

RocketRAID 37xx/8xx/28xx SATA Controller

Uniontech OS Server 20 (1050d)

Installation Guide

Version 1.0.0

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1 Overview

The purpose of this document is to provide clear instructions on how to install and use RR3740A Controller on Uniontech OS Server 20 system.

2 Installing Uniontech OS Server 20 on RR3740A controller

If you would like to install Uniontech OS Server 20 onto drives attached to RR3740A controller, please perform the following operations:

Step 1 Prepare Your Hardware for Installation

Notcie: If your FT2000 motherboard is not directly connected to the SSD disk, it is normal for the buzzer to sound continuously. You can communicate with the motherboard supplier to mute it.

After you attach your hard disks to RR3740A controller, you can use RR3740A **EFI Utility** Utility to configure your hard disks as RAID arrays, or just use them as single disks.

Before installation, you must remove all the disk drives, which are not physically attached to RR3740A controller, from your system.

Note

If you have other SCSI adapters installed, you must make sure the RR3740A controller EFI will be loaded firstly. If not, try to move it to another PCI slot. Otherwise you may be unable to boot up your system.

Step 2 Check System EFI Settings

In your system BIOS SETUP menu, change **Boot Sequence** in such a way that the system will first boot from **EFI CDROM**, and then from SCSI. Refer to your SCSI manual to see how to set boot sequence.

If your EFI settings do not support such a boot sequence, you can first set it to boot from EFI CDROM. After you finish installation, set SCSI as the first boot device to boot up the system.

Step 3 Flash UEFI Rom to RR3740A

- a. Unzip RR3740A UEFI package to root dir (/) of a USB flash driver, and insert the USB flash drive to the motherboard;
- b. Booting from the UEFI USB flash and enter the UEFI environment;



- c. Command with “rr3740.nsh”, flash UEFI rom to RR3740A Controller and reboot;

```
FS0:\> load.efi 3740uefi.rom
Load Utility for Flash EPROM v1.1.1
(built at May 17 2022 14:24:22)

Set flash size to 91K
Found adapter 0x37401103 at PCI 4:0:0
Flash size 0x16c00, File size 0x16a00
Offset address 0x20000
EPROM Vendor: WINBOND W25X40BU
Erasing .....Succeeded
Flashing ....

Flashing Success (total retry 0)

Verifing ....

Passed !
FS0:\>
```

Step 4 Create Array

- a. Attach two SATA to RR3740A Controller;

Note

Make sure your USB flash partition format is FAT32.

- b. Boot, in the presence of the motherboard Log screen, there will be SATA information:

```
HighPoint RocketRAID RR37xx Controller UEFI driver version v1.0.0.0
Find controller ID:3740, Location: 4:0:0
Start scanning devices...
[04:00 09/00] SATA Device probed.
[04:00 11/00] SATA Device probed.
Adding HPT UDO-0 (SINGLE) Capacity 18000GB BlockSize 512 Bytes
Adding HPT UDO-1 (SINGLE) Capacity 3000GB BlockSize 512 Bytes
```

- c. Enter the motherboard's Boot List and select start from UEFI USB flash:

```
UEFI Shell
Enter Setup
SCSI Device
USB SanDisk 3.2Gen1
SCSI Device 2

按↑和↓键移动
按回车键进行选择
按ESC键退出
```

- d. Command "Arraycreate.efi" to enter the Utility:

```

FS0:\> ArrayCreate.efi
Highpoint RAID utility for UEFI (version: 20220517)
Vendor: HighPoint Technologies,Inc.
Product: RocketRAID 3740A Controller

==== Physical device list(count 2):
1/10 WDC WUH721818ALE6L4-3WJKZBUJ, 18000207MB(MaxFree 0MB), Normal [UC]
1/12 TOSHIBA DT01ACA300-Y731JWPAS, 3000592MB(MaxFree 0MB), Normal [UC]

==== Logical device list(count 2):
1 1/10 WDC WUH721818ALE6L4-3WJKZBUJ, 18000207MB(MaxFree 0MB), Normal [UC]
2 1/12 TOSHIBA DT01ACA300-Y731JWPAS, 3000592MB(MaxFree 0MB), Normal [UC]
-----
>>> Please specify command to execute:
<<< _
    
```

- e. Command “create RAID1 ”.
Create RAID1 array with all disks and with maximum capacity.

```

<<< create RAID1
Creating array: RAID1_000041A7.
Array created successfully.
=====
==== Physical device list(count 2):
1/10 WDC WUH721818ALE6L4-3WJKZBUJ, 18000140MB(MaxFree 14999636MB), Normal [UC]
1/12 TOSHIBA DT01ACA300-Y731JWPAS, 3000504MB(MaxFree 0MB), Normal [UC]

==== Logical device list(count 1):
1 [UD0] RAID1_000041A7 (RAID1), 3000504MB (Stripe 512KB), Normal
   1/10 WDC WUH721818ALE6L4
   1/12 TOSHIBA DT01ACA300
-----
>>> Please specify command to execute:
    
```

- f. Command “exit”,exit the UEFI environment;
- g. For more command usages, refer to Appendix A.

Step 5 Prepare the Driver Diskette

Extract **RR3740A_UOS20_Server_1050d_aarch64_vx.x.x_xx_xx_xx.tar.gz** to top(/) directory of an USB flash drive. It will look like:

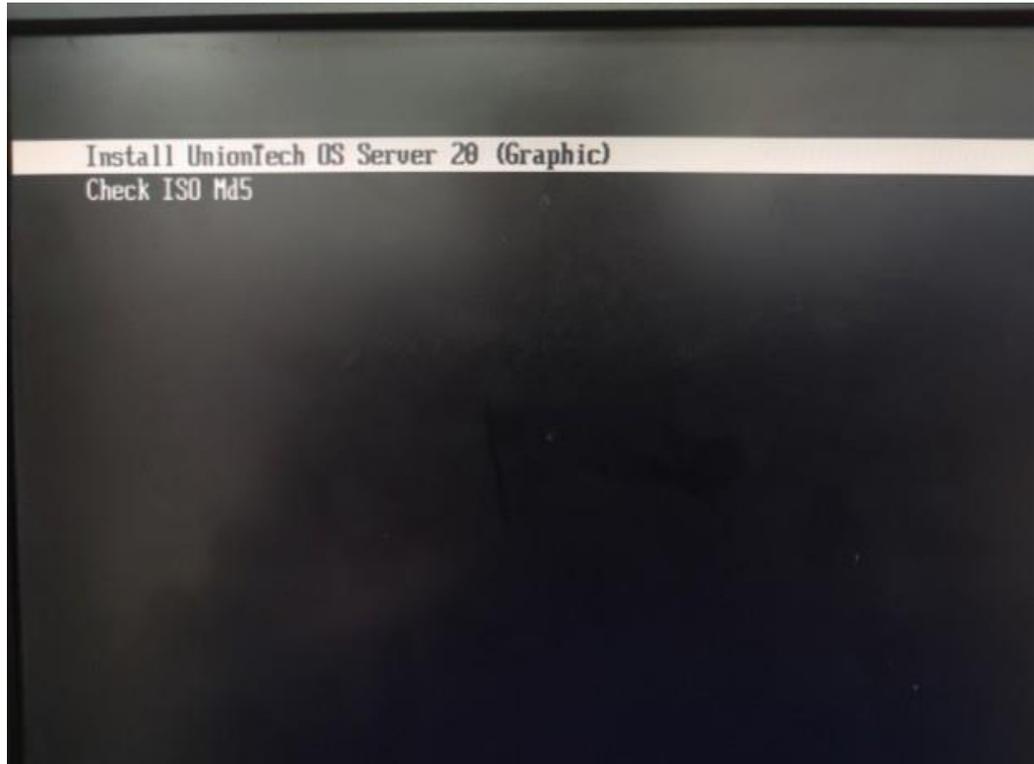
```

hptdd/
hptdd/boot/
hptdd/boot/rr3740a4.19.0-arm64-serveraarch64.ko.gz
hptdd/install.sh
hptdd/postinst.sh
hptdd/postinst2.sh
hptdd/preinst.sh
hptdd/readme.txt
    
```

Step 6 Install Uniontech OS Server 20

Insert the USB diskette in to the USB port.

- 1) Start installing Uniontech OS Server 20 by booting from the installation CD/DVD.
- 2) On the startup screen. Just select “**Install UnionTech OS Server 20(Graphic)**”, and then press **ENTER** to start installation.



- 3) When the installation switches to the graphical installation, press “**Ctrl+ALT+F2**” to switch the shell on console 2 before select "Next".



Type the following commands to load the RR3740A driver:

```
# sudo su //get root
# mkdir /hptdd
# mount /dev/sdb1 /hptdd
# cp -r /hptdd/hptdd /tmp/
# umount /dev/sdb1
```

Unplug all USB storage devices from system before execute following command:

```
# sh /tmp/hptdd/preinst.sh
```



4) Then type the following commands to restart the system installer:

```
# systemctl restart lightdm
```

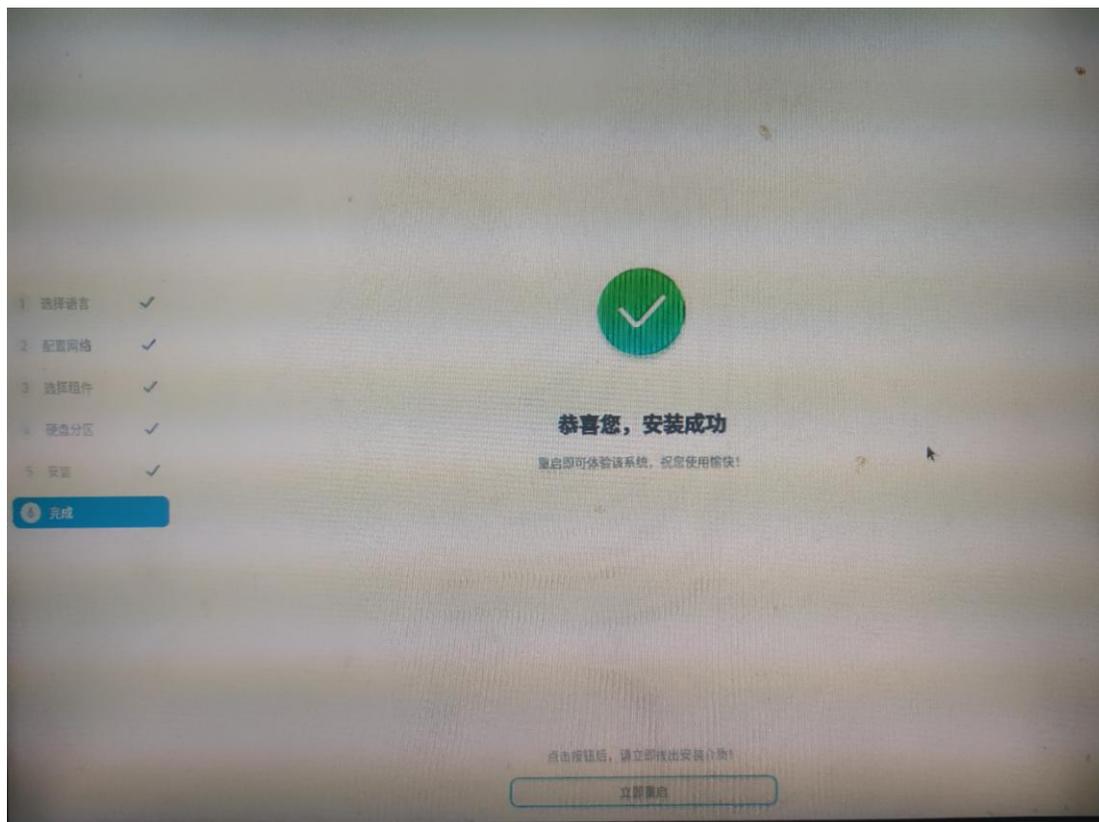


The system installer will restart and select “Next” to continue installation.

5) When the installation program comes to selecting the installation location, full installation is recommended.



6) When the screen shows that “Restart” ,



press “**CRL+ALT+F2**” to switch console 2 and type the following commands:

```
sh /tmp/hptdd/postinst.sh /dev/sdb
```

```
mount: /dev/sdb3 mounted on /target.
mount: /dev/sdb2 mounted on /target/boot.
mount: /dev/sdb1 mounted on /target/boot/efi.
mount: /dev/sdb4 mounted on /target/deepin-userdata.
mount: /dev/sdb5 mounted on /target/recovery.
mount: /target/deepin/userdata/home bound on /target/home.
mount: /target/deepin/userdata/opt bound on /target/opt.
mount: /target/deepin/userdata/root bound on /target/root.
mount: /target/deepin/userdata/var bound on /target/var.
mount: /dev bound on /target/dev.
mount: /proc bound on /target/proc.
mount: /run bound on /target/run.
mount: /sys bound on /target/sys.
mount: /run bound on /run.
cryptsetup: WARNING: The initramfs image may not contain cryptsetup binaries
nor crypto modules. If that's on purpose, you may want to uninstall the
'cryptsetup-initramfs' package in order to disable the cryptsetup initramfs
integration and avoid this warning.
setupcon is missing. Please install the 'console-setup' package.
W: plymouth: The plugin label.so is missing, the selected theme might not work as expected.
W: plymouth: You might want to install the plymouth-themes package to fix this.
live-boot: core filesystems devices utils udev blockdev dns.
We have completed the driver installation, you can use Ctrl+Alt+F7 to switch to the installation console to finish the installation.
root@UOS:/home/uos#
```

Press “**Ctrl+ALT+F7**” to switch back to installation screen and finish the installation.

3 Installing RR3740A driver on an Existing System

Note

If you use a SCSI adapter to boot your system, you must make sure the RR3740A controller EFI will be loaded after that adapter’s EFI. If not, try to move it to another PCI slot. Otherwise you may be unable to boot up your system.

Step 1 Obtain and install the Driver Module

Extract the driver archive to a temporary directory and execute the **install.sh** to install the driver to the system. For example:

```
# mkdir /tmp/dd
# tar xzvf RR3740A_UOS20_Server_1050d_aarch64_vx.x.x_xx_xx_xx.tar.gz
-C /tmp/dd
# cd /tmp/dd
# sh install.sh
```

If the driver of previous version has been in the initrd image, the installer will update the initrd image or it will make the driver automatically loaded while system up.

Step 2 Configure System to Mount Volumes when Startup

Now you can inform the system to automatically mount the array by modifying the file `/etc/fstab`. E.g. you can add the following line to tell the system to mount `/dev/sda1` to location `/mnt/raid` after startup:

```
/dev/sda1    /mnt/raid    ext3    defaults    0 0
```

4 Monitoring the Driver

Once the driver is running, you can monitor it through the Linux proc file system support. There is a special file under `/proc/scsi/rr3740a/`. Through this file you can view driver status and send control commands to the driver.

Note

The file name is the SCSI host number allocated by OS. If you have no other SCSI cards installed, it will be 0. In the following sections, we will use x to represent this number.

Using the following command to show driver status:

```
# cat /proc/scsi/rr3740a/x
```

This command will show the driver version number, physical device list and logical device list.

5 Installing RAID Management Software

HighPoint RAID Management Software is used to configure and keep track of your hard disks and RAID arrays attached to RR3740A controller. Installation of the management software is optional but recommended.

Please refer to HighPoint RAID Management Software documents for more information.

6 Rebuilding Driver Module for System Update

When the system updates the kernel packages, the driver module `rr3740a.ko` should be built and installed manually before reboot.

To build the driver module, the RR3740A open source package and the following building packages are needed: gcc, kernel-devel. The open source package can be got from HighPoint website: <http://www.highpoint-tech.com> while the building tools can be installed from UOS website: <https://www.chinauos.com>

Note: the package version of kernel-devel should be the same to the updated kernel package.

Refer to the REAME file distributed with HighPoint RR3740A open source package on how to build and install the driver module.

Appendix A

Support command: help/info/quit/exit/create/delete.

- **Create Command**

Syntax

Create Array Type (RAID0/RAID1/RAID10) Member Disk list
(1/1,1/2|*)Capacity(100|*)

Examples

<<< create RAID0

<<< create RAID0 *

<<< create RAID0 * *

Create RAID1 array with all disks and with maximum capacity.

<<< create RAID1 1/1, 1/3 10

Create RAID1 array with disk 1/1 and 1/3 and with 10GB capacity.

<<< create RAID10 *

Create RAID10 array with all disk and with maximum capacity.

- **Delete Command**

Syntax

delete {array ID}

Examples

<<< delete 1

Delete the first array from Logical device list.

<<< delete 2

Delete the second array from Logical device list.

- **Info Command**

Syntax

info

Display physical device list and logical list

- **Exit Command**

Syntax

Q/q/quit/exit

Quit the application

- **Help Command**

Syntax

H/h/help

This is help message.