BITMAIN

R4 Server Manual



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1 Overview

The R4 server with 8.6th/s is Bitmin's newest iteration. The R4 server uses the fully custom made, state of the art BM1387 chip powered by ultra-low power 16nm technology. The R4 is tested and configured prior to shipping to make your setup as easy and seamless as possible.



Please note:

1. You must prepare your own ATX Power Supply

2 Features

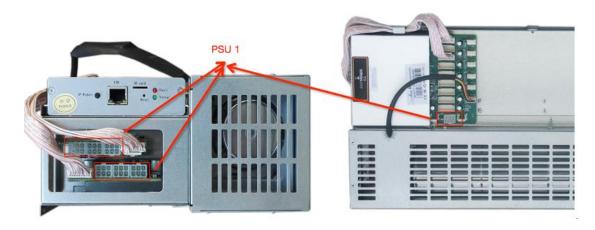
| Ideal Hash Rate (GH/s) | 8.6TH/S ±5% |
|--|----------------------------------|
| Default chip clock (M) | 600 |
| Input Voltage (V) | 11.6~13.00 |
| Estimate power on wall (W) - assume with | 845W + 9% |
| APW3, 93% efficiency, 25°C ambient temp | |
| Estimate efficiency on wall (J/GH) | 0.1J/GH + 9% |
| Dimensions (mm) | 515*100*222 |
| Net Weight (kg) | 5 |
| Operating ambient temperature (°C) | 0~40 |
| Noise | 52dB@ambient temperature of 35°C |
| Networking connection mode | Ethernet cable |

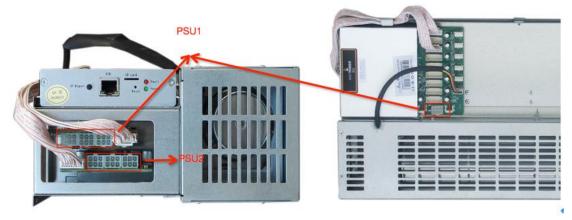
Notes: All the 3 PCIE connectors are required on each hash board and there is no DC/DC inside the server. Higher input voltage will cause higher mining efficiency.



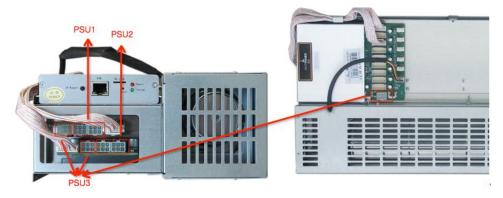
3 Power Supply

Each R4 Server has 6 PCI-e connectors for +12V/15A DC **STABLE** input on hash boards and 1 PCI-e connector on the controller, **all the 7 PCI-e connectors are required**. **Do not connect more than one PSU to the same hash board to prevent possible damage and instability. After connecting all the hash boards and the controller to PSU and the wire cable to the ETHERNET port, you can start the server**. See the screen shot below for the CORRECT and INCORRECT connection of the PCI-E connectors: **Correct connection**:





Incorrect connection:





4 Connect to Server

Step 1. The default DHCP network protocol distributes IP addresses automatically. Please download IPR eporter.zip (only supported by Windows), then please follow the below steps to find out the IP of the server.

1. Extract the file and double click 'IPReporter.exe'.

The 'Shelf, Step, Position' options are suitable for farm servers to mark the location of the servers. For home servers, it can be left as default.

Then click 'Start'.

| đ | | | | | Ip Re | porter | | - 🗆 × |
|---|-------|--------|----|------|------------------------------|----------|------|--------------|
| | | | | | | | | \frown |
| | Shelf | 1 | | Step | 1 | Position | 1 | Start |
| | Infor | nation | | | | | | |
| | NO. | | IP | | | | IAC | |
| | | | | | ners to mark may leave it | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | < | | | | | | | > |
| | | | | | | | | |
| | | Skip | | | Stop | Ex | port | Quit |
| | | | | | | | | |

2. Press the IP Reporter button on the controller board for about 5 seconds and you'll hear a beep sound:





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3. Check your PC, you'll see the IP address showing in the pop-up window.

| 2 | | IP Re | eporter | | _ 🗆 🗙 🛪 |
|---------|-------|-----------------|-----------------------|------|------------|
| Shelf 1 | 5 | Step 1 Confi | Position 1 rmation | | Start × |
| ln t | | | | | |
| | IP | 1.70.123 | | | |
| | MAC | 6C:EC:EB:62:3 | 9:F2 | | |
| POS | ITION | 1-1 | | | |
| | OK | s | Skip | Stop | |
| Skip | | Stop | Export | | Quit |

Step 2. Enter the IP address provided into your WEB browser and proceed to login using 'root' for both the username and password.

In the 'Network' section, you can assign a 'Static' IP address if you like. Click 'Save & Apply' after modifying it.

| ANTMINER | | |
|---|--|---|
| System Miner Configuration Miner Status Network | | |
| Settings Diagnostics | | |
| Network Settings | | |
| Network setup for Miner | | |
| Status | MAC-Address:78:A5:04:CD:18:B1 1P:192.168.1.181 Netmask:255.255.255.0 | |
| Hostname | antMiner | |
| Protocol | Static | |
| IP Address | Static DHCP | |
| Netmask | | American and a second and a second |
| Gateway | | ······································ |
| DNS Servers | | <u></u> |
| | | |
| | | Reset Save&Apply |



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5 Server Configuration

5.1 General Settings

You can configure your server through 'Configuration->General Settings'.

Pool URL- Enter the URL of your desired pool in this column.

Worker- This is your worker ID on the selected pool.

Password- This is the password for your selected worker.

Comment:

5.1.1 The R4 server can be set up with three mining pools, with decreasing priority from the first pool (pool 1) to the third pool (pool 3). The pools with low priority will only be used if all higher priority pools have gone offline.

5.1.2 When 'Stop running when temperature is over 80 $^{\circ}$ C' is checked, the server will stop mining when the temperature(PCB) exceeds 90 $^{\circ}$ C to protect the server. If it is unchecked, the server will still mine even at high temperatures. Note that while the interface says 80 $^{\circ}$ C the PCB temperature will actually go to 90 $^{\circ}$ C before the machine stops mining.

5.1.3 When "Customize the fan speed percentage" is checked, the fan speed can be controlled by the user. If it is unchecked, the fan speed will depend on the temperature of the hash boards. Click 'Save & Apply' to save and restart server.

Kindly reminder: Please set the fan speed above 80% to keep the temp(PCB) below 90 degrees and the temp(chip) below 115 degrees.

| stem Miner Configuration Miner Status Network | | |
|---|--------------------------|--|
| eneral Settings Advanced Settings | | |
| ner General Configuration | | |
| ner General Comgulation | | |
| Pool 1 | | |
| URL | solo.antpool.com:3333 | |
| Worker | antminer.1 | |
| Password | 123 | |
| Pool 2 | | |
| URL | stratum.antpool.com:3333 | |
| Worker | antminer.1 | |
| Password | 123 | |
| Pool 3 | | |
| URL | stratum.f2pool.com:3333 | |
| Worker | antminer.1 | |
| Password | 123 | |
| Setup | | |
| Stop running when temprerature is over 80°C | | |
| Customize the far speed percentage | □ □ % | |



5.2 Frequency Modification

You are able to modify the frequency value through 'Configuration->Advanced Settings'. The default frequency for the R4 server is 600M.

| NTMINER | | |
|--|------------|------------------|
| System Miner Configuration Miner Status N | etwork | |
| System Miner Configuration Miner Status N General Settings Advanced Settings Image: Configuration I | | |
| Miner Advanced Configuration | | |
| | | |
| Frequency | 600.00M \$ | |
| | | |
| | | Reset Save&Apply |

6 Server Status

You can check the operating status of your server on the page below.

ASIC#: Number of chips detected in the chain Frequency: ASIC frequency setting GH/S(RT): Hash rate of each hash board Temp(PCB): Temperature of the hash board, centigrade Temp(Chip): Temperature of the chips on the hash board, centigrade ASIC status: 'o' denotes OK, 'x' denotes error '-' denotes dead.

| | ner Configuratio | Miner Status | Network | | | | | | | | | | | | | | | |
|-------------|------------------|----------------------|----------|------------|--------|-------|----------|----------|----------|--------|-----------------------|----------|----------|---------------|-----------------------|---------|---------|--------|
| ner Statu | IS | | | | | | | | | | | | | | | | | |
| | psed | GH/S(RT) | | GH/S(| avg) | | Foun | dBlocks | | Local | Work | Uti | lity | | /U | | BestSha | ne |
| 1h2 | 8m5s | 8,620.972 | | 8,665 | .56 | | | 0 | | 168, | .598 | 6. | 77 | 118,9 | 17.62 | | 2359111 | ٥ |
| Pools | | | | | | | | | | | | | | | | | | |
| Pool | | URL | | User | Status | Diff | GetWorks | Priority | Accepted | Diff1# | DiffA# | DiffR# | DiffS# | Rejected | Discarded | Stale | LSDiff | LSTin |
| 0 | stratum+tcp: | //stratum.antpool.co | m:3333 | sherryiyi | Alive | 16.4K | 111 | 0 | 596 | 0 | 10,475,520 | 0 | 0 | 0 | 2,756 | 0 | 16,384 | 0:00:0 |
| 1 | | //stratum.antpool.co | | sherryiyi | Alive | | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Neve |
| 2 | stratum+tcp | //stratum.f2pool.com | n:3333 | antminer.1 | Alive | 1.02K | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Neve |
| total HW | | 9 | | | | | 115 | | 596 | 0 | 10,475,520 0.0001% | 0 | 0 | 0 | 2,756 | 0 | | |
| AntMiner | | | | | | | | | | | | | | | | | | |
| Chain# | ASIC# | Frequency | GH/S(RT) | нพ | Temp | (PCB) | Temp(0 | Chip) | | | | | ASIC st | atus | | | | |
| 1 | 63 | 600 | 4311.09 | 2 | 6 | 6 | 92 | | | 000 | 00000 0000000 | 00000000 | 00000000 | 0000000 0000 | 0000000000000000 | 0000000 | | |
| 3 | 63 | 600 | 4309.88 | 7 | | 7 | 80 | | | 000 | 000000 0000000 | 00000000 | 00000000 | 0000 00000000 | 00000000 000000 00000 | 0000000 | | |
| Fa | n# | Fan1 | | Fan2 | | Fan | 3 | Far | 14 | F | an5 | | Fan6 | | Fan7 | | Fan | 8 |
| Speed | (r/min) | 1,800 | | 0 | | 0 | | 0 | | | 0 | | 0 | | 0 | | 0 | |



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7 System Configuration and status

7.1 System Upgrading

You can upgrade the server's firmware on the 'System > Upgrade' page.

| stem Mmer Configuration Mmer Status Network | | | |
|---|--|------------------------|--|
| vervices Administration Monitor Remelling Upgrade Bala | άξ. | | |
| grade | | | |
| Backup / Restore Cick "Generate archive" to download a tar archive of the current configs | ration files. To reset the firmware to its initial state, click "Perform reset" (only possible o | with squashfu images), | |
| Download backup: | 🛄 Generate archive | | |
| Reset to defaults: | Perform reset | | |
| To restore configuration files, you can upload a previously generated bar | kup archive here. | | |
| Restore backup: | Choose File No file chosen | Depload archive. | |
| Flash new firmware image Upload a sysupprate-compatible image here to replace the running firm | vare. Check "Keep settings" to retain the current configuration. | | |
| Keep settings: | * | | |
| Image: | Choose File No file chosen | Tash inage | |

'Keep setting' is chosen by default and should be enabled if you want to keep your current settings. You should deselect this option if you are trying to return the server to default settings. Click 'Browse' button to choose upgrade file. Select the upgrade and click the 'Flash image' button. The interface will display if the firmware can be upgraded and download the software. During the upgrade process, you need to **wait patiently, and must keep power on, otherwise, the server can only be fixed with returned to factory.** You will see below screenshot after upgrading successfully.



Clicking the 'Reboot' button will restart the server so it can load the new software. Clicking 'Go Back' will keep the server mining before switching to the new software when it is restarted next time or power cycled.



7.2 Password Modification

The server login password can be changed on the 'System->Administration' page. Once modified, press 'Save and Apply' to save the new password.

| System Miner Configuration Miner Status | Network | |
|--|--------------------|--|
| Overview Administration Monitor Kernel | Log Upgrade Reboot | |
| assword | | |
| assword | | |
| | | |
| hanges the administrator password for accessing th | e device | |
| | e device | |
| nanges the administrator password for accessing th | | |

7.3 Software Version

You can check which version of the software you are currently running on the 'System > Overview' page. 'File System version' displays the date of the firmware your server use. In the example below, the server is using 20160527 firmware.

| System Miner Configuration Miner Status | Network | |
|---|--|--|
| verview Administration Monitor Kerne | .og Upgrade Reboot | |
| verview | | |
| System | na standika nina nina kuta kuta su aka pinina ana ana makaning ma | |
| Miner Type | AntMiner S9 | |
| Hostname | antMiner | |
| Model | GNU/Linux | |
| Hardware Version | 0.1.1.0 | |
| Kernel Version | Linux 3.10.31-ltsi-00003-gcf03eb9 #81 SMP Mon Apr 25 11:20:36 CST 2016 | |
| File System Version | Fri May 27 11:57:58 CST 2016 | |
| Cgminer Version | 4.9.0 | |
| Uptime | 1 | |
| Load Average | 0.70, 0.71, 0.68 | |
| Memory | | |
| Total Available | 27540 kB / 1016172 kB (3%) | |
| Free | 988632 kB / 1016172 kB (97%) | |
| Cached | 0 kB / 1016172 kB (0%) | |
| Buffered | 0 kB / 1016172 kB (0%) | |
| Network | | |
| IP Status | Type: DHCP Address: 192,166.20.30 #tht Metmask: 255,255,254.0 | |

7.4 Restore Initial Setting

There is a 'Reset' button on the right hand side of the ETH port, next to the green and red LED light. Power on server and let it run for 5 minutes, then press and hold the reset button for 10 seconds in order to restore to the default settings and reboot. The red LED will flash once every 15 seconds automatically if the reset is operated successfully.



Regulation:

FCC Notice (FOR FCC CERTIFIED MODELS):

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

EU WEEE: Disposal of Waste Equipment by Users in Private Household in the European Union



This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handling it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information

about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where your purchased the product.

| | | 設備名稱 | i : | ,型號: | | | |
|----------------|------------|-----------|------------|---------------|---------------|---------------------|--|
| | | | 有害 | 皆物质 | | | |
| 單元 | 鉛 (Pb) | 汞 (Hg) | 鎘 (Cd) | 六價鉻 (Cr+6) | 多溴聯苯 (PBB) | 多溴二苯 醚 (PBDE) | |
| 外殼 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 電路板組 件 | _ | 0 | 0 | 0 | 0 | 0 | |
| 其他線材 | SS | 0 | 0 | 0 | 0 | 0 | |
| 備考 1. 〝起 基準 | 出 0.1 wt % | ″及〝超出 0.(| 01 wt %″係指 | 自限用物質之百 | 分比含量超出了 | 百分比含量 | |

台湾 ROHS: