



HP and Microsoft data warehousing and business intelligence reference configurations

for SQL Server 2008 on HP Integrity servers

Too much data—not enough information

Organizations face growing concerns about how to simplify their business critical environment, how to leverage investments for highest return, and how to maintain user service level agreements (SLAs). Another concern is how to confidently determine the appropriate hardware infrastructure required to support user workloads while minimizing both costs and the risk to the business.

Designing the infrastructure you need to harness silos of information across your enterprise or to consolidate existing data warehouse (DW) and business intelligence (BI) infrastructures to support your changing business needs has been a time-consuming task. HP and Microsoft have simplified the design choices providing you with sample configurations for faster time to deployment.

Simplify and consolidate with HP and Microsoft

HP and Microsoft® understand the challenges you face, and we're here to help. These sample configurations deliver predictable performance and tangible results allowing you to improve the use of data assets across your organization. By leveraging the investment HP and Microsoft have made, the guesswork is taken out of which server and storage products to use, allowing you to avoid under or over provisioning and saving you time and money.

Based on an analysis of combinations of CPU, memory, servers and storage for a range of DW and BI implementations and business-critical workloads, these configurations help you:

- Harness and consolidate data across multiple systems and platforms
- Control mounting costs of storing and managing ever-growing volumes of data
- Make better decisions in less time
- Deliver business-critical information to the right people, at the right time, in an easy-to-use format

- Track your organization's performance against key business goals and financial targets

Industry leading products:

- **HP Integrity servers** – business-critical servers that provide exceptional scalability (up to 64 cores, or up to 128 cores with multiple partitions running Microsoft® Windows® Server); these servers are built to handle your most demanding DW/BI workloads and deliver the performance and availability that comes with an architecture based on the Intel® Itanium® dual-core processor
- **HP StorageWorks storage solutions** –reliable, cost-effective data storage and protection solutions
- **HP Systems Insight Manager and HP Integrity Essentials management software** – software tools to setup and manage your HP Integrity server and HP StorageWorks systems.
- **Microsoft SQL Server 2008** – enterprise-level data management and analysis for demanding DW/BI workloads
- **Microsoft SQL Server Reporting Services** – comprehensive, server-based reporting
- **Microsoft SQL Server Integration Services** – data integration platform that can integrate data from any source; provides an extract, transformation and load (ETL) platform
- **Microsoft SQL Server Analysis Services** – unified and integrated view of all business data-foundation for all traditional reporting, OLAP analysis, key performance indicator (KPI) scorecards and data mining
- **Microsoft Office PerformancePoint Server 2007 (PPS)** – comprises PPS Planning Services that uses Microsoft Office Excel® as the analytical front-end to SQL Server Analysis cubes; and PPS Monitoring/Analysis services that uses Microsoft Office SharePoint 2007 front-end for dashboards, scorecards and KPIs



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*These are sample reference configurations. Additional testing will be conducted with PerformancePoint Server 2007 and SQL Server 2008 at the time of its production release (RTM) and updates will be made to these configurations, as applicable.



Data warehousing/business intelligence sample reference configurations

SQL Server Engine (ROLAP) and SQL Server Integration Services (ETL)

- Database size – 1 TB**
Server/storage hardware
- HP Integrity rx6600 Server
 - 2 x 64-bit Intel Itanium dual-core processors
 - 20 GB memory
 - 2 x 72 GB 10k disk (system volume)
 - 2 x 72 GB 15k disk (log volume)
 - 4 x 72 GB 15k disk (tempdb volume)
 - 1 x Smart Array P800 controller
 - 1 x HP StorageWorks MSA70 enclosure
 - 22 x 72 GB 15k disk (database volume)
- Queries per hour – 192 queries**
Assumptions
- Balanced configuration
 - HP StorageWorks MSA disk array was configured
 - HP StorageWorks EVA and XP disk arrays are also viable options
 - RAID5 used for the database
 - RAID1 used for the transaction log and TempDB

- Database size – 5 TB**
Server/storage hardware
- HP Integrity rx7640 Server
 - 6 x 64-bit Intel Itanium dual-core processors
 - 48 GB memory
 - 2 x 72 GB 10k disk (system drive)
 - 4 x DP 4 GB/s HBA
 - 1 x HP StorageWorks EVA8100 with expansion cabinet
 - 240 x 72 GB 15k disk (database/log/tempdb volumes)
- Queries per hour – 192 queries**
Assumptions
- Balanced configuration
 - HP StorageWorks EVA8100 disk arrays were configured
 - HP StorageWorks MSA and XP disk arrays are also viable options
 - RAID5 used for the database
 - RAID1 used for the transaction log and TempDB

- Database size – 10 TB**
Server/storage hardware
- HP Integrity rx8640 Server
 - Twelve 64-bit Intel Itanium dual-core processors
 - 96 GB memory
 - 2 x 72 GB 10k disk (system drive)
 - 8 x DP 4 GB/s HBA
 - 2 x HP StorageWorks EVA8100 disk arrays with expansion cabinet
 - 480 x 72 GB 15k disk (database/log/tempdb volume)
- Queries per hour – 192 queries**
Assumptions
- Balanced configuration
 - HP StorageWorks EVA8100 disk arrays were configured
 - HP StorageWorks MSA and XP disk arrays are also viable options
 - RAID5 used for the database
 - RAID1 used for the transaction log and TempDB

SQL Server Analysis Services (OLAP) and SQL Server Reporting Services

- OLAP Cube size – 150 GB**
Server/storage hardware
- HP Integrity rx3600 Server 2P/4C
 - 2 x 64-bit Intel Itanium 2 dual-core processor
 - 24 GB memory
 - 1 x P600 smart array controller
 - 2 x 72 GB 10k SFF disk (system volume)
 - 6 x 72 GB 15k SFF disk (cube volume)

- OLAP Cube size – 750 GB**
Server/storage hardware
- HP Integrity rx6600 Server 3P/6C
 - 3 x 64-bit Intel Itanium 2 dual-core processor
 - 64 GB memory
 - 1 x P600 smart array controller
 - 2 x 72 GB 10k SFF disk (system volume)
 - 1 x P800 smart array controller
 - 1 x HP StorageWorks MSA70 enclosure
 - 30 x 72 GB 15k SFF disk (cube volume)

- OLAP Cube size – 1500 GB**
Server/storage hardware
- HP Integrity rx6600 Server 4P/8C
 - 4 x 64-bit Intel Itanium 2 dual-core processor
 - 96 GB memory
 - 1 x P600 smart array controller
 - 2 x 72 GB 10k SFF disk (system volume)
 - 1 x P800 smart array controller
 - 1 x HP StorageWorks MSA70 enclosure
 - 60 x 72 GB 15k SFF disk (cube volume)

Performance Point Services

- Server/storage hardware**
- HP ProLiant DL580 G5 Server 4P/16C
 - 2 x 2.93 GHz quad-core processor
 - 32 GB memory
 - 1 x P400 smart array controller
 - 2 x 72 GB 15k SFF (system volume)
 - 6 x 146 GB 10k SFF (PPS data storage)

- Server/storage hardware**
- HP ProLiant DL580 G5 Server 4P/16C
 - 2 x 2.93 GHz quad-core processor
 - 48 GB memory
 - 1 x P400 smart array controller
 - 2 x 72 GB 15k SFF (system volume)
 - 12 x 146 GB 10k SFF (PPS data storage)

- Server/storage hardware**
PPS Planning Services server
- HP ProLiant DL380 G5 Server 2P/8C
 - 2 x 2.93 GHz quad-core processor
 - 16 GB memory
 - 1 x P400 smart array controller
 - 2 x 72 GB 15k SFF (system volume)
 - 6 x 146 GB 10k SFF (PPS data storage)
- PPS Monitoring Services server**
- HP ProLiant DL580 G5 Server 4P/16C
 - 2 x 2.93 GHz quad-core processor
 - 32 GB memory
 - 1 x P400 smart array controller
 - 2 x 72 GB 15k SFF (system volume)
 - 12 x 146 GB 10k SFF (PPS data storage)

Software

- Microsoft Windows Server 2003 with SP2
- Microsoft SQL Server 2008 CTP5

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- Microsoft SQL Server 2008 CTP5

- Microsoft Windows Server 2003 with SP2
- Microsoft SQL Server 2008 CTP5

Your next step

Call your HP, Microsoft or SQL Solution Elite partner sales representative to arrange an assessment of your business environment. Discover how leveraging these sample reference configurations from HP and Microsoft can transform your raw data into business intelligence, leading to a simplified yet flexible business solutions environment.

Technology for better business outcomes

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