SPEC CPU®2026 Integer Rate Result

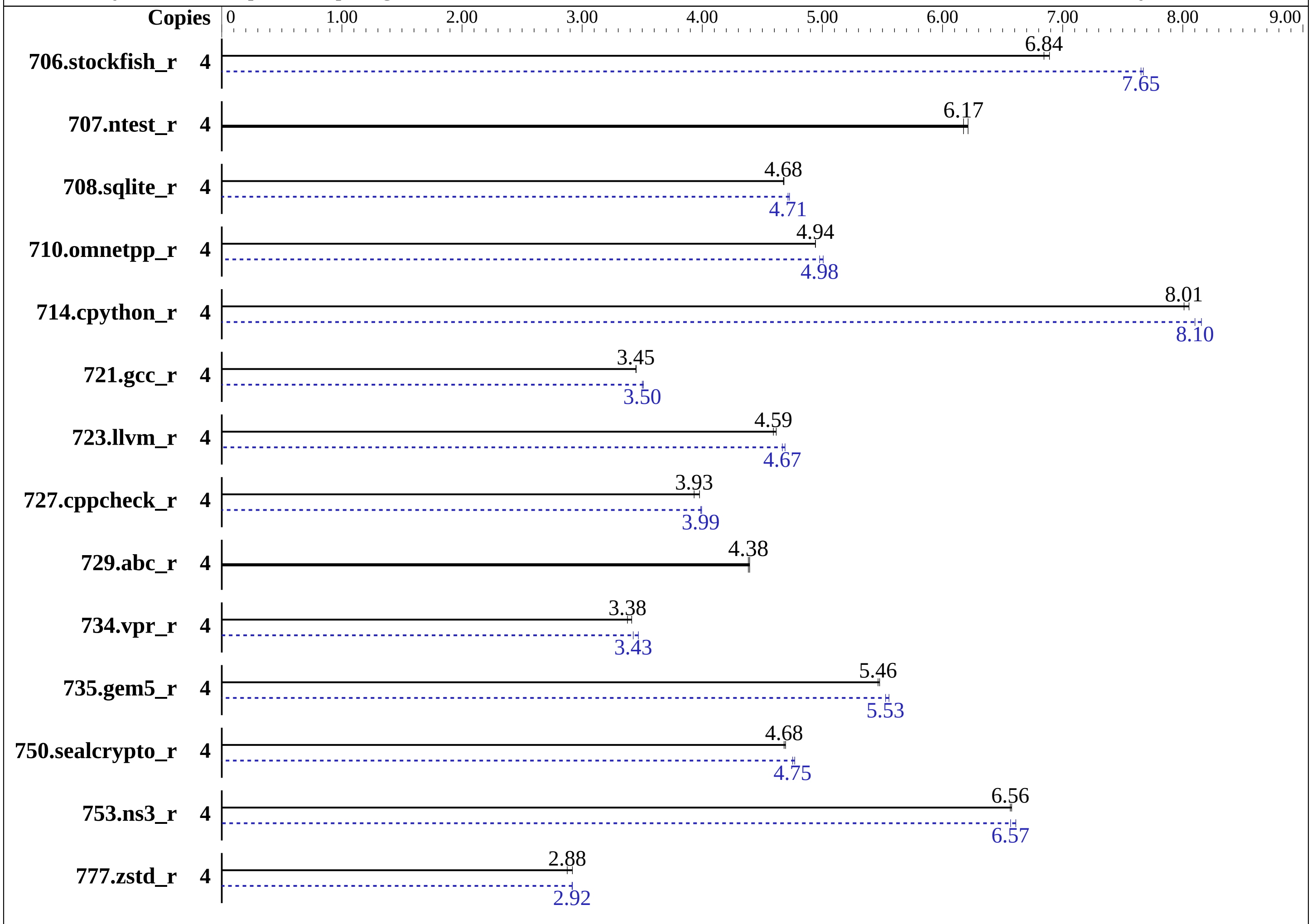
Raspberry Pi
(Test Sponsor: Ampere Computing, Inc.)

Raspberry Pi 5 Model B Rev 1.1 (16 GB)

SPECrate®2026_int_base = 4.80

SPECrate®2026_int_peak = 4.89

CPU2026 License:	6412	**Test Date:**	Feb-2026
Test Sponsor:	Ampere Computing, Inc.	**Hardware Availability:**	Jan-2025
Tested by:	Ampere Computing, Inc.	**Software Availability:**	Nov-2025



Hardware

CPU Name:	Broadcom BCM2712
Max MHz:	2400
Nominal:	2400
Enabled:	4 cores, 1 chip
Orderable:	1 board
Cache L1:	64 KB I + 64 KB D on chip per core
L2:	2 MB I+D on chip per core 512 KB
L3:	2 MB I+D on chip per chip
Other:	None
Memory:	16 GB
Storage:	1 x 128 GB Samsung PRO Endurance MicroSD
Cooling:	Air
Other:	Adafruit Raspberry Pi 5 case (ID 6307; no fan); veakson Portable Desk Fan (UPC 669936718801)

Software

OS:	DietPi v9.19.2 (kernel 6.12.47+rpt-rpi-2712)
Compiler:	C/C++/Fortran: Version 14.2.0 of GCC, the GNU Compiler Collection (Debian 14.2.0-19)
Compiler Category:	Community
Firmware:	Version 57db150d released Nov-2025
File System:	ext4
System State:	Run level 3 (multi-user; no GUI)
Base Pointers:	64-bit
Peak Pointers:	64-bit
Other:	None
Power Management:	All settings left at default.

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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
706.stockfish_r	4	**736**	**6.84**	731	6.89			4	**659**	**7.65**	657	7.67		
707.ntest_r	4	**384**	**6.17**	381	6.21			4	**384**	**6.17**	381	6.21		
708.sqlite_r	4	**452**	**4.68**	451	4.68			4	447	4.73	**448**	**4.71**		
710.omnetpp_r	4	393	4.94	**393**	**4.94**			4	**391**	**4.98**	388	5.01		
714.cpython_r	4	238	8.05	**239**	**8.01**			4	**237**	**8.10**	235	8.16		
721.gcc_r	4	**796**	**3.45**	795	3.45			4	782	3.51	**784**	**3.50**		
723.llvm_r	4	**442**	**4.59**	439	4.62			4	**435**	**4.67**	433	4.69		
727.cppcheck_r	4	361	3.98	**365**	**3.93**			4	359	3.99	**360**	**3.99**		
729.abc_r	4	**419**	**4.38**	418	4.39			4	**419**	**4.38**	418	4.39		
734.vpr_r	4	540	3.41	**546**	**3.38**			4	**538**	**3.43**	532	3.47		
735.gem5_r	4	356	5.48	**357**	**5.46**			4	351	5.55	**353**	**5.53**		
750.sealcrypto_r	4	**458**	**4.68**	457	4.69			4	**451**	**4.75**	450	4.77		
753.ns3_r	4	373	6.58	**374**	**6.56**			4	371	6.61	**373**	**6.57**		
777.zstd_r	4	**896**	**2.88**	883	2.92			4	882	2.92	**883**	**2.92**		

SPECrate®2026_int_base = 4.80

SPECrate®2026_int_peak = 4.89

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Operating System Notes

```
'ulimit -s unlimited' was used to set environment stack size limit
```

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/usr/lib64/:/usr/lib/:/lib64"
```

Platform Notes

```
System powered via USB-C from Apple 45W USB-C power supply.
HDMI display and keyboard were disconnected during the run.

Sysinfo program /spec/cpu2026-0.902.0/bin/sysinfo
Rev: 069f95da7e7f5d81b2ce48a82150e54f
running on ci-pi5 Sat Feb  7 14:42:23 2026

SUT (System Under Test) info as seen by some common utilities.

------------------------------------------------------------
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Platform Notes (Continued)

```
 ------------------------------------------------------------
  1. uname -srvm
  2. w
  3. Username
  4. ulimit -a
  5. sysinfo process ancestry
  6. /proc/cpuinfo
  7. lscpu
  8. numactl warning
  9. /proc/meminfo
 10. Systemd service manager version: systemd 257 (257.9-1~deb13u1)
 11. Services, from systemctl list-unit-files
 12. Linux kernel boot-time arguments, from /proc/cmdline
 13. sysctl
 14. OS release
 15. Disk information
 16. dmidecode warning
 ------------------------------------------------------------

 ------------------------------------------------------------
 1. uname -srvm
   Linux 6.12.47+rpt-rpi-2712 #1 SMP PREEMPT Debian 1:6.12.47-1+rpt1 (2025-09-16) aarch64

 ------------------------------------------------------------
 2. w
    14:42:23 up 4 min,  0 users,  load average: 0.08, 0.02, 0.01
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU  WHAT

 ------------------------------------------------------------
 3. Username
   From environment variable $USER:  cloyce

 ------------------------------------------------------------
 4. ulimit -a
   time(seconds)        unlimited
   file(blocks)         unlimited
   data(kbytes)         unlimited
   stack(kbytes)        unlimited
   coredump(blocks)     0
   memory(kbytes)       unlimited
   locked memory(kbytes) 8192
   process              64597
   nofiles              1024
   vmemory(kbytes)      unlimited
   locks                unlimited
   rtprio               0
```

(Continued on next page)

Platform Notes (Continued)

```
------------------------------------------------------------
5. sysinfo process ancestry
 /sbin/init
 tmux a
 zsh
 runcpu --reportable -c rpi-gcc intrate
 runcpu --reportable --configfile rpi-gcc --nopower --runmode rate --tune base:peak --size refrate intrate
   --nopreenv --note-preenv --logfile $SPEC/tmp/CPU2026.011/templogs/preenv.intrate.011.0.log --lognum 011.0
   --from_runcpu 2
 specperl $SPEC/bin/sysinfo -f
$SPEC = /spec/cpu2026-0.902.0

------------------------------------------------------------
6. /proc/cpuinfo
    CPU implementer : 0x41
    CPU architecture: 8
    CPU variant     : 0x4
    CPU part        : 0xd0b
    CPU revision    : 1
   Features        : fp asimd evtstrm aes pmull sha1 sha2 crc32 atomics fphp asimdhp cpuid asimdrdm lrcpc
                     dcpop asimddp
   WARNING: the number of "processors" from /proc/cpuinfo does not seem to match the number of hardware
   threads as reported by lscpu.   Please verify counts independently.

------------------------------------------------------------
7. lscpu

From lscpu from util-linux 2.41:
  Architecture:                            aarch64
  CPU op-mode(s):                          32-bit, 64-bit
  Byte Order:                              Little Endian
  CPU(s):                                  4
  On-line CPU(s) list:                     0-3
  Vendor ID:                               ARM
  Model name:                              Cortex-A76
  Model:                                   1
  Thread(s) per core:                      1
  Core(s) per cluster:                     4
  Socket(s):                               -
  Cluster(s):                              1
  Stepping:                                r4p1
  CPU(s) scaling MHz:                      71%
  CPU max MHz:                             2400.0000
  CPU min MHz:                             1500.0000
  BogoMIPS:                                108.00
  Flags:                                   fp asimd evtstrm aes pmull sha1 sha2 crc32 atomics fphp asimdhp
                                           cpuid asimdrdm lrcpc dcpop asimddp
```

(Continued on next page)

Platform Notes (Continued)

```
    L1d cache:                                256 KiB (4 instances)
    L1i cache:                                256 KiB (4 instances)
    L2 cache:                                 2 MiB (4 instances)
    L3 cache:                                 2 MiB (1 instance)
    NUMA node(s):                             8
    NUMA node0 CPU(s):                        0-3
    NUMA node1 CPU(s):                        0-3
    NUMA node2 CPU(s):                        0-3
    NUMA node3 CPU(s):                        0-3
    NUMA node4 CPU(s):                        0-3
    NUMA node5 CPU(s):                        0-3
    NUMA node6 CPU(s):                        0-3
    NUMA node7 CPU(s):                        0-3
    Vulnerability Gather data sampling:       Not affected
    Vulnerability Indirect target selection: Not affected
    Vulnerability Itlb multihit:              Not affected
    Vulnerability L1tf:                       Not affected
    Vulnerability Mds:                        Not affected
    Vulnerability Meltdown:                   Not affected
    Vulnerability Mmio stale data:            Not affected
    Vulnerability Reg file data sampling:     Not affected
    Vulnerability Retbleed:                   Not affected
    Vulnerability Spec rstack overflow:       Not affected
    Vulnerability Spec store bypass:          Mitigation; Speculative Store Bypass disabled via prctl
    Vulnerability Spectre v1:                 Mitigation; __user pointer sanitization
    Vulnerability Spectre v2:                 Mitigation; CSV2, BHB
    Vulnerability Srbds:                      Not affected
    Vulnerability Tsa:                        Not affected
    Vulnerability Tsx async abort:            Not affected
    Vulnerability Vmscape:                    Not affected

  From lscpu --cache:
       NAME ONE-SIZE ALL-SIZE WAYS TYPE        LEVEL SETS PHY-LINE COHERENCY-SIZE
       L1d       64K     256K    4 Data            1  256                      64
       L1i       64K     256K    4 Instruction     1  256                      64
       L2       512K       2M    8 Unified         2 1024                      64
       L3         2M       2M   16 Unified         3 2048                      64

  ------------------------------------------------------------
  8. numactl warning

  Unable to get information from 'numactl --hardware'.  Please consider installing numactl.

  ------------------------------------------------------------
  9. /proc/meminfo
     MemTotal:       16604176 kB
```

(Continued on next page)

Platform Notes (Continued)

```
'who -r' did not return a run level

------------------------------------------------------------
10. Systemd service manager version: systemd 257 (257.9-1~deb13u1)
  Default Target  Status
  graphical       running

------------------------------------------------------------
11. Services, from systemctl list-unit-files
  STATE            UNIT FILES
  enabled          console-setup cron dietpi-kill_ssh dietpi-postboot dietpi-preboot dietpi-ramlog
                   fake-hwclock-load fake-hwclock-save getty@ keyboard-setup networking rpi-eeprom-update ssh
                   sshd-keygen systemd-pstore systemd-timesyncd
  enabled-runtime  systemd-fsck-root systemd-remount-fs
  disabled         console-getty debug-shell dietpi-cloudshell dietpi-firstboot dietpi-fs_partition_resize
                   dietpi-vpn dietpi-wifi-monitor e2scrub_reap ifupdown-wait-online rsync sysstat
                   systemd-boot-check-no-failures systemd-confext systemd-network-generator systemd-networkd
                   systemd-networkd-wait-online systemd-networkd-wait-online@ systemd-pcrlock-file-system
                   systemd-pcrlock-firmware-code systemd-pcrlock-firmware-config systemd-pcrlock-machine-id
                   systemd-pcrlock-make-policy systemd-pcrlock-secureboot-authority
                   systemd-pcrlock-secureboot-policy systemd-sysext systemd-time-wait-sync
                   systemd-udev-load-credentials wpa_supplicant wpa_supplicant-nl80211@ wpa_supplicant-wired@
                   wpa_supplicant@
  indirect         serial-getty@ sshd@
  masked           apt-daily apt-daily-upgrade cryptdisks cryptdisks-early fake-hwclock getty-static hwclock
                   serial-getty@ttyAMA0 serial-getty@ttyS0 sudo systemd-logind x11-common

------------------------------------------------------------
12. Linux kernel boot-time arguments, from /proc/cmdline
  reboot=w
  coherent_pool=1M
  8250.nr_uarts=1
  pci=pcie_bus_safe
  cgroup_disable=memory
  numa_policy=interleave
  nvme.max_host_mem_size_mb=0
  bcm2708_fb.fbwidth=1920
  bcm2708_fb.fbheight=1080
  bcm2708_fb.fbdepth=16
  bcm2708_fb.fbswap=1
  numa=fake=8
  system_heap.max_order=0
  iommu_dma_numa_policy=interleave
  smsc95xx.macaddr=88:A2:9E:03:6B:8B
  vc_mem.mem_base=0x3fc00000
  vc_mem.mem_size=0x40000000
  root=PARTUUID=b06e45c0-02
```

(Continued on next page)

Platform Notes (Continued)

```
    rootfstype=ext4
    rootwait
    fsck.repair=yes
    net.ifnames=0
    logo.nologo
    console=ttyAMA10,115200
    console=tty1

------------------------------------------------------------
13. sysctl
    kernel.randomize_va_space           2
    vm.compaction_proactiveness        20
    vm.dirty_background_bytes           0
    vm.dirty_background_ratio          10
    vm.dirty_bytes                      0
    vm.dirty_expire_centisecs        3000
    vm.dirty_ratio                     20
    vm.dirty_writeback_centisecs      500
    vm.dirtytime_expire_seconds     43200
    vm.extfrag_threshold              500
    vm.min_unmapped_ratio               1
    vm.swappiness                       1
    vm.watermark_boost_factor       15000
    vm.watermark_scale_factor          10
    vm.zone_reclaim_mode                0

------------------------------------------------------------
14. OS release
    From /etc/*-release /etc/*-version
    os-release Debian GNU/Linux 13 (trixie)

------------------------------------------------------------
15. Disk information
SPEC is set to: /spec/cpu2026-0.902.0
    Filesystem     Type  Size  Used Avail Use% Mounted on
    /dev/root      ext4  117G   22G   91G  20% /

------------------------------------------------------------
16. dmidecode warning
    Could not find dmidecode

BIOS: (could not find information)
```

Compiler Version Notes

```
==============================================================================
C       | 708.sqlite_r(base, peak) 714.cpython_r(base, peak) 777.zstd_r(base,
        | peak)
------------------------------------------------------------------------------
gcc (Debian 14.2.0-19) 14.2.0
Copyright (C) 2024 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
------------------------------------------------------------------------------

==============================================================================
C++     | 706.stockfish_r(base, peak) 707.ntest_r(base, peak)
        | 727.cppcheck_r(base, peak) 753.ns3_r(base, peak)
------------------------------------------------------------------------------
g++ (Debian 14.2.0-19) 14.2.0
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warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
------------------------------------------------------------------------------

==============================================================================
C++, C | 710.omnetpp_r(base pass 0, peak pass 0) 721.gcc_r(base pass 0, peak
        | pass 0) 723.llvm_r(base pass 0, peak pass 0) 729.abc_r(base pass 0,
        | peak pass 0) 734.vpr_r(base pass 0, peak pass 0) 735.gem5_r(base
        | pass 0, peak pass 0) 750.sealcrypto_r(base pass 0, peak pass 0)
------------------------------------------------------------------------------
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C++, C | 710.omnetpp_r(base pass 0, peak pass 0) 721.gcc_r(base pass 0, peak
        | pass 0) 723.llvm_r(base pass 0, peak pass 0) 729.abc_r(base pass 0,
```

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Compiler Version Notes (Continued)

```
       | peak pass 0) 734.vpr_r(base pass 0, peak pass 0) 735.gem5_r(base
       | pass 0, peak pass 0) 750.sealcrypto_r(base pass 0, peak pass 0)
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warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
gcc

C++ benchmarks:
g++

Benchmarks using both C and C++:
g++ gcc

Base Portability Flags

706.stockfish_r: -DSPEC_LP64
707.ntest_r: -DSPEC_LP64
708.sqlite_r: -DSPEC_LP64
710.omnetpp_r: -DSPEC_LP64
714.cpython_r: -DSPEC_LP64
721.gcc_r: -DSPEC_LP64
723.llvm_r: -DSPEC_LP64
727.cppcheck_r: -DSPEC_LP64
729.abc_r: -DSPEC_LP64

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Base Portability Flags (Continued)

734.vpr_r: -DSPEC_LP64
735.gem5_r: -DSPEC_LP64
750.sealcrypto_r: -DSPEC_LP64
753.ns3_r: -DSPEC_LP64
777.zstd_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-mabi=lp64 -std=c18 -g -O3 -flto

C++ benchmarks:
-mabi=lp64 -std=c++17 -g -O3 -flto

Benchmarks using both C and C++:
-mabi=lp64 -std=c++17 -std=c18 -g -O3 -flto

Peak Compiler Invocation

C benchmarks:
gcc

C++ benchmarks:
g++

Benchmarks using both C and C++:
g++ gcc

Peak Portability Flags

706.stockfish_r: -DSPEC_LP64
707.ntest_r: -DSPEC_LP64
708.sqlite_r: -DSPEC_LP64
710.omnetpp_r: -fno-finite-math-only(*) -DSPEC_LP64
714.cpython_r: -DSPEC_LP64
721.gcc_r: -DSPEC_LP64
723.llvm_r: -DSPEC_LP64
727.cppcheck_r: -DSPEC_LP64
729.abc_r: -DSPEC_LP64

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Peak Portability Flags (Continued)

734.vpr_r: `-fno-finite-math-only(*) -DSPEC_LP64`
735.gem5_r: `-fno-finite-math-only(*) -DSPEC_LP64`
750.sealcrypto_r: `-DSPEC_LP64`
753.ns3_r: `-fno-finite-math-only(*) -DSPEC_LP64`
777.zstd_r: `-DSPEC_LP64`

(*) Indicates a portability flag that was found in a non-portability variable.

Peak Optimization Flags

C benchmarks:
`-mabi=lp64 -std=c18 -Ofast -mcpu=native -flto`

C++ benchmarks:

706.stockfish_r: `-mabi=lp64 -std=c++17 -Ofast -mcpu=native -flto`

707.ntest_r: `basepeak = yes`

727.cppcheck_r: `Same as 706.stockfish_r`

753.ns3_r: `Same as 706.stockfish_r`

Benchmarks using both C and C++:

710.omnetpp_r: `-mabi=lp64 -std=c++17 -std=c18 -Ofast -mcpu=native -flto`

721.gcc_r: `Same as 710.omnetpp_r`

723.llvm_r: `Same as 710.omnetpp_r`

729.abc_r: `basepeak = yes`

734.vpr_r: `Same as 710.omnetpp_r`

735.gem5_r: `Same as 710.omnetpp_r`

750.sealcrypto_r: `Same as 710.omnetpp_r`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2026/results/flags/gcc-rev-A2.html`

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2026/results/flags/gcc-rev-A2.xml

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