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# CVE2018-3640-Variant3a

2 x Intel Xeon E5-2620 v4 testing with a Supermicro X10DRT-PS v0123456789 (3.1 BIOS) and ASPEED ASPEED Family on CentOS Linux 7 via the Phoronix Test Suite.

**Automated Executive Summary**

*BIOS 3.0a had the most wins, coming in first place for 64% of the tests.*

*Based on the geometric mean of all complete results, the fastest (BIOS 3.1) was 1.033x the speed of the slowest (BIOS 3.0a).*

*The results with the greatest spread from best to worst included:*

*Redis (Test: LPOP) at 1.56x*
*Redis (Test: GET) at 1.075x*
*Redis (Test: SADD) at 1.04x*
*Flexible IO Tester (Type: Random Write - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: /bench-dir) at 1.011x*
*Flexible IO Tester (Type: Sequential Read - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: /bench-dir) at 1.01x*
*Flexible IO Tester (Type: Random Write - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: /bench-dir) at 1.008x*

*Stockfish (Total Time) at 1.007x*
*Flexible IO Tester (Type: Sequential Read - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: /bench-dir) at 1.007x*
*Gzip Compression (Linux Source Tree Archiving To .tar.gz) at 1.006x*
*Redis (Test: SET) at 1.004x.*

# Test Systems:

## BIOS 3.0a

Processor: 2 x Intel Xeon E5-2620 v4 @ 3.00GHz (16 Cores / 32 Threads), Motherboard: Supermicro X10DRT-PS v0123456789 (3.0a BIOS), Chipset: Intel Xeon E7 v4/Xeon, Memory: 8 x 8192 MB DDR4-2133MHz HMA41GR7AFR4N-UH, Disk: 800GB INTEL SSDSC2BA80 + 256GB THNSN5256GPU7 TOSHIBA, Graphics: ASPEED ASPEED Family, Network: Intel 82599ES 10-Gigabit SFI/SFP+

OS: CentOS Linux 7, Kernel: 3.10.0-514.el7.x86_64 (x86_64), Compiler: GCC 4.8.5 20150623, File-System: ext4, Screen Resolution: 1024x768

Compiler Notes: --build=x86_64-redhat-linux --disable-libgcj --disable-libunwind-exceptions --enable-__cxa_atexit --enable-bootstrap --enable-checking=release --enable-gnu-indirect-function --enable-gnu-unique-object --enable-initfini-array --enable-languages=c,c++,objc,obj-c++,java,fortran,ada,go,lto --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-arch_32=x86-64 --with-linker-hash-style=gnu --with-tune=generic
Disk Notes: DEADLINE / data=ordered,relatime,rw
Processor Notes: Scaling Governor: intel_pstate performance

## BIOS 3.1

Processor: 2 x Intel Xeon E5-2620 v4 @ 3.00GHz (16 Cores / 32 Threads), Motherboard: Supermicro X10DRT-PS v0123456789 (3.1 BIOS), Chipset: Intel Xeon E7 v4/Xeon, Memory: 8 x 8192 MB DDR4-2133MHz HMA41GR7AFR4N-UH, Disk: 800GB INTEL SSDSC2BA80 + 256GB THNSN5256GPU7 TOSHIBA, Graphics: ASPEED ASPEED Family, Network: Intel 82599ES 10-Gigabit SFI/SFP+

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Compiler Notes: --build=x86_64-redhat-linux --disable-libgcj --disable-libunwind-exceptions --enable-__cxa_atexit --enable-bootstrap --enable-checking=release --enable-gnu-indirect-function --enable-gnu-unique-object --enable-initfini-array --enable-languages=c,c++,objc,obj-c++,java,fortran,ada,go,lto --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-arch_32=x86-64 --with-linker-hash-style=gnu --with-tune=generic
Disk Notes: DEADLINE / data=ordered,relatime,rw
Processor Notes: Scaling Governor: intel_pstate performance

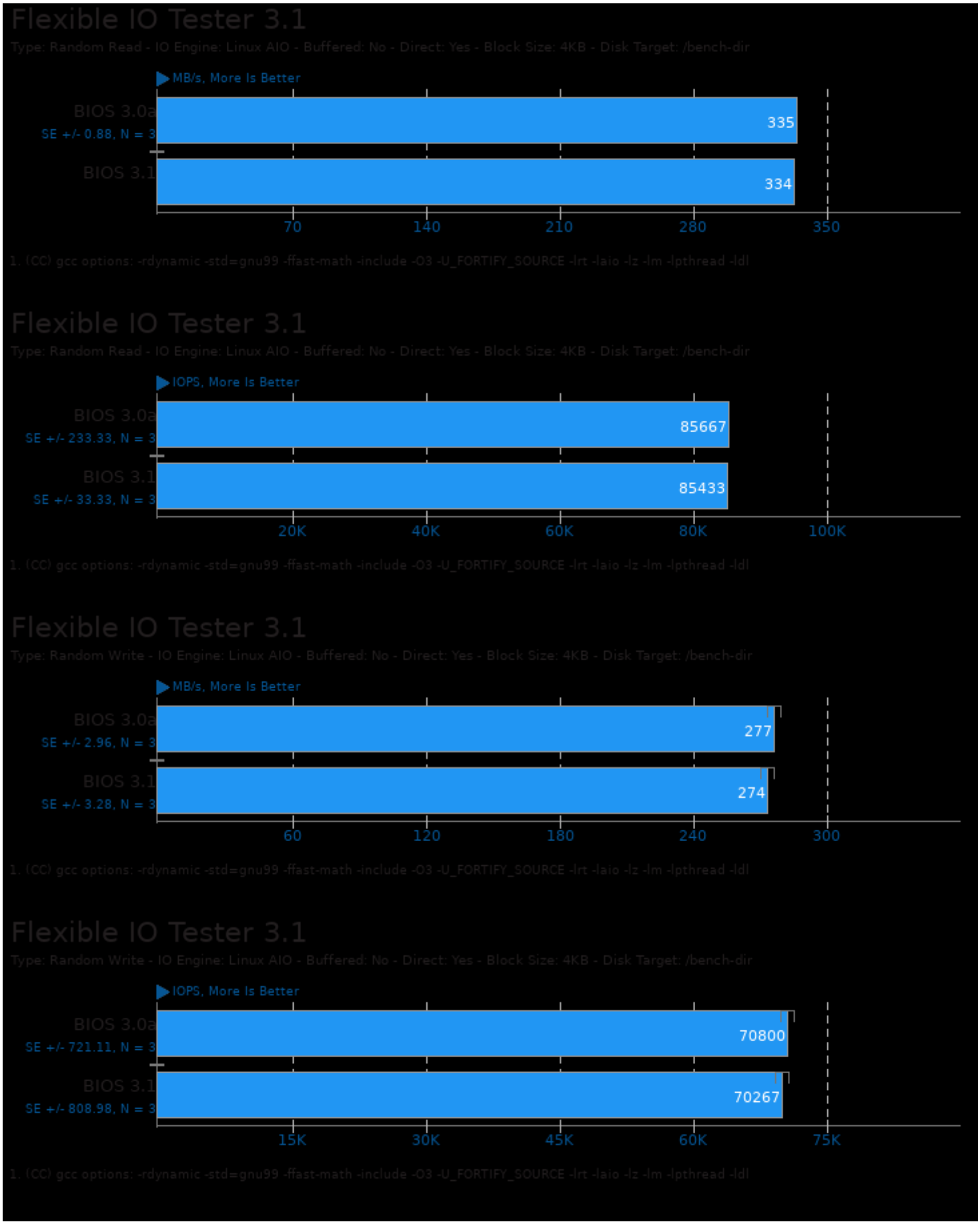
| | BIOS 3.0a | BIOS 3.1 |
|---|---|---|
| **Flexible IO Tester - Rand Read - Linux AIO - No - Yes - 4KB - /bench-dir (MB/s)** | **335** | **334** |
| **Normalized** | 100% | 99.7% |
| **Standard Deviation** | 0.5% | |

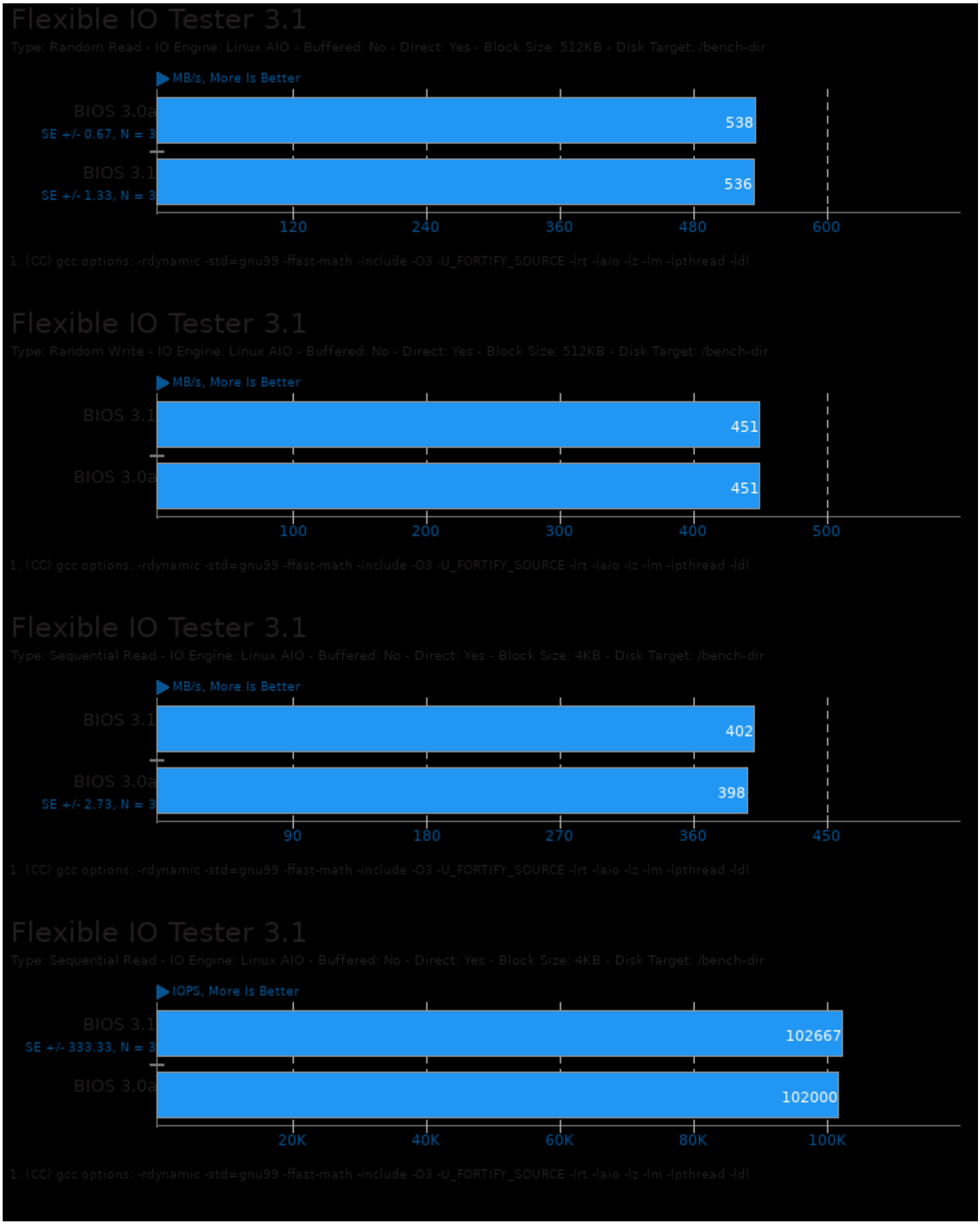
# CVE2018-3640-Variant3a

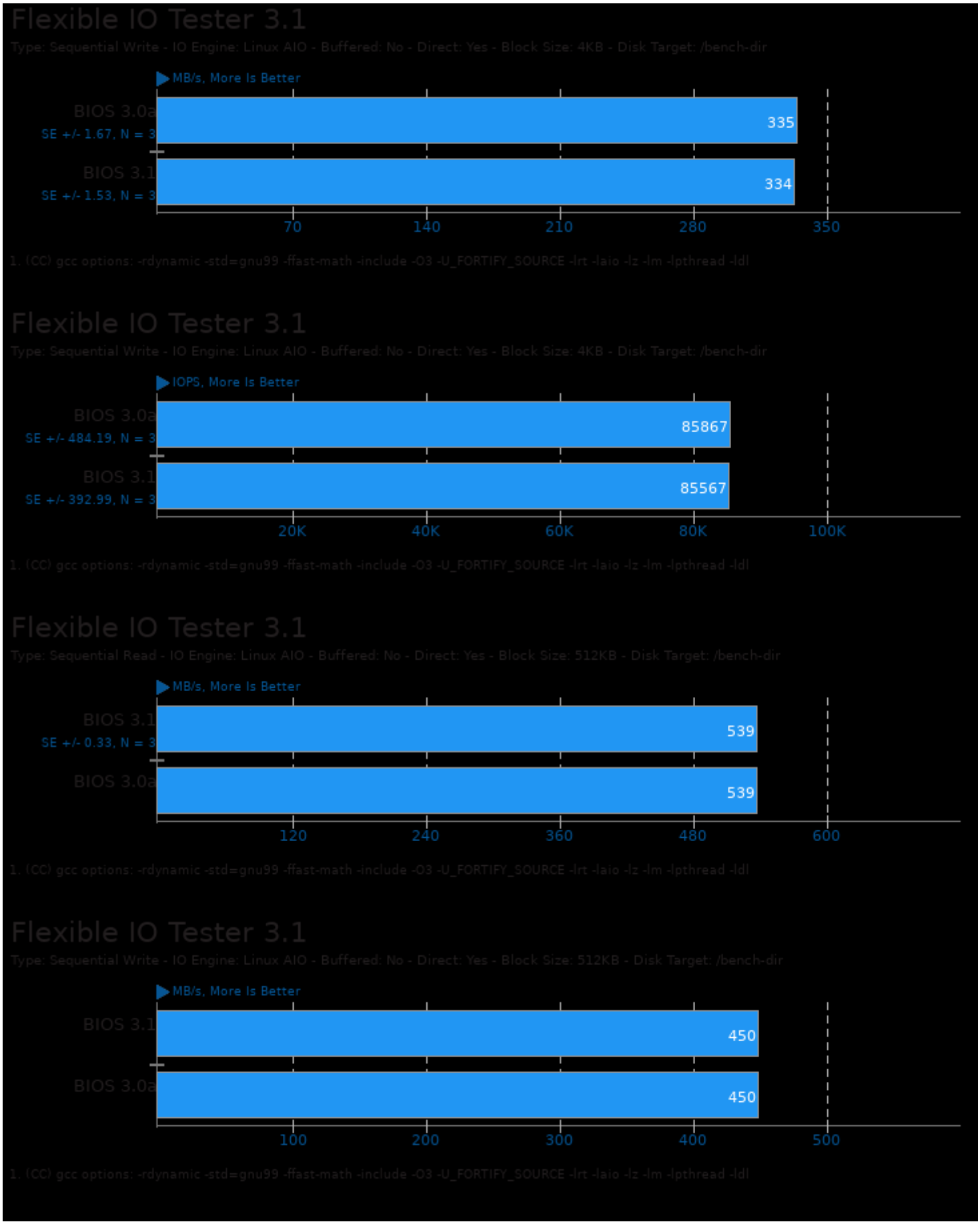
| | | |
|---|---|---|
| **Flexible IO Tester - Rand Read - Linux AIO - No - Yes - 4KB - /bench-dir (IOPS)** | **85667** | **85433** |
| **Normalized** | 100% | 99.73% |
| **Standard Deviation** | 0.5% | 0.1% |
| **Flexible IO Tester - Rand Write - Linux AIO - No - Yes - 4KB - /bench-dir (MB/s)** | **277** | **274** |
| **Normalized** | 100% | 98.92% |
| **Standard Deviation** | 1.9% | 2.1% |
| **Flexible IO Tester - Rand Write - Linux AIO - No - Yes - 4KB - /bench-dir (IOPS)** | **70800** | **70267** |
| **Normalized** | 100% | 99.25% |
| **Standard Deviation** | 1.8% | 2% |
| **Flexible IO Tester - Rand Read - Linux AIO - No - Yes - 512KB - /bench-dir (MB/s)** | **538** | **536** |
| **Normalized** | 100% | 99.63% |
| **Standard Deviation** | 0.2% | 0.4% |
| **Flexible IO Tester - Rand Write - Linux AIO - No - Yes - 512KB - /bench-dir (MB/s)** | 451 | 451 |
| **Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 4KB - /bench-dir (MB/s)** | **398** | **402** |
| **Normalized** | 99% | 100% |
| **Standard Deviation** | 1.2% | |
| **Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 4KB - /bench-dir (IOPS)** | **102000** | **102667** |
| **Normalized** | 99.35% | 100% |
| **Standard Deviation** | | 0.6% |
| **Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 4KB - /bench-dir (MB/s)** | **335** | **334** |
| **Normalized** | 100% | 99.7% |
| **Standard Deviation** | 0.9% | 0.8% |
| **Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 4KB - /bench-dir (IOPS)** | **85867** | **85567** |
| **Normalized** | 100% | 99.65% |
| **Standard Deviation** | 1% | 0.8% |
| **Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 512KB - /bench-dir (MB/s)** | 539 | 539 |
| **Standard Deviation** | | 0.1% |
| **Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 512KB - /bench-dir (MB/s)** | 450 | 450 |
| **Stockfish - Total Time (Nodes/s)** | **25051333** | **25233280** |
| **Normalized** | 99.28% | 100% |
| **Standard Deviation** | 1.3% | 1.2% |
| **Timed Linux Kernel Compilation - Time To Compile** | **66.50** | **66.67** |
| **Normalized** | 100% | 99.75% |
| **Standard Deviation** | 2.8% | 2.2% |
| **Gzip Compression - L.S.T.A.T.t.g (sec)** | **70.65** | **70.24** |
| **Normalized** | 99.42% | 100% |
| **Standard Deviation** | 3% | 1.7% |
| **OpenSSL - R.4.b.P (Signs/sec)** | **2457** | **2456** |
| **Normalized** | 100% | 99.98% |
| **Standard Deviation** | 0% | 0% |
| **Redis - LPOP (Reqs/sec)** | **788052** | **1229059** |
| **Normalized** | 64.12% | 100% |

# CVE2018-3640-Variant3a

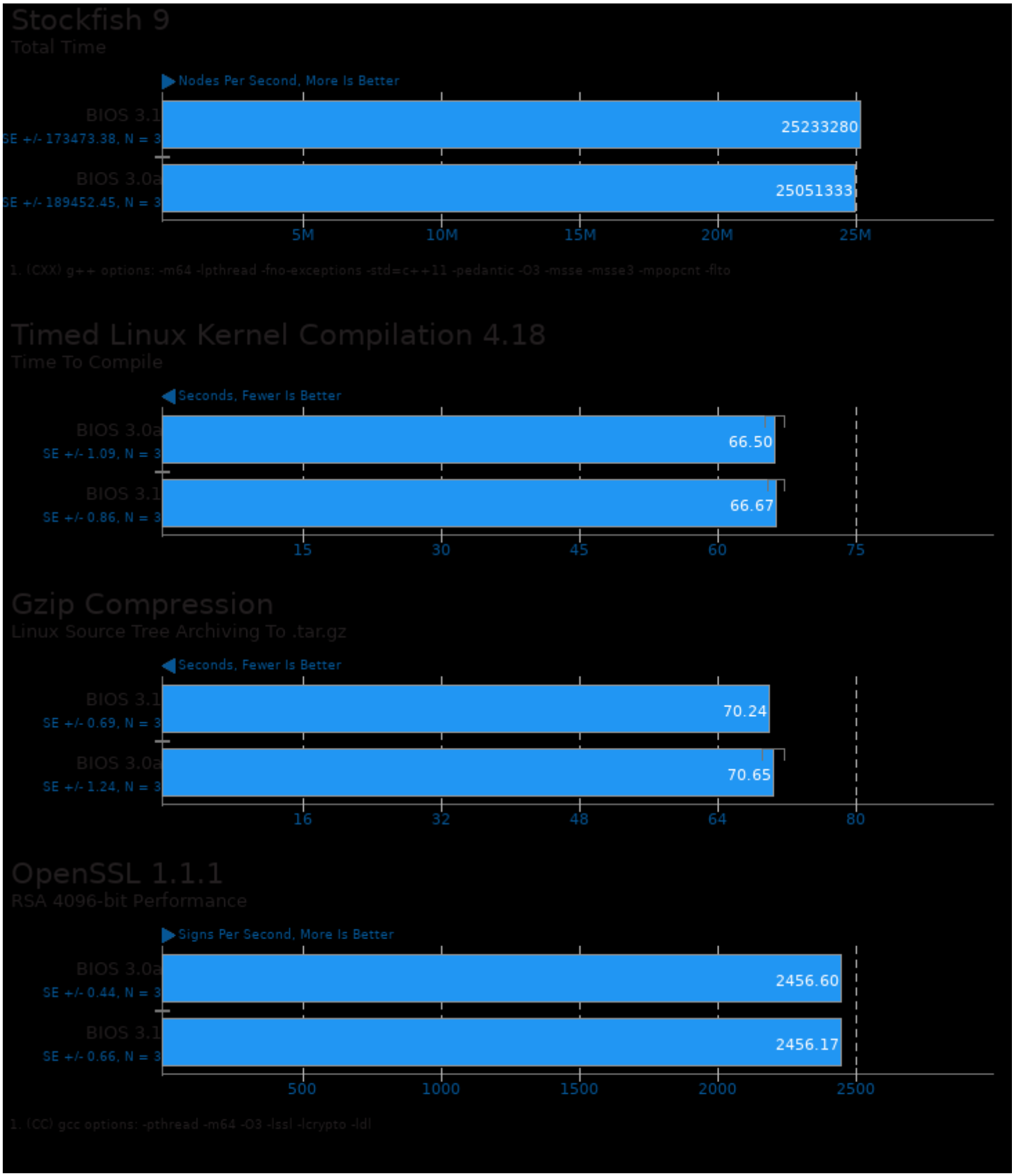
| | | |
|---|---|---|
| **Standard Deviation** | 0.7% | 0.8% |
| **Redis - SADD (Reqs/sec)** | **948283** | **986467** |
| **Normalized** | 96.13% | 100% |
| **Standard Deviation** | 4% | 3.3% |
| **Redis - LPUSH (Reqs/sec)** | **739883** | **737370** |
| **Normalized** | 100% | 99.66% |
| **Standard Deviation** | 1.1% | 3.6% |
| **Redis - GET (Reqs/sec)** | **1099650** | **1181577** |
| **Normalized** | 93.07% | 100% |
| **Standard Deviation** | 2.2% | 0.3% |
| **Redis - SET (Reqs/sec)** | **872802** | **869294** |
| **Normalized** | 100% | 99.6% |
| **Standard Deviation** | 4.9% | 2% |

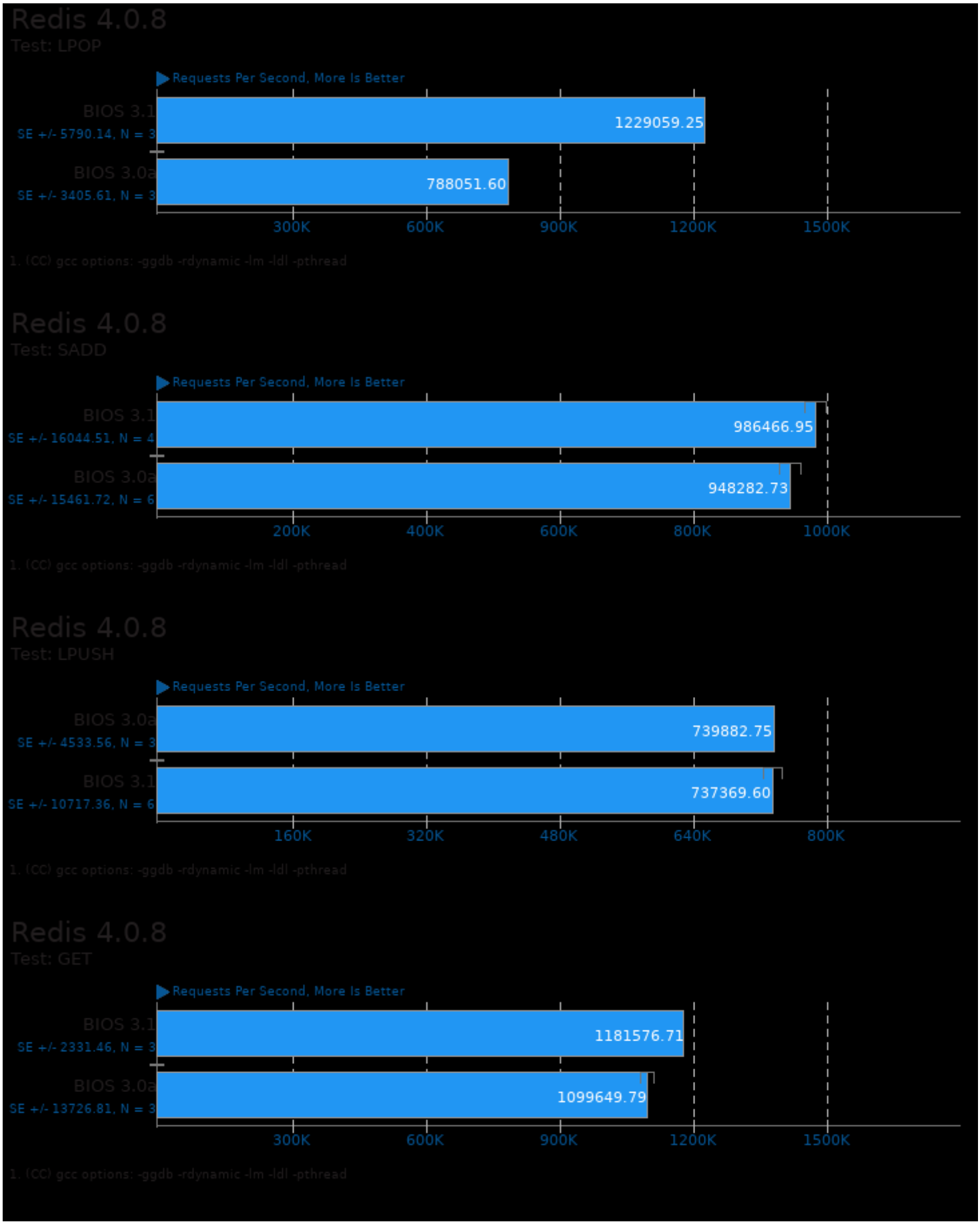

Flexible IO Tester 3.1
Type: Random Read - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: /bench-dir
MB/s, More Is Better
BIOS 3.0a
SE +/- 0.88, N = 3
335
BIOS 3.1
334
70
140
210
280
350
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -lrt -laio -lz -lm -lpthread -ldl
Flexible IO Tester 3.1
Type: Random Read - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: /bench-dir
IOPS, More Is Better
BIOS 3.0a
SE +/- 233.33, N = 3
85667
BIOS 3.1
SE +/- 33.33, N = 3
85433
20K
40K
60K
80K
100K
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -lrt -laio -lz -lm -lpthread -ldl
Flexible IO Tester 3.1
Type: Random Write - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: /bench-dir
MB/s, More Is Better
BIOS 3.0a
SE +/- 2.96, N = 3
277
BIOS 3.1
SE +/- 3.28, N = 3
274
60
120
180
240
300
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -lrt -laio -lz -lm -lpthread -ldl
Flexible IO Tester 3.1
Type: Random Write - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: /bench-dir
IOPS, More Is Better
BIOS 3.0a
SE +/- 721.11, N = 3
70800
BIOS 3.1
SE +/- 808.98, N = 3
70267
15K
30K
45K
60K
75K
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -lrt -laio -lz -lm -lpthread -ldl

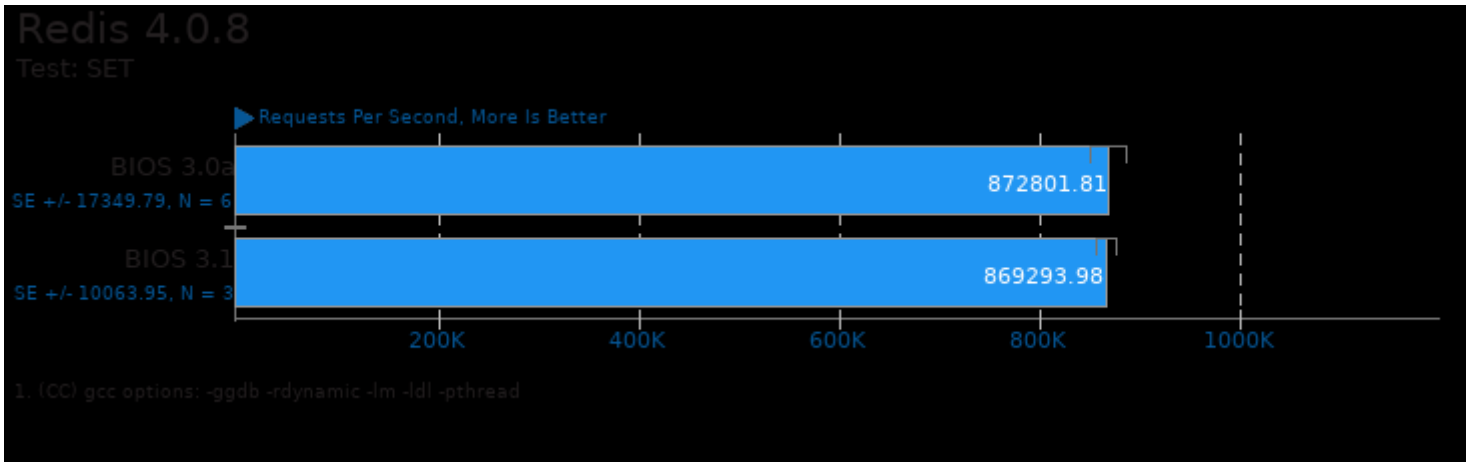

Flexible IO Tester 3.1
Type: Random Read - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 512KB - Disk Target: /bench-dir
MB/s, More Is Better
BIOS 3.0a
SE +/- 0.67, N = 3
538
BIOS 3.1
SE +/- 1.33, N = 3
536
120
240
360
480
600
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -lrt -laio -lz -lm -lpthread -ldl
Flexible IO Tester 3.1
Type: Random Write - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 512KB - Disk Target: /bench-dir
MB/s, More Is Better
BIOS 3.1
451
BIOS 3.0a
451
100
200
300
400
500
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -lrt -laio -lz -lm -lpthread -ldl
Flexible IO Tester 3.1
Type: Sequential Read - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: /bench-dir
MB/s, More Is Better
BIOS 3.1
402
BIOS 3.0a
SE +/- 2.73, N = 3
398
90
180
270
360
450
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -lrt -laio -lz -lm -lpthread -ldl
Flexible IO Tester 3.1
Type: Sequential Read - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: /bench-dir
IOPS, More Is Better
BIOS 3.1
SE +/- 333.33, N = 3
102667
BIOS 3.0a
102000
20K
40K
60K
80K
100K
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -lrt -laio -lz -lm -lpthread -ldl


Flexible IO Tester 3.1
Type: Sequential Write - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: /bench-dir
MB/s, More Is Better
BIOS 3.0a
SE +/- 1.67, N = 3
335
BIOS 3.1
SE +/- 1.53, N = 3
334
70
140
210
280
350
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -lrt -laio -lz -lm -lpthread -ldl
Flexible IO Tester 3.1
Type: Sequential Write - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: /bench-dir
IOPS, More Is Better
BIOS 3.0a
SE +/- 484.19, N = 3
85867
BIOS 3.1
SE +/- 392.99, N = 3
85567
20K
40K
60K
80K
100K
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -lrt -laio -lz -lm -lpthread -ldl
Flexible IO Tester 3.1
Type: Sequential Read - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 512KB - Disk Target: /bench-dir
MB/s, More Is Better
BIOS 3.1
SE +/- 0.33, N = 3
539
BIOS 3.0a
539
120
240
360
480
600
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -lrt -laio -lz -lm -lpthread -ldl
Flexible IO Tester 3.1
Type: Sequential Write - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 512KB - Disk Target: /bench-dir
MB/s, More Is Better
BIOS 3.1
450
BIOS 3.0a
450
100
200
300
400
500
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -lrt -laio -lz -lm -lpthread -ldl

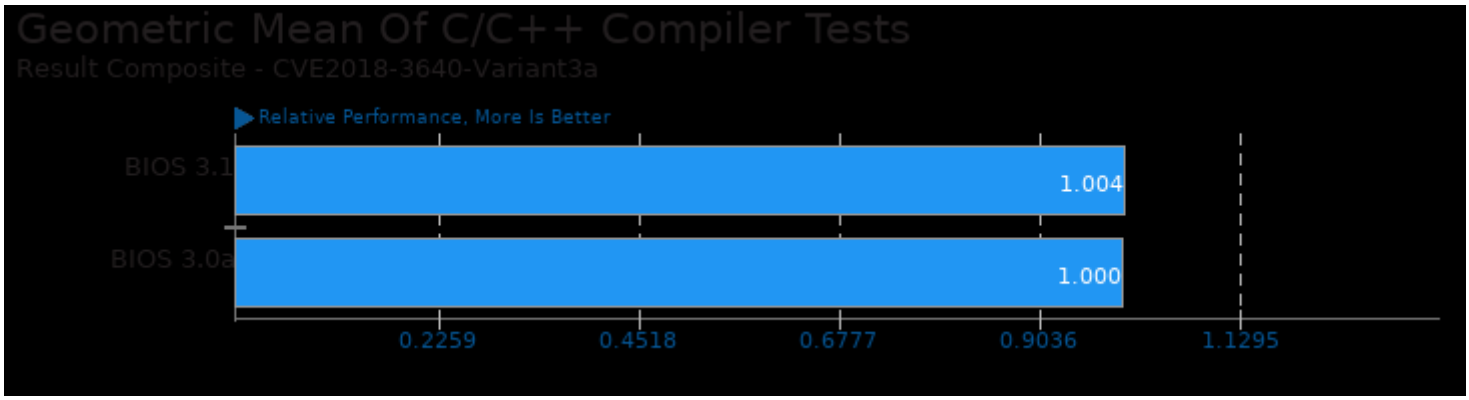
# CVE2018-3640-Variant3a




Redis 4.0.8
Test: LPOP
Requests Per Second, More Is Better
BIOS 3.1
SE +/- 5790.14, N = 3
1229059.25
BIOS 3.0a
SE +/- 3405.61, N = 3
788051.60
300K
600K
900K
1200K
1500K
1. (CC) gcc options: -ggdb -rdynamic -lm -ldl -pthread
Redis 4.0.8
Test: SADD
Requests Per Second, More Is Better
BIOS 3.1
SE +/- 16044.51, N = 4
986466.95
BIOS 3.0a
SE +/- 15461.72, N = 6
948282.73
200K
400K
600K
800K
1000K
1. (CC) gcc options: -ggdb -rdynamic -lm -ldl -pthread
Redis 4.0.8
Test: LPUSH
Requests Per Second, More Is Better
BIOS 3.0a
SE +/- 4533.56, N = 3
739882.75
BIOS 3.1
SE +/- 10717.36, N = 6
737369.60
160K
320K
480K
640K
800K
1. (CC) gcc options: -ggdb -rdynamic -lm -ldl -pthread
Redis 4.0.8
Test: GET
Requests Per Second, More Is Better
BIOS 3.1
SE +/- 2331.46, N = 3
1181576.71
BIOS 3.0a
SE +/- 13726.81, N = 3
1099649.79
300K
600K
900K
1200K
1500K
1. (CC) gcc options: -ggdb -rdynamic -lm -ldl -pthread


Redis 4.0.8
Test: SET
Requests Per Second, More Is Better
BIOS 3.0a
SE +/- 17349.79, N = 6
872801.81
BIOS 3.1
SE +/- 10063.95, N = 3
869293.98
200K
400K
600K
800K
1000K
1. (CC) gcc options: -ggdb -rdynamic -lm -ldl -pthread

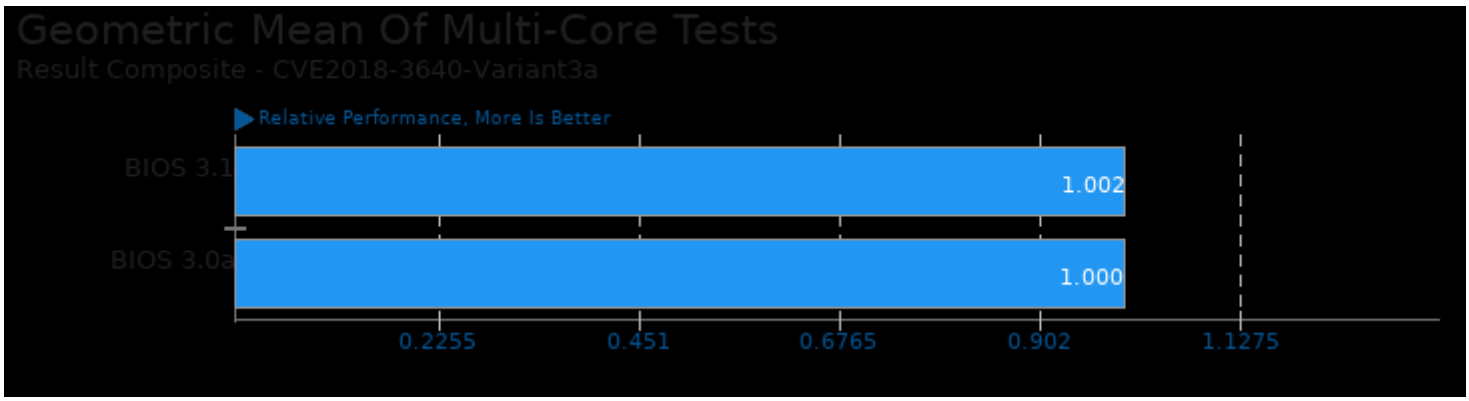
These geometric means are based upon test groupings / test suites for this result file.




Geometric mean based upon tests: pts/stockfish and pts/openssl

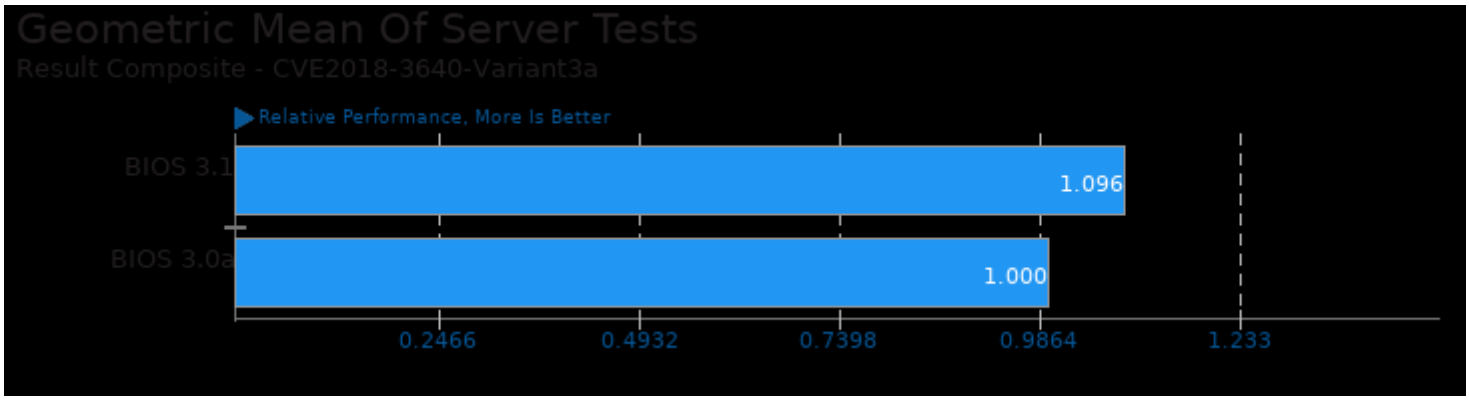



Geometric mean based upon tests: pts/build-linux-kernel, pts/openssl, pts/redis and pts/stockfish

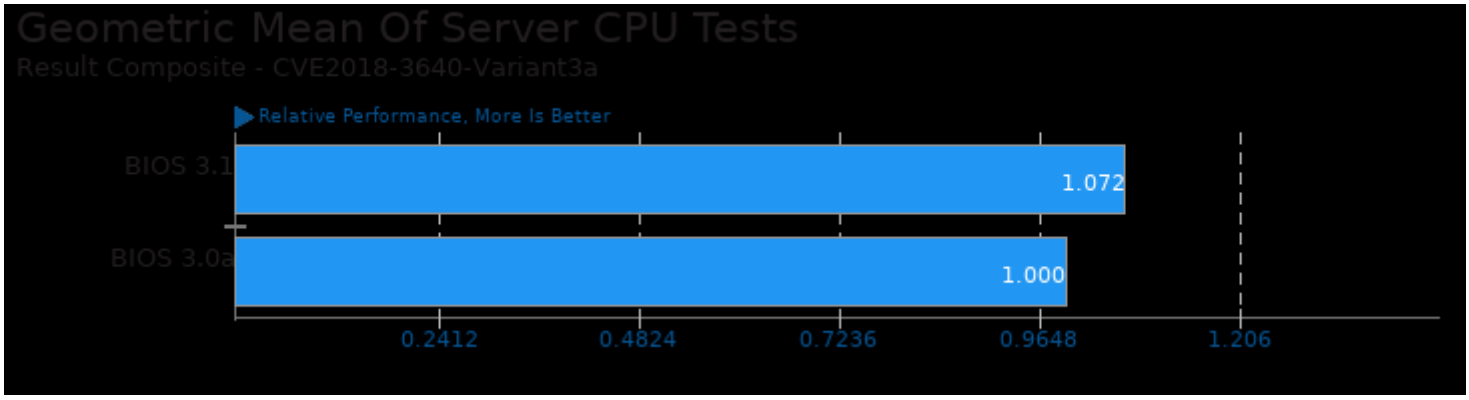



Geometric mean based upon tests: pts/stockfish and pts/build-linux-kernel

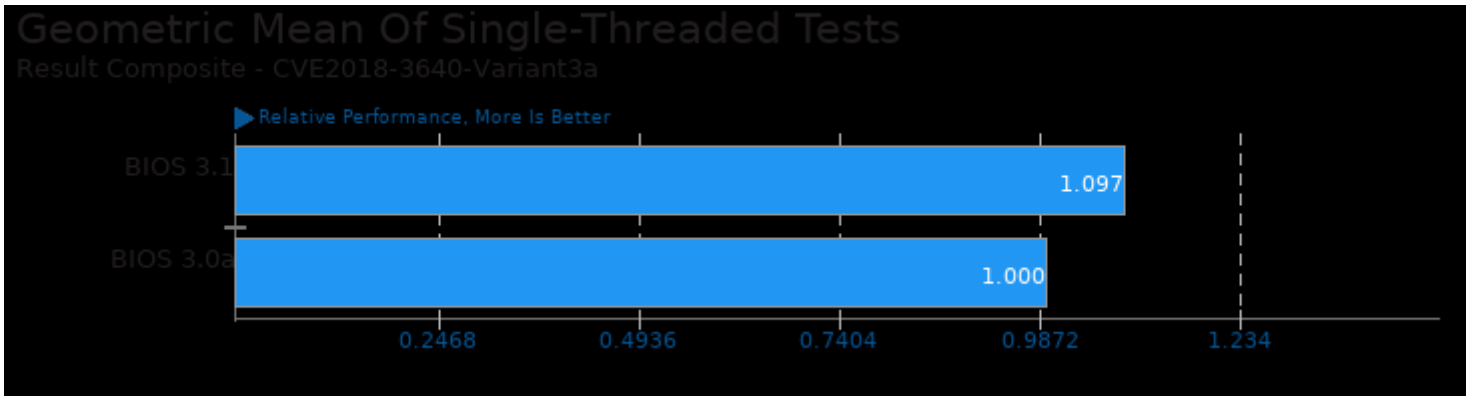
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Geometric mean based upon tests: pts/redis and pts/openssl




Geometric mean based upon tests: pts/stockfish, pts/build-linux-kernel, pts/openssl and pts/redis




Geometric mean based upon tests: pts/compress-gzip and pts/redis

*This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 03:59.*