



HPT-Optimize User Guide

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Overview

The HPT-Optimize contains a **Linux** shell program. You can use it to optimize the performance of HighPoint RAID devices by binding cpu cores.

It can bind a specified number of CPU cores on a single CPU to the HighPoint RAID device to reduce losses and optimize performance. It can only accelerate operations that are running or about to start running on the HighPoint RAID devices.

This guide describes how to use the software to test performance for these products:

- SSD7000 Series
- RR3700 Series
- RR2800 Series
- RR800 Series
- R710/720
- RS6434TS/6438TS

Prerequisites

This section describes the base hardware and software requirements for HPT-Optimize.

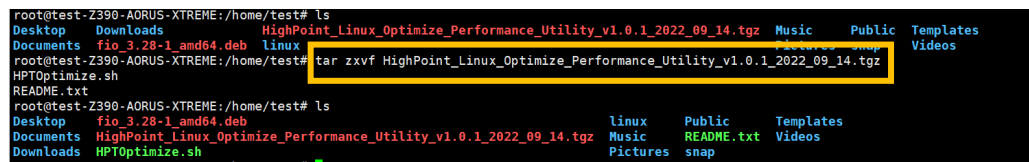
- Server platform with multiple CPUs or Single CPU
- A RAID controller must be physically installed
- The corresponding device driver has been installed

Instructions for use

Unzip the performance file.

Using the system terminal with root privileges, browse to the directory where the driver download is located, and enter the following commands to extract the software package:

```
#tar zxvf HighPoint_Linux_Optimize_Performance_Utility_v1.0.1_2022_9_14.tgz
```



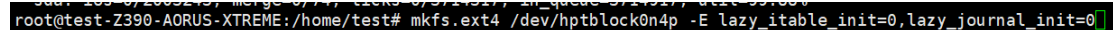
```
root@test-Z390-AORUS-XTREME:/home/test# ls
Desktop  Downloads  HighPoint_Linux_Optimize_Performance_Utility_v1.0.1_2022_09_14.tgz  Music  Public  Templates
Documents  fio_3.28-1_amd64.deb  linux  Pictures  snap  Videos
root@test-Z390-AORUS-XTREME:/home/test# tar zxvf HighPoint_Linux_Optimize_Performance_Utility_v1.0.1_2022_09_14.tgz
HPTOptimize.sh
README.txt
root@test-Z390-AORUS-XTREME:/home/test# ls
Desktop  fio_3.28-1_amd64.deb  HighPoint_Linux_Optimize_Performance_Utility_v1.0.1_2022_09_14.tgz  Music  Public  Templates
Downloads  HPTOptimize.sh  Pictures  snap  README.txt  Videos
```

Note: The driver revision shown in the screenshots may not correspond with current software releases.

How to apply to performance testing.

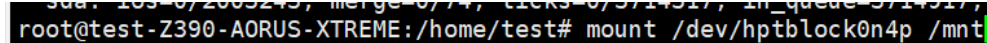
01. Create a RAID array, then partition, format and mount it for use:

```
#mkfs.ext4 /dev/hptblock0n4p -E lazy_itable_init=0,lazy_journal_init=0
```



```
root@test-Z390-AORUS-XTREME:/home/test# mkfs.ext4 /dev/hptblock0n4p -E lazy_itable_init=0,lazy_journal_init=0
```

```
#mount /dev/hptblock0n4p /mnt/
```



```
root@test-Z390-AORUS-XTREME:/home/test# mount /dev/hptblock0n4p /mnt
```

02. Run the fio script using the HPTOptimize tool to test **Sequential Performance / Random Performance**

Note: When running the HPTOptimize script, you need to specify the number of cpus with the command, test Sequential Performance by default 1 cpus, and test Random Performance, generally test 8 cpus (Internal test script). Using HPTOptimize.sh, the number after -c is the same as numjobs.

For Example:**2M-seq-read:**

The current script tests the *Sequential read* performance of **2M** large data blocks with *iodepth=64* and *numjobs=1*

```
# ./HPTOptimize.sh -c 1 fio --filename=/mnt/test.bin --direct=1 --rw=read --
ioengine=libaio --bs=2m --iodepth=64 --size=10G --numjobs=1 --runtime=60 --
time_base=1 --group_reporting --name=test-seq-read
```

```
root@test-Z390-AORUS-XTREME:/home/test# ./HPTOptimize.sh -c 1 fio --filename=/mnt/test.bin --direct=1 --rw=read --ioengine=libaio --bs=2m --
iodepth=64 --size=10G --numjobs=1 --runtime=60 --time_base=1 --group_reporting --name=test-seq-read
```

2M-seq-write:

The current script tests the *Sequential write* performance of **2M** large data blocks with *iodepth=64* and *numjobs=1*

```
# ./HPTOptimize.sh -c 1 fio --filename=/mnt/test.bin --direct=1 --rw=write --
ioengine=libaio --bs=2m --iodepth=64 --size=10G --numjobs=1 --runtime=60 --
time_base=1 --group_reporting --name=test-seq-write
```

```
root@test-Z390-AORUS-XTREME:/home/test# ./HPTOptimize.sh -c 1 fio --filename=/mnt/test.bin --direct=1 --rw=write --ioengine=libaio --bs=2m --
iodepth=64 --size=10G --numjobs=1 --runtime=60 --time_base=1 --group_reporting --name=test-seq-write
```

4k-rand-read:

Note: For SSD7000 series products, the test *4k-random numjobs=32*, which can achieve the best performance

The current script tests the *Random read* performance of **4k** small data blocks with *iodepth=64* and *numjobs=8*

```
# ./HPTOptimize.sh -c 8 fio --filename=/mnt/test.bin --direct=1 --rw=randread --
ioengine=libaio --bs=4k --iodepth=64 --size=10G --numjobs=8 --runtime=60 --
time_base=1 --group_reporting --name=test-rand-read
```

```
root@test-Z390-AORUS-XTREME:/home/test# ./HPTOptimize.sh -c 8 fio --filename=/mnt/test.bin --direct=1 --rw=randread --ioengine=libaio --bs=
4k --iodepth=64 --size=10G --numjobs=8 --runtime=60 --time_base=1 --group_reporting --name=test-rand-read
```

4k-rand-write:

The current script tests the *Random write* performance of **4k** small data blocks with *iodepth=64* and *numjobs=32*

```
# ./HPTOptimize.sh -c 8 fio --filename=/mnt/test.bin --direct=1 --rw=randwrite --
ioengine=libaio --bs=4k --iodepth=64 --size=10G --numjobs=8 --runtime=60 --
time_base=1 --group_reporting --name=test-rand-write
```

```
root@test-Z390-AORUS-XTREME:/home/test# ./HPTOptimize.sh -c 8 fio --filename=/mnt/test.bin --direct=1 --rw=randwrite --ioengine=libaio --bs
=4k --iodepth=64 --size=10G --numjobs=8 --runtime=60 --time_base=1 --group_reporting --name=test-rand-write
```

How to apply to actual scenarios

01. If you want to copy /test/a to /test/b (cp -r /test/a /test/b) and want to bind 4 cpu cores on hptnvme

Note: hptnvme corresponds to HPT SSD7000 series products

./HPTOptimize.sh -c 4 -d hptnvme cp -r /test/a /test/b

02. If you want to run kdenlive and bind 8 cpu cores on rr3740a:

Note: rr3740a corresponds to HPT RR3700 series products

./HPTOptimize.sh -c 8 -d rr3740a kdenlive

03. If you want to run kdenlive and bind all HighPoint RAID device's cpu cores on only one device type you have:

./HPTOptimize.sh kdenlive

Contacting Technical Support

FAQ's, technical articles, and trouble-shooting tips are available from our

Support web page

<https://www.highpoint-tech.com/support-and-services>

If you require technical Support, please submit a support ticket using our [Online](#)

[Support Service](#).