Performance Benchmark for Server, Cluster and Virtual Machines

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Http://trac.nchc.org.tw/cloud

Performance Benchmark Tools

Type	Tool	License	Cost	Win	Linux	URLs	Last Version
CPU	POV-RAY	自訂授權	Free	V	V	http://www.povray.org/	0.7.1 (2011-03)
CPU	CoreMark	EEMBC	?	-	-	http://www.coremark.org/ Microprocessor Benchmark	
CPU/GPU / Memory	Sandra	商業授權	?	V	-	http://www.sisoftware.net/	Sandra 2011
Memory	STREAM	自訂授權	Free	V	V	http://www.cs.virginia.edu/stream/	(2010/10)
Disk	iozone	自訂授權	Free	V	V	http://www.iozone.org/	3.373 (2010/10)
Disk	boine++	GPL	Free	-	V	http://www.coker.com.au/bonnie++/	1.96 (2009/07)
Disk	iometer	Intel	Free	V	V	http://www.iometer.org	(2006/07)
Disk	Hd Tach	??	Free	V	X	http://www.simplisoftware.com/Public/index.php?request=HdTach	3.0
NAS	NPB	NASA	Free	-	V	http://www.nas.nasa.gov/Software/NPB/	3.3.1
SMB / NFS	dbench	GPL	Free	X	V	http://dbench.samba.org/	4.0 (2008/02)
Disk	**ioblazer**	**MIT**	**Free**	**V**	**V**	**http://labs.vmware.com/flings/ioblazer**	**1.01 (2011/01)**
Network	netperf	HP 授權	Free	V	V	http://www.netperf.org	2.4.5 (2009/06)
Network	iperf	自訂授權	Free	-	V	http://iperf.sourceforge.net/	2.0.5 (2010/07)
Network	iptraf	自訂授權	Free	-	V	http://iptraf.seul.org/	3.0.0 (2005/09)
Suite	PTS	??	Free	-	V	http://www.phoronix-test-suite.com	3.0.1 (2011-03)
Suite	HPCC	自訂授權	Free	-	V	http://icl.cs.utk.edu/hpcc/	1.4.1 (2010/06)
Suite	**VMmark**	**商業授權**	**??**	**V**	**V**	**http://www.vmware.com/products/vmmark**	**2.1 (2011/02)**

POV-Ray – 3D 繪圖 Ray Tracing

POV-Ray-related News

Y.A.P.R.M. 0.7.1 released

A new release of Y.A.P.R.M., "Yet Another POV-Ray Modeller", has been released. 0.7.1 is a bug fix release to correct many small issues and to introduce some enhancements for usability. Joëlle Cornavin has contributed a French translation and Debian packages will follow in the next few days.

[March 03, 2011] [Permalink]

HTTPov updated

HTTPov, a distributed rendering system for POV-Ray which runs over HTTP, has been updated to include new features and a new Python client. Also supports the POV-Ray 3.7 beta.

[January 08, 2011] [Permalink]

Blender Project Needs Help

Some of you may not know this, but the latest release of Blender has a POV-Ray exporter. Interested POV veterans that know how to program in Python should consider getting involved. This could be a great way to raise POV-Rays profile, by exposing it to more users. See their wiki for more details.

[January 04, 2011] [Permalink]

Leveller 4.0 Available

The Leveller heightfield modeler has been updated. Version 4.0 (Windows ONLY) includes true 3D scene objects, contour lines, elevation labeling, cut/fill analysis, cross section reporting, shape texturing, etc. and exports formats suitable for use with the POV-Ray height_field object.

[December 04, 2010] [Permalink]

LionSnake v1.7.16

New version of LionSnake ... *[read more]*

Hall of Fame

"Bonsai Life"

POV-Ray 安裝

~$ sudo apt-get install povray **# 先加 non-free 套件庫**

PACKAGES

About Debian Getting Debian Support Developers' Corner

debian / 套件 / squeeze (stable) / graphics / povray

搜尋 套件名 全部搜尋項

[原始碼: povray]

[lenny] [**squeeze**] [wheezy] [sid]

套件: povray (1:3.6.1-12 以及其他的) [non-free]

Persistence of vision raytracer (3D renderer)

POV-Ray is a full-featured ray tracer. Ray tracers simulate objects and light sources of the real world to calculate photorealistic, computer generated images. Because of the nature of ray tracing, this process is quite CPU-intensive, at the benefit of more realistic images compared to real time rendering techniques. For example, in POV-Ray, you can model a glass prism, and you will see a spectrum in the resulting image.

POV-Ray by itself is a command-line utility that will take scene descriptions, written in a special easy-to-understand language, to produce ray-traced images (or even a sequence of images, for animations). You can either write those scene-descriptions by hand, or use external tools to generate (parts of) the scene.

povray-includes is highly recommended in addition to this package.

povray 的相關超連結

No screenshot available

Debian 的資源:

- 報告問題
- 開發者資訊(PTS)
- Debian Changelog
- 版權文件
- Debian Patch Tracker

下載原始碼套件 povray:

- [povray_3.6.1-12.dsc]
- [povray_3.6.1.orig.tar.gz]
- [povray_3.6.1-12.diff.gz]

維護小組:

- Clément Stenac (QA 頁面)

MPI-POVRay 範例 - 看執行時間

```
1   #!/bin/bash
2   # Program:
3   #       MPI-POVRay scenes rendering demo
4   # History:
5   # 2008/03/21 VER.1
6
7   PATH=/bin:/sbin:/usr/bin:/usr/sbin:/usr/local/bin:/usr/local/sbin~/bin
8   export PATH
9
10  for file in $HOME/povray_demo/performance_demo/*.pov
11  do
12  mpirun -machinefile ~/machine_file -nolocal -np 28
/opt/povray31/source/mpi-unix/mpi-x-povray -i$file +L/opt/povray31/include
+w1024 +h768
13  done
14  exit 0
```

參考： http://trac.nchc.org.tw/grid/wiki/krg_performance

用 MPI-POVRay 執行時間當效能依據

node2:4
node3:4
node4:4
node5:4
node6:4
node7:4
End of Machinefile

case1.1: Resolution 1024 x 768: Running 5 *.pov continuously with np7 takes **16** secs to finish rendering
case2.1: Resolution 2048 x 1536: Running 5 *.pov continuously with np7 takes **62** secs to finish rendering
case3.1: Resolution 4096 x 3072: Running 5 *.pov continuously with np7 takes **241** secs to finish rendering
case4.1: Resolution 8192 x 6144: Running 5 *.pov continuously with np7 takes **935** secs to finish rendering

case1.2: Resolution 1024 x 768: Running 5 *.pov continuously with np14 takes **10** secs to finish rendering
case2.2: Resolution 2048 x 1536: Running 5 *.pov continuously with np14 takes **43** secs to finish rendering
case3.2: Resolution 4096 x 3072: Running 5 *.pov continuously with np14 takes **161** secs to finish rendering
case4.2: Resolution 8192 x 6144: Running 5 *.pov continuously with np14 takes **601** secs to finish rendering

case1.3: Resolution 1024 x 768: Running 5 *.pov continuously with np28 takes **13** secs to finish rendering
case2.3: Resolution 2048 x 1536: Running 5 *.pov continuously with np28 takes **50** secs to finish rendering
case3.3: Resolution 4096 x 3072: Running 5 *.pov continuously with np28 takes **185** secs to finish rendering
case4.3: Resolution 8192 x 6144: Running 5 *.pov continuously with np28 takes **695** secs to finish rendering

MPI-POVRAY - MPI + Kerrighed

#MPI+Kerrighed Machinefile
node1:4
node1:4
node1:4
node1:4

IOzone - 測試檔案系統 I/O 效能

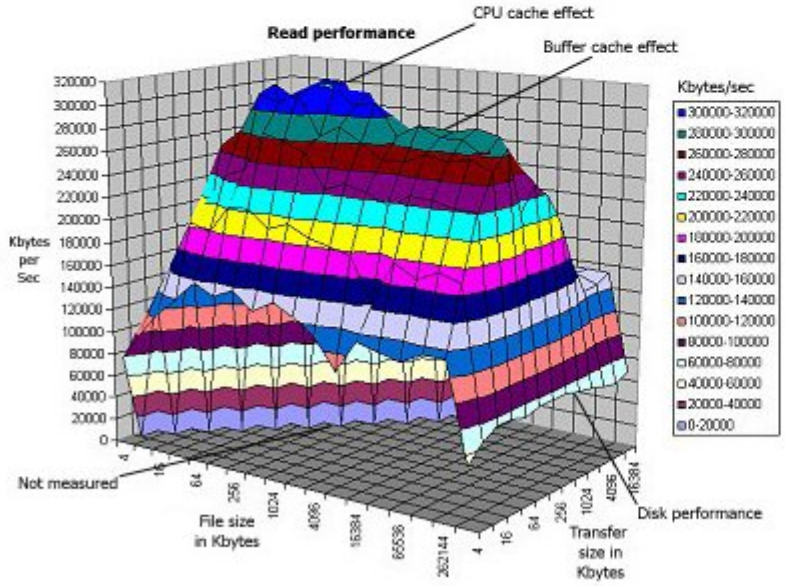
IOzone Filesystem Benchmark

InfoWorld 2000 BOSSIE AWARDS
Best of Open Source Software

IOzone is a filesystem benchmark tool. The benchmark generates and measures a variety of file operations. Iozone has been ported to many machines and runs under many operating systems.

Iozone is useful for performing a broad filesystem analysis of a vendor's computer platform. The benchmark tests file I/O performance for the following operations:

Read, write, re-read, re-write, read backwards, read strided, fread, fwrite, random read, pread ,mmap, aio_read, aio_write



iozone 安裝

~$ sudo apt-get install iozone3 **# 先加 non-free 套件庫**

PACKAGES

debian

About Debian Getting Debian Support Developers' Corner

/ 套件 / squeeze (stable) / utils / iozone3

搜尋 套件名 全部搜尋項

[原始碼: iozone3]

[lenny] [**squeeze**] [wheezy] [sid]

套件: iozone3 (308-1) [non-free]

Filesystem and Disk Benchmarking Tool

Iozone is useful for determining a broad benchmark of filesystem performance. The benchmark tests file I/O performance for the following operations: Read, write, re-read, re-write, read backwards, read strided, fread, fwrite, random read/write, pread/pwrite variants.

標籤: 系統管理: 效能評估, 使用者介面: 命令行, 角色: 程式, Purpose: Checking

其他與 iozone3 有關的套件

● 依賴 ■ 推薦 ◆ 建議

iozone3 的相關超連結

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Debian 的資源:

報告問題
開發者資訊(PTS)
Debian Changelog
版權文件
Debian Patch Tracker

下載原始碼套件 iozone3:

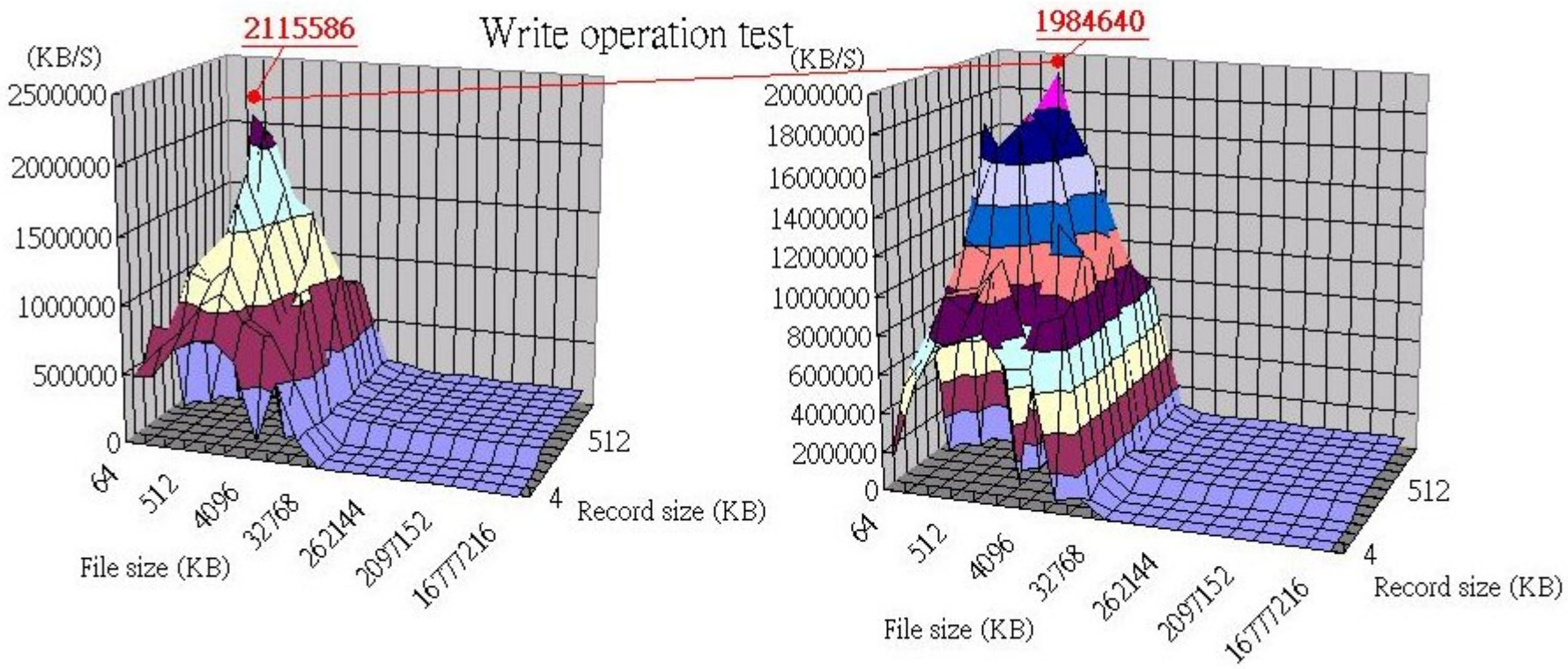
[iozone3_308-1.dsc]

iozone 執行與範例結果

~$ sudo iozone -g 16g -aRb test.wks

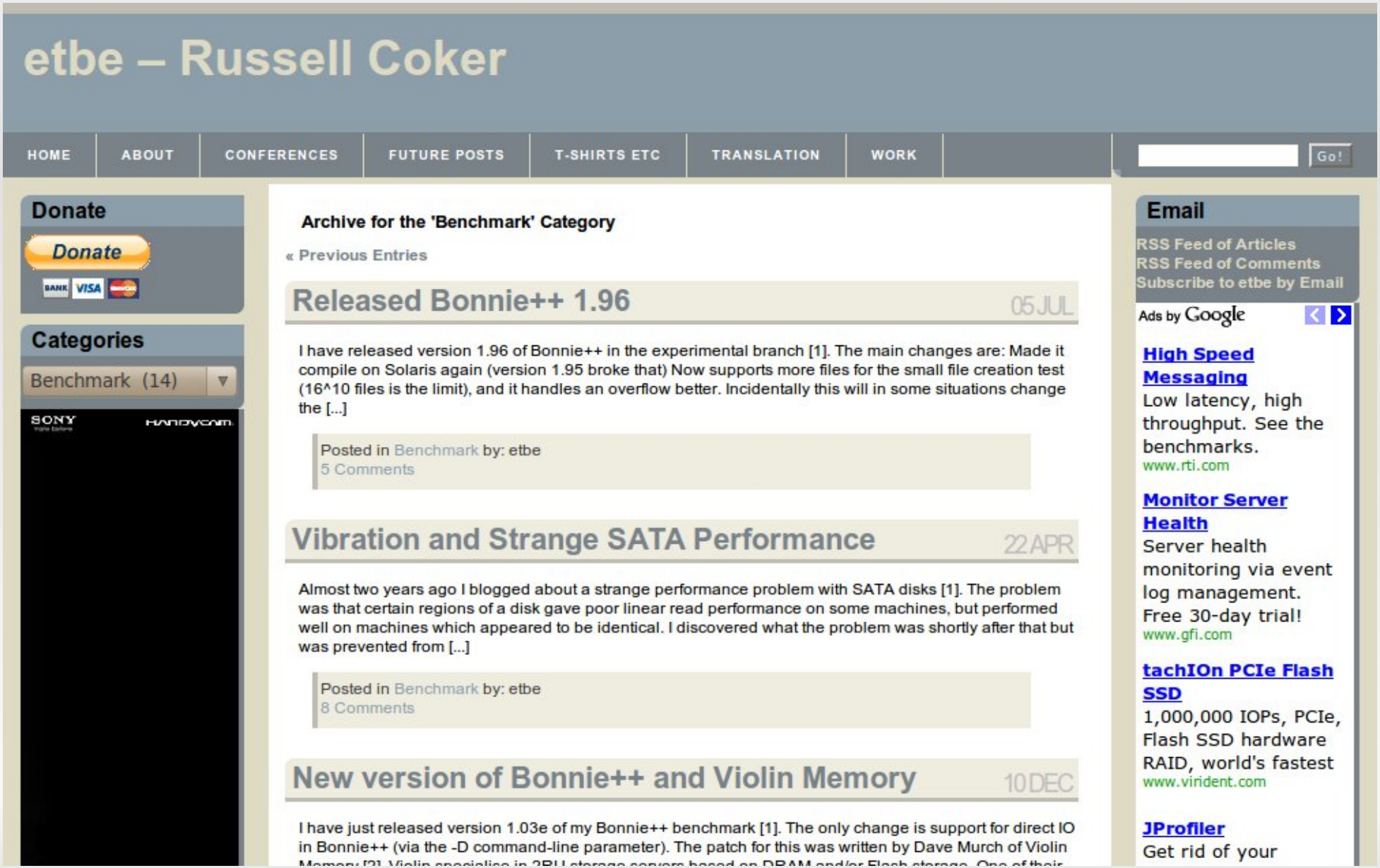
3. Comapre

The following six diagrams show the testing results using IOzone as the benchmark to evaluate how GPFS works with and without data-replication. The six IO operations we have done for performance evaluation are write, re-write, read, re-read, random read, and random write opertion, respectively. The left surface chart of each diagram represents the testing with data-replication enable, and the right one is opposite.



參考： http://trac.nchc.org.tw/grid/wiki/GPFS_Per_iozone

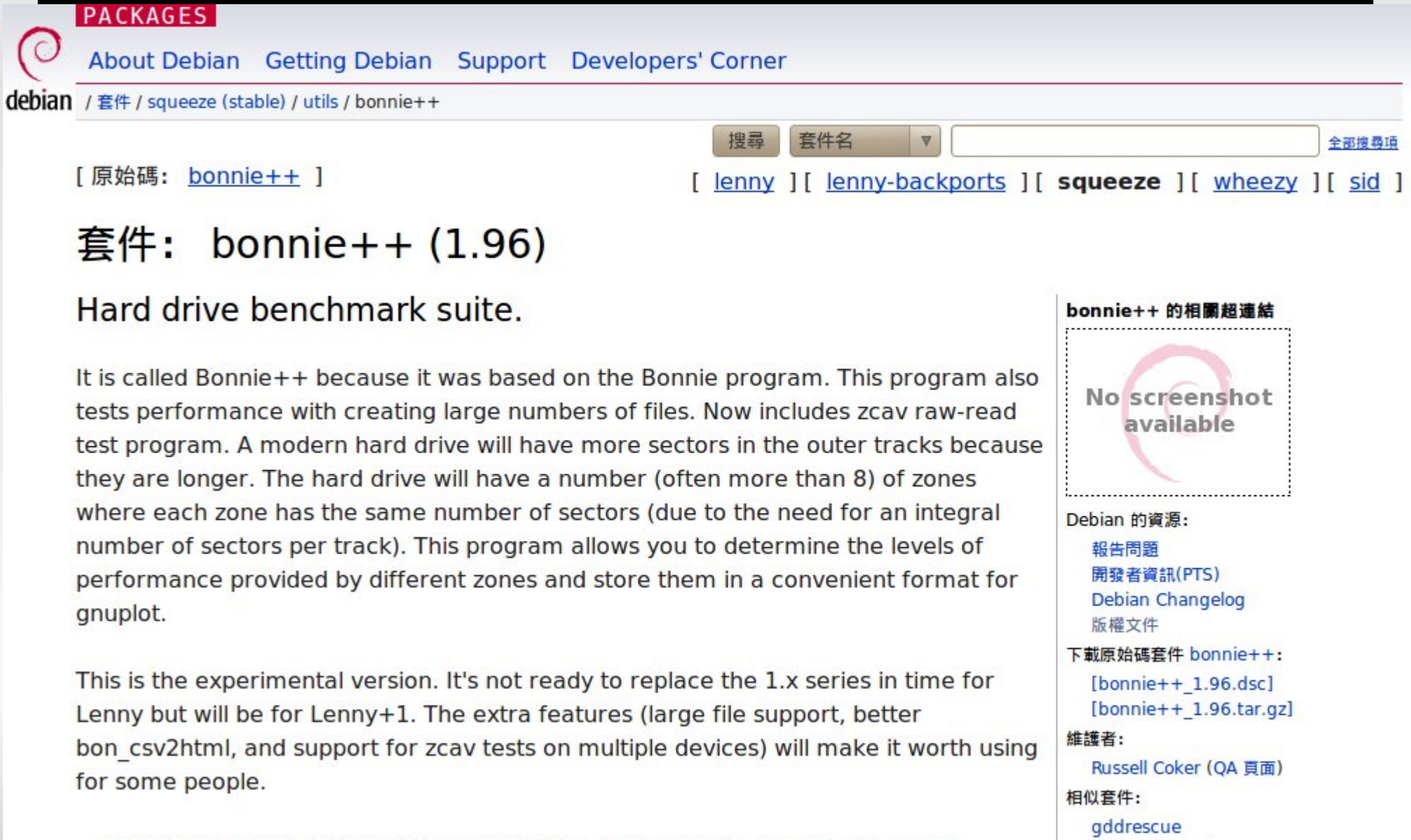
bonnie++ 測試檔案系統效能



作者部落格： http://etbe.coker.com.au/category/benchmark/

bonnie++ 安裝

~$ sudo apt-get install bonnie++



PACKAGES

About Debian Getting Debian Support Developers' Corner

debian / 套件 / squeeze (stable) / utils / bonnie++

搜尋 套件名 全部搜尋項

[原始碼: bonnie++]

[lenny][lenny-backports][squeeze][wheezy][sid]

套件: bonnie++ (1.96)

Hard drive benchmark suite.

It is called Bonnie++ because it was based on the Bonnie program. This program also tests performance with creating large numbers of files. Now includes zcav raw-read test program. A modern hard drive will have more sectors in the outer tracks because they are longer. The hard drive will have a number (often more than 8) of zones where each zone has the same number of sectors (due to the need for an integral number of sectors per track). This program allows you to determine the levels of performance provided by different zones and store them in a convenient format for gnuplot.

This is the experimental version. It's not ready to replace the 1.x series in time for Lenny but will be for Lenny+1. The extra features (large file support, better bon_csv2html, and support for zcav tests on multiple devices) will make it worth using for some people.

bonnie++ 的相關超連結

No screenshot available

Debian 的資源:

報告問題
開發者資訊(PTS)
Debian Changelog
版權文件

下載原始碼套件 bonnie++:

[bonnie++_1.96.dsc]
[bonnie++_1.96.tar.gz]

維護者:

Russell Coker (QA 頁面)

相似套件:

gddrescue

bonnie++ 執行

```
# bonnie++ -d /home/gpfs_mount/ -s 16000:1048576
 -r 1024 -u root
```

- -d 要測試的目錄
- -s 測試的檔案大小 (MB)
- -n 測試的檔案數 (Byte)
- -m 機器的名稱，自行命名，只會顯示在螢幕上，不影響結果
- -r 指定記憶體大小 (MB)
- -x 測試次數
- -u 你所要使用的 user-id，不建議使用 root
- -g 你所要使用的 group-id
- -q 安靜模式，只會顯示結果，其它額外的訊息會被隱藏
- -f 快速模式，會跳過 per-char IO 測試
- -b 不要寫入緩衝， fsync (即時寫入)
- -p 有多少的 processes 要來服務 semaphores
- -y 在每次測試前等待 semaphore

bonnie++ 執行結果

```
bonnie++ -d /home/gpfs_mount/ -s 16000:1048576  -r 1024 -u root
Using uid:0, gid:0.
Writing with putc()...done
Writing intelligently...done
Rewriting...done
Reading with getc()...done
Reading intelligently...done
start 'em...done...done...done...
Create files in sequential order...done.
Stat files in sequential order...done.
Delete files in sequential order...done.
Create files in random order...done.
Stat files in random order...done.
Delete files in random order...done.
Version  1.03       ------Sequential Output------ --Sequential Input- --Random-
                    -Per Chr- --Block-- -Rewrite- -Per Chr- --Block-- --Seeks--
Machine   Size:chnk K/sec %CP K/sec %CP K/sec %CP K/sec %CP K/sec %CP  /sec %CP
gpfs-s 16000M:1024k 52540  84 52879   4 20592   3 53244  91 79776   8  51.4   5
                    ------Sequential Create------ --------Random Create--------
                    -Create-- --Read--- -Delete-- -Create-- --Read--- -Delete--
              files  /sec %CP  /sec %CP  /sec %CP  /sec %CP  /sec %CP  /sec %CP
                 16   317   1  1171   1   658   1   366   1  1657   2   427   1
gpfs-server,16000M:1024k,52540,84,52879,4,20592,3,53244,91,79776,8,51.4,5,16,317,1,117
```

參考： http://trac.nchc.org.tw/grid/wiki/bonnie%2B%2B

dbench 網路儲存效能分析 *

- home
- download

- manual page
- NFS-Loadfiles
- SMB-Loadfiles
- iSCSI-Loadfiles

=-=-=-

dbench 網路儲存效能分析 *

- dbench 包含三隻主要程式：
  - dbench 、 tdench 、 smbtorture
- dbench 只提供檔案系統 I/O 的負載，它將 samba server 的實際執行的動作以文字檔記錄後，由 dbench 程式依其內容對 samba server 作相同的檔案系統 I/O 呼叫藉此模擬實際的存取情況，但 dbench 程式並沒有實際執行的網路呼叫動作。
- tdench 工具則在執行 samba 網路傳輸方面的 TCP 負載測試，和 NetBench 的動作相同但卻沒有執行檔案系統 I/O 呼叫動作，因此執行 tdench 後將得到一個模擬 NetBench 測試的最大網路傳輸值。

參考：測試認證環境建置之測試流程，
http://www.oss.org.tw/doc/94doc/2e.pdf

iperf 網路頻寬效能測試

Iperf

Iperf was developed by NLANR/DAST as a modern alternative for measuring maximum TCP and UDP bandwidth performance. Iperf allows the tuning of various parameters and UDP characteristics. Iperf reports bandwidth, delay jitter, datagram loss.

Latest News

JPerf 2.0.0 Released 2008-03-19 18:16 - Iperf

Nicolas Richasse has resurrected the jperf code base and brought it up to date. This is a binary

Read More »

Iperf 2.0.3 released 2008-03-18 21:41 - Iperf

Iperf 2.0.3 addresses several issues with Iperf. This release is a bug fix release and does not add any significant new functionality.

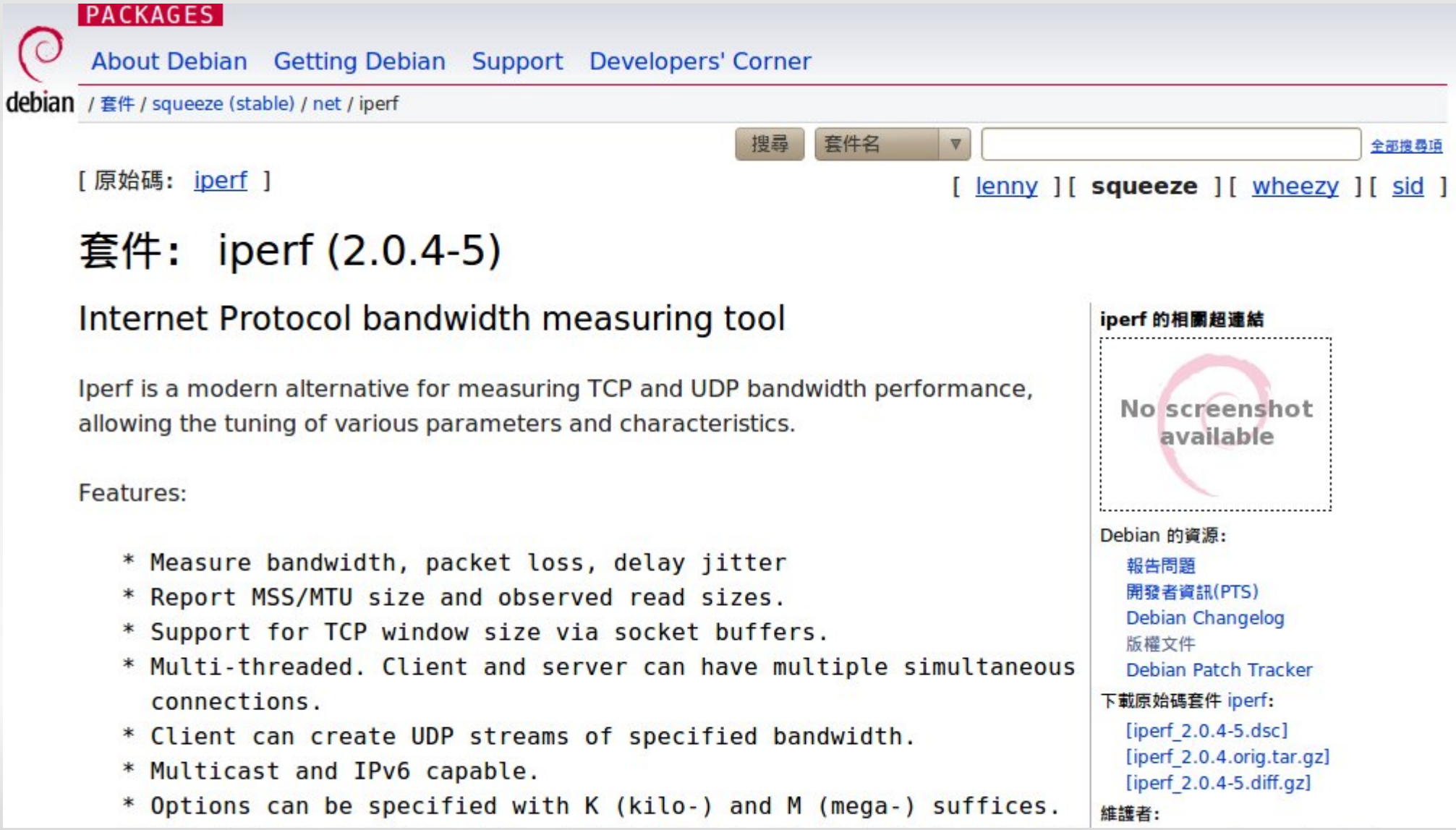
Bugs fixed in 2.0.3:

Read More »

Site news archive »

iperf 安裝

~$ sudo apt-get install iperf



PACKAGES

About Debian Getting Debian Support Developers' Corner

debian / 套件 / squeeze (stable) / net / iperf

搜尋 套件名 全部搜尋項

[原始碼: iperf]

[lenny][**squeeze**][wheezy][sid]

套件: iperf (2.0.4-5)

Internet Protocol bandwidth measuring tool

Iperf is a modern alternative for measuring TCP and UDP bandwidth performance, allowing the tuning of various parameters and characteristics.

Features:

* Measure bandwidth, packet loss, delay jitter
* Report MSS/MTU size and observed read sizes.
* Support for TCP window size via socket buffers.
* Multi-threaded. Client and server can have multiple simultaneous connections.
* Client can create UDP streams of specified bandwidth.
* Multicast and IPv6 capable.
* Options can be specified with K (kilo-) and M (mega-) suffices.

iperf 的相關超連結

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Debian 的資源:

報告問題
開發者資訊(PTS)
Debian Changelog
版權文件
Debian Patch Tracker

下載原始碼套件 iperf:

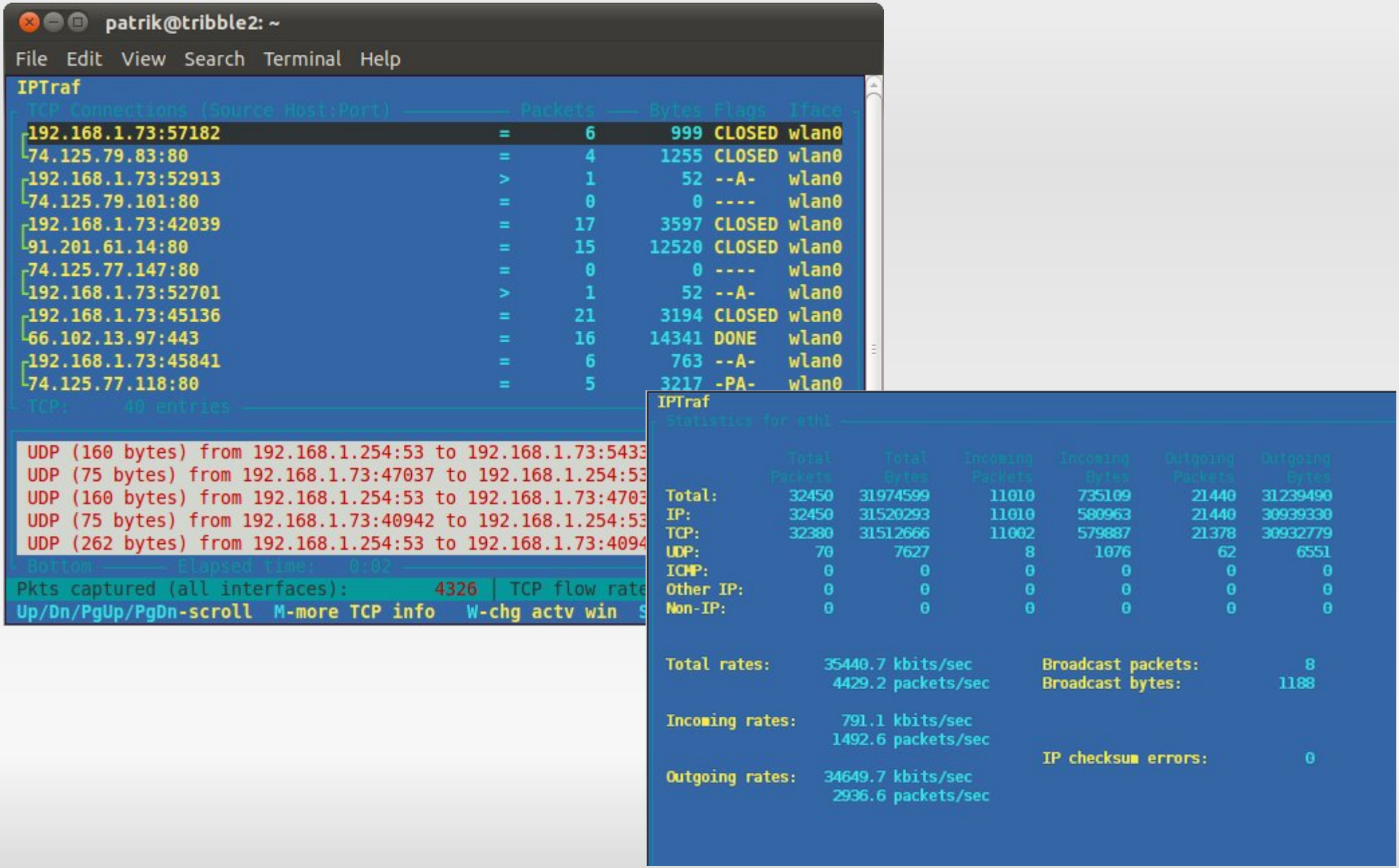
[iperf_2.0.4-5.dsc]
[iperf_2.0.4.orig.tar.gz]
[iperf_2.0.4-5.diff.gz]

維護者:

iperf 執行

```
@140.110.240.192 當 Server
~$ sudo iperf -s -u
------------------------------------------------------------
@ 任意台當 Client
~$ sudo iperf -c 140.110.240.192 -u
------------------------------------------------------------
Client connecting to 140.110.240.192, UDP port 5001
Sending 1470 byte datagrams
UDP buffer size:   122 KByte (default)
------------------------------------------------------------
[  3] local 172.21.253.152 port 33083 connected with 140.110.240.192 port 5001
[ ID] Interval       Transfer     Bandwidth
[  3]  0.0-10.0 sec  1.25 MBytes  1.05 Mbits/sec
[  3] Sent 892 datagrams
[  3] Server Report:
[ ID] Interval       Transfer     Bandwidth       Jitter   Lost/Total Datagrams
[  3]  0.0- 9.9 sec  1.25 MBytes  1.05 Mbits/sec  2.526 ms    0/  891 (0%)
[  3]  0.0- 9.9 sec  1 datagrams received out-of-order
```

iptraf 即時網路封包流量統計



iptraf 安裝與執行

```
~$ sudo apt-get install iptraf
~# iptraf
```

PACKAGES

About Debian Getting Debian Support Developers' Corner

debian / 套件 / squeeze (stable) / net / iptraf

搜尋 套件名 全部搜尋項

[原始碼: iptraf]

[lenny][squeeze][wheezy][sid]

套件: iptraf (3.0.0-7)

Interactive Colorful IP LAN Monitor

IPTraf is an ncurses-based IP LAN monitor that generates various network statistics including TCP info, UDP counts, ICMP and OSPF information, Ethernet load info, node stats, IP checksum errors, and others.

標籤: 系統管理: 監看, 使用者介面: 文字模式, Network Protocol: IP, 角色: 程式, 範圍: 實用程式, Interface Toolkit: Ncurses TUI, Purpose: 監看

其他與 iptraf 有關的套件

● 依賴 ■ 推薦 ◆ 建議

● dep: libc6 (>= 2.3) [amd64, i386, mips, mipsel]

iptraf 的相關超連結

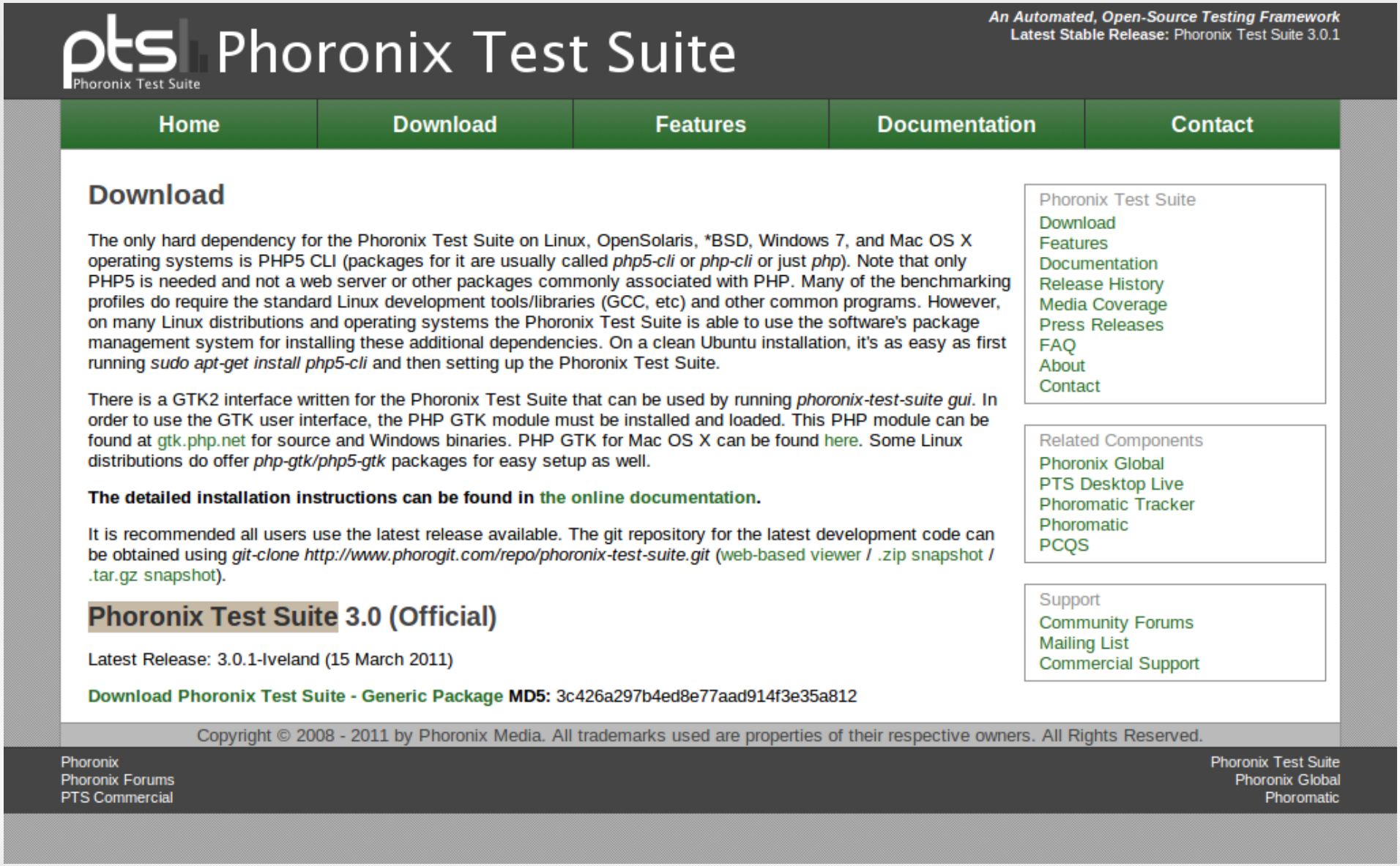
Debian 的資源:

報告問題
開發者資訊(PTS)
Debian Changelog
版權文件
Debian Patch Tracker

下載原始碼套件 iptraf:

[iptraf_3.0.0-7.dsc]
[iptraf_3.0.0.orig.tar.gz]
[iptraf_3.0.0-7.diff.gz]

Phoronix Test Suite： 推薦 !!

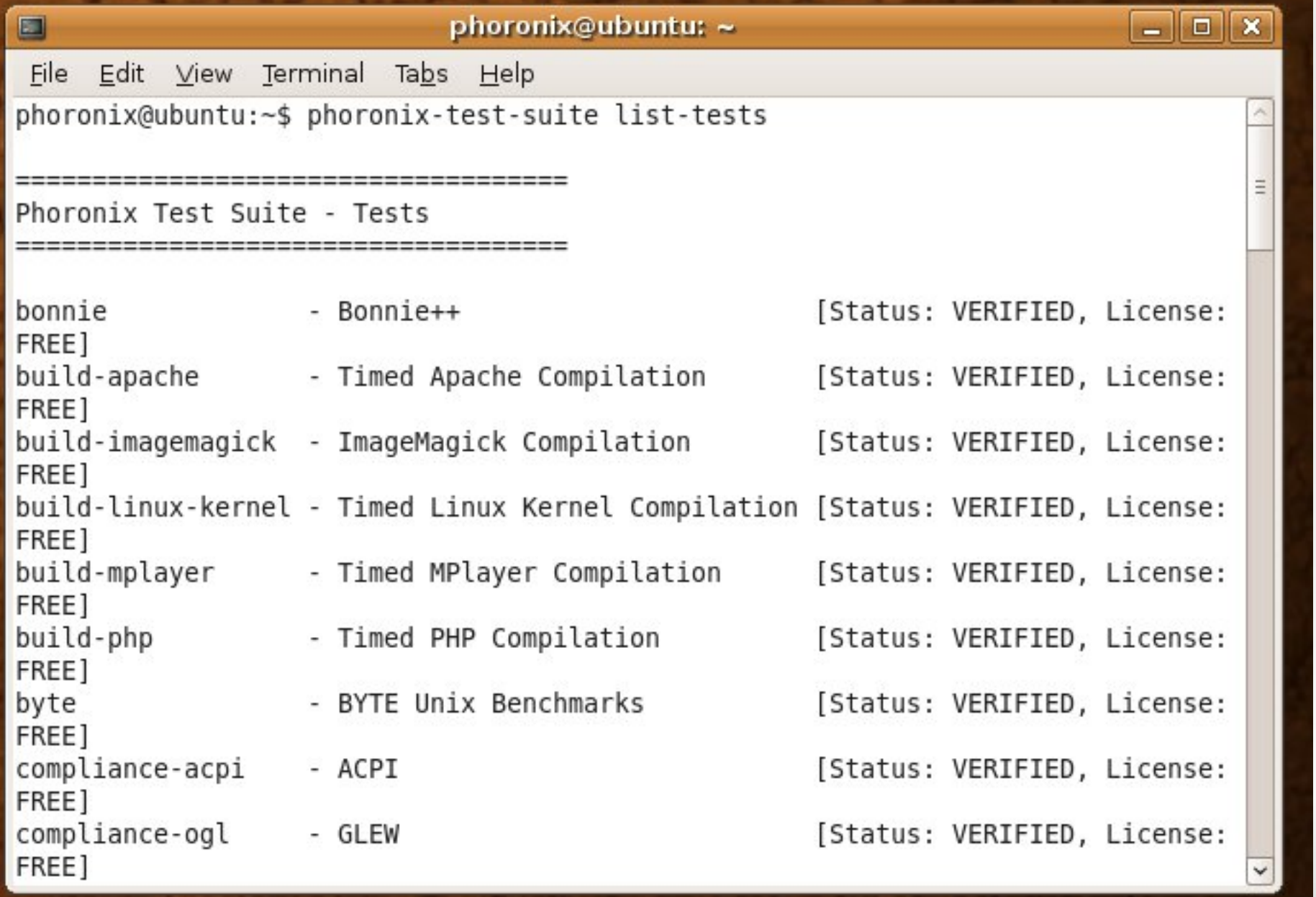


http://www.phoronix-test-suite.com

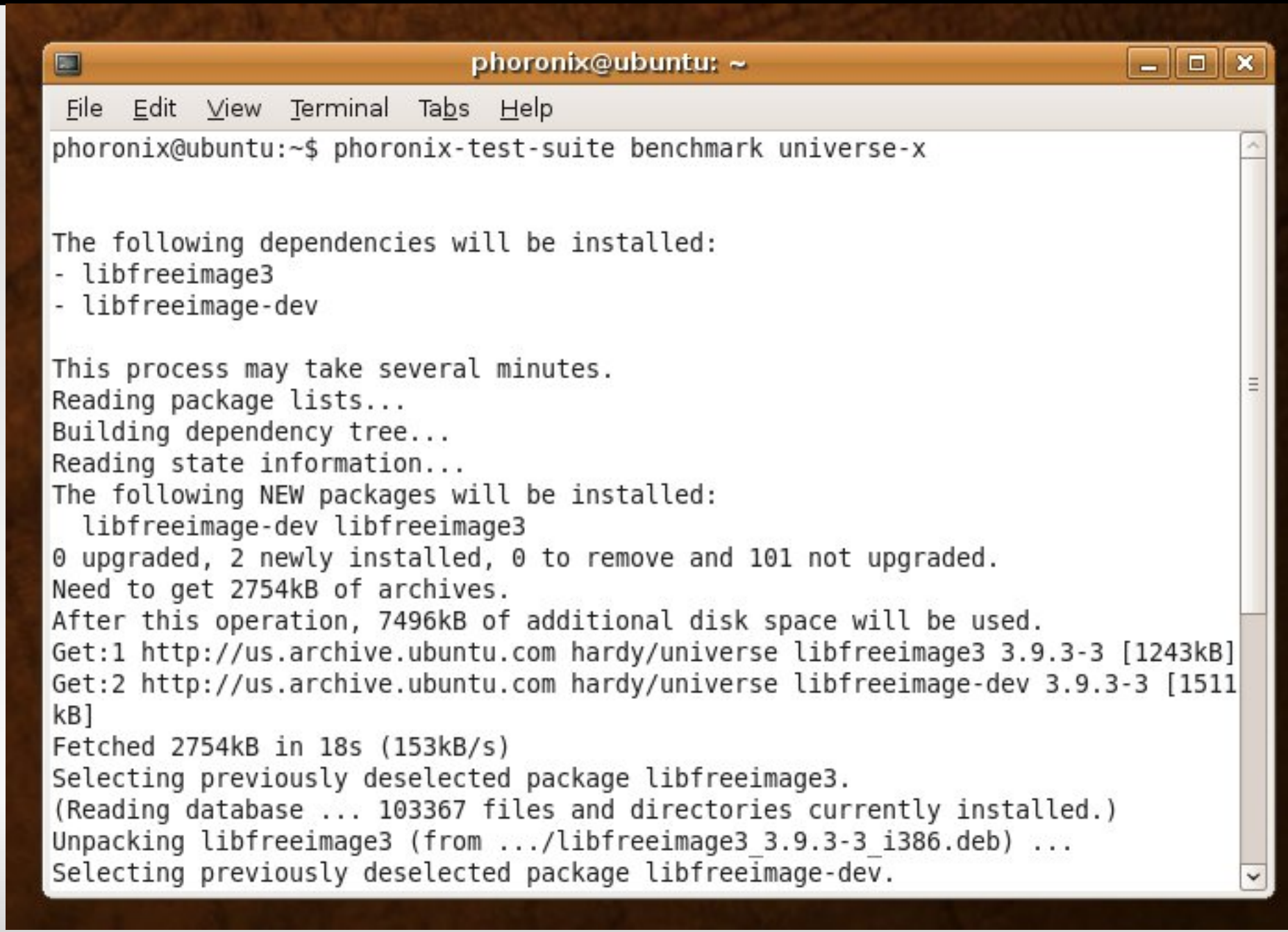
Phoronix Test Suite 安裝

```
~$ sudo apt-get install php5-cli
~$ wget http://www.phoronix-test-suite.com/releases/phoronix-test-suite-3.0.1.tar.gz
~$ tar zxvf phoronix-test-suite-3.0.1.tar.gz
~$ cd phoronix-test-suite/
~/phoronix-test-suite$ sudo ./install-sh
```

Phoronix Test Suite 執行



Phoronix Test Suite 執行



Phoronix Test Suite 結果

【測試案例】

1. CPU 效能比較

	Xen-PV	Xen-HVM	KVM-HVM	Help
Phoronix Test Suite - Kernel Compilation	2304.17 secs	2885.10 secs	3228.48 secs	Fewer are better
Phoronix Test Suite - FFmpeg	20.87 secs	20.96 secs	21.79 sces	Fewer are better
Phoronix Test Suite - Wavpack	17.34 secs	18.16 secs	18.78 secs	Fewer are better

XenPV01 規格 = 1 CPU + 10GB HD + 1GB RAM + 500MB SWAP (說明: 虛擬機器數量一台: Xen Para-Virtualization)
XenHVM01 規格 = 1 CPU + 10GB HD + 1GB RAM + 500MB SWAP (說明: 虛擬機器數量一台: Xen Full Virtualization)
KVMhvm01 規格 = 1 CPU + 10GB HD + 1GB RAM + 500MB SWAP (說明: 虛擬機器數量一台: KVM Full Virtualization)

小結: Xen Para-Virtualization 有最佳的效能, Full Virtualization 也是 Xen-HVM 最佳 (Xen-PV > Xen-HVM > KVM-HVM)

2. Memory 效能比較

	Xen-PV	Xen-HVM	KVM-HVM	Help
Phoronix Test Suite - CacheBench	Read: 2026.32 MB/s Write: 7995.89 MB/s Read/Modify/Write: 16612.87 MB/s	Read: 2020.17 MB/s Write: 8338.78 MB/s Read/Modify/Write: 16564.89 MB/s	Read: 2008.86 MB/s Write: 7940.70 MB/s Read/Modify/Write: 16436.59 MB/s	More is better
Phoronix Test Suite - RAMspeed	Integer: 3934.79 MB/s Floating Point: 3961.87 MB/s	Integer: 3663.37 MB/s Floating Point: 3688.82 MB/s	Integer: 3872.83 MB/s Floating Point: 3910.84 MB/s	More is better

XenPV01 規格 = 1 CPU + 10GB HD + 1GB RAM + 500MB SWAP (說明: 虛擬機器數量一台: Xen Para-Virtualization)

參考：http://trac.nchc.org.tw/grid/wiki/KVM_vs_Xen

Phoronix Test Suite 結果

View Results

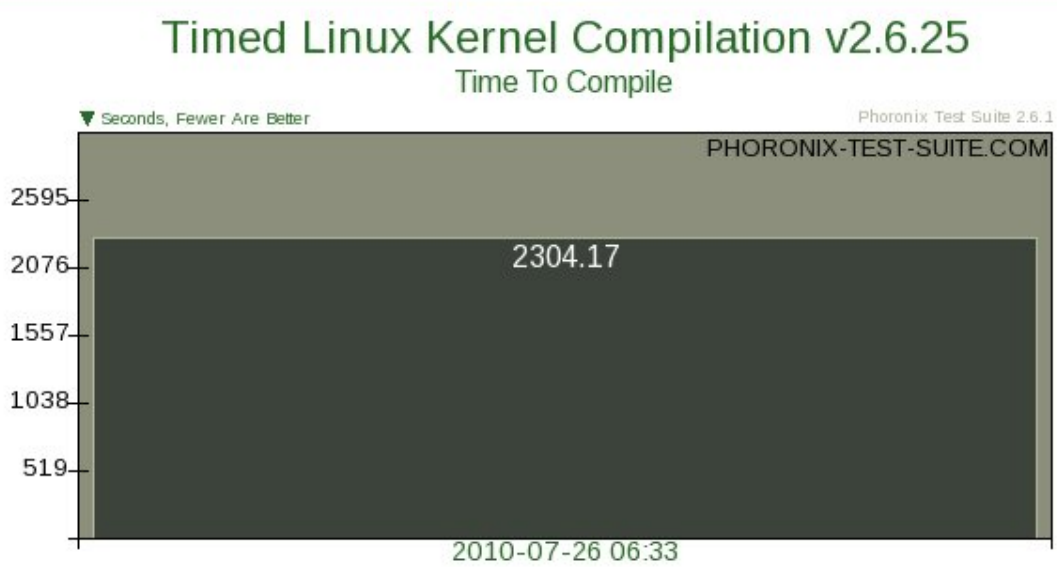
Advertisement

Ads by Google

High Speed Messaging
Low latency, high throughput. See the benchmarks.
www.rti.com

Test Results

Timed Linux Kernel Compilation 2.6.25
Time To Compile



Compare these results against your Linux PC. Run **phoronix-test-suite benchmark rider-31384-9313-1284** and wait for the results (with comparative numbers) to appear. It's as easy as that!

Global ID: rider-31384-9313-1284

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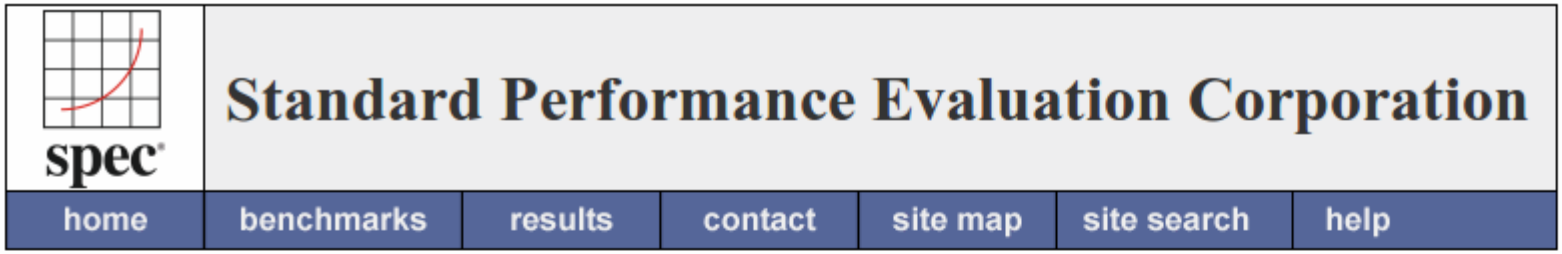
參考：http://trac.nchc.org.tw/grid/wiki/KVM_vs_Xen

Benchmark 工業標準

- Embedded Microprocessor Benchmark Consortium (EEMBC)
- Standard Performance Evaluation Corporation (SPEC)

SPEC



Benchmarks

- CPU
- Graphics/Workstations
- MPI/OMP
- Java Client/Server
- Mail Servers
- Network File System
- Power
- SIP
- SOA
- Virtualization
- Web Servers

- Results Search

- Submitting Results
  CPU/Java/Mail/Power/SFS
  Virtualization/Web
  MPI/OMP
  SPECapc/SPECviewperf

Order Benchmarks

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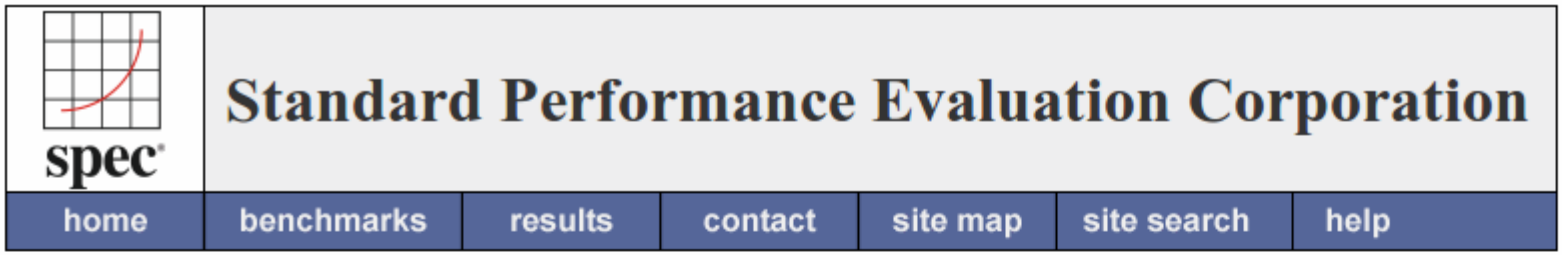
The Standard Performance Evaluation Corporation (SPEC) is a non-profit corporation formed to establish, maintain and endorse a standardized set of relevant benchmarks that can be applied to the newest generation of high-performance computers. SPEC develops benchmark suites and also reviews and publishes submitted results from our member organizations and other benchmark licensees.

The SPEC office will be relocating beginning March 29, and order fulfillment for orders placed between noon Eastern March 25 and March 31 will be delayed. Normal operations will resume on Friday, April 1.

What's New:

03/15/2011 - SPEC's Research Group has been formed to develop standard scenarios and workloads for emerging technologies and applications. It is designed to encourage exchange among representatives from industry, academia and research institutes. For further information, see

SPECvirt sc2010



Results

- Published Results
- Results Search
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Information

- SPECvirt_sc2010
- Documentation
  - FAQ
  - User's Guide
  - Client Harness User's Guide
  - Run & Reporting Rules
  - Known Issues
  - Design Overview
  - Technical Support FAQ

Press and Publications

- SPECvirt_sc2010 Released

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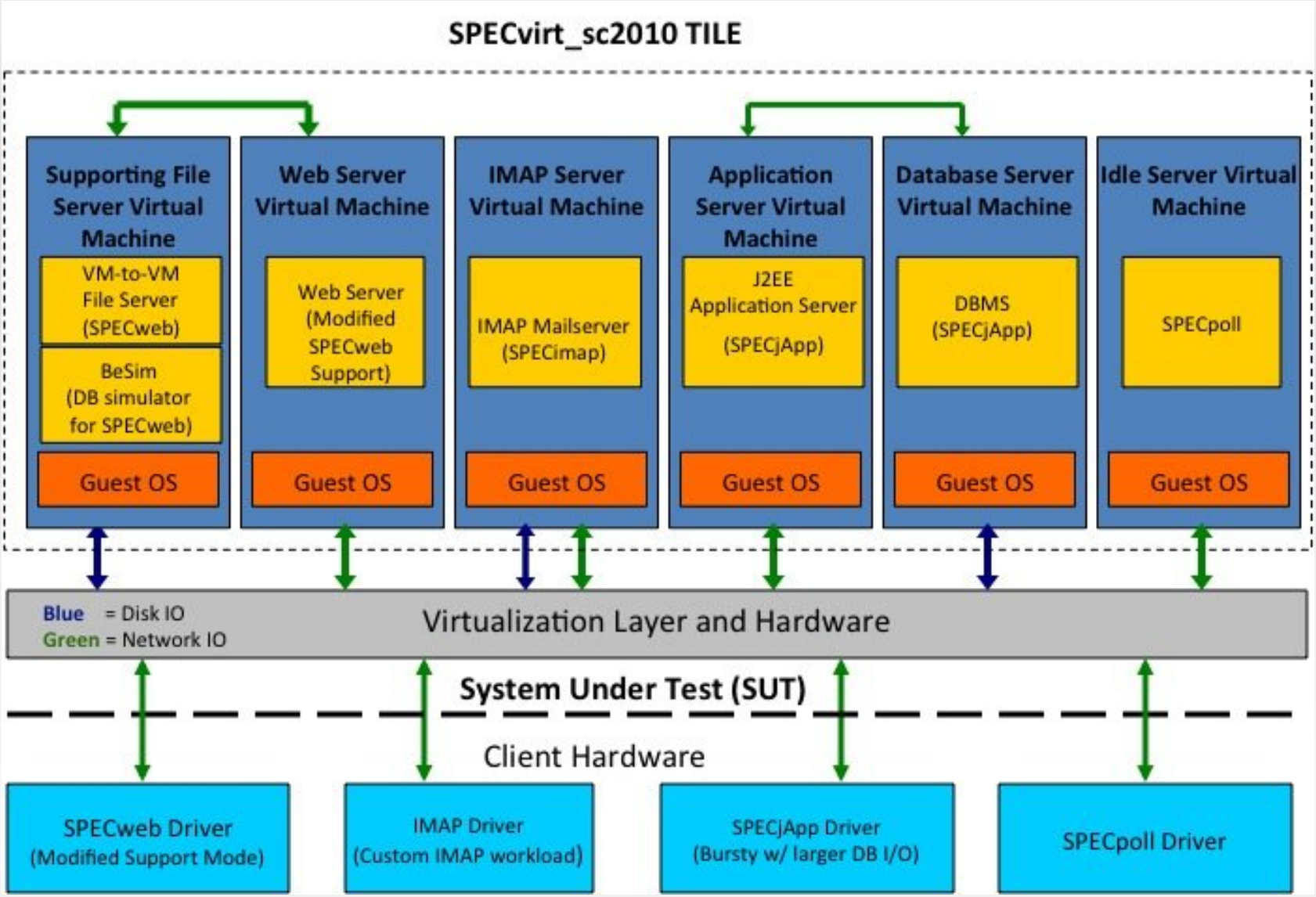
SPECvirt_sc2010

SPECvirt_sc2010 is SPEC's first benchmark addressing performance evaluation of datacenter servers used in virtualized server consolidation. SPECvirt_sc2010 measures the end-to-end performance of all system components including the hardware, virtualization platform, and the virtualized guest operating system and application software. The benchmark supports hardware virtualization, operating system virtualization, and hardware partitioning schemes.

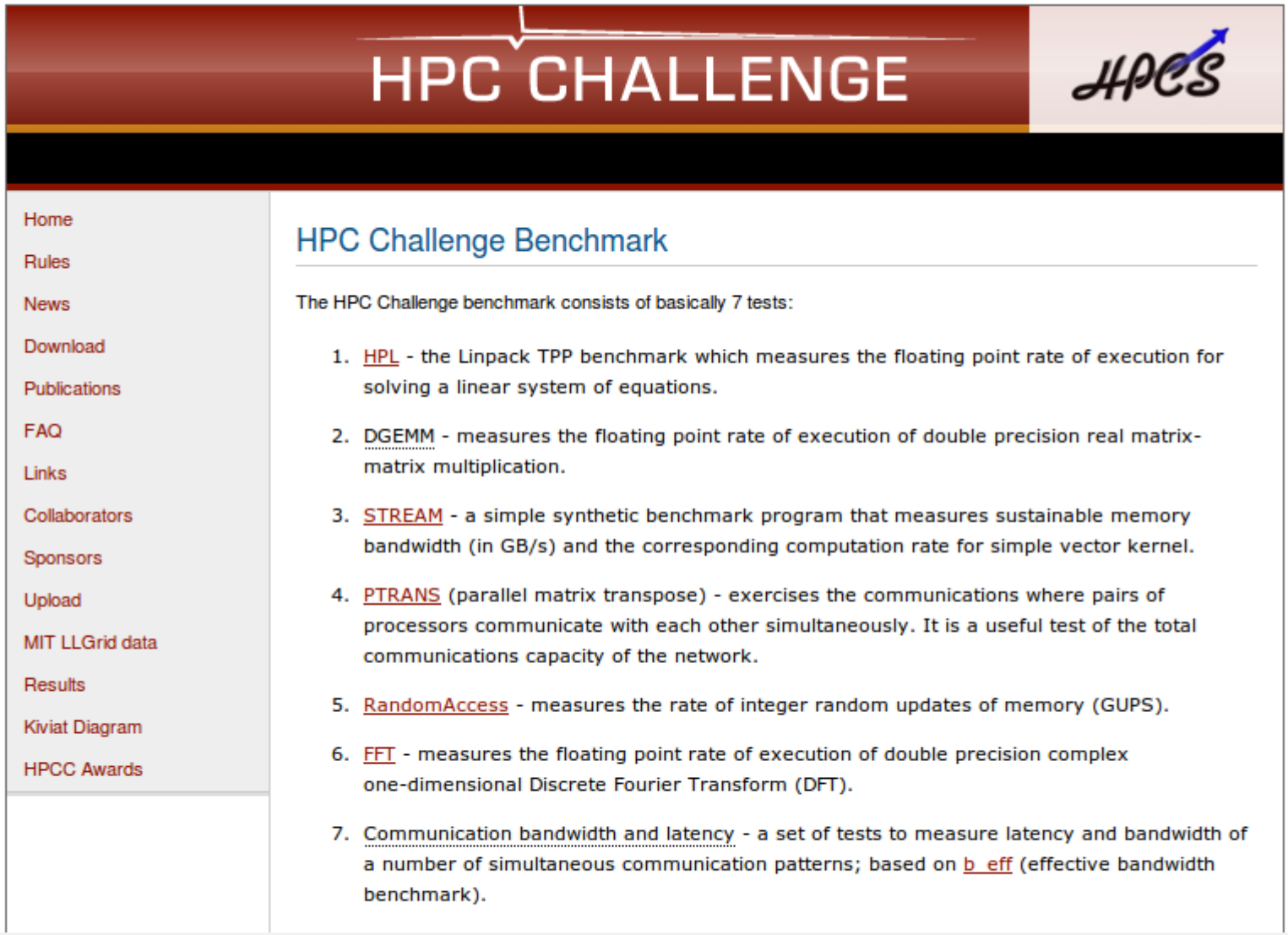
The benchmark utilizes several SPEC workloads representing applications that are common targets of virtualization and server consolidation. We modified each of these standard workloads to match a typical server consolidation scenario of CPU resource requirements, memory, disk I/O, and network utilization for each workload. These workloads are modified versions of SPECweb2005, SPECjAppServer2004, and SPECmail2008. The client-side SPECvirt_sc2010 harness controls the workloads. Scaling is achieved by running additional sets of virtual machines, called "tiles", until overall throughput reaches a peak. All VMs must continue to meet required quality of service (QoS) criteria.

SPECvirt sc2010 測試架構



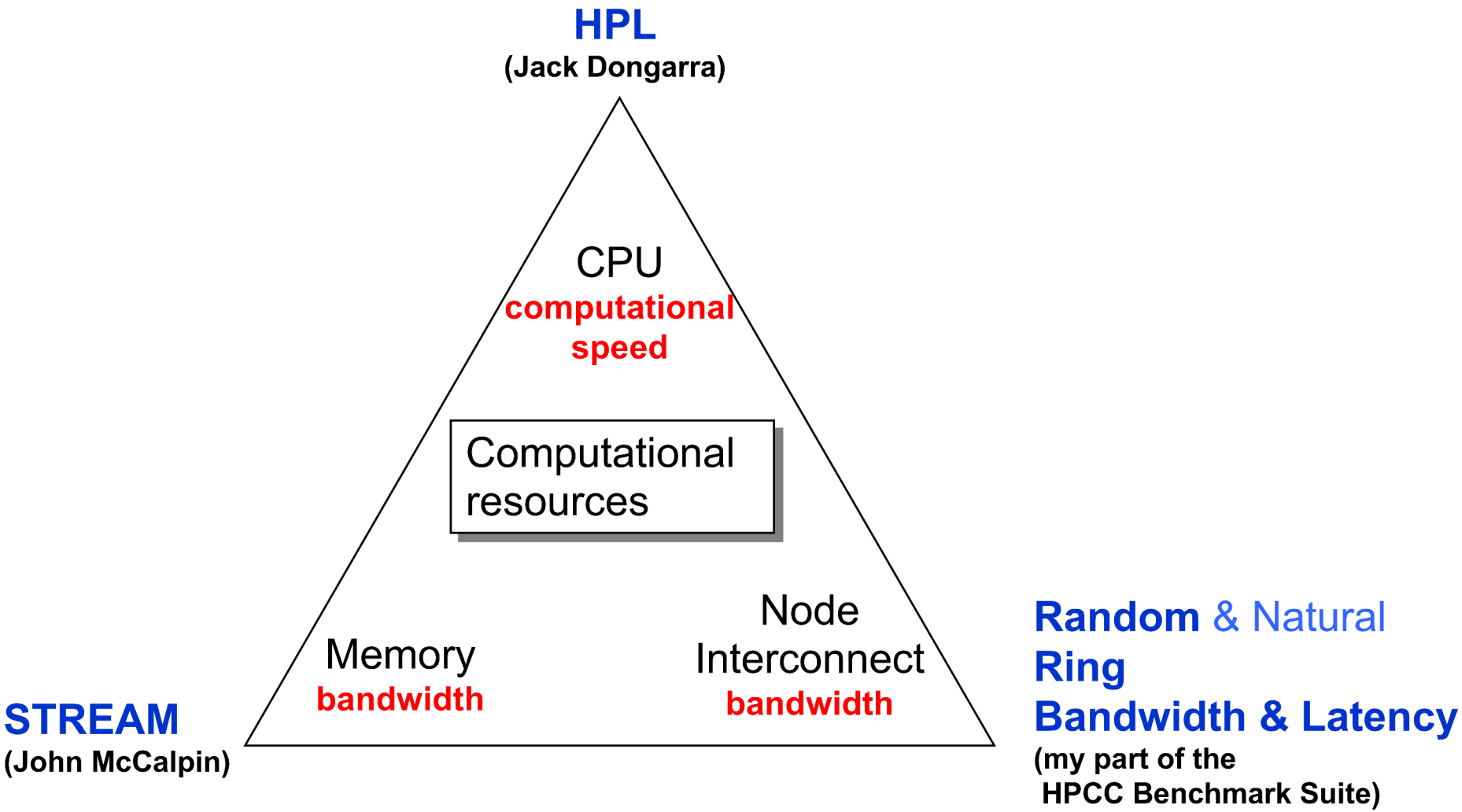
http://www.spec.org/virt_sc2010/docs/SPECvirt_Design_Overview.html

HPC Challenge Benchmark



http://icl.cs.utk.edu/hpcc/

HPCC 是 TOP500 叢集的評分標準



參考： http://icl.cs.utk.edu/projectsfiles/hpcc/pubs/sc06_hpcc.pdf

HPCC 安裝

~$ sudo apt-get install hpcc

PACKAGES

About Debian Getting Debian Support Developers' Corner

/ 套件 / squeeze (stable) / science / hpcc

搜尋 套件名 全部搜尋項

[原始碼: hpcc]

[squeeze] [wheezy] [sid]

套件: hpcc (1.4.1-1)

HPC Challenge benchmark

The High Performance Computing (HPC) Challenge benchmark runs a suite of 7 tests that measure the performance of CPU, memory and network for HPC clusters. Amongst others, it includes the High-Performance LINPACK (HPL) benchmark, used by the Top500 ranking (http://www.top500.org/).

其他與 hpcc 有關的套件

● 依賴 ■ 推薦 ◆ 建議

- **dep: libatlas3gf-base [除 mips]**

hpcc 的相關超連結

No screenshot available

Debian 的資源:

報告問題
開發者資訊(PTS)
Debian Changelog
版權文件
Debian Patch Tracker

下載原始碼套件 hpcc:

[hpcc_1.4.1-1.dsc]