



# SPEC® CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C220 M4 (Intel Xeon E5-2637 v3 @ 3.50GHz)

SPECfp®\_rate2006 = 439

SPECfp\_rate\_base2006 = 426

CPU2006 license: 9019

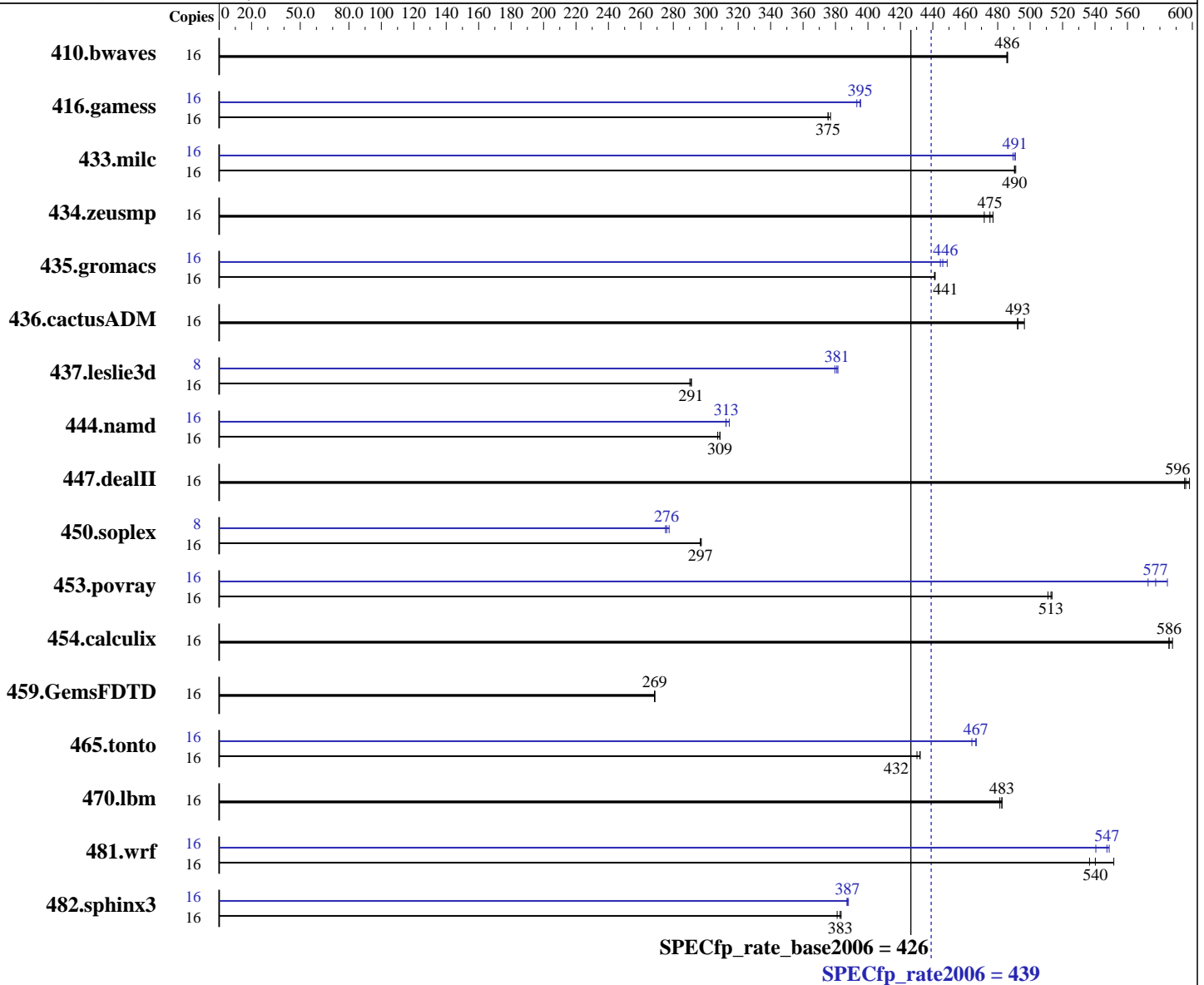
Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Jan-2015

Hardware Availability: Sep-2014

Software Availability: Jul-2014



### Hardware

CPU Name: Intel Xeon E5-2637 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz  
 CPU MHz: 3500  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip, 2 threads/core  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core

Continued on next page

### Software

Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo)  
 3.10.0-123.el7.x86\_64  
 Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux;  
 Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux  
 Auto Parallel: No  
 File System: xfs

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C220 M4 (Intel Xeon E5-2637 v3 @ 3.50GHz)

SPECfp\_rate2006 = 439

SPECfp\_rate\_base2006 = 426

CPU2006 license: 9019

Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Jan-2015

Hardware Availability: Sep-2014

Software Availability: Jul-2014

L3 Cache: 15 MB I+D on chip per chip  
Other Cache: None  
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)  
Disk Subsystem: 1 x 600GB SAS, 10K RPM  
Other Hardware: None

System State: Run level 3 (multi-user)  
Base Pointers: 32/64-bit  
Peak Pointers: 32/64-bit  
Other Software: None

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	448	486	447	486	<b>448</b>	<b>486</b>	16	448	486	447	486	<b>448</b>	<b>486</b>
416.gamess	16	831	377	835	375	<b>834</b>	<b>375</b>	16	792	395	<b>793</b>	<b>395</b>	797	393
433.milc	16	299	491	<b>299</b>	<b>490</b>	300	490	16	300	490	<b>299</b>	<b>491</b>	299	491
434.zeusmp	16	305	477	309	472	<b>306</b>	<b>475</b>	16	305	477	309	472	<b>306</b>	<b>475</b>
435.gromacs	16	<b>259</b>	<b>441</b>	259	441	259	441	16	257	445	<b>256</b>	<b>446</b>	255	449
436.cactusADM	16	<b>388</b>	<b>493</b>	385	496	388	492	16	<b>388</b>	<b>493</b>	385	496	388	492
437.leslie3d	16	516	291	518	290	<b>517</b>	<b>291</b>	8	198	380	<b>197</b>	<b>381</b>	197	382
444.namd	16	<b>416</b>	<b>309</b>	416	309	417	307	16	<b>411</b>	<b>313</b>	411	312	408	315
447.dealII	16	306	598	<b>307</b>	<b>596</b>	308	595	16	306	598	<b>307</b>	<b>596</b>	308	595
450.soplex	16	449	297	<b>450</b>	<b>297</b>	450	297	8	240	277	242	275	<b>242</b>	<b>276</b>
453.povray	16	166	513	<b>166</b>	<b>513</b>	167	511	16	149	573	<b>147</b>	<b>577</b>	146	585
454.calculix	16	225	586	225	588	<b>225</b>	<b>586</b>	16	225	586	225	588	<b>225</b>	<b>586</b>
459.GemsFDTD	16	<b>632</b>	<b>269</b>	633	268	632	269	16	<b>632</b>	<b>269</b>	633	268	632	269
465.tonto	16	366	430	364	432	<b>364</b>	<b>432</b>	16	<b>337</b>	<b>467</b>	337	467	339	464
470.lbm	16	<b>456</b>	<b>483</b>	455	483	457	481	16	<b>456</b>	<b>483</b>	455	483	457	481
481.wrf	16	333	537	<b>331</b>	<b>540</b>	324	552	16	<b>327</b>	<b>547</b>	326	549	331	540
482.sphinx3	16	<b>815</b>	<b>383</b>	818	381	813	383	16	806	387	804	388	<b>805</b>	<b>387</b>

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

## Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

## Platform Notes

CPU performance set to HPC  
Power Technology set to Custom  
Processor Power State C6 set to Disabled

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C220 M4 (Intel Xeon E5-2637 v3 @ 3.50GHz)

SPECfp\_rate2006 = 439

SPECfp\_rate\_base2006 = 426

CPU2006 license: 9019

Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Jan-2015

Hardware Availability: Sep-2014

Software Availability: Jul-2014

### Platform Notes (Continued)

Energy Performance BIAS setting set to Performance  
 Memory RAS configuration set to Maximum Performance  
 Snoop Mode set to Early Snoop  
 Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6914  
 \$Rev: 6914 \$ \$Date: 2014-06-25 # \$ e3fbb8667b5a285932ceab81e28219e1  
 running on rhel7 Thu Jan 22 06:27:45 2015

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see: <http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

```
From /proc/cpuinfo
model name      : Intel(R) Xeon(R) CPU E5-2637 v3 @ 3.50GHz
 2 "physical id"s (chips)
 16 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
  cpu cores     : 4
  siblings      : 8
  physical 0    : cores 0 1 4 5
  physical 1    : cores 0 1 4 5
cache size     : 15360 KB
```

```
From /proc/meminfo
MemTotal:      263868768 kB
HugePages_Total: 0
Hugepagesize:  2048 kB
```

```
From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.0 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.0"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server
```

```
uname -a:
Linux rhel7 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57 EDT 2014 x86_64
x86_64 x86_64 GNU/Linux
```

run-level 3 Jan 21 22:00

```
SPEC is set to: /opt/cpu2006-1.2
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdb2       xfs   439G  79G  361G  18% /
Continued on next page
```



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C220 M4 (Intel Xeon E5-2637 v3 @ 3.50GHz)

SPECfp\_rate2006 = 439

SPECfp\_rate\_base2006 = 426

CPU2006 license: 9019

Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Jan-2015

Hardware Availability: Sep-2014

Software Availability: Jul-2014

## Platform Notes (Continued)

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS Cisco Systems, Inc. C220M4.2.0.3d.0.111120141447 11/11/2014

Memory:

16x 0xCE00 M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz

8x NO DIMM NO DIMM

(End of data from sysinfo program)

## General Notes

Environment variables set by runspec before the start of the run:

LD\_LIBRARY\_PATH = "/opt/cpu2006-1.2/libs/32:/opt/cpu2006-1.2/libs/64:/opt/cpu2006-1.2/sh"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/transparent\_hugepage/enabled

Filesystem page cache cleared with:

echo 1> /proc/sys/vm/drop\_caches

runspec command invoked through numactl i.e.:

numactl --interleave=all runspec <etc>

## Base Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## Base Portability Flags

410.bwaves: -DSPEC\_CPU\_LP64

416.gamess: -DSPEC\_CPU\_LP64

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 4



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C220 M4 (Intel Xeon E5-2637 v3 @ 3.50GHz)

SPECfp\_rate2006 = 439

SPECfp\_rate\_base2006 = 426

CPU2006 license: 9019

Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Jan-2015

Hardware Availability: Sep-2014

Software Availability: Jul-2014

## Base Portability Flags (Continued)

```

433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

```

## Base Optimization Flags

C benchmarks:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

```

C++ benchmarks:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

```

Fortran benchmarks:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

```

Benchmarks using both Fortran and C:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

```

## Peak Compiler Invocation

C benchmarks:

```

icc -m64

```

C++ benchmarks (except as noted below):

```

icpc -m64

```

```

450.soplex: icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

```

Fortran benchmarks:

```

ifort -m64

```

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C220 M4 (Intel Xeon E5-2637 v3 @ 3.50GHz)

SPECfp\_rate2006 = 439

SPECfp\_rate\_base2006 = 426

CPU2006 license: 9019

Test sponsor: Cisco Systems

Tested by: Cisco Systems

Test date: Jan-2015

Hardware Availability: Sep-2014

Software Availability: Jul-2014

## Peak Compiler Invocation (Continued)

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## Peak Portability Flags

410.bwaves: -DSPEC\_CPU\_LP64  
 416.gamess: -DSPEC\_CPU\_LP64  
 433.milc: -DSPEC\_CPU\_LP64  
 434.zeusmp: -DSPEC\_CPU\_LP64  
 435.gromacs: -DSPEC\_CPU\_LP64 -nofor\_main  
 436.cactusADM: -DSPEC\_CPU\_LP64 -nofor\_main  
 437.leslie3d: -DSPEC\_CPU\_LP64  
 444.namd: -DSPEC\_CPU\_LP64  
 447.dealII: -DSPEC\_CPU\_LP64  
 453.povray: -DSPEC\_CPU\_LP64  
 454.calculix: -DSPEC\_CPU\_LP64 -nofor\_main  
 459.GemsFDTD: -DSPEC\_CPU\_LP64  
 465.tonto: -DSPEC\_CPU\_LP64  
 470.lbm: -DSPEC\_CPU\_LP64  
 481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_CASE\_FLAG -DSPEC\_CPU\_LINUX  
 482.sphinx3: -DSPEC\_CPU\_LP64

## Peak Optimization Flags

C benchmarks:

433.milc: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
 -O3(pass 2) -no-prec-div(pass 2)  
 -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)  
 -auto-ilp32

470.lbm: basepeak = yes

482.sphinx3: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3  
 -unroll2

C++ benchmarks:

444.namd: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
 -O3(pass 2) -no-prec-div(pass 2)  
 -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -fno-alias  
 -auto-ilp32

447.dealII: basepeak = yes

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C220 M4 (Intel Xeon E5-2637 v3 @ 3.50GHz)

**SPECfp\_rate2006 = 439**

**SPECfp\_rate\_base2006 = 426**

**CPU2006 license:** 9019

**Test sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test date:** Jan-2015

**Hardware Availability:** Sep-2014

**Software Availability:** Jul-2014

## Peak Optimization Flags (Continued)

450.soplex: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2)  
-opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)  
-opt-malloc-options=3

453.povray: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2)  
-opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -unroll4  
-ansi-alias

### Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
-inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4  
-auto -inline-calloc -opt-malloc-options=3

### Benchmarks using both Fortran and C:

435.gromacs: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2)  
-opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)  
-opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revC.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revC.xml>



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C220 M4 (Intel Xeon E5-2637 v3 @ 3.50GHz)

**SPECfp\_rate2006 = 439**

**SPECfp\_rate\_base2006 = 426**

**CPU2006 license:** 9019

**Test sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test date:** Jan-2015

**Hardware Availability:** Sep-2014

**Software Availability:** Jul-2014

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.  
Report generated on Tue Feb 10 18:35:14 2015 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 10 February 2015.