.

-H ------- Set Host
-U ------- Set Username
-P ------- Set Password
-I ------- lanplus

For example:

For AST2600, the command of setting 100% duty for all your fans **locally** would be:

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 0x64 0x64**"

The **remote** command shall be:

"**sudo ipmitool -I lanplus -H 192.168.37.13 -U admin -P asrock#123 raw 0x3a 0xd0 0x0e 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64 0x64**"

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Done