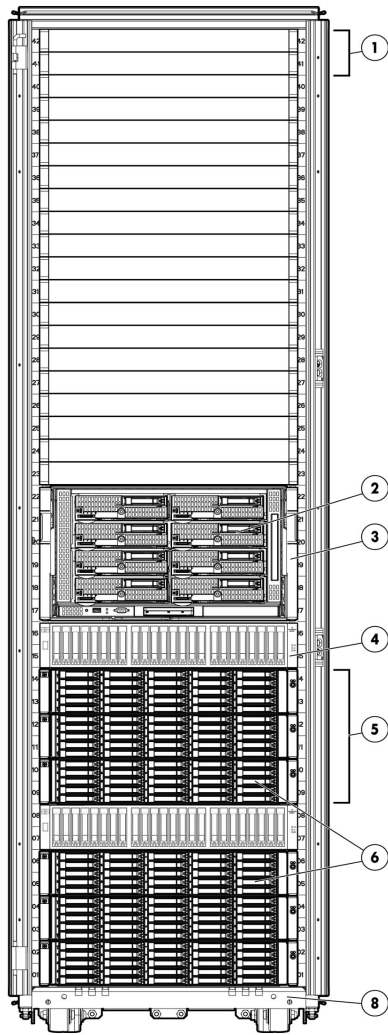
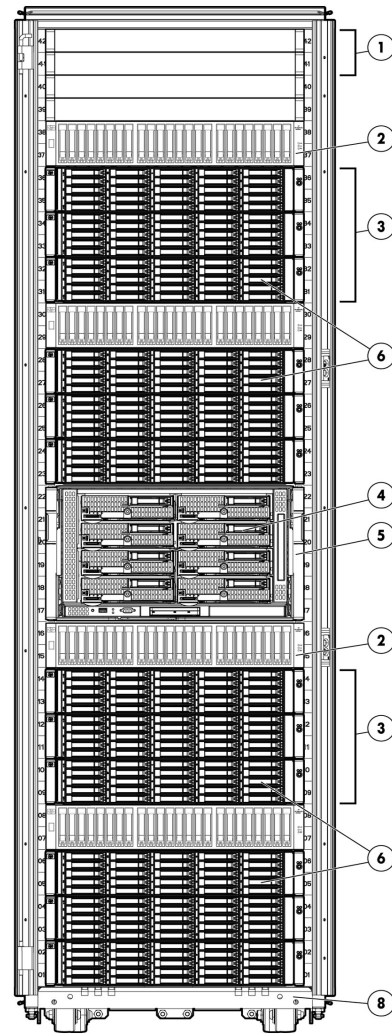


### Overview



**Base Configuration - Front View**

1. HP 6600-24XG 10GigE switches (2)  
HP Switch 2910-24G (2)
2. HP ProLiant BL465 G7 (4) (8 processors, 96 cores and 1024 GB memory)
3. C3000 enclosure
4. HP P2000 G3 iSCSI MSA Array (2)
5. HP D2700 drive shelves (6)
6. Total (198) 146GB 15K SFF disks, 29 TB raw capacity
7. HP Virtual Connect Flex-10 modules (2) - not shown
8. 42u rack

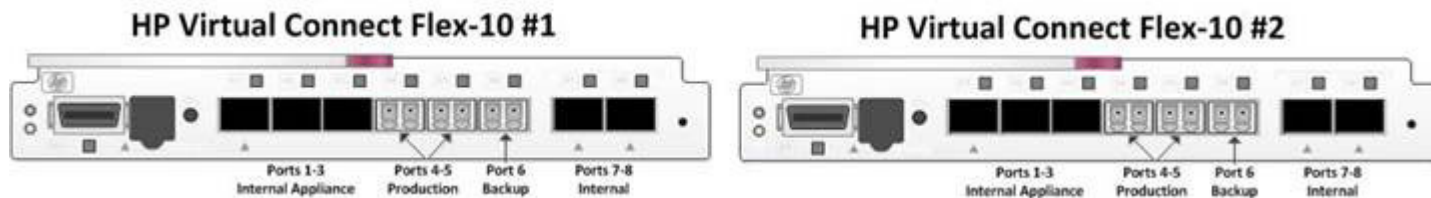


**Full Configuration - Front View**

1. HP 6600-24G 10GigE switches (2)  
HP Switch 2910-24 (2)
2. HP P2000 G3 iSCSI MSA Array - ISCI (4)
3. HP D2700 drive shelves (12)
4. HP ProLiant BL465 G7 (4) (16 processors, 192 cores and 2048 GB memory)
5. C3000 enclosure
6. Total (396) 146GB 15K SFF disks, 57 TB raw capacity
7. HP Virtual Connect Flex-10 modules (2) not shown
8. 42u rack

### Overview

#### HP Virtual Connect Flex-10 Modules (configured in the c3000 enclosure)



DBC Appliance connectivity points - Each HP VC Flex-10 module has 3 uplinks to connect to the network infrastructure. There are 2 uplinks for the production traffic and 1 uplink for backup traffic (optional) on each VC module for a total of 6 uplinks. This provides an aggregate 40 Gbs of bandwidth for production traffic to the appliance. It is important for you to determine which connection transceivers are compatible with your network (Gb Copper, Gb SX Fibre, etc. More details below).

### At A Glance

The HP Enterprise Database Consolidation Appliance is tuned for consolidating thousands of business critical databases. The complete system is designed to deploy quickly, simplify infrastructure management, improve resource utilization, and reduce costs.

**Complete:** The appliance is factory built and integrated with management software from HP and Microsoft to accelerate time to value. Included are appliance installation and HP Start Services to power-up, connect it to the network and perform a few consolidations at your site. It includes unique tools that simplify infrastructure management and reduce downtime.

**Optimized:** We designed a balanced system for high I/O SQL Server workloads. The factory-integrated infrastructure and features like: physical to virtual migration to simplify the consolidation process, live migration to minimize downtime, and load balancing between VMs to optimize performance. Usage metering and charge back reporting enable you to integrate into your private cloud.

**Agile:** The modular design of the consolidation appliance allows you to scale seamlessly from the base half-rack to multiple rack configurations as your business grows.

The consolidation appliance helps you:

- reduce operational expenses from improved resource utilization, lower power consumption and space utilization
- implement a SQL Server consolidation solution in weeks rather than months
- provision new SQL instances in minutes vs. weeks,
- provision SQL Server instances on demand through the Self-Service Portal.

For more information about the HP Enterprise Database Consolidation Appliance see: <http://www.hp.com/solutions/microsoft/dbc> and <http://www.microsoft.com/sqlserver/en/us/solutions-technologies/Appliances/HP-dca.aspx>

For more information about HP ProLiant servers see: <http://h18004.www1.hp.com/products/servers/platforms>

For more information about Storage products, see: [www.hp.com/go/storage](http://www.hp.com/go/storage)

For more information about HP Racks see: <http://h18004.www1.hp.com/products/servers/proliantstorage/racks/index.html>

For more information about the HP and Microsoft partnership see: <http://h71028.www7.hp.com/enterprise/cache/8161-0-0-0-121.html>

For information about HP Services see: [www.hp.com/services/microsoft](http://www.hp.com/services/microsoft) and

For information about HP Services - SQL SERVER Consolidation <http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA2-1157ENW.pdf>



### How to Order

#### How to order HP Enterprise Database Consolidation Appliance

The consolidation appliance is offered in two configurations: Base configuration (PN 662768-B21 and PN 662769-B21 and Full configuration (PN 662770-B21 and PN 662769-B21). There will be an upgrade kit from the Base to the Full configuration. The consolidation appliance is purchased using a SKU and the Watson configuration rules for storage, switches, pre-installed software (without the licenses unless noted), HP services and support. Microsoft licenses and support are purchased separately from Microsoft, HP, or Microsoft resellers.

#### 1. Order the HP appliance hardware with pre-installed software and HP services:

- Windows 2008 R2 Datacenter OEM (pre-installed and license included)
- Database Consolidation Appliance 2012 SKU (DBC appliance SKU) - management software (pre-installed and licensed separately)
- HP Insight Control System Center (pre-installed and licenses included)
- HP Storage PowerShell Toolkit for P2000 disk arrays (pre-installed and licenses included)
- HP onsite installation and HP Start services
- **NOTE:** [More software details below](#)

#### 2. Purchase Microsoft Licenses with Software Assurance from Microsoft or an authorized Microsoft reseller for these components:

- **Microsoft Database Consolidation Appliance 2012 (DBC appliance SKU)**  
software licenses with Software Assurance. Customers should acquire one license for every processor in the appliance - e.g. 8 licenses for ½ rack, 16 licenses for 1 rack. To purchase a DBC license visit the following website and select an "edition":  
<http://www.microsoft.com/sqlserver/en/us/get-sql-server/how-to-buy.aspx>
- **SQL Server 2008 R2 Enterprise edition** processor licenses with Software Assurance. Customers should acquire (or use existing) one license for every processor in the hardware: eg. 8 licenses for ½ rack, 16 licenses for 1 rack.
  1. Not many people are aware that SQL Server 2008 R2 EE with SA enables customers to run unlimited virtualization (no 4 VM limits), and provides full mobility (move the VMs between the servers in the appliance any time). See this FAQ footnote for the licensing documents that describe this right. This is less expensive than SQL Server Datacenter, and provides the same capabilities for virtualization. License mobility right is required on all SQL licenses assigned to the Appliance
  2. When SQL Server 2012 codename "Denali" launches, there are no changes to the pricing and licensing of any of the appliance software. The only impact is in the database consolidation appliance, as the customer will have to license SQL Server Denali for all 16 processors under any new licensing and pricing that could be announced

#### 3. Support from HP and from Microsoft

- **HP Support - Choose from the following HP Support Care Packs:**
  - HP Support Plus 24 (Minimum requirement)
  - HP Proactive 24
  - HP Critical Advantage Level 2
  - HP Critical Advantage Level 3 (Recommended)
  - HP Critical Service
- **Microsoft Premier Support:**
  - Microsoft Premier Support (required)
  - Microsoft Premier Mission Critical (recommended)

Microsoft support is ordered when purchasing Microsoft licenses.



### Standard Features

#### HP Enterprise Database Consolidation Appliance software

The consolidation appliance is designed to be a self-managed environment that can be integrated with a customer's existing management infrastructure. The consolidation appliance management software includes the following components:

**Microsoft Windows Server 2008 R2 Datacenter OEM** - Provides base operating system and Active Directory services, as well as the Hyper-V role to host virtual machines.

**HP Insight Control - System Center** (pre-installed and licenses included): The IC-SC Center provides the following capabilities: Alerting/event information on the health and status of the consolidation appliance hardware components. Performance and resource optimization (PRO) tips in SCVMM based on hardware alerts (predictive or proactive alerts).

- HP BladeSystem Management Pack for Operations Manager 2007,
- HP ProLiant Server Management Pack for Operations Manager 2008
- HP ProLiant PRO Management Pack for Virtual Machine Manager 2008

**HP Storage Management Pack for OpsManager 2007** (pre-installed and license included) Provides integrated alerting and event notification for the appliance storage.

**HP Storage PowerShell Toolkit for P2000 disk arrays** (pre-installed and license included) creates and provisions storage for VMs

**Microsoft Database Consolidation Appliance 2012** management software including the following (preinstalled and licensed separately):

- Microsoft System Center Virtual Machine Manager 2008 R2 (SCVMM) technologies - is used to perform several critical functions of the appliance including: VM infrastructure management, physical-to-virtual (P2V) migration, creation of the custom virtual machine templates, and virtual-to-virtual (V2V) live migrations.
- Microsoft System Center Operations Manager 2007 R2 (SCOM) technologies - monitors and takes action when there are pre-failure alerts.
- Microsoft Data Protection Manager 2010 technologies - assists customers integrate the consolidation appliance with current backup and recovery facilities.
- Microsoft System Center Configuration Manager technologies - for application patch management.
- Microsoft System Center Reporting Services technologies - for generating SCVMM and SCOM reports.
- Self Service Portal Version 2.0 SP1 technologies - enables business administrators to request and provision SQL Server VMs. It provides usage metering and chargeback data.
- SQL Server technologies to run System Center.
- Microsoft Appliance pack
- Microsoft Pro pack
- Enhanced MAP tool
- DBCA BPA rules

#### Virtual Machine templates (pre-installed)

- Six Virtual Machine templates: three base templates with Windows and sysprepped SQL Server 2008 R2 Enterprise and three additional VMs with only Windows. The templates are based on Microsoft Consulting best practices for configuring small, medium, and large SQL Server workloads based on CPU, RAM and storage needs.
  - Small



### Standard Features

- 1 Virtual Processor
- 2 GB RAM
- Maximum 100 GB formatted disk space (30-60 GB database)
- 50 IOPS / VM
- **Medium**
  - 2 Virtual Processors
  - 4 GB RAM
  - 200 GB formatted disk space (150 GB database)
  - 400 IOPS / VM
- **Large**
  - 4 Virtual Processors
  - 16GB RAM
  - 400 GB formatted disk space (300 GB database)
  - 2000 IOPS / VM

### HP Enterprise Database Consolidation Appliance Services

HP onsite implementation service is included to perform the following:

- Prior to solution delivery, a simplified site readiness assessment will be performed to ensure that the customer has enough power, cooling, floor space to accommodate the Enterprise Database Consolidation Appliance requirements
- Upon delivery to customer's site, unpack and inspect for damages
- Integrate the appliance into the customer's environment, power, network cabling
- Configuration of the network connections towards the customer environment and connection verification

**HP Start Service** is included to ensure a smooth move into production including the migration of 5 databases onto the appliance, operational review, and handover.

HP recommends the Database Consolidation Assessment Consulting Service. The 4 week project helps customers identify which databases are good candidates for migration, and to set priorities in choosing which ones to migrate first.

### Support

Customers select a support service from HP and from Microsoft. To meet your mission critical needs, the recommended support levels from HP include HP Proactive Care, HP Proactive 24 Service or HP Critical Service, as well as Premier Mission Critical from Microsoft. Note the Microsoft support is purchased separately. For more information on the HP support levels, see the ordering section details.

### Warranty Services

The HP Enterprise Database Consolidation Appliance infrastructure is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. Beyond the warranty, the Enterprise Database Consolidation Appliance requires customers to purchase a minimum of 3 year Support Plus 24 (24x7 hardware/software support with 4 hour onsite hardware response), bringing the support service level of all components to a consistent level of 24x7. In addition, we recommend that customers upgrade to mission critical support levels of HP Critical Advantage, HP Proactive 24 Service or HP Critical Service. Also, customers may add Proactive Select to Support Plus 24 to obtain a set of proactive services to complement their reactive support.



### Standard Features

#### HP Financial Services

To support customers' transition, HP Financial Services (HPFS) can help in a way that you may not have considered. HPFS can help you invest in your business while preserving precious capital.

For more information, contact your local HP Financial Services Representative. In the United States, call 1-888-277-5942. In Canada, dial 1-800-HP-LEASE. For more information please visit: [www.hp.com/hpfinancialservices](http://www.hp.com/hpfinancialservices) for links to HP Financial Services around the world.

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#### Rack Airflow Requirements

##### Rack 10000 G2 series cabinets

The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The HP 10000 G2 Series racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors.

- Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 830 square inches (5,350 sq cm) of holes evenly distributed from top to bottom to permit adequate airflow (equivalent to a required 64 percent open area for ventilation).
- The clearance from face of rack to inside of the front door needs to be a minimum of 1.75".
- Side: The clearance between the installed rack component and the side panels of the rack needs to be a minimum of 2.75 inches (7 cm).



## Configuration Information - Factory Integrated Models

**NOTE:** This section lists the steps for configuring and ordering the HP Enterprise Database Consolidation Appliance.

### Step 1: Select Base configuration or Full configuration.

#### MODELS

HP Enterprise Database Consolidation Appliance Base Configuration with 28 Terabyte raw capacity.

662768-B21

**NOTE:** See the table below for the Base Configuration capacity.

**NOTE:** The first Enterprise Database Consolidation Appliance includes the integrated management stack. As additional resources are required beyond a single rack, subsequent DBC appliance racks can be added and managed by the software in the first appliance. Thus, each appliance requires a unique rack name and number. Customers cannot duplicate rack names and numbers, which may cause networking problems. If you wish to add an additional consolidation appliance rack to an existing appliance infrastructure, please contact your sales or services representative.

**NOTE:** The appliance's HP Virtual Connect Flex-10 Modules connects to the network using one of several GBIC transceivers. You must select the version that is compatible with your network.

- 1Gb Copper
- 1Gb SX Fibre
- 10Gb SR Fibre
- 10Gb LR Fibre
- 10Gb LRM Fibre
- 10Gb Copper using DAC cables

HP Enterprise Database Consolidation Appliance Full Configuration with 57 Terabyte raw capacity.

662770-B21

**NOTE:** The DBC Capacity Table in Terabytes

Capacity TB	Base Configuration (half-rack)		Full Configuration (full Rack)	
	Drives	Capacity	Drives	Capacity
RAW	198	28.9	396	57.8
RAID10 and Formatted	188	13.4	376	26.8
Spares	10		20	

### Step 2: Purchase licenses for the Microsoft Database Consolidation Appliance 2012

#### Microsoft Database Consolidation Appliance 2012 software

The DBC appliance4 SKU is purchased separately from Microsoft, HP, or Microsoft resellers. It requires Software Assurance (SA) in per processor licensing mode.

**NOTE:** Customers should acquire one license for every processor in the appliance - e.g. 8 licenses for ½ rack, 16 licenses for 1 rack.

**NOTE:** For information on how to purchase, go to the Microsoft DBC appliance link and select an "edition": <http://www.microsoft.com/sqlserver/en/us/get-sql-server/how-to-buy.aspx>



### Configuration Information - Factory Integrated Models

#### Step 3: Additional SQL Server licenses

##### SQL Server licenses

If you need additional SQL Server licenses, we recommend licensing your consolidation appliance with SQL Server Enterprise Edition with Software Assurance (SA) in per processor licensing mode to ensure maximum compatibility and licensing compliance.

**NOTE:** Customers should acquire (or use existing) one license for every processor in the hardware: eg. 8 licenses for ½ rack, 16 licenses for 1 rack.

**NOTE:** For SQL Server pricing go to <http://www.microsoft.com/sqlserver/en/us/get-sql-server/how-to-buy.aspx>

#### Step 4: HP Care Pack Support

##### HP Care Pack Support

For HP Enterprise Database Consolidation Appliance, customers select a support service from HP and from Microsoft.

The Microsoft support is purchased separately. The HP support covers all the HP components of the appliance, including hardware and management software except the Microsoft software (OS, Database Consolidation Appliance 2012 software and SQL Server software).

With Microsoft as the customer's first point of contact for support, HP and Microsoft will work together to support the appliance across all support service levels.

The recommended HP support level is HP Proactive Care Level 3 support to meet your mission-critical needs.

One of the following support offers must be selected:

##### HP Support Plus 24 - 3yr, 4yr or 5yr

- For a higher return on your server and storage technology, our combined reactive support service delivers integrated onsite hardware/software support services available 24x7x365, including access to HP technical resources, 4-hour response onsite hardware support and software updates.

##### HP Critical Advantage - Level 2 or 3 - 3yr, 4yr, or 5yr

- HP Critical Advantage provides an assigned account team to deliver support and maintain uptime of business-critical, virtualized environments. An end-to-end infrastructure support solution (x86 server, OS/hypervisor, storage and network support), Critical Advantage provides flexible reactive hardware service levels, proactive services, and access to the Global Mission Critical Solution Center for business critical applications running on virtualized x86 infrastructures.

##### HP Proactive 24 Service - 3yr, 4yr or 5yr

- Provides improved stability, availability and operational effectiveness with an integrated hardware and software support service that combines industry-leading reactive technical assistance with proactive account services, giving your



## *Configuration Information - Factory Integrated Models*

IT manage support from a team of service specialists.

### **HP Critical Service - 3yr, 4yr or 5yr**

- Provides comprehensive proactive and reactive support designed for businesses that run essential mission-critical applications where downtime is not an option.

Also, proactive services are available. HP Proactive Select can easily be added to the three-year, 24x7 hardware and software support that comes with your HP Enterprise Database Consolidation Appliance. Each HP Proactive Select package provides:

- An assigned account support manager focused on technical and operational improvements specific to your business environment

Proactive service credits that can be redeemed for the service activities of your choice



### Technical Specifications

Technical Specifications	Dimensions (per rack)	Height	42U, 78.89 in (200.4 cm)
		Width	24 in (59.7 cm)
		Depth	39.69 in (101.5 cm)
	Shipping Dimensions (per rack)	Height	86.22 in (219 cm)
		Width	35.56 in (90.3 cm)
		Depth	48 in (121.92 cm)
	Maximum load	Half-Rack	1364 lb (619kg)
		Full-Rack	1827 lb (829kg)
	Color	Doors	Graphic Metallic
		Frame	Carbon
	Clearance (for air flow and access)	Front	48 in (121.9 cm)
		Rear	30 in (76.2 cm)
	Temperature range	Operating	50° to 90° F (10° to 35° C)
		Non-Operating	-22° to 140° F (-30° to 60° C)
	Relative humidity	Operating	15 to 85% relative humidity (Rh)
	Altitude	Operating	3000 meters maximum.
	Power Usage -Operating	Half-rack	6.3 kW (30A at 208V)
		Full-rack	10.8 kW (52A at 208V)
	BTU rating, maximum	Half-rack	21000 BTU/hr
		Full-rack	37000 BTU/hr

**NOTE:** No direct sustained sunlight.

**NOTE:** The maximum load for the HP Universal Rack 10642 G2 is 2000 lb 907.18kg).

### Environmental-friendly products and approach

### End-of-life management and recycling

Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: <http://www.hp.com/go/green>. To recycle your product, please go to: <http://www.hp.com/go/green> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <http://www.hp.com/go/green>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.



## *Technical Specifications*

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