IBM Power 520
介绍及典型配置方法

IBM Power 520概述

高性能的部门级服务器—— ***Power 520***

- 性能突出的部门级服务器
- 支持AIX,i,Linux操作系统
- 性能功耗比比p5+ QCM芯片提高36%

New!

- ✓4.2 GHz POWER6
- ✓Up to 64 GB of memory
- ✓Optional Quad 1 GB or Dual 10 GB Ethernet
- ✓New SAS and PCI-Express

What's your requirement?

- Branch office applications (i.e. ERP, CRM, Small Database)
- eCommerce or Java™ middleware-based transactional server
- Entry Consolidation Server

POWER6 BUILT ON Power

POWER6 p520 4U Rack & Tower

AIX 6

AIX 5.3

Linux

p520 Rack & Tower	
Architecture	1, 2, or 4 cores @ 4.2 GHz L3 Cache: N/A
DDR2 Memory	Up to 64GB (Buffered)
Internal SAS Disks	6 DASD (3.5”)
Expansion	▪ PCIe: 3 Slots ▪ PCI-X 266: 2 Slots ▪ GX Bus: 2 Slots ‣ Shared with PCIe 1 slots
Integrated SAS / SATA	Yes Optional: RAID support
Integrated Ports	3 USB, 2 Serial, 2 HMC Optional: SAS port
Integrated Virtual Ethernet	▪ Dual Port 10/100/1000 Ethernet ▪ Optional: Quad 1Gbt or Dual 10Gbt
Media Bays	1 Slim-line DVD 1 Half High Tape
Remote IO Drawers	Yes / Max: 8 GX Bus connection: RIO2 / InfiniBand
Dynamic LPAR	Up to 40 partitions
Redundant Power	Optional
Redundant Cooling	Yes
OS Support	AIX 5.3. AIX 6.1 and Linux

p520 Physical Specifications:

Deskside/Desktop:

- Width: 328.5 mm (12.9 in) with tip foot
  - 182.3 mm (7.2 in) without tip foot
- Depth: 778 mm (30.6 in)
- Height: 540 mm (21.3 in)

Rack-Mount:

- Width: 440 mm (17.3 in)
- Depth: 538 mm (21.2 in)
- Height: 173 mm (6.8 in)

Weight:

- Rack-mount: 31.75 kg (70 lb)
- Deskside: 40.8 kg (90 lb)

Additional p520 Information….

Operating voltage:
- 100 to 127 or 200 to 240 V

Operating Frequency: 50/60 Hz

Power Consumption: 850 watts (maximum)

Power Factor: 0.97

Thermal Output: 2,901 Btu/hour (maximum)

Power-source Loading
- 0.876 kva (maximum configuration)

Noise Level and Sound
- Deskside system: 6.3 bels operating (preliminary data)
- Rack-mount drawer: 6.9 bels operating (preliminary data)

p520 Software Requirements:

If installing the AIX operating system (one of these):

- AIX V5.3 with the 5300-07 Technology Level, or later
- AIX V6.1, or later

If installing Linux (one of these):

- SUSE Linux Enterprise Server 10 SP1 for POWER Systems, or later
- Red Hat Enterprise Linux 4.5 for POWER, or later
- Red Hat Enterprise Linux 5.1 for POWER, or later

AIX 5.3

System p520 Bandwidth

Memory	Bandwidth
L1 (Data)	**67.2** GB/sec
L2 / Chip	**168** GB/sec
Memory / Chip 4 core	**16** GB/sec **32** GB/sec
Total I/O Bandwidth Internal I/O Bus GX Bus Slot 1 GX Bus Slot 2	**14** GB/sec **8.4** GB/sec Bus with 4.2 GB/sec Passthru Bus **4.2** GB/sec (Passthru Bus) **5.6** GB/sec (4 Core System)

Calculations for 4.2 GHz processors and 667 MHz memory

p520 I/O Expansion

7311-D20 and FC 5796 PCI-X Expansion Drawers

- Maximum of four drawers per adapter
- Maximum of two RIO/IB loops
- Total of eight drawers per p520 system

SAS DASD Expansion Drawer

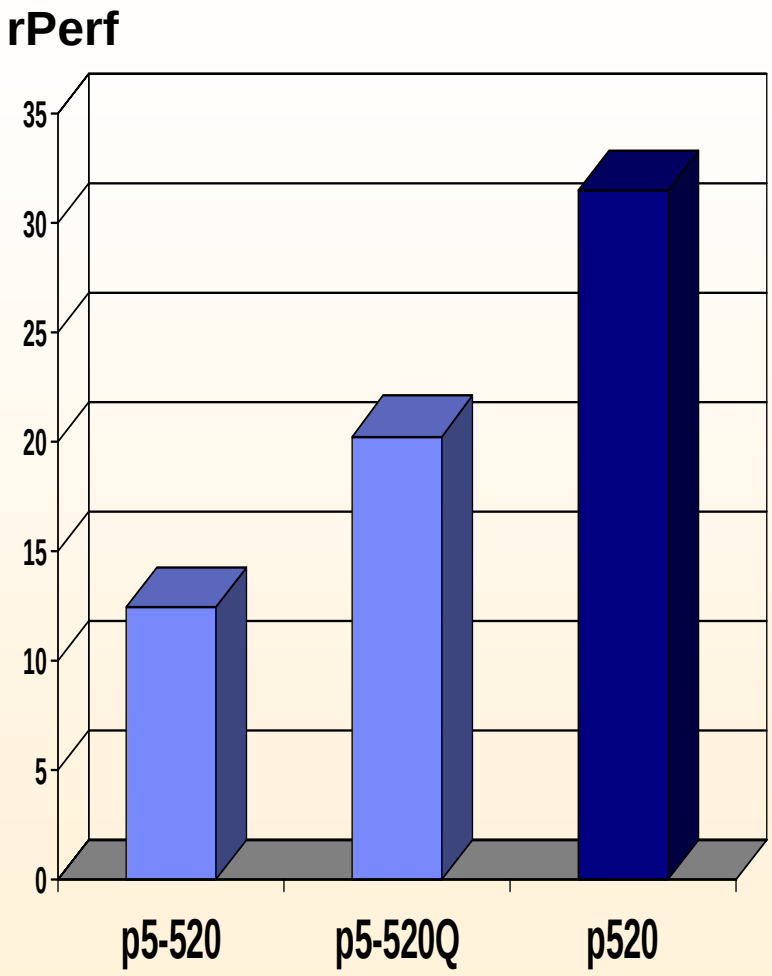
- FC 8345 supports one SAS drawer.
- FC 5912 (maximum of 2) supports eight SAS drawers, four per FC 5912.
- Not orderable on 1-core system

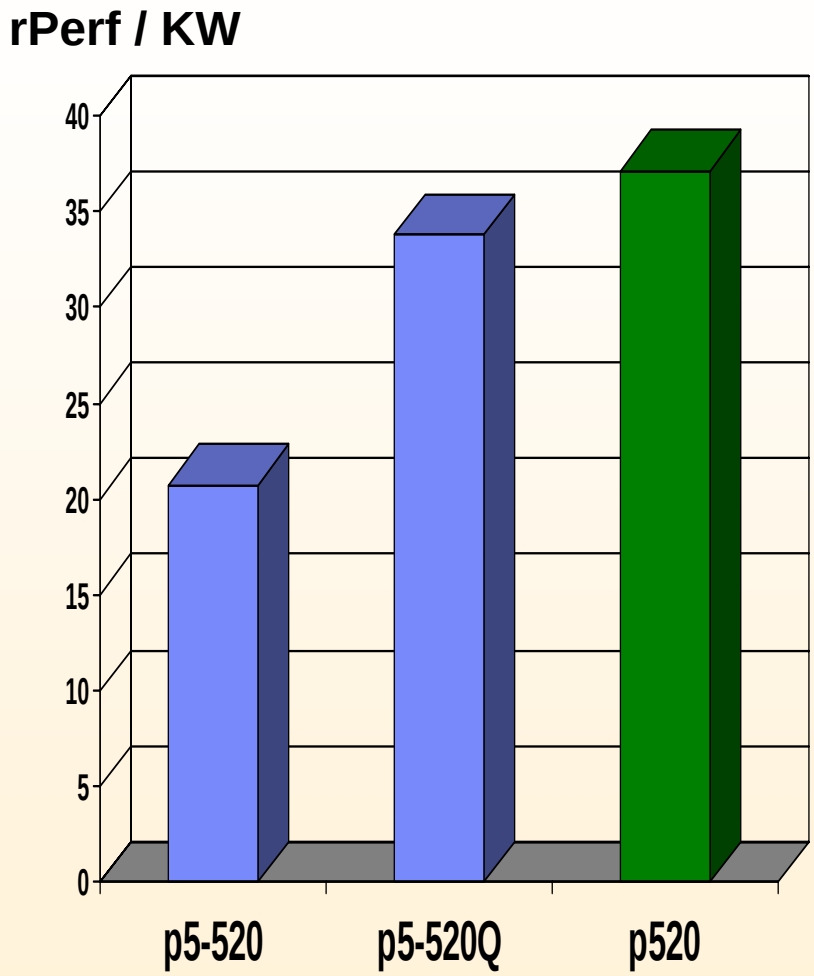
A 7311-D20 or FC 5796 Expansion Drawer is not supported on Deskside

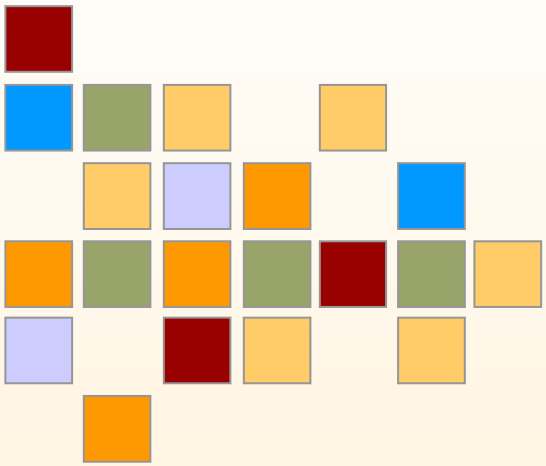
520 Family Positioning Comparison

	p5-520	p5-520Q	p520
Footprint, packaging	19-inch rack, Tower	19-inch rack, Tower	19-inch rack, Tower
Cores	1 & 2	4	1, 2, & 4
GHz clock Processor	1.9GHz & 2.1GHz POWER5+	1.65GHz POWER5+	4.2 GHz POWER6
L2 Cache	1.9MB (Shared dual core)	1.9MB (Shared dual core)	4MB (Per Core)
L3 Cache	36MB (Shared dual core)	36MB (Shared dual core)	N/A
DIMMs / Max GB memory	8 DIMMs / 1 to 32GB	8 DIMMs / 1 to 32GB	8 DIMMs / 1 to 64GB
Max Internal storage	2.4TB	2.4TB	2.7TB
Max PCI slots	6	6	2
Max PCIe slots	0	0	3
LPARs	20	40	40
I/O drawers	4	4	8
Memory Bandwidth	21.1 GB/sec	21.1 GB/sec	32 GB/sec
I/O Bandwidth	5 GB/sec	4.4 GB/sec	14 GB/sec
Performance rPerf	12.46	20.25	31.48

520 Performance Comparisons







Power 520
典型配置

Power 520 3 种典型配置方法

下面以 3 种典型配置的配置方法来说明 Power 520 的配置特点

- 2 台 2-core power 520，16 GB 内存，3 个硬盘，实现双机热备
- 1 台 4-core power 520， 32 GB 内存，支持 2 个 LPAR，每个LPAR有 2 个硬盘
- 1 台 1-core power 520，8 GB 内存，6个硬盘，支持内置RAID5硬盘保护

配置1：配置分析

2 台 2-core power 520，16 GB 内存，3 个硬盘，实现双机热备

1. 双机热备硬件需求：
   每台机器：1 块异步卡，2 块网卡，2 块HBA卡；
   Power 520 一个机箱支持 2 个 PCI-X 插槽，3 个 PCIe插槽
   其中异步卡只有 PCI-X 接口，
   最终结果为：
   PCI-X： 1 块 异步卡， 1块网卡
   PCIe： 1块网卡，2块 HBA卡
   最后，两台机器还要加一根串口线，来传输心跳。

配置 1：e-Config 配置步骤

2 台 2-core power 520，16 GB 内存，3 个硬盘
实现双机热备

1. Products->Processor: **(5634)-Proc Card => 1**
   System->Memory: **(4523)-8192MB (2x4096MB) RDIMMs=> 2**
   Storage->Hard Drives: **(3648)-300GB SAS Disk Drive => 3**

2. Adapters->Async/USB->**Adapters: (5723)-2**口异步卡 **=> 1**
   (3928)-9pin-9pin 串口线 **=> 1**

3. Adapters->LAN->Adapters: **(5701)-**单口以太网卡 **=> 1**
   Adapters->LAN->Adapters: **(5767)-**双口以太网卡 **=> 1**
   * PCIe接口没有单口以太网卡
   Adapters->HiPerf/RIO->Adapters: **(5773)-**单口**HBA**卡 **=> 2**

4. 配置 PowerHA软件

5. 按上述步骤配置第 2 台机器

配置 2：配置分析

1 台 4-core power 520， 32 GB 内存，支持 2 个 LPAR，每个LPAR有 2 个硬盘

1. Power 520 的缺省配置，一个机箱里面只有一个 SAS 控制器，只能一个 LPAR。为了实现Power 520内置磁盘背板分区的功能需要配置fc#8345磁盘背板，配合fc#3670这根内部的线缆连接到服务器本身集成的SAS控制器上，形成第一个SAS通路，管理一半的磁盘；第二个SAS通路需要配置fc#3679这根线缆连接fc#5912 SAS卡，管理另外一半的磁盘，使得内置SAS磁盘可以分配到两个分区中使用。

2. Power6 520中，内置光驱/磁带是被内置的SAS controller控制的，所以不可以在多个LPAR之间进行切换。要实现光驱/磁带在多个LPAR之间进行动态切换，可以通过连接外置光驱/磁带的方案来实现，目前可供选择的外置光驱/磁带是7214-1U2。

* 实现分区功能，Power 520需要一台 HMC或IVM来管理，关于HMC的配置不在此处讨论

配置 2：e-Config 配置步骤

1 台 4-core power 520， 32 GB 内存，支持 2 个 LPAR，每个LPAR有 2 个硬盘

1. Products->Processor: **(5635)-Proc Card => 1**
   System->Memory: **(4523)-8192MB (2x4096MB) RDIMMs=> 4**
   Storage->Hard Drives: **(3648)-300GB SAS Disk Drive => 4**
   Storage->Additional Hardware: **(8345)-DASD/Media Backplane for 3.5 DASD/DVD/Tape with External SAS Port=> 1**

2. Adapters->SCSI->Adapters: **(5912)-SAS控制卡 => 1**
   Adapters->SCSI->Accessories: **(3670)-SAS连接线 => 1**
   Adapters->SCSI->Accessories: **(3679)-SAS连接线 => 1**
   * 5912这块双通道SAS卡可以用来连接第二个分区的硬盘，同时也可以连接7214-1U2这个光驱、磁带一体机，但这个时候光驱和磁带机只能属于第二个分区，不能漂移。如果想实现漂移的功能，需要第二块5912SAS控制卡。

3. 从 SOSWOS 页面来配置7214-1U2.

配置 3：配置分析

- **1 台 1-core power 520，8 GB 内存，6个硬盘，支持内置RAID5硬盘保护**

1. Power 520需要通过内置 RAID 子卡来实现内置硬盘的硬件RAID。配置fc#5679 SAS RAID卡，该卡支持RAID 0、1、5、6和10,并且需要配置fc#8345的硬盘背板。

配置 3：e-Config 配置步骤

- **1 台 1-core power 520，8 GB 内存，6个硬盘，支持内置 RAID5硬盘保护**

1. Products->Processor: **(5633)-Proc Card => 1**
   System->Memory: **(4523)-8192MB (2x4096MB) RDIMMs=> 1**
   Storage->Hard Drives: **(3648)-300GB SAS Disk Drive => 6**
   Storage->Additional Hardware: **(5679)-SAS RAID Enablement=> 1**
   Storage->Additional Hardware: **(8345)-DASD/Media Backplane for 3.5 DASD/DVD/Tape with External SAS Port=> 1**

Power 520 参考文档

Power 520 产品介绍页面:
http://ibm.com/systems/power/hardware/520

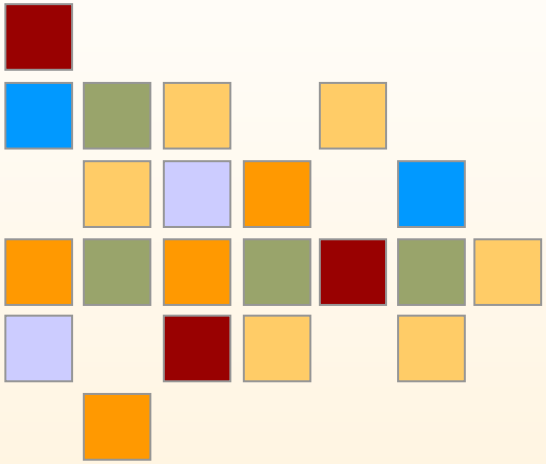
Power 520 DataSheet PDF 下载：
ftp://ftp.software.ibm.com/common/ssi/pm/sp/n/pod03001usen/POD03001USEN.PDF

Power systems 规格与功能：
http://ibm.com/systems/p/hardware/reports/

IBM 性能报告：
http://ibm.com/systems/p/hardware/reports/system_perf.html

销售手册：
http://ibm.com/common/ssi

MSN Robot ID:
ibm.system.p@hotmail.com



The End