

# WHITE PAPER

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## Order and Configuration Guide for Compaq ProLiant Cluster Series F Model 100

*Compaq clusters are built from standard, readily available components such as Compaq ProLiant servers and standard storage systems. Compaq provides a cluster kit that contains all of the components required to connect new or existing servers and storage in a cluster configuration.*

*This document describes the steps involved in ordering and configuring a Compaq ProLiant Cluster/F100 using the cluster kit. It details the steps involved in ordering servers and storage, and it provides pointers to other information that may be helpful during the ordering process.*

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**Order and Configuration Guide for Compaq ProLiant Cluster  
Series F Model 100**

First Edition (April 1998)

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## INTRODUCTION

Compaq ProLiant Cluster solutions provide high availability for applications and data in a business-critical environment.

The Compaq ProLiant Cluster/F100 exploits Compaq's industry-leading server products, Ethernet or Tandem's ServerNet interconnect, Compaq Fibre Channel Storage systems, and Compaq's leading installation and systems management utilities.

Compaq clusters are built from standard, readily available components such as Compaq ProLiant servers and standard storage systems. Compaq provides a cluster kit that contains all of the required components to connect new or existing servers and storage in a cluster configuration.

By purchasing the cluster kit, customers enjoy tremendous flexibility in the way they build their Compaq ProLiant cluster. For example, a customer with an existing ProLiant 2500 may decide that extra horsepower is required for an application. That customer may decide to purchase a ProLiant 6500 as the primary engine for that application, but still use the ProLiant 2500 as the platform for a second application and as a second node in the cluster, providing high availability for the ProLiant 6500 system. In this example, the customer would only need to purchase the ProLiant 6500 and the cluster kit to build a valid, highly available cluster.

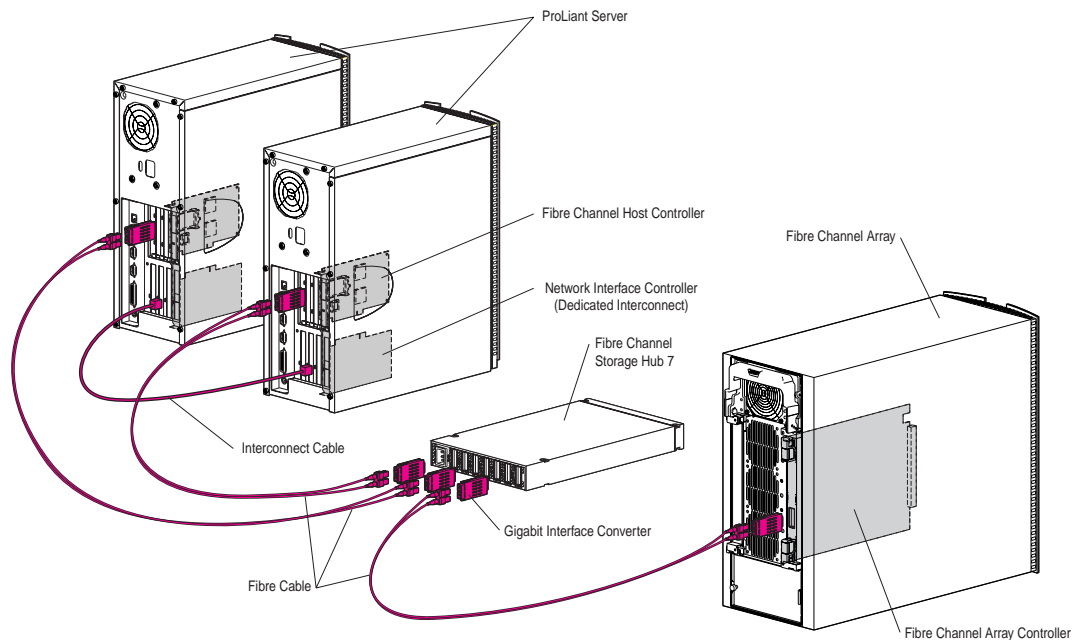


Figure 1. Components of the Compaq ProLiant Cluster Series F Model 100

## EXAMPLE CLUSTER CONFIGURATIONS

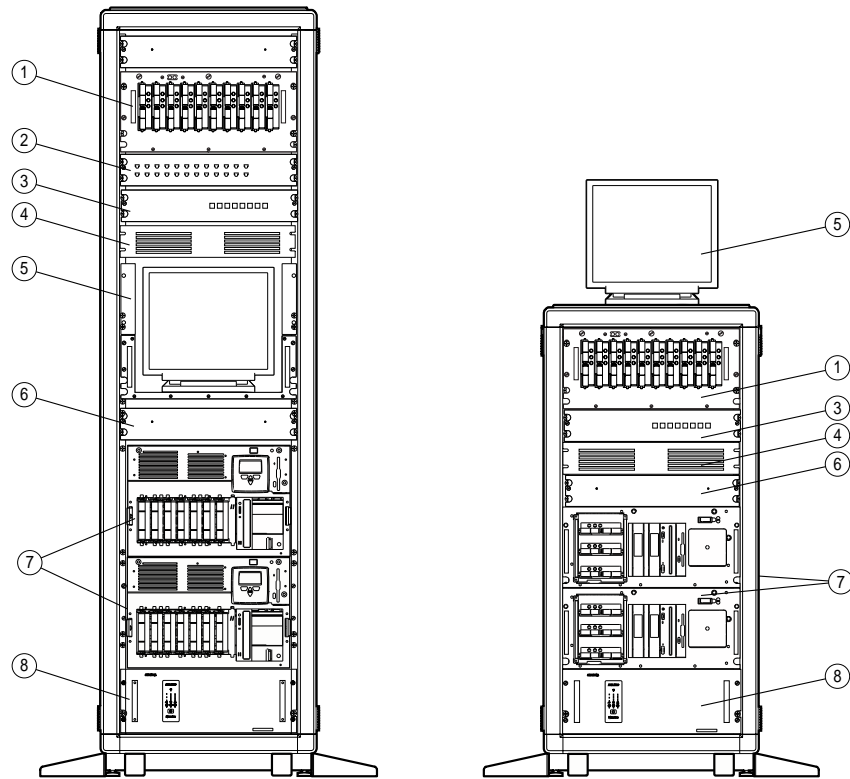


Figure 2. Examples of rack-mounted ProLiant Cluster/F100 configurations

- |                               |                                      |
|-------------------------------|--------------------------------------|
| ① Compaq Fibre Channel Array  | ⑤ Monitor                            |
| ② Ethernet Hub                | ⑥ Keyboard tray                      |
| ③ Switchbox                   | ⑦ ProLiant Servers                   |
| ④ Fibre Channel Storage Hub 7 | ⑧ Uninterruptible Power Supply (UPS) |

Figure 2 shows two examples of rack-mounted cluster configurations. Each of these configurations includes two ProLiant servers, Fibre Channel Storage, and the Compaq ProLiant Cluster/F100 Kit.

Optional components shown include UPS modules, racks, monitors, rack-mounted keyboards, and switchboxes. Note that the racks shown are configured for optimal placement of cluster components.

## CERTIFIED CLUSTER CONFIGURATIONS

The following tables identify the current servers and server combinations supported in a cluster. For the latest information, always check the Compaq website at <http://www.compaq.com>.

### Single-Processor Configurations

		Node 1									
		850R	1600	2500	3000	4500	5000	5500	6000	6500	7000
Node 2	850R	✓									
	1600		✓								
	2500			✓							
	3000				✓		✓				
	4500					✓			✓		
	5000				✓		✓				
	5500							✓	✓		
	6000					✓		✓	✓		
	6500									✓	
	7000										✓

### Symmetric Multiprocessor Configurations

		Node 1									
		850R	1600	2500	3000	4500	5000	5500	6000	6500	7000
Node 2	850R	✓	✓	✓							
	1600	✓	✓	✓			✓			✓	✓
	2500	✓	✓	✓			✓			✓	✓
	3000				✓				✓		✓
	4500					✓	✓			✓	✓
	5000		✓	✓		✓	✓	✓	✓	✓	✓
	5500						✓	✓			
	6000				✓		✓		✓		✓
	6500		✓	✓		✓	✓			✓	✓
	7000		✓	✓	✓	✓	✓		✓	✓	✓

#### Notes:

- All models of a specific server are supported in the configurations shown. For example, all models of the ProLiant 2500 (rack, tower, different processor clock speeds) are supported in a cluster wherever the ProLiant 2500 is designated in the table.
- All cluster configurations have been certified with ServerNet and Ethernet as the interconnect.

## PART NUMBERS AND COMPONENTS

### **309816-B21/291      Compaq ProLiant Cluster/F100 Kit**

- 12' Ethernet Crossover Cable
- *Compaq ProLiant Cluster Series F Model 100 User Guide*
- *Compaq ProLiant Cluster Series F Model 100 Configuration poster*
- *Microsoft IIS 3.0 Service Failover Using MSCS (TechNote)*
- *Microsoft IIS 3.0 Resource Failover Using MSCS (TechNote)*
- *Microsoft File and Print Service Failover Using MSCS (TechNote)*

### **Related Option Part Numbers**

309835-B21	100' Ethernet Cable
309833-B21/291	ServerNet Controller
309834-B21	ServerNet Cable (4m)
309835-B21	ServerNet Cable (30m)
347272-B21	CL14U Cluster Rack Kit

### **Related Storage Part Numbers**

223100-001/291	Fibre Channel Array - Rack Mount
241300-001/291	Fibre Channel Array -Tower
223180-B21/291	Fibre Channel Host Controller /P
262394-B21/291	Fibre Channel Host Controller /E
234453-001/B31/291	Fibre Channel Storage Hub 7
234459-B21	GBIC-SW Connector Kit
234457-B21	2m multi-mode Fibre Channel Cable Kit
234457-B22	5m multi-mode Fibre Channel Cable Kit
234457-B23	15m multi-mode Fibre Channel Cable Kit
242795-B21	Fibre Channel Storage Hub 7 Rackmount Kit
296324-B21	ProLiant/F to Fibre Channel Array Upgrade Kit
297162-B21	Fibre Channel Array Tower to Rack Conversion Kit
223187-001	Fibre Channel Array Controller
224206-001	Optional Redundant Power Supply

## ORDERING A CLUSTER USING THE COMPAQ PROLIANT CLUSTER/F100 KIT

Follow the process outlined in Figure 2 to order components for a Compaq ProLiant Cluster Series F Model 100. See the following pages for detailed information related to each step.

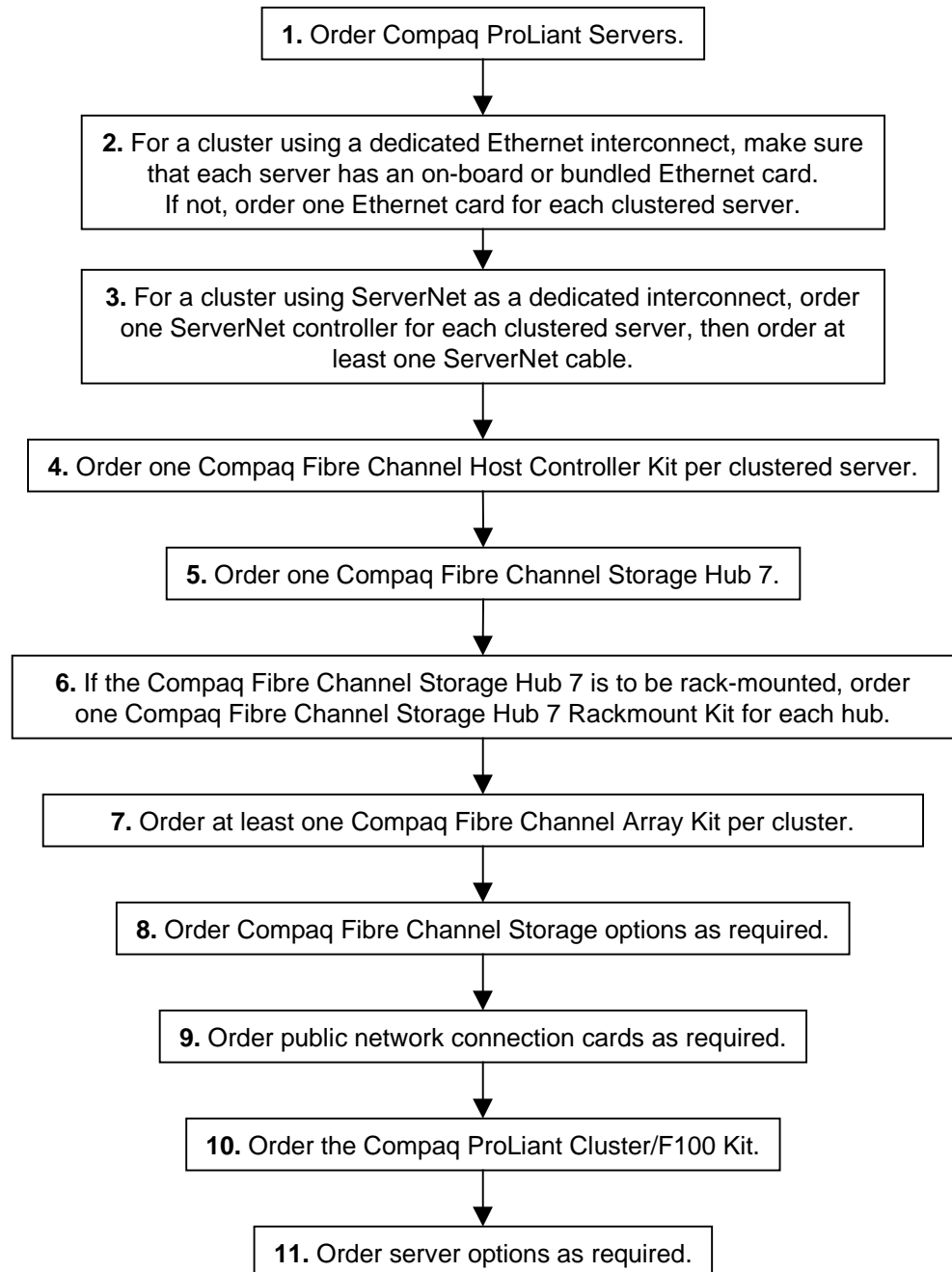


Figure 2. Ordering process for Compaq ProLiant Cluster/F100

**1. Order the required Compaq ProLiant server(s).**

- a) See the Compaq website at <http://www.compaq.com> for the latest list of supported servers and server combinations.
- b) Any model of a certified server is supported.
- c) Existing servers can be used in a Compaq ProLiant Cluster configuration.
- d) If you are using two different server models in a cluster, make sure that the high-availability application workload can be satisfied by either server.
- e) Make sure that your server has enough PCI/EISA slots to satisfy the cluster interconnect, public network interconnect, and shared storage requirements.

**2. For a cluster using Ethernet as a dedicated interconnect, make sure that each server ordered has an on-board or bundled Ethernet card. If not, order one Ethernet card for each cluster server.**

- a) Compaq strongly recommends the use of a private network connection between cluster nodes. An Ethernet crossover cable for this purpose is included in the Compaq ProLiant Cluster/F100 Cluster Kit.
- b) Multiple dedicated interconnect paths can be used; order extra Ethernet cards as required.
- c) Redundant NICs are supported in Compaq ProLiant Cluster configurations.
- d) All Ethernet cards are supported.
- e) For cluster interconnect scenarios and recommendations, see Compaq White Paper ECG051/1297, *Increasing Availability of Cluster Communications in a Windows NT Cluster* (available from the Compaq website at <http://www.compaq.com>).

**3. For a cluster using ServerNet as a dedicated interconnect, order one ServerNet controller for each cluster server, then order at least one ServerNet cable of the required length.**

- a) 4m and 30m ServerNet cables are available.
- b) Two cables per cluster can be ordered for greater throughput.

**4. Order one Compaq Fibre Channel Host Controller Kit /P (223180-B21) or /E (262394-B21) per cluster server.**

- a) Only Compaq Fibre Channel Storage may be used as shared storage in a Compaq ProLiant Cluster/F100 configuration.
- b) Use the Compaq Fibre Channel Configuration Tool to determine the correct number of components for a given storage requirement (if available).
- c) Multiple Fibre Channel loops cannot be configured in a cluster at this time.
- d) Only one Fibre Channel Storage Hub 7 is supported in a cluster at this time.



**5. Order one Compaq Fibre Channel Storage Hub 7 (234453-001).**

- a) Remember that in a cluster each server occupies one port on the hub, as does each Fibre Channel Array.
- b) Fibre Channel cables and GBICs are included in Fibre Channel Array and Fibre Channel Host Controller kits (one cable and two GBICs per kit).

**6. If your Fibre Channel Storage Hub 7 is to be rack-mounted, order one Compaq Fibre Channel Storage Hub 7 Rackmount Kit (242795-B21) for each hub.**

**7. Order at least one Compaq Fibre Channel Array Kit (223100-001 or 241300-001) per cluster.**

At this time, a maximum of five Fibre Channel Arrays are supported in a cluster.

**8. Order Compaq Fibre Channel Storage options as required.**

- a) Order disks at this time.
- b) A second power supply (224206-001) is strongly recommended for each Fibre Channel Storage Array.

**9. Order public network connection cards as required.**

- a) Compaq ProLiant Clusters use IP failover to make the failover of applications form one node to another transparent to clients on the network. Client interconnects must support TCP/IP to allow for seamless reconnect to applications after failover.
- b) Public network connections can be set up within Microsoft Cluster Server (MSCS) to enable both client and heartbeat traffic. When combined with the dedicated interconnect, this is a good way to achieve redundancy.

**10. Order the Compaq ProLiant Cluster/F100 Kit (309816-B21).**

- a) One cluster kit **per cluster** is required.
- b) The cluster kit contains an Ethernet crossover cable and cluster documentation.
- c) A working cluster requires Microsoft Cluster Server (MSCS) software. This is included in Microsoft Windows NT Server 4.0/Enterprise Edition, which must be purchased separately.

**11. Order server options as required.**

All server options are supported, with the following exceptions:

- Recovery Server Option (RSO)
- Compaq ProLiant Cluster/S100 Kit