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History of Innovation and Value-Add in Compaq x86 Server Families

Abstract: Compaq systems provide features differentiating them from the competition. The number and variety of options and features available for Compaq servers has grown rapidly and continues to grow.

This white paper supplies information about Compaq servers, features, and options, as well as providing historical references to communicate the rich heritage of Compaq innovation and leadership in the industry.

It describes features for high availability, total cost of ownership (TCO), intelligent manageability, and security. It examines the Compaq x86 server families. The appendices provide a description of Compaq solution partners, feature and option descriptions; a matrix of supported features server by server, and Web resources.

This document is intended as a reference aid for those who want to understand how Compaq adds value to products.

Note: Most of the features described in this paper are operating system independent but not all features are available on every operating system.

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Notice

History of Innovation and Value-Add in Compaq x86 Server Families
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Features

Compaq innovations enhance the quality, reliability, maintainability, performance, and total cost of ownership (TCO) of its server products. Even the Compaq quality pledge reflects the commitment to listen to you in order to deliver the highest quality products, services, and solutions to ensure value and to contribute to your success.

Over the years, Compaq often pioneered new technologies subsequently adopted as industry standards. Several vendors now market features like Automatic Server Recovery once found only on Compaq servers. Compaq engineered PCI Hot Plug technology, now adopted as an industry standard. Compaq, through its partnership with Corollary, developed the ProFusion 8-way chipset architecture. Expect research occurring at Compaq today to become industry-standard features tomorrow.

This document examines both the tangible and intangible features that make Compaq servers the number one choice for customers who demand quality, reliability, and manageability. For additional descriptions of these and other features, please refer to Appendix B–Feature Options and Descriptions.

High Availability

You employ systems to accomplish mission-critical functions central to the success of your operation and any loss of availability translates into a loss of time and money. To protect you from such losses, Compaq offers many features that ensure Compaq servers provide maximum uptime with minimal maintenance.

High availability involves providing three major classes of functionality:

- Features designed to work around any failures without service interruption (fault management)
- Features designed to prevent problems from occurring (fault prevention)
- Features designed to reduce the time it takes to recover from failures (fault tolerance)

Fault Management

Fault management provides a first line of defense against failures. These technologies enable you to route around potential faults and continue operating with little or no interruption of service. In many cases, fault management features incorporate redundancy. The features listed in Table 1 enable Compaq systems to work around potential failures without requiring immediate intervention or downtime.

Table 1. Fault management features

Feature	Description
Advanced Network Control Utility	Merges two similar network controllers into a controller pair allowing failover if a fault occurs
Cluster Verification Utility	Helps determine if a configuration is suitable for use with Microsoft Cluster Service
On-line Recovery Server	Allows two servers to act as a redundant pair while handling two separate workloads

continued

Table 1. Fault management features *(continued)*

Feature	Description
Online Storage Controller Recovery	Merges matched SMART-2 controllers into controller pairs providing controller redundancy
Redundant array controllers	Supplies a failover array controller in case a primary array controller fails
Redundant fans	Ensures proper airflow around temperature-sensitive components if a fan fails
Redundant hot-plug power supply	Allows power supplies to be added or replaced without shutting down the server
Redundant NICs/NIC teaming	Permits two NICs to share the same device driver code for failover in case a primary NIC fails
Redundant power modules	Enables Power Safe Modules to act as hot spares if the primary power module fails
Redundant power supplies	Ensures that the server continues operating even when a power supply fails
Standby Recovery Server	Allows two servers to act as a redundant pair, one acting as the hot spare for the active server
Virtual power-on button	Permits remote control of the power to a managed server

Fault Prevention

One of the most obvious ways to improve the availability of a server involves including features enabling the system to avoid problems. Such features involve forward-looking technology to anticipate the likelihood of a situation and prevent the situation from becoming a problem. Table 2 lists features that improve uptime by preventing server failures.

Table 2. Fault prevention features

Feature	Description
Dynamic sector repair	Provides hardware diagnostics and automatically remaps bad sectors for Compaq drive arrays
ECC memory	Enables detection and correction of all single-bit memory errors
Offline processor recovery	Reboot capability if a processor fails
Power down manager	Gives the administrator an advanced level of flexibility in configuring the behavior of I_2C power switches
Power safety interlock	Turns system power off automatically when you remove the case cover

Fault Tolerance

Fault tolerant features offer the ability to recover from server or component failure with the least possible impact on uptime. Several of the features listed in Table 3 enable recovery from component failures without shutting down the server. Others protect the server and the information stored on it in the event of failure.

Table 3. Fault tolerance features

Feature	Description
Automatic Server Recovery (ASR)	Allows the server to reboot, call the administrator, and report critical problems

continued

Table 3. Fault tolerance features *(continued)*

Feature	Description
Automatic Server Recovery-2 (ASR-2)	Offers the same features as ASR with environmental recovery features, thermal shutdown and UPS shutdown
Clustering	Provides mutual automatic backup of servers. Clustering protects against a wide variety of software or hardware failures and operator errors.
Fan Detect and Shutdown	Allows the operating system to detect failure of the fan(s) and invoke automatic shutdown
Hot-plug drives	Permits you to plug and unplug SCSI drives from the system while in operation
Hot-plug fans	Allows replacement of fans without shutting the system down
Hot-plug keyboard	Provides the ability to replace keyboards on a server without the need to restart the system
Hot spare boot	Allows reboot of the server without having to replace the failed processor
PCI Hot Plug	Allows add, removal, replace, and upgrade of PCI controllers without shutting down the system
Temperature Detect and Shutdown	Detects when the temperature of the system exceeds the caution level and invokes shutdown
Temperature monitor	Utilizes the Intelligent Interface Control to pass temperature information
Voltage/current monitoring	Tracks voltage and amperage fluctuations through the power supplies
Windows NT HAL Recovery	Replaces the Windows NT HAL should the HAL become corrupted

Total Cost of Ownership

The most significant costs for owning systems normally come from maintaining and expanding them. Many of the features Compaq incorporates into server products extend their useful life and reduce the maintenance effort and cost. Features that reduce cost of ownership include the following:

- Server maintenance
- Investment protection

In this section, we describe some features in these categories and explain how they protect your investments in hardware, software, and the time and efforts of the people who use, manage, and service the systems.

Server Maintenance

Server maintenance involves tracking system parameters, maintaining various subsystems, expanding capacity, and monitoring status of the systems. Table 4 lists features enabling many functions of server maintenance to be completed while the system continues operating.

Table 4. Server maintenance features

Feature	Description
Asset tag number	Allows storage of company-specific asset numbers in a firmware repository for easy tracking
Auto-default ROM	Detects unconfigured hardware and provides default configurations
Boot block ROM	Allows the system to boot over the network

continued

Table 4. Server maintenance features *(continued)*

Feature	Description
CD-ROM boot	Provides the option of booting from the CD-ROM
Configurable boot order	Determines which mass storage controller services the boot device
Critical error logging	Records catastrophic errors
DOS CPR	Installs MS-DOS on a FAT partition with Microsoft Windows NT already installed
Drive firmware upgrade (ROMPaq)	Provides the ability to upgrade drive firmware with software available over the Internet from Compaq
Fibre Fault Isolation Utility	Verifies installation and operation of Fibre Channel Storage System
Flashable ROM	Used to apply software updates from the integration server to the production servers
Intelligent power switch	Provides an increased level of flexibility in powering down the server by allowing choices, such as locking the power switch and shutting down the system gracefully when the power switch goes to Off
Internal diagnostic display (IDD)	Numerically indicates specific DIMM or processor failure
Online configuration utility for NetWare	Allows configuration of controllers without shutting down the operating system
PCI card guide	Assists in guiding and locking PCI cards in place
Rack Builder/Rack Builder Pro	Offers planning and configuration tools for building racks
RAID online expansion	Adds a new disk to a RAID array without destroying the data held in the array
Remote Compaq Server Support Software for Windows NT (SSD)	Enables your system administrators to apply Windows NT SSD upgrades to systems over the network
Remote flash-redundant ROM	Allows administrators to flash the ROMs of remote systems
ROM-based setup	Eliminates the system configuration utility
Survey Parameter Capture	Captures system parameters, compares with previous captures, and delivers a comprehensive view of the server and any differences between captures
System Partition	Contains diagnostic tools and utilities for Compaq servers
System Partition Administration Utility	Accesses and updates the System Partition online
System serial number	Contains the system serial number in an EEPROM burned at the factory when the system is built
Tool-free design	Includes components such as chassis covers, hot plug slots, power supplies, processor fans, and hard drives

Investment Protection

Compaq protects your investment in several ways. Compaq systems provide features that enable the systems to grow as the demands on the equipment grow.

Compaq offers continued feature updates for legacy versions of popular operating systems. This offers customers who do not upgrade to current versions of the operating systems to take advantage of many of the latest advances in Compaq technology. The commitment to providing ongoing support of legacy operating environments gives you the ability to decide when to upgrade—based upon your own business requirements.

Table 5 describes some other features Compaq offers to protect your investment.

Table 5. Investment protection features

Feature	Description
ACPI ready	Offers a cross-platform architecture for device control of system power that integrates power management features
CarePaq	Provides enhanced warranty services
Industry-standard components	Ensures that standard components, such as, memory and disks are interchangeable between platforms
Long operating system life support	Supports older server platforms with new operating system support software releases (see Appendix C)
Pre-Failure Warranty	Protects your investment by replacing components prior to complete component failure

Intelligent Manageability

Compaq pioneered manageability in the early 1990s and has led the industry since then by developing and driving industry standards. Compaq intelligent manageability solutions surpass minimum requirements and enhance management functionality to provide you with the best-managed systems. Compaq provides information products and service professionals to assist you with every step in your system deployment and management. Deployment tools manage both the configuration and integration of your server.

After deploying your system, Compaq tools manage your hardware and software and keep your network running at optimal levels. Table 6 lists deployment features available through Compaq and Table 7 describes the management features accessible through Compaq Intelligent Manageability.

Table 6. Deployment features

Feature	Description
Array Configuration Utility	Facilitates online capacity expansion with a graphical user interface
SmartStart	Simplifies configuration and installation of Compaq servers and options
SmartStart Integration Management Utility	Applies software updates from an integration server to production servers
Remote Deployment Utility (RDU)	Deploys driver and management agent updates out to servers on a network running Microsoft Windows NT or Microsoft Windows 2000, targeting remote servers for software updates
SmartStart Scripting Toolkit	Delivers an unattended installation for high-volume server deployments

Table 7. Management features

Feature	Description
ActiveUpdate	Provides proactive notification and delivery of the latest software updates from Compaq
Automatic Revision Tracking	Allows you to review recent changes to the server's configuration
Availability Agents	Increase Microsoft Windows server availability by effectively preventing common system failures and by automating responses to well-understood issues
Compaq Insight Manager 7	Delivers fault, performance, and configuration management for servers and desktop clients

continued

Table 7. Management features *(continued)*

Feature	Description
Disk system tracking	Monitors the hard disk to predict problems and possible failures
Drive parameter tracking	Monitors over 20 operational factors to predict impending drive failures
Insight Manager Alerts	Sends alerts to designated pager numbers in case of an impending problem with a server
Integrated Management Display (IMD)	Provides a view of information in the Integrated Management Log and other user-defined text
Integrated Management Log (IML)	Provides a log of system events including Power-On Self Test (POST) results
Integrated Remote Console (IRC)	Allows out-of-band management capabilities such as remote console and remote reset
Management agents	Provide direct access to the in-depth instrumentation built into Compaq servers, workstations, desktops, and portables to monitor more than 1000 parameters
Memory fault recovery tracking	Tracks operations of the memory subsystem for uncorrectable errors
Monitor Utility for Smart Array	Displays physical drive status for drives connected to Compaq array controllers
NIC fault recovery tracking	Tracks over twenty failure indications of Ethernet and Token Ring network interfaces
PCI Plug and Play	Supports the Plug and Play standard for PCI devices
Power-on error log	Records errors that occur during Power-On Self Test (POST)
Proactive Remote Service	Provides detailed service event information to Compaq service professionals allowing them to minimize potential problems and maximize service response
Product change notification	Notifies you 30-60 days in advance of upcoming critical changes that may impact your computing environment
Remote alpha/numeric paging	Sends alpha/numeric pager alert text via Remote Insight/Insight Manager 7 when it detects problems
Remote asset management	Allows collection or setting of asset management information remotely by way of Insight Manager 7
Remote diagnostics	Analyzes the condition of the server remotely using Insight Manager 7
Remote Insight Manager	Offers the most complete, out-of-band server management solution with all the features of Compaq Insight Manager 7
Remote Insight Lights-Out Edition	Provides customers with unmatched and control of ProLiant servers in their data centers and remote offices for more efficient operation and problem resolution
Remote threshold settings	Sets alert threshold parameters remotely
Resource Partitioning Manager	Enables server consolidation by facilitating the allocation of CPU and memory resources to specific application groups
Revision history table	Stores board revision information in non-volatile memory
Server health log	Contains information to identify and correct server failures for servers without the Integrated Management Display Log
Smart Array Controller family support	Ensures compatibility of all Smart Array Controllers with all other SmartArray Controllers
Software upgrades via Internet	Software updates are available for many operating systems via easy to navigate Web pages
Storage fault recovery tracking	Tracks failure parameters of mass storage controllers and attached hot pluggable drives

Security

Compaq servers offer many features that enhance physical and logical security. Table 8 lists security features, broadly defined as features that provide controls over physical access, remote access over the network or modem, and access by other software methods.

Table 8. Security features

Security Feature	Description
Administrative password	Prevents changes to the configuration until you enter the password
CD lock	Disables access to the CD-ROM drive
Configuration (NVRAM) lock	Prevents non-volatile memory modifications and disallows configuration changes
Diskette boot control	Enables and disables booting abilities for the diskette drive
Diskette drive control	Enables and disables the diskette drive; no read, write, or boot functions are available when enabled
Diskette write control	Enables and disables diskette-write functions; boot and read functions are still available
Front bezel key lock	Locks the front portion of the server protecting the removable media components
Hot-plug access security	Locks PCI hot plug and hot-plug access doors
Keyboard password	Locks out the keyboard to prevent unauthorized access to Compaq servers
Network Server Mode	Allows system startup from hard disk or network server while the keyboard and mouse are disabled
Power down lock	Disables the power switch to prevent accidental shutdown
Power-on password	Prevents use of the computer unless you enter the password
Power supply security bar	Protects the power supply from access by unauthorized personnel
Protected power switch	Prevents accidental server shutdown due to incidental contact with the power switch
QuickLock	Disables the keyboard and pointing device without exiting the application
Serial/parallel interface control	Prevents unauthorized transfer of data through the integrated serial and parallel ports

Server Families

Compaq develops both general-purpose and appliance servers for small, medium, and enterprise businesses with a range of products to meet your server needs. In this section we examine the Compaq server families and describe their hardware configurations and features.

All Compaq servers ship standard with Compaq SmartStart and Compaq Insight Manager 7. Compaq SmartStart makes system configuration and software installation faster, easier, and more reliable. Compaq Insight Manager presents an intuitive systems management tool delivering fault, performance, and configuration management for Compaq servers and desktop clients.

Compaq Insight Manager 7 offers a Web-based browser interface to monitor Compaq servers and any HTTP, SNMP MIB-2, or DMI v2 compliant device.

Compaq Services provides a three-year, limited warranty, including Pre-Failure Warranty (coverage of hard drives, memory, and processors). Fully supported by a worldwide network of resellers and service providers, the warranty furnishes lifetime toll-free 24x7 hardware technical telephone support. Other service offerings available through Compaq include a full range of CarePaq bundled hardware and software services:

- Installation and start up
- Extended coverage hours and enhanced response times
- System management and performance services
- Availability and recovery services

Compaq NeoServer

The Compaq NeoServer provides the easiest way to get a business on the Internet and build a first network. An integrated operating system makes it simple for you to manage all the functionality needed to run your business–without a dedicated keyboard, monitor, or mouse.

NeoServer 150 (discontinued; announced January 2000)

With file and peripheral sharing, high-speed Internet access, email, automatic removable backup, firewall security, and e-Commerce and intranet capabilities, the Compaq NeoServer 150 provides all the functionality and performance needed to network and run a small business. Standard features include built-in networking software and applications optimized to support an office of up to 100 users, ample network storage, and a powerful 500 MHz Intel Celeron processor.

This perfect solution for a growing small business offers all the hardware and software you need to get started.

Prosignia NeoServer (discontinued; announced March 1999)

A ready-to-go server, the Prosignia NeoServer put your small business on the fastest and most efficient path to networking. Its integrated operating system made it simple to manage sharing of files and peripherals, backing up data automatically, accessing your server remotely, and accessing email and the Internet.

The Prosignia NeoServer came standard with a 6.0 GB EIDE hard drive, a 10/100 TX Network Interface Controller (NIC), an 8-port 10 MB/s hub, a 56K modem, and the Prosignia NeoServer Control Center.

ProLiant Family

In 2001, Compaq shipped its fifth-millionth ProLiant server exhibiting the continuing trust of customers in the premier family of Compaq servers. Our engineering expertise and close working relationships with customers and software partners in designing, integrating, and testing servers allow us to design a comprehensive line of servers that best address customers' needs for IT environments. Leading software companies often develop their applications on ProLiant platforms, providing you the most stable and interoperable environment available.

The positioning framework developed for the ProLiant line makes it easy to select the correct ProLiant server for your needs. You can choose from three lines based on your environment:

- CL–packaged for simplified clustering
  - Self-contained, ready-to-go clustering solution
  - Ideal for high-availability environments
  - Flexible configuration as a rack or stand-alone tower
- DL–optimized for rack-mount environments
  - Maximum computing power in space-saving designs
  - Ideal for data center and external storage
  - Efficient clustering
- ML–maximized for internal system expansion
  - Maximum in-chassis flexibility
  - Ideal for remote and branch office environments
  - All-inclusive server/storage solutions

You can choose from three series numbers within each of the lines for the server designed to fit the needs of your applications:

- 300
  - File/print and domain server
  - Web servers
  - Small databases and applications
- 500
  - Complex Web applications
  - Large databases
  - Critical file server applications
- 700
  - Very large databases
  - Server consolidation
  - Multi-application tasks

The many options available on every Compaq ProLiant server offer you the best fit for your individual requirements for cost, performance, and availability.

ProLiant CL380 Packaged Cluster (announced June 2000)

The CL line of ProLiant servers provides an easy, affordable clustering solution. Within this line, the Compaq ProLiant CL380 Packaged Cluster consists of two Compaq server nodes and shared storage pre-packaged in a cost-effective, space efficient cabinet giving customers the easiest, most affordable clustering solution for Microsoft Windows NT, Windows 2000, NetWare, and UnixWare 7 NonStop Cluster.

The ProLiant CL380 Packaged Cluster features up to two 1 GHz Intel Pentium III processors per server, 128 MB standard memory upgradable to 4 GB SDRAM, and the Integrated Smart Array RAID-on-a-Chip (ROC) Controller Module option. It ships with up to 6-1 inch 10,000-RPM hot pluggable SCSI disks. The four standard PCI expansion slots include three 64-bit PCI and one 32-bit PCI. Standard controllers include the following:

- 10/100 Ethernet Controller–Heartbeat (embedded)
- 10/100 Ethernet Controller–Public LAN (PCI card)
- Dual Channel Wide-Ultra SCSI-3–Server boot (embedded)
- 64 Bit Dual Channel Wide Ultra2–Shared Storage Interface (PCI card)
- ATI Rage IIc Video Controller (embedded) with 4 MB of video memory

Cluster software provides failover capability in case of hardware or software failures and the high performance RAID Array Controller supplies fault tolerant protection of shared data. Other features include redundant power supplies, ECC memory, processor recovery, redundant NIC support, and an extensive variety of internal tape backup support.

The ProLiant CL380 Packaged Cluster platform is intended for remote systems requiring unattended high availability, branch office industry applications, and dedicated function servers needing high availability.

ProLiant CL1850 (discontinued; announced October 1999)

The ProLiant CL1850 consisted of two Compaq server nodes sharing pre-packaged storage giving customers an affordable clustering solution for Microsoft Windows NT and Windows 2000 networking software. This innovative, low-cost, space-saving design offered deployment flexibility for rack or tower mounting as well as an integrated switch to share the keyboard, mouse, and monitor between server nodes. It provided easy component access for serviceability, hot-plug power supplies, and shared storage disks.

The ProLiant CL1850 included two 550 MHz Intel Pentium III processors on each server, up to 1 GB SDRAM memory per server, high performance 10,000-rpm SCSI disks, four PCI expansion slots, and up to 252 GB of high performance SCSI storage.

This clustering package offered an ideal solution for remote systems requiring unattended high availability, branch office industry applications, dedicated function servers needing high availability (Microsoft Exchange, Novell GroupWise, Lotus Notes), and space-constrained data centers and business offices.

ProLiant DL320 (announced January 2001)

The ultra-thin, robust, and affordable ProLiant DL320 provides the unique and innovative features of the Compaq DL line to emerging Internet companies. It includes a 1.13 GHz processor, in addition to the 1 GHz and 800 MHz processor with 128 MB of RAM standard (expandable to 2 GB of RAM). It includes two embedded Compaq NC3163 Fast Ethernet PCI 10/100 WOL NICs, an integrated storage controller, and a total internal storage capacity up to 40 GB.

Its 1U form factor allows rapid deployment in a variety of racking environments and its superior cable management accommodates ultra-dense deployments. Tool-free entry and easy access to critical components simplify maintenance and upgrades. The CD-ROM/diskette drive assembly is removable for greater security.

The ProLiant DL320 provides a low-cost, ultra-dense solution for local service providers and dot-coms that prefer a trusted brand with full 24 x 7 support. Other environments include the front-end servers for Web hosting, video streaming, and media applications. Corporate solutions include domain controllers, gateways, DNS servers, Web applications, firewall servers, and development testing.

ProLiant DL360 (announced June 2000)

The ProLiant DL360 offers a solution for customers focused on saving space in the data center but planning to scale their environment by adding servers in the tens, hundreds, or even thousands. Its incredible, ultra-thin 1U chassis houses up to two 1.26 GHz Pentium III processors in both single pack and 3-pack SKUs, 128 MB of 133 MHz ECC registered SDRAM DIMM memory expandable to 4 GB, and a 133 MHz GTL bus to deliver uncompromising performance.

Other state-of-the-art components include dual peer-PCI bus architecture with 64-bit/33-MHz and 32 bit/33 MHz PCI, standard Integrated Smart Array Controller, and two embedded Compaq NC3163 Fast Ethernet 10/100 WOL (Wake on LAN) NICs, and a total internal storage capacity up to 145.6 GB.

The ProLiant DL360 offers unsurpassed expansion capability and deployment flexibility. It supports four total bays, two full-length expansion card slots, and two removable media bays–one for the diskette drive and one for the low profile 24X Max IDE CD-ROM drive. The hot-plug drive area supports two 1-inch 7200-rpm, 10,000-rpm, or 15,000-rpm Ultra2 or Ultra3 hot-plug drives, with up to 72.8 GB of standard capacity.

Deployment environments for the ProLiant DL360 include massive data centers needing server management or regional data centers requiring remote management.

ProLiant DL380 (announced January 2000)

This dense rack server solution, the follow-on to the ProLiant 1850R, offers uncompromising performance, expanded availability, and unprecedented configuration flexibility. The space-saving 3U chassis houses state-of-the-art components, such as a 1-GHz Pentium III processor scalable to dual processors. Standard features also include 128 MB of 133 MHz ECC registered SDRAM DIMM memory (expandable to 4 GB) and a 133 MHz GTL bus to deliver excellent performance.

The dual peer PCI bus architecture, three 64-bit PCI slots, one 32-bit PCI slot, and Integrated Smart Array Controller offer additional performance and availability. The ProLiant DL380 ships standard with a Compaq NC3163 10/100 MB/s Fast Ethernet NIC with WOL capabilities and up to 145.6 GB hot-plug storage capacity.

The highly serviceable chassis houses four 1-inch Wide-Ultra2/Ultra3 hot-plug SCSI drive bays, supporting Web hosting, mail, file/print, or small database applications with no functionality tradeoffs. This server offers an optional two-drive expansion bay, also.

Ideal for both remote site and data center deployment, the ProLiant DL380 is an unbeatable workgroup rack solution. The performance, availability, and scalability deliver unsurpassed investment protection.

ProLiant DL380 Generation 2 (announced July 2001)

The next-generation ProLiant DL380 server, optimized for rack environments has been completely redesigned to offer unparalleled levels of performance, uptime and serviceability, previously only found in high-end servers. The modular design, flexible deployment options, and innovative Compaq management tools make the ProLiant DL380 server the easiest on the market to install, deploy, maintain and service. The ProLiant DL380 server also introduces the new Online Spare Memory, the first implementation of Compaq Advanced Memory Protection architecture. In addition to this industry-defining technology, the ProLiant DL380 server includes hot-plug redundant disk drives and power supplies to deliver the highest levels of availability in a 2U form factor, which positions the product for leadership in its class.

ProLiant DL380 Packaged Cluster (announced December 2001)

The ProLiant DL380 Package Cluster is the next generation of the ProLiant CL380 consisting of two Compaq ProLiant server nodes and a shared storage cabinet. It is pre-packaged in a cost effective, space efficient fixture giving customers the most affordable clustering solution for Microsoft NT Enterprise Edition, Windows 2000 Advanced Server, Novell NetWare, and Linux.

Performance, availability and storage capacity have been greatly improved with embedded Ultra3 SCSI controllers, greater memory capacity, numerous redundant features and an improved StorageWorks shared storage cabinet that provides up to 1TB of storage with 14 hot plug drives.

The ProLiant DL380 Packaged Cluster remains the unsurpassed, entry-level cluster solution that simplifies the purchase, configuration and management of your clustered environment

ProLiant DL580 (announced June 2000)

The ProLiant DL580 builds upon the tradition of product excellence found in the ProLiant 6400R. It features the latest generation of Intel microprocessors, ServerWorks Enterprise ServerSet HE chipset and up to 16 GB of ECC SDRAM memory (512 MB standard). This server supports up to four Pentium III Xeon processors at 700 MHz with 1M or 2M L2 cache standard to provide the processing power and scalability needed by your growing data center requirements. Innovations such as front accessible power supplies and tool-free internal design join the new system fan design, in which all system fans have moved interior to the chassis, to provide easier cabling at the back of the server.

High availability components include an Integrated Smart Array Controller for RAID data protection and advanced ECC memory algorithms that protect your data even if an entire SDRAM component on a DIMM becomes nonfunctional. The ProLiant DL580 provides 6 PCI slots, 4 of which are hot pluggable, and two of the hot pluggable slots run at 66 MHz for increased bandwidth and faster network connections.

The ProLiant DL580 ships standard with the Compaq NC3134 DualPort 10/100 NIC (slot-based), 64-bit/66 MHz, upgradable to Gigabit, with redundant NIC support. The Wide Ultra2/Wide Ultra3-ready drive cages support four 1-inch Wide Ultra2/Wide Ultra3 SCSI hard drives for up to 145.6 GB of internal storage. Hot-plug redundant fans and an optional hot-plug redundant power supply provide protection in the case of component failure and allow replacement without bringing down the server.

The ProLiant DL580 provides maximum 4-way performance and the highest levels of availability and serviceability in a 4U form factor making it an ideal platform for the corporate data center or Internet service provider environment.

ProLiant DL590/64 (announced July 2001)

Compaq introduces the new ProLiant DL590/64 Itanium-based server. The new 64-bit ProLiant DL590/64 provides the ideal combination of the most reliable and cost-effective platform for developing and porting 64-bit applications for the industry-standard computing environment. With the introduction of the first 64-bit ProLiant platform, Compaq strengthens the enterprise product portfolio by delivering an industry-standard platform with enterprise class performance capabilities. This innovative new product will enable ProLiant to drive further into enterprise data centers and compete in more traditional mid-range environments.

ProLiant DL760 (announced June 2001)

Today's mission-critical applications demand ever-increasing scalability and availability from data center servers. The ProLiant DL760, with the new Intel Pentium III Xeon 700 MHz or 900 MHz processors and PCI-X I/O, delivers the performance and uptime required to meet the current and future demands of enterprise server consolidation, e-business, ERP, thin client, compute engine, mail and messaging, and data mining applications. Based on the Profusion architecture jointly developed by Compaq, Corollary and Intel, the ProLiant DL760 offers excellent scalability driven by its balanced system architecture.

This server was designed for mission-critical environments and offers an outstanding combination of high performance and high availability features, with eight processors, 16 GB of SDRAM, eleven hot-pluggable 64-bit I/O slots including 8 PCI-X, redundant hot plug power supplies and fans and more.

The ProLiant DL760 has been developed to meet the needs of customers requiring scalability and fault tolerance in a data center environment. With the latest performance, reliability, manageability and serviceability features in a modular, dense 7U form factor design, this server provides an ideal solution for demanding enterprise applications. PCI-X is the next evolution of the PCI I/O standard that runs at speeds up to 133 MHz, providing burst transfer rates above 1GB/s. It is backward compatible with PCI. Customers can install their existing PCI adapters in the ProLiant DL760 while investing in new PCI-X adapters.

Beginning December 2001, the ProLiant DL760 and all options are available for certification for customers who require robust performance and stability from a Data Center Solution. Standard ProLiant DL760 models may be used in conjunction with the Data Center Installation and Startup service to install Windows 2000 Datacenter (DL760 DC OS Install Kit Eng, part number 260162-B21 - no factory installed model will be made available).

ProLiant ML330 (announced April 2000)

The Compaq ProLiant ML330 delivers leading file/print and Internet technology for small and medium businesses with the storage capacity you need to grow. The ProLiant ML330 is the next generation of the Prosignia Server 720 and ProLiant 400.

The ProLiant ML330 offers the latest Intel Pentium III 1-GHz processing technology, leading I/O architecture including 64-bit PCI, PC133 MHz ECC registered SDRAM memory and 133 MHz front-side bus, as well as an integrated single-channel Wide Ultra2 SCSI controller. The four DIMM sockets provide a maximum memory capacity of up to 2 GB. With two 64-bit PCI slots and three available 32-bit PCI slots, this server provides expandability options and industry-leading technology to serve your future needs.

The ProLiant ML330 supports 10,000 rpm 36 GB one-inch non-hot plug drives for a total internal storage capacity of 180 GB using two hard drive bays and three available removable media bays. It ships with an embedded Compaq NC3163 Fast Ethernet PCI 10/100 WOL NIC.

This server provides an excellent platform for file/print, remote access, email, Internet communication, firewall, or small database applications.

ProLiant ML330 Generation 2 (announced October 2001)

The new Compaq ProLiant ML330 Second Generation is an entry-level, 2-processor server in the same chassis as the current ML330. The ProLiant ML330 is the first server ever to offer a choice of Ultra3 SCSI or Integrated ATA RAID 0, 1, or 0+1. The ProLiant ML330 G2 is the only non-hot plug server to offer a global, comprehensive pre-failure warranty covering all system components, including processors, memory, and hard drives. It also offers an optional rack enabling kit for deployment in Compaq or third-party racks.

ProLiant ML330e (announced April 2001)

The Compaq ProLiant ML330e server manages your network environment, supporting basic file/print, small databases, email/Internet gateways, firewall, and more. It offers the confidence and reliability you expect from the ProLiant family of servers. Built with latest Intel Pentium III technology, the ProLiant ML330e offers small businesses the power to compete in the Internet economy today and the bandwidth to support their growing business needs.

The ProLiant ML330e combines product excellence and industry defining technology simplifying the customer experience with intelligent manageability features that proactively manage your network environment, software integration, and service and support — all at a very affordable price.

ProLiant ML350 (announced January 2000)

This dual-processor server meets the needs of both small corporate workgroups and small/medium businesses by delivering manageability, serviceability, and availability features at an affordable price. It features the latest Pentium III 1-GHz processors, support for 64-bit PCI cards, and 128 MB of 133 MHz ECC registered SDRAM memory (upgradable to 4 GB), and a 133 MHz front-side bus. The integrated Dual-Channel Wide-Ultra3 SCSI Controller meets the most demanding performance requirements.

This platform, developed from the ProLiant 800 and Prosignia Server 740, features four hard drive bays, four removable media bays, four 64-bit PCI slots, two 32-bit PCI slots (three available), and one dedicated ISA slot. The ProLiant ML350 offers hot-plug hard drive support on certain models and all models support 10,000 rpm 36 GB one-inch drives. Other standard features include an integrated Compaq NC3163 Fast Ethernet PCI 10/100 WOL NIC and RJ-45 connector and a 300-watt power-factor correcting power supply.

The ProLiant ML350 serves as a file/print, Web, email, or small database application platform.

ProLiant ML350 Generation 2 (announced October 2001)

The ProLiant ML350 2-way server provides the perfect balance of price and performance. State-of-the-art Pentium III technology with 512K on-die cache coupled with 64-bit PCI, 133MHz ECC SDRAM, and Ultra 3 I/O minimize bottlenecks delivering the processing power needed to satisfy corporate workgroups, remote sites and growing businesses. Essential availability features, such as hot-plug redundant power and hot plug drive bays provide increased uptime enhancing end-user productivity. Expansion features, including six hot-plug drive bays, six available PCI slots and up to 4GB of memory provide flexible configurations for a multitude of applications including file and print or mail and messaging.

Simple to service 5U design is optimized for both tower and rack environments where it delivers tool-free access to system components and deployment tools designed to reduce ownership hassles. The ProLiant ML350 2-way server delivers affordable performance and essential availability to discriminating corporate workgroups and growing businesses that demand expandable, easy to own, tower and rack solutions.

ProLiant ML370 (announced January 2000)

Building on the strengths of the benchmark ProLiant 1600, the Compaq ProLiant ML370 multi-purpose server solution delivers uncompromising performance, expanded availability, unprecedented configuration flexibility, and industry-leading manageability. The redesigned 5U chassis house state-of-the-art components, such as the dual 1-GHz Pentium III processors, 128 MB of 133 MHz registered SDRAM ECC DIMM memory (expandable to 4 GB), and a 133 MHz front-side bus to deliver high performance.

The ProLiant ML370 supports six one-inch Wide Ultra2 or Wide Ultra3 hot-plug SCSI hard drives and contains an embedded NC3163 Fast Ethernet 10/100 WOL NIC.

Additional features include dual-peer PCI bus architecture for access to four high bandwidth 64-bit/33 MHz PCI slots and an optional Integrated Smart Array Controller for additional performance and availability. It provides ten bays to support Web hosting, mail, file/print, or small database applications without functionality tradeoffs and optional Remote Insight Lights-Out Edition for full virtual presence from any remote site.

The ProLiant ML370 server, designed for versatile rack and tower deployments is the ideal server for both data center and remote site environments. Its performance, availability, and scalability deliver unsurpassed investment protection. Like the ProLiant DL380 server, the ProLiant ML370 server offers the ultimate performance in a 2-way server, and has a rich high availability feature set including the Online Spare Memory, hot-plug redundant disk drives, and power supplies. Engineered for ultimate flexibility, the ProLiant ML370 server offers customers multiple configuration options to provide maximum investment protection in transitioning to future technologies.

ProLiant ML370 Generation 2 (announced July 2001)

From remote sites to the data center, the new ProLiant ML370 Generation 2 is the industry's most versatile 2-way rack or tower server that is the first in its class to offer advanced memory protection and high availability features. Delivering more configuration possibilities than its predecessor, the new ProLiant ML370 now offers hot plug redundant fans, 1+1 hot plug redundant power supplies, hot plug PCI slots, and multiple tool-free racking solutions. Powered by the newest Intel Pentium III processors, with 512K cache, up to 6 GB of 2:1 interleaved 133MHz ECC SDRAM, and 64-bit/66MHz PCI slots, the ProLiant ML370 offers unprecedented performance levels never before seen in this class of server product.

The added configuration flexibility, enhanced chassis design, and additional availability features have resulted in a highly versatile 2-way server product that is ideal for a myriad of business scenarios.

ProLiant ML530 (announced January 2000)

Featuring Highly Parallel System Architecture, 128 MB of 133 MHz SDRAM, 64-bit/66 MHz PCI, and the 1-GHz Pentium III Xeon processors, the world's fastest two-way server combines maximum performance with ultimate expansion and manageability features. It ships with memory expandable to 4 GB and dual processing support, ensuring expandability to the highest level of investment protection. The ProLiant ML530, the evolution of the ProLiant 3000, features 16 bays, including 12 hot-plug hard drive bays, as well as eight PCI slots. The PCI slots include two 64-bit/66 MHz, five 64-bit/33 MHz, and one 32-bit/33 MHz.

The internal hot pluggable storage capacity of 436.8 GB offers plenty of room for expansion. The ProLiant ML530 ships with support for redundant hot-plug fans, redundant hot-plug power supplies, and redundant NICs. This server features the NC3123 Fast Ethernet PCI 10/100 WOL NIC and an integrated dual-channel Wide Ultra2 SCSI Adapter.

With exceptional two-way performance, expansion, and manageability features, the ProLiant ML350 is the perfect solution for critical file/print, database, and complex Web applications.

ProLiant ML570 (announced June 2000)

The Compaq ProLiant ML570, an all-inclusive server/storage solution for enterprise users, boasts a 7U form factor optimized for internal expansion up to twelve 1.0-inch SCSI disk drives and expandable to 16 GB of SDRAM memory. Available in either tower or rack models, 700MHz, 1M or 2M cache or 900MHz 2M cache, the ProLiant ML570 chassis design and slide-out electronics tray provide easy access to the system internals for tool-free replacement of parts. Powered by the Compaq Highly Parallel System Architecture and using the ServerWorks Enterprise ServerSet III HE chipset and up to four Intel Pentium III Xeon processors, this server maximizes performance and output. Five 64-bit I/O slots, including two running at 66 MHz, provide increased bandwidth and faster network connections. High availability features include hot-plug redundant fans, power supplies, NICs, and drives in addition to new memory error correcting technology built into the chipset.

The ProLiant ML570 ships with a Compaq NC3123 Fast Ethernet PCI 10/100 WOL NIC and an integrated dual-channel Wide Ultra2/Wide Ultra3 ready SCSI Adapter. The ProLiant ML570 supplies the performance, scalability, availability, manageability, and design features needed by large business and enterprise customers, application service providers (ASPs), and Internet Service Providers (ISPs) with business-critical and e-Commerce applications.

The ProLiant ML570 has continued to excel in price/performance TPC-C benchmarks. Most recently, it generated a TPC-C rating of 37,100 tpmc with a price/performance of $6.36 ($/tpmc) using 4x 900MHz Xeon CPUs.

ProLiant ML750 (announced June 2001)

Today's mission-critical applications demand ever-increasing scalability and availability from data center servers. The ProLiant ML750, with new The ProLiant DL760, with new Intel Pentium III Xeon 700 MHz or 900 MHz processors, delivers the performance and uptime required to meet the current and future demands of enterprise server consolidation, e-business, ERP, thin client and data mining applications. Based on the Profusion architecture jointly developed by Compaq, Corollary, and Intel, the ProLiant ML750 offers excellent scalability driven by its balanced system architecture.

This server was designed for mission-critical environments and offers an outstanding combination of high performance and high availability features, with eight processors, 16GB of SDRAM, eleven PCI slots, next generation PCI Hot Plug, redundant hot plug power supplies and fans and more. The ProLiant ML750 has been developed to meet the needs of customers requiring unprecedented scalability and fault tolerance with large internal storage configurations, providing capacity for 21 internal 1" Wide Ultra2/3 SCSI drives accessible through redundant array controllers. With the latest performance, reliability, manageability and serviceability features in a 14U form factor design; this server provides an ideal solution for demanding enterprise applications.

Proving the power of this new architecture, the ProLiant ML750 and DL760 were the first servers to break the 40,000 transactions per minute barrier. For the first time, industry-standard servers can now offer the raw processing power of midrange servers, at a much superior price: performance point.

In addition, ProLiant 8-Way servers recently shattered the transactions per minute world record with over 505,000 transactions per minute at a record price: performance point of $20.68 per transaction.

ProLiant ML770 (discontinued May 2001; announced September 2000)

The 32-processor, industry-standard server from Compaq, the ProLiant ML770, delivers the highest performance of any ProLiant server, with the flexibility of an industry-standard architecture. The ProLiant ML770 supports Microsoft Windows 2000 Datacenter. This system delivers maximum scale-up (single server) performance in the ProLiant line, with 32 Pentium III Xeon processors, large SDRAM memory capacity, and huge I/O expansion. The ProLiant ML770 capability for partitioning provides outstanding flexibility of deployment, allowing separate operating system images in independent system partitions.

The ProLiant ML770 is based on the Cellular Multi-Processing (CMP) architecture, designed for maximum performance and scalability. Compaq has upgraded the CMP architecture by adding additional high-availability features and Compaq storage and options. Redundant management processors and boot drives, plus hot-plug, redundant power supplies and system fans deliver reliability and availability.

Standard features for the ProLiant ML770 include the following:

- 32 x 700/2M Intel Pentium III Xeon
- 32 GB SDRAM for applications and databases requiring large memory footprints
- NC3131/NC3134 Dual-port 10/100 TX PCI NIC
- Sixteen hot-plug, redundant power supplies per 32P system

- PCI slots
  - For the 32P model, 16 to 64 33MHz/64-bit PCI slots, depending on configuration
  - For the 16P model, 8 to 32 33MHz/64-bit PCI slots, depending on configuration

Enterprise customers with large non-partitionable databases or very demanding, scalable applications have the maximum in industry-standard single-system performance available from Compaq.

ProLiant 400 (discontinued; announced January 1999)

Its impressive combination of features, affordability, expandability, and reliability made the ProLiant 400 an ideal platform for basic file/print; remote access and communications, small database, and firewall applications. With two internal and three external drive bays, six expansion slots, and optimum upgradability in RAM and internal storage, the Compaq ProLiant 400 provided the flexibility to grow your server as your business demanded and protect your IT investment. Features, such as Remote Wake-On-LAN and Automatic Server Recovery (ASR), made the experience of managing your server simple.

This server joined the Intel Pentium III Xeon processor with a 100 MHz GTL+ front-side bus and an integrated Wide Ultra2 SCSI Controller offering performance suited for a variety of applications. The affordable ProLiant 400 came standard with 64 MB, 100 MHz unregistered ECC SDRAM DIMM memory (up to a maximum of 768 MB), an internal mass storage capacity of 54.6 GB, and a high performance 32X Max IDE CD-ROM drive. This server evolved into the ProLiant ML330.

ProLiant 800 (discontinued; announced January 1997)

The Compaq ProLiant 800 Server combined performance-enhancing technologies with an affordable workgroup server. The ProLiant 800 provided Pentium III processors, 100 MHz GTL + bus design, and an integrated Dual Channel Wide-Ultra SCSI-3 Controller to meet the performance requirements of the most demanding networks. With four internal and four external drive bays, six available expansion PCI slots, and dual-processor capability, the ProLiant 800 could grow with your business. In addition, with such features as Compaq Integrated Remote Console and ASR-2, the ProLiant 800 maintained the standard of reliability and manageability unique to Compaq.

The ProLiant 800 delivered exceptional performance with up to two Pentium III 600, 550, 500 MHz processors with 512-KB L2 cache. It shipped standard with 64 MB of registered ECC SDRAM memory, expandable to 1 GB using industry-standard DIMMs. The ProLiant 800 supported up to four 1 inch or 1.6 inch non hot-plug hard drives for a maximum 72.8 GB internal storage capacity. The ProLiant 800 architecture was the basis for the ProLiant ML350.

ProLiant 850R (discontinued; announced May 1997)

The Compaq ProLiant 850R was the first low-profile server to combine affordability and a unique space-saving design tailored exclusively for rack environments. The ProLiant 850R featured up to two, 200 MHz Pentium Pro processors and the latest technology in network and disk controllers in a 3U rack-mount form factor. Other features included PCI Hot Plug drive capability, Integrated Remote Console, and full support for dual processing.

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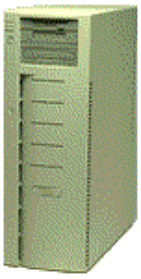
This server was designed for medium-to-large businesses requiring an affordable, space-efficient rack-mount solution for communications, Internet/intranet, gateway, or file and print applications.

ProLiant 1000 (discontinued; announced September 1993)



The first member of the ProLiant family, the ProLiant 1000 was built upon the EISA bus architecture and provided eight expansion slots, consisting of seven 8/16/32-bit EISA bus-master expansion slots and one management modem slot. The system board provided an integrated Fast-SCSI-2 Controller, as well as integrated SVGA video controller. The system shipped with 16 MB of RAM, expandable to 144 MB (Pentium models) or 128 MB (486 models) using industry-standard SIMMs. The system included a pre-installed NetFlex-2 Ethernet controller and CD-ROM drive. The chassis provided space for eight total internal storage device bays, six of which were internal hot-pluggable drive bays.

ProLiant 1200 (discontinued; announced November 1997)

The Compaq ProLiant 1200 was designed for workgroup and remote office applications. It was ideally suited for price-sensitive users who needed an easy-to-use, high-availability server platform.

The system architecture, based on dual-peer PCI buses, made this a powerful server. Integrated Remote Console delivered seamless remote console and full remote server reboot capabilities by adding a modem. This impressive combination of features–affordability, expandability, and reliability–made this an ideal platform for basic file/print, remote access and communications, small database, and firewall applications. Hot-plug drives gave workgroups and remote sites the uptime they needed while providing plenty of disk space for ever-growing file demands.

ProLiant 1500 (discontinued; announced February 1995)

This affordable, mission-critical server was intended for departmental file and application services. FlexSMP System Architecture allowed the ProLiant 1500 to upgrade to dual processing and a 6/200 FlexSMP Dual Processor Board option expanded to a second 200 MHz Pentium Pro processor. The 512-KB secondary write-back cache provided enhanced system performance. The 32 MB of ECC memory was located on the processor board was expandable up to 256 MB.

The eight-drive bay included three removable drives and five hot pluggable drives. A quad-speed CD-ROM drive was standard and connected to an integrated EIDE interface on the system board. A redundant power supply upgrade was available.

ProLiant 1600 (discontinued; announced November 1997)

The Compaq ProLiant 1600 was the ultimate workgroup server. This high-performance server for workgroup and remote-office application came with uptime features unmatched in its class. A state-of-the-art Pentium III 600, 550, or 500 MHz processor with 512-KB L2 cache, the 100 MHz GTL bus design, and dual-processing capability provided exceptional performance. The integrated Dual Channel Wide-Ultra SCSI-3 Controller offered 80 MB aggregate performance with plenty of expansion room for growing network demands.

The system came standard with 128 MB of registered SDRAM memory; expandable to 1 GB using 100 MHz registered SDRAM DIMMs. The system supported up to six one-inch hot-plug hard drives, providing 109.2 GB of internal storage capacity. The ProLiant 1600 incorporated Highly Parallel System Architecture, providing improved system bandwidth. It came standard

with an I_2O Connector and Integrated Remote Console. A pre-installed high speed IDE CD-ROM shipped with the standard configuration.

The system was equipped with a hot-pluggable power supply with an option for a redundant hot-plug power supply to enhance system availability. The ProLiant 1600 evolved into the ProLiant ML370.

ProLiant 1850R (discontinued; announced August 1998)

The Compaq 1850R was a space saving, 3U, high performance, full-featured rack server designed to meet the needs of ISPs, corporate data centers, and remote sites. Compaq manageability made it an unbeatable platform for file/print, email, Web, or small database applications.

The Pentium III 600, 550, or 500 MHz processor incorporated into this design offered state-of-the-art performance in a rack-optimized server. Features included dual-processor capability, 100 GTL bus architecture, 128 MB 100 MHz, registered ECC SDRAM DIMM memory expandable to 1 GB, and an integrated Dual Channel Wide-Ultra SCSI-3 Controller. The standard system came with four full-length slots and accessibility to major components without tools or removing the system from the rack.

The system supported up to four 1-inch Wide Ultra2 SCSI hot-plug drives for a standard internal capacity of 72.8 GB or up to 109.2 GB with two additional 1-inch drive cages in the removable media slots. This popular server was the basis for the ProLiant DL380.

ProLiant 2000 (discontinued; announced September 1993)

The ProLiant 2000, a high-end server, delivered unmatched system availability. It offered symmetric multiprocessing through its FlexSMP System Architecture. Additionally, it provided full-spectrum fault management.

The chassis had eight total internal storage device bays, five of which were hot-plug drive bays. An optional redundant power supply was also available for the system.

ProLiant 2500 (discontinued; announced October 1996)

A mid-range server capable of supporting medium- to large-sized database applications, the ProLiant 2500 provided full support for dual processing with Pentium Pro processors. Designed for high performance in departmental and Internet/intranet applications, it delivered power, scalability, and reliability at an affordable price.

The system came standard with Automatic Server Recovery-2 to improve system availability. Some of the other server management features of the ProLiant 2500 included server health logging, Revision History Table, offline backup processor, and the Compaq Remote Insight Board (optional).

ProLiant 3000 (discontinued; announced November 1997)

The Compaq ProLiant 3000 used its Pentium III (600-, 550-, or 500 MHz) processor and system architecture technology to deliver best-in-class performance while providing increased expansion capabilities to meet the ever-increasing requirements of high-volume file services or entry-level applications. Compaq offered a 4-way Pentium III Xeon upgrade program for customers wanting to increase processing power while maintaining the asset life of the server. Additionally, the Compaq ProLiant 3000 included advanced fault-tolerant capabilities and rapid recovery features providing maximum uptime and reliable server operation while lowering TCO.

ProLiant 3000 systems shipped in tower or rack-mount form factors and featured up to two Pentium III processors with 512-KB L2 Cache. It included dual-peer PCI buses. The integrated Dual Channel Wide-Ultra SCSI-3 Controller provided support for up to six 1.6-inch or ten 1.0-inch hot-plug SCSI drives, offering an internal storage capacity of 254.8 GB. The Smart Array 3200 Controller with a Wide Ultra2 SCSI drive cage came standard on the Array Model. The Smart Array 3200 supported ten 1-inch 18.2 GB drives.

The system shipped with 128 MB memory, expandable to 4 GB using 100 MHz SDRAM. It provided a hot-pluggable, 750-watt power supply with optional redundant power supply. Eight expansion slots came standard, five PCI and three shared PCI/EISA. The ProLiant 3000 came equipped with a standard 32X MAX IDE CD-ROM drive.

The NC3120 10/100 TX PCI UTP Network Interface Controller came standard and used a PCI slot. The system could be equipped with optional redundant fans. Other standard features of the ProLiant 3000 included the Integrated Remote Console and Integrated Management Display with support for network controller pairing and SMART-2 Array Controller pairing providing a very high degree of fault tolerance for mission-critical applications.

This award-winning server evolved into the ProLiant ML530.

ProLiant 4000 (discontinued; announced September 1993)

ProLiant 4000 servers offered highly extensible performance by using the FlexSMP system architecture. It included full-spectrum fault management, an off-line backup processor with automatic processor recovery, and a 2 MB Transaction Blaster option for high-end multiprocessing applications. The I/O board included an integrated Fast-SCSI-2 Controller and provided eight 8/16/32-bit EISA bus-master expansion slots. The ProLiant 4000 shipped with a standard 64 MB of Advanced ECC memory expandable to 512 MB.

ProLiant 4500 (discontinued; announced February 1996)

The ProLiant 4500 provided up to four processors including support for an offline back-up processor with automatic processor recovery. The I/O board included an integrated Fast-Wide SCSI-2 Controller and offered eight 8/16/32-bit EISA bus-master expansion slots. The system shipped with 64 MB (32 MB in Model 1) of Advanced ECC RAM, expandable to 1 GB using industry-standard SIMMs. The system included a pre-installed NetFlex-3 Controller and CD-ROM drive. The chassis provided seven storage device bays, four of which were internal hot-pluggable drive bays. Some models were equipped with an optional redundant power supply.

ProLiant 5000 (discontinued; announced June 1996)

The award winning ProLiant 5000 system was the first to integrate dual-peer PCI bus architecture and redundant NIC technology on industry-standard architecture. The system had a 4 GB memory with industry-standard DIMMs. The system included ECC memory data bus and L2 cache. An optional redundant processor power module provided continued availability if one power module failed. Support for optional off-line backup processors allowed near-maximum availability in case of processor failure. Dual-peer PCI buses delivered an aggregate 267 MB for improved system throughput.

ProLiant 5500 (discontinued; announced September 1998)

The ProLiant 5500 was the ideal server for large business and enterprise customers requiring an affordable, high-performance, multi-purpose server for business-critical applications. The ProLiant 5500 combined excellent expansion capacity, legendary fault tolerance, and full management capabilities to deliver outstanding value while lowering ownership costs.

The ProLiant 5500 supported up to four 550 or 500 MHz Pentium III Xeon processors with 100 MHz front-side bus and full-speed cache. The 5500 shipped with 512 K or 1 MB L2 cache with 2 MB optional. The dual-peer PCI architecture eliminated the need to balance I/O. The system shipped with 256 MB of ECC EDO memory expandable to 4 GB using industry-standard DIMMs. The system supplied seven expansion slots, including six PCI and one shared PCI/ISA slot.

It came in either tower or rack-mount (5500R) models. The system utilized Highly Parallel System Architecture for improved system bandwidth and provided dual-memory controllers and dual-peer PCI buses for improved throughput to I/O devices resulting in increased overall system performance. The system came equipped with an integrated Compaq 64-bit Dual Channel Wide Ultra2 SCSI Controller providing support for up to ten 1.0-inch hot-plug SCSI drives with data transfer rates of up to 40 MB on each channel. The ProLiant 5500 provided up to 91 GB of storage. A Compaq NC3120 10/100 TX PCI UTP Network Interface Controller shipped standard and occupied a PCI slot. This server was the foundation for the ProLiant ML570.

ProLiant 6000 (discontinued; announced May 1997)

The ProLiant 6000 delivered breakthrough enterprise performance and the highest levels of expansion for the best value in business-critical environments. The ProLiant 6000 offered up to four 500 MHz Pentium III Xeon processors providing industry-leading performance for CPU-intensive applications, such as Windows NT Terminal Server and database applications. The ProLiant 6000 provided leadership performance and unparalleled expansion in an easy-to-service, industry-standard platform.

The system came standard with 256 MB of ECC buffered EDO DIMM memory, expandable to 8 GB. The ProLiant 6000 supported up to three hot-plug power supplies. All expansion slots used board release levers for quick access to modular, removable components.

The system board provided an integrated Dual Channel Wide Ultra SCSI-3 Controller with two SCSI channels with double the data transfer rates of the Fast Wide SCSI-2 Controller. The cableless Smart Array 3100ES Controller with three Wide-Ultra SCSI-3 channels and 64 MB L2 cache, which shipped on some models, allowed all three drive cages to be configured as one contiguous 218.4 GB array. The optional redundant, enhanced Smart Array 3100ES Controller delivered failover support as well as higher availability.

The DualPort 64-bit NC3131 PCI 10/100 MB Auto Sensing NIC (upgradable to Gigabit) came standard, providing a high degree of network reliability. The integrated PCI-based video controller (Cirrus 5430) had 512 KB of video RAM, expandable to 1 MB.

The server included Integrated Management Display and Integrated Remote Console making it easy to manage and service. The ProLiant 6000 supported redundant NIC failover and Automatic Server Recovery-2 (ASR-2). The system offered easy conversion to 19-inch rack mount, using 14U per server and allowing three to be installed in a 42U rack, which maximized configuration flexibility. An optional hot-plug redundant power supply shipped on base models, offering N+1 redundancy support for maximum load configuration. The system supported up to six 1-inch drives or four 1.6-inch drives on each backplane, with a maximum of three SCSI backplanes. Duplexing could be accomplished by adding a second SCSI backplane.

Other features of the ProLiant 6000 included hot-plug fans, redundant processor power modules, redundant RAID controllers, and 64-bit I/O.

ProLiant 6400R (discontinued; announced March 1999)

The ProLiant 6400R ran demanding business applications, implemented clustering solutions, and operated active Intranet, Internet, and e-commerce sites. This made it the perfect platform for data center customers using external storage and back-up solutions and wanting the maximum 4-way system performance. With the latest performance, reliability, manageability, and serviceability features in a space saving 4U (7") design, this server provided an ideal solution for the space-constrained data center customer.

Front accessible power supplies and tool-free internal design simplified access to components for quicker maintenance. Other features included optional Smart Array Controllers, 64-bit I/O, 10/100 Ethernet NIC (upgradable to Gigabit), and 10,000-RPM hot-plug hard drives.

The ProLiant 6400R supported up to four Intel Pentium III processors with 512 K, 1 MB, or 2 MB L2 cache. Its ECC EDO DIMM memory could expand to 4 GB. It provided six 64-bit slots (five PCI Hot Plug and one shared PCI/ISA).

The system shipped with industry-standard, push-button PCI Hot Plug, hot-plug drives, redundant hot-plug fans, ASR-2, Online Recovery Server Option, and Integrated Remote Console. Other standard features included an Integrated Dual Channel Wide-Ultra SCSI-3 Storage Controller, and a 24X Max IDE CD-ROM Drive (slim line). Available options included redundant hot-plug power supplies, redundant power processor modules, and redundant NICs.

ProLiant 6500 (discontinued; announced August 1997)

Featuring the Pentium III Xeon processor, the ProLiant 6500 offered superior performance and high-availability features to keep your business running 24 hours a day, 7 days a week. You could trust your most critical database, OLTP, messaging, and Web hosting needs to the ProLiant 6500 and its PCI Hot Plug technology. The ProLiant 6500 also met the needs for flexibility and space efficiency desired in modular rack environments. The ProLiant 6500 slim 7U profile made it ideal for multi-server and external storage implementations, such as clusters or server farms. With leading server management capability, legendary Compaq quality, and comprehensive service, Compaq and the ProLiant 6500 provided superior TCO.

ProLiant 6500 systems could be configured with up to four Pentium III Xeon processors, and came standard with 256 MB ECC protected buffered EDO DIMM memory expandable to 4 GB. The ProLiant 6500 introduced the first industry-standard PCI Hot Plug bus. The chassis offered six 64-bit PCI Hot Plug expansion slots. It came with modular drive bays (five 1.6-inch or seven 1-inch hot-plug drive bays) for a total storage capacity of 127.4 GB.

The system contained two 750-watt redundant, hot-plug, load-sharing power supplies. The ProLiant 6500 also offered enhanced system management features (Integrated Remote Console, Integrated Management Display LCD, Enhanced Event logs). The system included a single integrated Dual Channel Wide Ultra SCSI-3 Controller, providing a data transfer rate up to 40 MB on each of the two channels. Its DualPort 64-bit NC3131 PCI 10/100 MB Auto Sensing NIC could be upgraded to Gigabit Ethernet.

The 6500 features also included RAID controllers, redundant hot-plug system fans, optional redundant NICs, and redundant processor power modules.

ProLiant 7000 (discontinued; announced August 1997)

The ProLiant 7000 was the ultimate standards-based server, delivering the most scalable performance and highest levels of availability and expansion for 24x7 environments with critical database, OLTP, and Web serving needs. This server met the needs of customers seeking a highly expandable server for the data center.

The ProLiant 7000 offered up to four 500 MHz Pentium III Xeon processors. The system came equipped with 256 MB ECC buffered EDO memory, expandable to 8 GB. A cableless Smart Array 3100ES Controller provided three channel RAID support for all of the internal hot-plug drive cages, offering up to 436.8 GB internal storage.

The ProLiant 7000 provided five 64-bit PCI slots, four 32-bit PCI slots, and one ISA modem slot. All slots used board release levers for quick access to modular, removable components. Pre-installed internal cabling provided improved reliability and manageability. The system included a DualPort 64-bit NC3131 PCI 10/100 MB. Auto Sensing NIC that supported redundant NIC failover in PCI Hot Plug slots.

The ProLiant 7000 came standard with Integrated Remote Console and Integrated Management Display. The 7000 also offered hot-plug drives, redundant hot-plug power supplies, redundant processor power modules, and redundant RAID controllers. Combined with the latest high-availability features, including PCI Hot Plug, the ProLiant 7000 offered superior investment protection for your most demanding business-critical applications.

ProLiant 8000 (announced August 1999)

The ProLiant 8000 delivers the performance and uptime required to meet both current and future demands of enterprise server consolidation, eBusiness, ERP, thin client, and data mining applications. Based on the Profusion architecture jointly developed by Compaq, Corollary, and Intel, the ProLiant 8000 offers the highest levels of internal fault tolerance storage for 24x7 performance. This ultra-capacity data center server operates with up to eight Intel 700 MHz Pentium III Xeon processors with 1 MB or 2 MB L2 cache. It ships with 100 MHz SDRAM DIMM memory expandable to 16 GB.

The ProLiant 8000 supports 21 one-inch hot plug Wide Ultra2 SCSI drives, a Smart Array 4250 ES Controller (cableless) with optional redundancy available. It comes with ten 64-bit PCI and one 32-bit PCI I/O expansion slots, all PCI Hot Plug as well as a DualPort 64-bit NC3131 PCI 10/100 MB/s Auto Sensing NIC upgradable to Gigabit Ethernet.

Other features include PCI Hot Plug with push button functionality and Rack Builder Pro, as well as hot-plug redundant fans, hot-plug load balancing redundant power supplies, Remote-Flash Redundant ROM, and Remote Insight Board.

ProLiant 8500 (announced August 1999)

The ProLiant 8500, based on the Profusion architecture–jointly developed by Compaq, Corollary, and Intel–offers excellent scalability driven by its balanced system architecture. Designed to meet the demands of data mining, thin client, ERP, and eBusiness, this system provides 8-way scalable performance for 24x7 multi-server rack environments. The ProLiant 8500 provides push-button hot-plug, tool-free internal design, and integrated lift handles and power bay covers for ease of maintenance.

Its system interconnect status indicators furnish quick resolution to unseated component issues. The ProLiant 8500 supports one to eight Intel 700 MHz Pentium III Xeon processors with 100 MHz front-side bus and full-speed cache. It ships with eleven 64-Bit PCI I/O expansion slots (all PCI Hot Plug), an integrated Smart Array Controller (Ultra2 Support, RAID 0, 0 + 1, 1, and 5 support), and a DualPort 64-bit NC3131 PCI 10/100 Mb/s Auto Sensing NIC (upgradable to Gigabit Ethernet). The ProLiant 8500 includes 100 MHz SDRAM DIMM 2-way interleaved memory expandable to 16 GB. In addition, it supports an internal hot-plug drive storage of 72.8 GB and 35.2 TB of external storage using Fibre Channel Host Adapters, hubs, and Array Storage Subsystems.

The ProLiant 8500 contains hot-plug drive bays, redundant hot-plug fans, power supplies, and support for ECC memory, redundant NICs, and ASR-2. It includes Integrated Remote Console, and Remote Redundant ROM, and Remote Insight Board.

ProLiant Clustering Solutions

Along with its partners and customers, Compaq wants to ensure the right technology, the right services, and the right management process and discipline are applied to each component of the Compaq eBusiness model. Compaq offers several industry-standard clustering solutions, all tested in a wide range of environments to provide you the easiest road to true server clustering. With over 50,000 installations of standards-based clusters worldwide, Compaq has more experience than our top three competitors combined.

These clustering configurations utilize many of the ProLiant servers and other Compaq components you might already have onsite allowing you to protect your initial investment in Compaq equipment.

Compaq High Availability Cluster products are designed and rigorously tested to ensure outstanding performance and seamless integration within your IT environment to ensure the highest levels of up time for your most critical applications and data. With today's announcement, customers now have more choice and flexibility to create the best high availability solution for their IT and business needs. New Compaq products provide clustered solutions across the entire line of industry standard ProLiant servers on all major operating systems, including Windows NT/2000, Novell, and Linux.

Linux Clusters for ProLiant

As announced on December 5, 2001, Compaq has strengthened its relationship with SteelEye™ Technology to extend Linux into the ProLiant Cluster strategy and fabric of certified solutions. Compaq now supports LifeKeeper for Linux Version 4 cluster software across the complete line of ProLiant servers to now include the ProLiant 8500, DL760, DL580, the 64-bit Itanium server, the new DL380 Packaged Cluster as well as the StorageWorks MA8000 Enterprise Storage Subsystem.

Customers will also benefit from the new features in LifeKeeper for Linux 4.0, streamling LifeKeeper's intuitive Java-based GUI to allow for efficient application linkage to LifeKeeper as well as a remote client management feature that enables IT managers to easily administer their clusters via remote log in using either NetScape or Internet Explorer Browsers. Compaq has announced support for up to 16 cluster server nodes in a LifeKeeper for Linux Cluster providing unlimited scale for customers needing this level of processing power.

Linux Clusters for ProLiant provide solutions for Linux customers interested in a scalable high availability application and data solution as well as UNIX literate customers searching for a more cost-effective solution. Check http://www.compaq.com/solutions/enterprise/ha_linux_cert.html for certified ProLiant servers.

Also, refer to the Compaq Parallel Database Cluster Solutions section later in this section.

Microsoft Clusters for ProLiant

Microsoft Windows 2000 Advanced Server and Microsoft Windows 2000 Datacenter Server support ProLiant Clustering. Compaq provides a full suite of clusters for Windows 2000 Advanced Server as a logical follow-on to Windows NT 4.0 Enterprise Edition.

These solutions cover the entire Compaq StorageWorks storage subsystems. Datacenter Server clusters focus on high-end enterprise server and high-end StorageWorks storage.

ProLiant Cluster for Microsoft HA/F100

The Compaq ProLiant Cluster HA/F100 integrates the hardware and software to provide a total solution for business-critical environments. Compaq servers, Compaq Fibre Channel Storage, interconnect options, system management software, and implementation documentation have all been thoroughly tested in cluster configurations. Because they are built from industry-standard components, Compaq ProLiant Cluster HA/F100 platforms deliver high levels of application availability at a much lower cost than traditional, proprietary cluster solutions.

The Compaq ProLiant Cluster HA/F100 exploits Compaq's industry-leading servers, Compaq Fibre Channel Storage, Ethernet, or ServerNet interconnect and the Compaq leading installation and systems management utilities. Both existing and new Compaq servers are certified for Compaq ProLiant Cluster HA/F100 configurations. This means that clusters can be built using existing ProLiant servers or a mix of old and new servers. Check http://www.compaq.com/solutions/enterprise/highavailability-clustering-f100cert.html to identify which ProLiant servers are currently certified for this cluster solution.

The Compaq ProLiant Cluster HA/F100 is a robust, integrated cluster solution providing high availability for applications and data in business-critical environments. An ideal platform for business-critical databases, large business applications, email or file/print services, the Compaq ProLiant Cluster HA/F100 offers Fibre Channel-based clustering at a fraction of the cost of proprietary cluster solutions.

ProLiant Cluster for Microsoft HA/F200

The Compaq ProLiant Cluster HA/F200, a two-node Microsoft Windows NT or Windows 2000 Cluster, provides a dual loop configuration cluster solution for customers needing high levels of uptime for business-critical databases, large business applications, and email or file/print services.

The Compaq ProLiant Cluster HA/F200 utilizes Compaq industry-leading ProLiant servers, Compaq StorageWorks RAID Array 4000 (RA4000) previously known as Compaq Fibre Channel Storage System (FCSS), Compaq StorageWorks RAID Array 4100(RA4100), Ethernet or ServerNet interconnect, intelligent cluster administration software, Compaq installation and systems management utilities, and the industry-standard Microsoft Cluster Server (MSCS) software.

Check http://www.compaq.com/solutions/enterprise/highavailability-clustering-f100cert.html to determine which ProLiant servers and server combinations are currently certified for this cluster.

This high availability solution is also backed with comprehensive service and support partnerships through Compaq Systems Service Providers to meet customer needs. Service and support offerings can be tailored to meet a customer's most stringent requirements covering implementation planning and consulting, as well as mission-critical application support.

ProLiant Cluster for Microsoft HA/F500

This two-node Microsoft Windows NT/ Windows 2000 cluster consists of Compaq ProLiant high-end or high-density servers and Compaq StorageWorks Fibre Channel Storage System RA8000/ESA12000 or MA8000/EMA12000. This system, when configured in a dual loop, provides the highest level of availability with no-single-points-of-failure for customers using Microsoft Cluster Server. The Compaq ProLiant Cluster HA/F500 can be configured utilizing many of the Compaq standard servers and components that might already be on site with our customers. Check http://www.compaq.com/solutions/enterprise/ha-f500-matrix.html to see the currently certified ProLiant servers and storage subsystems for this clustering solution.

The Compaq ProLiant Cluster HA/F500 offers system configurations integrated and heavily tested to Compaq standards of quality and leverages the work of the High Availability ISV Partner program to integrate Partner databases and applications with the hardware. Disaster-tolerant configurations are supported with Fibre Channel Switched Fabric and long wave fibre channel interconnect support.

Because the solution is based on industry-standard hardware, it can be implemented at a much lower cost than other cluster solutions, making it the perfect solution for business-critical applications such as email, enterprise resource planning (ERP), Web servers, and database applications.

ProLiant Cluster for Microsoft HA/S100

This cluster solution, based on Compaq ProLiant SCSI storage, ProLiant servers, the Recovery Server Option hardware, Compaq Smart 2 Array controllers, and Microsoft Cluster Server software, offers two-node high availability. Compaq integrates the clusters and certifies them with Microsoft in specific hardware configurations. This low cost cluster solution targets customers who need a low cost cluster solution and are heavily invested in Compaq server and storage technology.

This solution specifically addresses availability and should be considered for deployment at remote sites and branch offices with limited IT expertise. This cluster supports Windows NT Server 4.0 Enterprise only; it does not support Windows 2000.

NetWare Clusters for ProLiant

NetWare 4.2, NetWare 5, and, the soon to be announced, NetWare 6 support ProLiant Clustering. These solutions cover the spectrum of Compaq ProLiant Servers and StorageWorks storage subsystems.

ProLiant Cluster for NetWare 4.2

The Compaq ProLiant Cluster for NetWare 4.2 creates a two-node, active-active, Novell High Availability Server (NHAS) solution for NetWare 4.x environments needing high levels of uptime. It uses Compaq ProLiant servers, Compaq StorageWorks RAID Array 4000 (RA4000), Ethernet interconnect, intelligent cluster administration software, Compaq management utilities, and the NHAS software.

The redundant components in storage, the hot plug and redundancy options in servers, and software providing failover of hardware ensure that your applications stay up and running. This cluster solution offers dual fibre channel loops, load balancing, and 64 MB storage controller cache coherency. The Compaq ProLiant Cluster for NetWare 4.2 supports either matched or

mixed pair configurations providing you the flexibility to tailor these clusters to your environment and current Compaq equipment.

Check http://www.compaq.com/solutions/enterprise/ha-netware42-config.html for the latest certifications on this solution and Compaq equipment.

ProLiant Cluster for NetWare 5

A multi-node system, the Compaq ProLiant Cluster for NetWare 5 uses NetWare Cluster Services (NWCS) to supply high levels of uptime for business-critical services. This solution provides up to an 8-node all-active cluster support meaning that any NetWare server in the cluster can restart resources from a failed server as well as single point administration through the Novell Console One cluster configuration and monitoring GUI.

Note: For this solution, 32 nodes are also available by using Compaq Professional Services or Consulting support.

This cluster offers dynamic assignment and reassignment of server storage as needed and delivers seamless client connectivity and preserved drive maps throughout cluster failover. Redundancy and hot-plug features provide high availability. The Fibre Channel interconnect to storage offers high performance and scalability. Additionally, the creation of a SAN allows the efficient consolidation of separate storage subsystems eliminating the cost and complexity of storage management. The Secure Path Redundancy Manager is available as an option to increase the availability of the server-storage interconnects. Cluster Kits for ProLiant NetWare Clusters are available as noted in Table 9.

Table 9. Cluster Kits for ProLiant NetWare Clusters

Designation	Description	Number of Clustered Servers*	Part Number	Notes
HA/N100	Basic Documentation Kit	2 to 8	219142-B21	Does not include Redundant Path. Includes documentation for all versions of ProLiant NetWare Clusters.
HA/N200	Redundant Path Cluster Kit-RA4100 Family	2	219143-B21	Includes Redundant Path licenses for a 2-node cluster. Additional licenses are required for larger clusters.
HA/N500	Redundant Path Cluster Kit-MA8000 Family	2	219144-B21	Includes Redundant Path licenses for a 2-node cluster. Additional licenses are required for larger clusters.

* NetWare 5 with NWCS supports up to 32 clustered servers. Compaq currently supports up to 8 clustered servers in clusters with Secure Path and fully redundant components. The number of clustered servers for the N200 and N500 kits is specified as 2 since that is the number of Secure Path licenses included with the kits. Larger numbers of clustered servers using the Redundant Path capability will require additional Secure Path licenses.

The Compaq ProLiant Cluster for NetWare 5 supports matched or mixed pair configurations affording you the opportunity to utilize existing Compaq equipment. If you implemented the

ProLiant cluster for NetWare 4.2, you can easily migrate to the ProLiant Cluster for NetWare 5 with no loss of investment.

ProLiant Cluster for UnixWare 7.1 (discontinued December 2001)

The Compaq ProLiant Clusters for UnixWare 7.1 is a two- to six-node clustered high availability and application scaling solution developed by Compaq and licensed to Caldera. Compaq products certified for this clustering solution can be found at our website at http://www.compaq.com/solutions/enterprise/highavailability/sco/cpqnsc-cert.html.

This solution offers cluster-wide tape backup, load balancing across all server nodes within the cluster, failover of Fibre Channel Host Bus Adapters, Web-based cluster management, and 1-way up to 8-way SMP support. The cluster can be configured for tower or rack deployments. Shared storage configurations can be internal or external with storage from 9.1 GB to many TB. The ProLiant NonStop Clusters for UnixWare 7.1 offers 64 MB storage controller cache coherency, 7-port and 12-port FCAL hub support, and dynamic storage attach support.

As a clustering solution, the ProLiant NonStop Clusters for UnixWare 7.1 are ideal for business-critical applications. The Quick Install Kits for the software make it even quicker to get your solution up and running.

Compaq Parallel Database Cluster Solutions

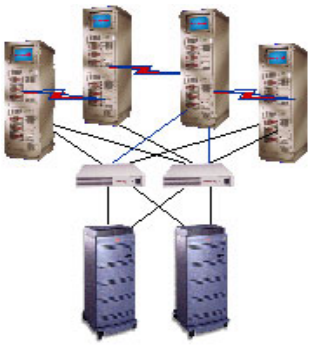
The Compaq Parallel Database Cluster, a hardware and software configuration specifically designed and tested for use with either Oracle8i Server and Oracle8i Parallel Server or the Oracle 9 or Oracle9*i* Parallel Server option that supports database opportunities such as data warehousing, Web back-end databases, custom database application development, packaged applications and database migration from other platforms. The Compaq Parallel Database Cluster delivers highly available, scalable, and manageable database services for enterprise-class applications.

Running on industry-standard hardware and software, the Compaq Parallel Database Cluster provides significantly improved uptime and lower operating costs, and lower hardware, maintenance, and support costs. Unlike single-server solutions, the Parallel Database Clusters give you multiple ways to expand your processing power, storage capacity, and connectivity limits without making any major modifications to your application. Clustering offers high performance and scalability while protecting the application from both unplanned and planned outages. The automatic recovery capabilities of Oracle Parallel Server software ensure that access to critical data is maintained in the event of a hardware failure.

Servers can be taken offline or brought online, without disrupting access to the data stored in the Oracle database. Customers can add nodes to the cluster or upgrade processors and memory as needed to extend performance beyond the limitations of a single system. With only one database to manage, operations costs are reduced. Further, all database management tasks can be performed from a single workstation console, which is configurable and easy to use.

Compaq has extensive customer experience with certified solutions for every release of OPS, and at present Compaq offers Parallel Database Cluster solutions certified for the Microsoft Windows NT 4.0, Microsoft Windows 2000 Advanced Server, and Microsoft Windows 2000 Datacenter Server operating systems. Additional details are available at http://www.compaq.com/solutions/enterprise/ha-pdc.html.

Compaq Parallel Database Cluster for Oracle9*i* Real Application Cluster for Windows 2000



Compaq continues to demonstrate the strength and level of commitment of their partnership with Oracle to deliver the most highly available and scalable solutions for Oracle database environments. Compaq was the first vendor to have Oracle certified cluster configurations for Oracle9i Real Applications Clusters on Microsoft 2000 Advanced and Data Center Server.

Both the Compaq PDC/O2000 and PDC/O5000 are available today, providing choices in StorageWorks subsystems and operating systems that best meet unique customer requirements for high-end, No-Single-Point-of-Failure Oracle solutions.

Compaq Parallel Database Cluster Model PDC/O1000

The PDC/O1000 is the low-end configuration which is specifically designed, tested and certified to work with Oracle8i Server and Oracle8i Parallel Server. The PDC/O1000 Clusters utilize Compaq ProLiant servers; Compaq RAID Array RA4000/RA4100 with a single Fibre Channel Arbitrated Loop (FCAL) as shared storage, and100BaseTX Ethernet as dedicated cluster interconnect. The operating systems supported on this model include Microsoft Windows NT 4.0 and Microsoft Windows 2000 Advanced Server.

Compaq Parallel Database Cluster Model PDC/O2000

The PDC/O2000 is the mid-range configuration which is specifically designed, tested and certified to work with Oracle8i Server and Oracle8i Parallel Server. The PDC/O2000 for Clusters utilize Compaq ProLiant servers, Compaq RAID Array RA4000/RA4100 with multiple redundant loops as shared storage, and100BaseTX Ethernet as dedicated cluster interconnect. This configuration features fully redundant I/O paths and Compaq I/O fail-over software to ensure No single Point of failure. The operating systems supported on this model include: Microsoft Windows NT 4.0 and Microsoft Windows 2000 Advanced Server.

Compaq Parallel Database Cluster Model PDC/O5000

The PDC/O5000 is the high-end performance and scalability configuration which is specifically designed, tested and certified to work with Oracle8i Server and Oracle8i Parallel Server. The PDC/O5000 Clusters utilize Compaq ProLiant servers, Compaq RAID Array RA8000/ESA12000 or MA8000/EMA12000 storage subsystem with multiple redundant loops as shared storage, and 100BaseTX Ethernet technology as dedicated cluster interconnect. This configuration features fully redundant I/O paths and Compaq I/O fail-over software to ensure No single Point of failure. The operating systems supported on this model include: Microsoft Windows NT 4.0, Microsoft Windows 2000 Advanced Server, and Microsoft Windows 2000 Datacenter Server.

For additional information about the Microsoft Windows 2000 Datacenter Server model, visit: http://www.compaq.com/solutions/enterprise/ha-datacenterpdc.html.

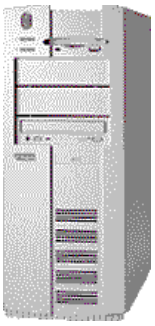
Prosignia Family

The Prosignia system architecture built on the success of the Systempro family, while providing more compact packaging. Designed to match the computing needs and budgets of growing businesses, Prosignia servers met file, print, database, and communication and expanded as your business grew. Prosignia servers came standard with Compaq SmartStart and Compaq Insight Manager.

ProSignia (discontinued)

The original ProSignia utilized the EISA-bus architecture with several integrated components that left the expansion slots available to fulfill customer requirements. The system supported up to eight mass storage devices internally allowing a full complement of SCSI disks to be attached to the integrated Fast-Wide SCSI Controller. ProSignia came standard with an IDE CD-ROM drive attached to the integrated EIDE bus. The ProSignia was the first Compaq server to offer Compaq Insight Manager as a standard feature.

ProSignia 200 (discontinued; announced January 1997)



The Compaq ProSignia 200 delivered high performance and true server functionality at a desktop price. This server was designed for small- and medium-sized businesses requiring an inexpensive, feature-rich workgroup server. Compaq advantages included Wide-Ultra SCSI support and 512-KB L2 cache for enhanced file and print performance in server environments.

The ProSignia 200 offered powerful uniprocessor performance in an aggressively priced package using the PCI System Architecture. It contained an upgradable Wide-Ultra SCSI-3 Controller in a PCI slot or an integrated Enhanced IDE on the PCI local bus. It came standard with 32 MB ECC memory and supported up to 192 MB using industry-standard SIMMs.

The system included the Automatic Server Recovery-2 feature.

The ProSignia 200 Small Business (SBS) models came equipped with Intel Pentium II processors operating at 300 MHz with 512 KB L2 cache. The system board offered three PCI expansion slots—one video, one shared PCI/ISA slot, and one ISA slot. A 32-bit Wide-Ultra SCSI-3 Controller was available pre-installed in a PCI slot, providing data transfer rates up to 40MB/s. The SBS system shipped with 64 MB ECC memory, expandable to 192 MB. The SBS had a 4.3 GB Wide Ultra SCSI-3 hard drive and a 4/8 GB SLR SCSI tape drive. The ProSignia 200 SBS included a 16X-CD-ROM drive and Microsoft BackOffice Small Business Server 4.0 software.

ProSignia 300 (discontinued; announced February 1995)

The ProSignia 300, a small workgroup server, offered an integrated 32-bit Fast-SCSI-2 Controller and an integrated 32-bit Ethernet Controller that delivered faster response time when users accessed files from the server. Instead of a computer optimized for running Windows desktop applications, the ProSignia 300 was optimized for running network operating systems like NetWare. Users found true server features, such as Automatic Server Recovery and ECC memory, that desktop computers lacked and made the ProSignia 300 a more dependable server platform.

The ProSignia 300 supported the Standby Recovery Server and On-line Recovery Server adding even more fault management to ProSignia 300 servers. A rack-mounting kit was available as an option.

ProSignia 500 (discontinued; announced November 1994)

A high-performance server, the ProSignia 500 provided a robust and expandable platform which was board and chip upgradable and which offered uniprocessor and dual-processor configurations using the FlexSMP architecture. The system offered 256 KB of shared secondary write-back cache. The system board included an integrated 32-bit NetFlex-L Ethernet controller, integrated 32-bit Fast-SCSI-2 Controller, and integrated 1024x768 video graphics. The ProSignia 500 contained six total expansion slots, including one processor expansion slot, three EISA slots, one shared EISA/PCI, and one PCI slot.

The ProSignia 500 came standard with 16 MB of ECC memory, expandable to 208 MB using industry-standard SIMMs. The chassis provided eight total storage device bays allowing internal storage expandability up to 30.1 GB.

Prosignia Server 720 (discontinued; announced November 1998)

This Compaq server for small businesses allowed you to increase business efficiency and still meet a demanding budget. The Prosignia Server 720 utilized Pentium III processors running at speeds of 600-, 550-, and 500 MHz providing the performance and power needed to serve the most demanding applications. The processors included 100 MHz front-side bus and 512 KB of L2 cache. The system offered six total expansion slots, including three PCI, one ISA, one shared PCI/ISA, and one AGP. Prosignia Server 720 supported ASR-2.

Prosignia Server 720 shipped with 128 MB of ECC SDRAM upgradable to 384 MB. The server offered an integrated Netelligent 10/100 TX network interface and an integrated Wide Ultra2 SCSI Controller that provided 80 MB/s throughput when used with Ultra2 SCSI drives. The chassis utilized service friendly, tool-free design allowing for quick and easy removal of all mass storage devices via the Compaq Drivelock mechanism.

Prosignia Server 740 (discontinued; announced November 1998)

The Prosignia Server 740 utilized a Pentium III processor running at 600, 550, or 500 MHz providing both performance and power. The processors were equipped with 100 MHz front-side bus and 512 KB of L2 cache. The system offered six expansion slots, including two PCI and four shared PCI/ISA. It supported ASR-2 and Integrated Remote Console.

Prosignia Server 740 ships with 128-MG ECC SDRAM upgradable to 1 GB. The server offered an integrated Netelligent 10/100 TX network interface and an integrated Wide Ultra2 SCSI controller that provided 80 MB/s throughput. The internal hard drive capacity for this system totaled 54.6 GB. The chassis utilizes service friendly, tool-free design, allowing for quick and easy removal of all mass storage devices via the Compaq Drivelock mechanism.

ProSignia VS (discontinued; announced March 1994)

The ProSignia VS was one of the first members of the ProSignia family. The system design utilized the 486 processor to produce a highly serviceable design. The system board provided an integrated 32-bit Fast-SCSI-2 Controller and an integrated NetFlex-L Ethernet Controller with five EISA bus-master expansion slots. The ProSignia VS came standard with 16 MB of RAM, expandable to 128 MB using industry-standard SIMMs. The chassis provided room for five mass storage bays.

ProSignia VS was among the first servers to come standard with Automatic Server Recovery.

Systempro Family

The Systempro family represented the first Compaq server family. Innovative features, such as eight standard internal drive bays and the FlexSMP multiprocessor architecture laid the foundation upon which other Compaq server products were built.

Systempro (discontinued)

The original Systempro provided the ability to configure server-class systems using Intel processors. Systempro was designed using the FlexSMP architecture enabling dual-processor configurations. The chassis provided space for eleven devices including up to eight disk devices. The system board offered integrated EIDE and SVGA video.

Systempro LT (discontinued)

Systempro LT provided a lower cost member of the Systempro family in a uniprocessor configuration. The chassis provided the same number of storage device bays and the system board included integrated EIDE and SVGA video.

Systempro XL (discontinued)

The Systempro XL enhanced the Systempro family by providing improved processor options including 486DX2 and Pentium processors, available in either uniprocessor or dual-processor configurations. This system was the first to use ECC memory. Built within the Systempro chassis, the XL provided eleven storage device bays, eight of which were available for internal IDE devices. The system board included integrated EIDE, SVGA video, and Fast SCSI-2 Controllers, leaving the EISA expansion slots available for your use.

TaskSmart Family

The TaskSmart Servers, a family of appliance servers tuned and optimized for specific applications, complements the ProLiant general-purpose servers. These servers advance smarter solutions from the original SmartStart and Compaq Insight Manager 7 through *ActiveAnswers* and Intelligent Cluster Administration as well as driving high-volume, standards-based hardware innovation. Compaq TaskSmart appliance servers offer customers the flexibility, cost advantages, and performance enhancements delivered by other Compaq server platforms with application integration expertise produced through long-term industry partnerships.

Original TaskSmart C-Series

The first of the TaskSmart Servers, the C-Series provides a faster and more efficient way to move information from the Internet to your employees, customers, or site visitors. These Internet appliance servers offload 50% to 80% of Web requests by caching static Web content so traffic reduces to dynamic content only. These appliance servers are designed to be *plug and forget* units after installation. The remote deployment utility allows unattended setup at a remote branch office and all the TaskSmart Servers can be managed with Compaq Insight Manager 7.

The original TaskSmart C-Series models (C600, C900, C1200R, C1500R, C2000R and C2500) are no longer available. Customers who currently own these models can upgrade their servers to the Current TaskSmart C-Series models based on Inktomi Traffic Server. These upgrade programs will be announced coinciding with the introduction of the new models.

Compaq will continue to support the existing TaskSmart models through the term of the warranty period.

Customers who wish to upgrade the ICS software to later versions should contact Volera (http://www.volera.com) directly for purchase of these versions. However, Compaq will not be providing software support for these later versions.

TaskSmart C600 (discontinued; announced June 2000)

Designed for small ISP's and remote branch offices, the TaskSmart C600 with its Intel Pentium 677 MHz processor handles 250 requests per second in client acceleration mode and 1,000 rps in Web server acceleration mode. It ships with 256 MB of memory, one 9.1 GB hard drive, and two 10/100 Ethernet ports. The TaskSmart C600 includes the TaskSmart configuration utility for remote deployment and Compaq Insight Manager for easy manageability. This model also supports clustering.

TaskSmart C900 (discontinued; announced June 2000)

The TaskSmart C900 supports disk cloning, disk mirroring, and clustering required by regional ISPs and medium-sized businesses with e-Commerce applications. This server ships with 512 MB of memory, two 9.1 GB hard drives, and two 10/100 Ethernet ports. This appliance includes the TaskSmart configuration utility for remote deployment and Compaq Insight Manager for easy manageability. The TaskSmart C900 handles up to 500 requests per second in client acceleration and 3,000 requests per second in Web server acceleration.

TaskSmart C1200R (discontinued; announced July 1999)

The TaskSmart C1200R, designed for small ISPs and remote branch offices, handles up to 250 requests per second in client acceleration mode and up to 1000 requests per second in server acceleration mode. It ships with a 450 MHz processor, 256 MB of memory, one 9.1 GB hard drive, and two 10/100 Ethernet ports. It comes with an optional redundant power supply.

TaskSmart C1500R (discontinued; announced July 1999)

Targeted to regional ISPs and e-Commerce focused medium-sized businesses, the TaskSmart C1500R supports disk cloning and disk mirroring. This server manages up to 500 requests per second in the client acceleration mode and up to 3000 requests per second in server acceleration mode. The standard shipping configuration includes a 450 MHz processor, 512 MB of memory, two 9.1 GB hot pluggable hard drives, and three 10/100 Ethernet ports. A hot pluggable power supply comes as an option.

TaskSmart C2000R (discontinued; announced July 1999)

Intended for ISPs and enterprise networks, the TaskSmart C2000R manages up to 1200 requests per second in client acceleration mode. In server acceleration mode, it can handle up to 7200 requests per second. This server includes disk cloning and disk mirroring and contains a redundant hot pluggable power supply. It ships with a 450 MHz processor, 1 GB memory, six 9.1 GB hot pluggable hard drives, and five 10/100 Ethernet ports.

TaskSmart C2500 (discontinued; announced May 2000)

The most powerful server in the C-Series, intended for enterprise networks and large ISPs, the TaskSmart C2500 manages up to 2400 requests per second in client acceleration mode. In server acceleration mode, it can handle up to 15,000 requests per second. This server includes disk cloning as well as disk mirroring and contains a redundant hot pluggable power supply. It ships with an 866 MHz processor, 4 GB memory, twenty 9.1 GB hard drives including external storage, two 1 GB Ethernet ports, and one 10/100 Ethernet port. This model was the winner of the second Cache Bakeoff.

Current TaskSmart C-Series

Compaq TaskSmart C-Series provides the most advanced media streaming capabilities for bandwidth-efficient content delivery. They revitalize the potential of your existing Internet infrastructure for fast and efficient content delivery, without expensive upgrades. The TaskSmart C-Series servers are based on the most widely deployed caching software, Inktomi's Traffic Server Engine. These servers provide an essential technology for Web-based training, employee/partner communication solutions and other applications that demand media-rich content delivered on a global basis. These pre-configured and pre-tested appliances servers allow immediate, out-of-the-box installation, freeing up resources to attend more business-critical issues.

TaskSmart C4000 (announced October 2001)

In March 2001, Compaq became Inktomi's Premier Design Partner to speed the development of optimized appliances for content and media acceleration that easily integrate into existing networks. Based on Compaq’s reliable, industry standard platforms and Inktomi’s powerful Traffic Server software, the C-series appliance server has the most advanced streaming media capabilities for bandwidth-efficient content delivery. These pre-configured and pre-tested appliances servers allow immediate, out-of-the-box installation, freeing up resources to attend more business-critical issues.

TaskSmart N-Series

The TaskSmart N-Series appliance servers are the first high-performance Network Attached Storage (NAS) Servers to deliver with standards-based computing. As the demands of the Internet-driven economy produces exponential data growth, businesses need fast, simple, reliable access to their information. The N-Series delivers that access with out-of-the-box optimization for high performance that is up to 50 percent faster than comparable general-purpose servers and the fastest NAS appliance in the industry.

TaskSmart N2400 (announced July 2000)

The Compaq TaskSmart N2400, a high-performance NAS storage appliance, delivers breakthrough economics and seamless integration of industry-standard technology. Enterprise business can now deploy and manage advanced file storage easily. The TaskSmart N2400, scalable from 72 GB to 10 TB, includes all software and hardware needed for high-performance file serving and storage consolidation in an integrated, optimized, and tuned package. This server offers more than 30 MB/s throughput, supports CIFS and NFS file systems, and seamlessly integrates into leading management environments.

TaskSmart W-Series

The TaskSmart W-Series appliance servers are great for instant, scalable Web hosting and come pre-configured and optimized with Linux/Apache Web server. These servers can instantly be deployed using the Rapid Launch configuration utility, and optimized usage profiles make them easy to use with simple navigation menus. These servers also provide secure browser-based administration.

TaskSmart W2200 (announced June 2001)

The TaskSmart W2200 is a Web-hosting appliance designed for fast growing, service providers (SP). The TaskSmart W2200 is the first in a family of Web appliances engineered for a single purpose resulting in performance optimization, dependability and manageability. The TaskSmart W2200 server comes with all the software and hardware necessary in one integrated, optimized and tuned package for fast and easy deployment. With 3 rack-model Web appliance servers, it is valuable to address the customer reach, particularly at the lower price points for SP.

The TaskSmart W2200 delivers exceptional performance in a rack-optimized form factor, providing the most efficient use of space. The solution is pre-configured for optimal performance right out of the box, minimizing the amount of setup and tuning time and resources required. TaskSmart W2200 box is ready to host websites and takes less than 10 minutes to deploy.

Intel® NetStructure™ Products (discontinued December 2001)

Compaq broadened the appliance server portfolio with Intel NetStructure products, making it easy to select the correct appliance server for your needs. You can choose from three lines based on your environment:

- SSL e-Commerce Accelerator - Provides greater speeds for secure online transactions
- XML Accelerator - Optimizes key business-to-business (B2B) for timely and reliable service
- VPN Gateway - Securely and cost-effectively connects employees, customers, and e-Business networks

Intel NetStructure 7110/7115 E-Commerce Accelerator (discontinued December 2001)

Intel NetStructure e-Commerce Accelerator will boost the overall performance of your e-Commerce servers, offering customers speed and security during online transactions. Compact and easy to install, it offloads the job of Secure Socket Layer (SSL) encryption/decryption with patent-pending hardware and software improved response times of secure transactions. The Intel NetStructure 7110/7115 e-Commerce Accelerator can handle from 200 to 600 secure connections per second, enhancing SSL processing by up to 50 times. This frees Web server resources to deal with customer traffic more rapidly. Multiple units can be cascaded together for scalability as your e-Commerce traffic increases.

During peak periods, SSL traffic overflow will be seamlessly cascaded to the next Intel NetStructure 7110/7115 e-Commerce Accelerator to the server. Failover pass-through technology enables Intel NetStructure 7110/7115 e-Commerce Accelerator to take itself out of service automatically, if need be, handing off its SSL function to the next unit or to the server for uninterrupted performance.

Intel NetStructure 7210/7280 XML Accelerator (discontinued December 2001)

Intel NetStructure 7210/7280 XML appliances will dramatically accelerate and better manage business-to-business XML transactions. These products will classify, prioritize, and accelerate XML transactions for better control and efficiency and dramatically improved response times. The NetStructure XML Director/Accelerators relieve Web servers of the CPU-intensive task of encryption/decryption of secure XML transactions. It can handle up to 1200 new secure connections per second and 6,000 simultaneous SSL sessions.

The 7280 XML Director also features the additional functionality of a powerful load-balancing platform. The scalable drop-in design allows for easy deployment without changing your applications and servers. The NetStructure XML Director/Accelerator provides security without sacrificing speed. Client certification authentication enables control access based on certificate authorities.

Intel NetStructure VPN Gateway (discontinued December 2001)

Intel NetStructure VPN products provide the ability to leverage the ubiquitous and openness of the Internet to allow partners, employees, and customers with access to critical business data without compromising security. Compaq has tested and qualified the Intel NetStructure VPN Gateway family for performance and interoperability with Compaq solution sets. The Intel NetStructure VPN Gateway product line offers scalable performance and price points to meet the many differing requirements of distributed enterprises.

The Intel NetStructure VPN Gateway line provides a set of powerful alternatives to proprietary, point-to-point network solutions.

Appendix A–Solution Partners

Compaq develops and maintains strategic relationships with industry leaders to provide total solutions offering the highest level of service and support. Solution partners include vendors of operating systems, applications, systems management, and others. These partnerships ensure your solutions are engineered, tested, tuned, and optimized on Compaq platforms. Compaq experience, enterprise technology leadership, and strategic industry partnerships provide you with unprecedented choice and confidence in the deployment of your network.

Most of these strategic relationships participate in Compaq eBusiness partnerships bringing you the world's most comprehensive eBusiness technologies and services. For additional information on any of the Compaq partnerships, access http://www.compaq.com/partners.

System Vendor Solution Partners

Compaq partners with key system vendors to address customers' needs for solutions at the edge of the network and to take content acceleration to the next level with unprecedented intelligence and performance.

Compaq and Inktomi Corp. Partnership

Compaq Computer Corporation and Inktomi Corp. announced on March 21, 2001, that they have signed a formal agreement by which Compaq becomes Inktomi's Premier Design Partner for the development of integrated content networking platforms. The agreement is the first joint initiative with Inktomi and a systems vendor to develop content-networking server appliances embedding Inktomi's leading caching and media distribution software platforms.

The companies will integrate Compaq TaskSmart™ C-Series content acceleration appliances with Inktomi® Traffic Server® network caching software and Inktomi® MediaBridge™ media distribution software. Under terms of the agreement, Compaq and Inktomi will collaborate on a range of engineering and marketing programs. Compaq introduced the first of its new TaskSmart C-Series server appliances based on Inktomi Traffic Server engine on June 26, 2001.

Operating System Vendor Solution Partners

Compaq cultivates partnerships with leading operating system vendors to assure you that the quality and features of Compaq products fully integrate with the most popular operating systems. Compaq and its operating system partners focus on joint development, marketing, support, testing, and training.

Compaq and Linux Partnerships

Compaq support for Linux and the broader open source community reflects the belief that open technologies encourage innovation and competition, expanding the choices available to the market. Compaq support for Linux enables developers to work with the industry’s top-selling platforms and latest designs, fostering close interaction between our product and software developers.

Compaq has been working with the Open Source software community longer than any other computer hardware vendor (1994). Compaq was also the first hardware vendor to join as a participating member of the Linux International organization. The Compaq position as the market leader reflects the commitment to deliver the best systems and services available in the industry.

Open Source projects currently include

- *Open Source Database Benchmark:* This project defines a database-independent, system independent benchmark enabling you to analyze the performance of a variety of system configurations.
- *Drivers for Linux:* The current list of drivers includes the TLAN driver to support Ethernet Adapters, the CCISS driver for the Compaq Smart Array 5300 Controller, the CPQARRAY driver for the Smart-2 PCI Disk Array family of controllers, and the CPQFC driver for the Compaq 64-bit/66 MHz Fibre Channel Host Bus Adapter supporting connections to the Compaq RAID Array 4000 and RAID Array 4100.

- *PPTP Client Project:* This project develops a Linux-based client for the proprietary Microsoft Point-to-Point Tunneling Protocol.
- *PCI Hot Plug for Linux:* With some minor kernel changes and a set of drivers, Compaq has developed an infrastructure to support PCI Hot Plug on Linux.

Compaq maintains alliances with Caldera, Red Hat, SuSE, and Turbolinux to make certain that its ProLiant platforms and storage solutions provide you the best hardware for your Linux solution. In recognition of its leadership in the Linux community and its pursuit of fine-tuning its platforms to meet Linux requirements, the entire line of Compaq ProLiant servers was named a finalist in the LinuxWorld Show Favorite Awards. These awards recognize innovative product and service solutions in open computing.

Compaq and Microsoft Frontline Partnership

Developing and delivering low cost, high-value computing solutions with data center power and reliability is the primary goal of the alliance between Compaq and Microsoft – the Frontline Partnership (FLP). Over the past two decades, Compaq and Microsoft have shared technology and engineering resources to create value-added solutions based on industry-standard computing and storage platforms, combined with services that enable enterprise customers to confidently leverage the attractive price/performance of the Windows® technologies. Solutions for small business include desktop, portable and hand-held systems with pre-loaded, pre-tested software and comprehensive services.

Since 1997, Compaq has held the unique designation from Microsoft as *Worldwide Prime Integrator*. The term recognizes Compaq's ability to reduce customer risk, serve as a single point of accountability and provide comprehensive lifecycle services. Compaq was named Microsoft's Global Services Partner of the Year 2000, and most recently, received the Microsoft 2001 Support Services Partner Award.

Some of the essential pieces of the Frontline Partnership include the following:

- *Joint Development:* Compaq and Microsoft jointly build innovative solutions that deliver record-breaking performance and value. Microsoft used Compaq systems as benchmarks to develop and test Windows® technologies, including Windows 95/98, Windows NT®, Windows 2000, Exchange 2000, DataCenter Server, and most recently Windows XP. A dedicated team of Compaq engineers in Redmond is responsible for testing future releases and ensuring future hardware reliability and compatibility. Other Frontline Partnership cooperative engineering efforts have resulted in numerous shared patents including Plug and Play, Advanced Configuration and Power Interface (ACPI), and Device Bay.
- *Joint Marketing:* Customers receive special opportunities by participation in joint seminars, customer events, account briefings, communications, and messaging provided by Compaq and Microsoft teams. The Frontline Partnership marketing programs deliver value through communications of the latest advances in Web-enabled information technologies to help businesses compete effectively in the ever-changing world marketplace.
- *Joint Support:* By providing joint training, technical tools, information databases, and dedicated personnel, Compaq and Microsoft provide superior service for all your information and technology needs. Compaq Professional Services help plan, design, and implement computing infrastructures, while Compaq and Microsoft Customer Support Services help manage and maintain the existing computing resources effectively. Of Compaq's 30,000 service professionals worldwide, 15,000 are trained on Microsoft technologies, and include some 3,500 Microsoft Certified Engineers and Developers, 1,500 Windows 2000 consultants

and support engineers and 850 Exchange Solution Integration experts. Compaq maintains a global network of technical briefing centers in the US, Europe, Asia, and Japan. Compaq operates 29 Microsoft Authorized Support Centers.

- *Joint Testing:* Compaq and Microsoft extensively test solutions to ensure performance and reliability and to instill confidence in your choice of a Compaq and Microsoft solution. An Enterprise Solution Center in Redmond, Washington has a dedicated team of experts with a wide range of expertise to help customers test and determine what enterprise solution works best for their business. This ongoing testing involves every Microsoft project from its earliest stages through service pack releases.
- *Joint Training:* Compaq and Microsoft provide their personnel with sales and technical training to insure the proper level of expertise in communicating the advantages of our joint solutions. We provide this training to groups ranging from corporate technical support teams to field sales and engineering as well as our resellers and solution providers.

Compaq and Novell Enterprise Computing Partnership

Building on the foundation of introducing the first network operating system, the Compaq and Novell Enterprise Computing Partnership provides one of the most responsive and integrated approaches to technical support in the industry. Over the last decade, we continually refined our escalation methodology and enhanced the reciprocal training of technical support staff. This ensures efficient resolution of compatibility issues, reduces duplication of effort, and speeds issue resolution. The Enterprise Computing Partnership delivers compatibility, reliability, optimized performance, manageability, cross-trained technical support, and smooth deployment of networking solutions. The bottom line—when you need answers fast, Compaq and Novell deliver.

This partnership delivers in the following areas:

- *Joint Development:* Compaq and Novell joint developments include the first high-availability solution, SFTIII; as well as SmartStart Integration for all versions of NetWare, NHA-S, the first full support for PCI Hot Plug, and NDS for the Internet.
- *Joint Marketing:* Compaq and Novell offer solutions in their joint marketing efforts and have since the introduction of their first network operating system in 1989 (Novell NetWare running on a Compaq Systempro server).
- *Joint Support:* More than two-thirds of Compaq Accredited System Engineers are also Certified Novell Engineers providing an exceptionally well-trained support staff to provide solutions to your networking challenges.
- *Joint Testing:* Novell software is developed on and optimized for Compaq servers providing unparalleled compatibility. Additionally, new products for both test comprehensively on the other's equipment/software.
- *Joint Training:* Compaq and Novell staff receive sales, technical, and other training to support each other's products. This insures that corporate technical support teams, engineering, and field personnel understand the solutions provided by both partners.

In 1998, Compaq received the first annual Novell Support Connection Service Excellence Award that recognizes Novell allies making service excellence an integral part of their business. Compaq was the only OEM provider of the 18 recipients. Compaq received this award again in 1999 and 2000.

Application Vendor Partners

Compaq forms partnerships with strategic applications vendors to provide you with a high degree of support and reliability when implementing applications on Compaq products. These partnerships ensure that you can optimize your systems using Compaq platforms.

Compaq and Allaire Partnership

Compaq and Allaire provide customers with seamless technology integration and high-quality information so they can deliver and scale enterprise and eBusiness applications. Allaire ColdFusion combines with Compaq Distributed Internet Server Array (DISA) architecture and Compaq ProLiant servers to offer users the best environment for rapid deployment of scalable, highly available, and manageable eBusiness applications for the Internet.

Look to Compaq *ActiveAnswers* for information on Allaire products with Compaq hardware including:

- Planning, deploying, and operating the products
- Sizing, configuring, and installing products for the fastest time to solution

Compaq and Baan Partnership

Compaq partners with Baan Company to deliver an industry-standard Enterprise Resource Planning (ERP), Customer Relationship Management, and Supply Chain Management solutions for the Microsoft Windows NT and UNIX server environments. These solutions feature performance with new levels of integration, affordability, and ease of implementation.

Through committed resources and joint engineering efforts, Compaq and Baan produce predefined, integrated solutions that are tested, optimized, and ready to go—increasing your return and substantially decreasing your costs of ownership.

Compaq combines high availability, record TPC-C benchmark numbers, and tools for intelligent integration, management, and security. Compaq and Baan deliver tightly integrated solutions optimized for the Compaq platform. Some of the highlights of this partnership include the following services:

- Reference platform definition, validation, and certification
- Platform integration engineering, performance testing, and benchmarking
- Platform sizing, configuration, and installation tools
- Proof-of-concept or custom platform testing
- Unmatched global services including a Global Solutions Centre

The Compaq and Baan partnership is committed to providing you with proven solutions that offer the reliability and affordability needed in today's ever-changing computing environments.

Compaq and Check Point Partnership

Compaq and Check Point are introducing an integrated firewall solution including Check Point firewall software bundled on Compaq ProLiant servers and running on Red Hat Linux.

As more and more business-critical applications move to the Internet, security of VPNs and data networks becomes more important than ever. Security-hardened Linux and advanced firewall protection help Compaq and Check Point deliver Internet security in a plug-and-play package. Additional benefits of using Check Point on Compaq ProLiant servers are included below:

- *Fully Integrated Firewall Protection Builds Trust:* Instant security in a bundled firewall server assures your users, investors and trading partners that your network is secure. Check Point firewall software includes an intruder alert notification to detect unauthorized access to the system.
- *Easy Set-Up and Management Conserves IT Resources:* The Check Point firewall solution delivers the convenience of an appliance with the flexibility of a server. The appliance servers can be configured with diskettes and CD-ROM drives, allowing the disk image to be easily restored and large OS application software updates to be quickly installed. Smaller updates and security patches can be downloaded from the Web.
- *Life-Cycle Support from Check Point for Outsourced Expertise Software:* Set-up, integration, and ongoing support services are available from Check Point.
- *Compaq ProLiant Optimized for Check Point and Red Hat Linux:* Compaq ProLiant servers are tested and certified to run Check Point software and Red Hat Linux right out of the box.
- *Worldwide Support from Compaq*: Customers have the option to turn to Compaq for worldwide warranty support and optional service agreements.

Compaq and Click Interactive Partnership

Compaq and Click Interactive offer an outstanding single solution for eBusiness including hardware, software, and services. This partnership concentrates on business-to-business extranet solutions for the manufacturing industry. The combination of Compaq servers and Compaq Services with the Click Interactive Click Commerce™ Extranet Manager and Click Commerce Applications extend manufacturers' systems to provide their partners, dealers, distributors, and consumers with the core operational functionality necessary for success in today's high-stakes environment.

Leveraging the power of industry-standard Microsoft NT architecture and award-winning servers from Compaq, the solutions from this partnership include maximizing:

- Scalability
- Availability
- Manageability
- Security

This eBusiness solution reduces operating costs and improves product cycle time. Customers are more satisfied with real-time information, 24x7 availability, and an easy-to-use, multilingual, multi-currency system.

Compaq and Commerce One Partnership

Compaq and Commerce One provide highly scalable and available business-to-business e-Commerce solutions and specialized services. Compaq teams with Commerce One in the labs to create valuable sizing, configuration, and installation content to make it available on the Compaq *ActiveAnswers* website. With Commerce Chain Solution and Compaq servers, companies can significantly reduce operational costs and increase efficiency by automating the entire indirect goods and services supply chain.

For customers needing help over and above that provided by *ActiveAnswers*, Compaq Services provides the following assistance with Commerce One products:

- Needs analysis
- Planning
- Integration
- Implementation

These solutions and services ensure the procurement system is up and running quickly and fully integrates with existing business systems.

Compaq and Computer Associates Partnership

Compaq and Computer Associates join forces to provide you with a consolidated view of your enterprise network. In addition, the Compaq StorageWorks Enterprise Backup Solution, comprised of a consolidated fibre channel-based backup and recovery system, was designed in conjunction with Computer Associates. Compaq and Computer Associates provide robust storage management solutions with manageability, automation, scalability, availability, and performance characteristics that enable you to migrate from proprietary systems to standards-based open systems.

This partnership has delivered the following applications:

- Integrated workstations and servers for enterprise management
- Channel program to support resellers in preconfiguring Unicenter TNG on Compaq servers and workstations
- Integration of Unicenter TNG with Compaq Insight Manager 7
- Certified solutions and cost-effective solution bundles for fibre channel-based backup solutions with ARCserveIT and ARCserver2000

Jointly targeting the market for application storage management, the partnership delivers storage and storage management solutions that are vertically integrated with databases, applications, Web servers, and messaging systems.

Compaq and CyberCash Partnership

Compaq and CyberCash bring you the most secure and easily managed payment solutions for your eBusiness. Compaq eBusiness solutions combined with CyberCash technology for payment handling provides high-end e-Commerce functionality to meet the needs of world-class ISPs and Internet businesses.

The partnership jointly develops guides to enable you to easily plan, deploy, integrate, and manage CyberCash payment systems with Compaq industry-standard Distributed Internet Server Array (DISA).

Compaq and Ensim Partnership

Compaq and Ensim are working together to provide solutions that enable rapid deployment, provisioning, and re-provisioning of servers and service plans in Linux and Windows 2000 environments. Ensim Hosting Automation products simplify the implementation and operation of hosted services for ISP's, hosting providers, and Internet Data Center operators. These products allow Service Providers to build and operate more scalable and profitable hosting businesses.

Compaq *ActiveAnswers* for Ensim Hosting Automation offers sample configurations and best practices jointly developed by Compaq and Ensim that accelerate and simplify the management and deployment of hosted services. In addition, the entire family of Ensim products is proven on Compaq *ProLiant*™ servers. That integration, along with Compaq's broad range of data center-optimized server and storage products, make Compaq and Ensim the ideal foundation for large hosting environments.

Compaq and Exodus Communications Partnership

Compaq and Exodus Communications established solution centers within Exodus Internet Data Centers (IDC) for businesses that need to accelerate their Internet presence and require a highly available and secure Internet infrastructure. Successful integration of Compaq hardware with the Exodus world-class IDCs enables customers to build scalable eBusiness solutions on a robust Internet infrastructure.

Compaq and Genesys Partnership

Together, Compaq and Genesys provide scalable customer interaction center solutions. Compaq is the only provider of native integration for EIM application platform management and Genesys solutions. The partnership enables outbound campaign management, predictive dialing, and workflow automation. For an enterprise-wide solution, Genesys T-Server interoperates with SAP, Siebel, and other CRM applications.

At Compaq *ActiveAnswers*, you can find many tools to help you plan, deploy, and operate your Compaq and Genesys solutions. These tools include a sizer, a configurator, and management/operation guides.

Compaq and Hyperion Essbase Partnership

Hyperion Essbase, running on Compaq ProLiant servers that are optimized for Red Hat Linux, is the industry-leading OLAP (Online Analytical Processing) Server solution. Hyperion Essbase empowers companies with information about website efficiency, the effectiveness of online marketing channels and customer behavior patterns to enhance customer relationship management (CRM), e-commerce and B2B exchanges. Some of the benefits of using Hyperion Essbase on Compaq ProLiant servers are included below:

- *Cross-Platform Information Integration and Analysis:* When gathering information from across the enterprise, Hyperion Essbase offers cross-platform.
- *Works with Key Platform of the Internet:* Linux is a fast growing platform of the Internet infrastructure and will increasingly be used as an appliance server for a new wave of Web-

enabled applications like CRM, e-commerce and B2B exchanges. Hyperion Essbase offers versions for Linux as well as other major operating platforms.

- *Better Reliability and Performance at Lower Costs:* Linux gives businesses the ability to build better-performing and more reliable systems at a lower cost.

Compaq and i2 Partnership

The Compaq and i2 partnership evolved out of the close cooperation between the two companies on the development of solutions for the Compaq worldwide supply chain. Today, we combine resources to provide solutions that deliver on the promise of eBusiness. Attractive, friendly storefronts, robust planning and scheduling systems deliver what the customer wants when it's wanted.

The combination of intelligent eBusiness solutions from i2 and the networked system architecture and professional services capability from Compaq removes IT hurdles so companies can focus on what they do best–running their business.

Compaq and iXL Partnership

Compaq and iXL combine their strengths to deliver eBusiness solutions to Fortune 1000 and dot-com companies. Compaq leadership in product technologies and extensive experience with the Internet combine with iXL Internet services to transform how eBusiness gets done. Together iXL and Compaq integrate technologies to form best-of-breed solution sets, providing clients pre-configured, pre-tested, and proven eBusiness solutions.

Compaq and Legato Partnership

Compaq and Legato built a strong global partnership based on products and services. Working together to create new solutions, we provide enterprise-level data protection and storage management for a full range of platforms. This partnership integrates the Legato essential storage management products with a new generation of Compaq StorageWorks backup solutions for the enterprise.

The fully certified, Compaq supported SAN solution originated by this partnership proves to IT executives that leading edge, interoperable SAN technologies can be deployed into their existing infrastructures.

Compaq and Lotus Partnership

Through cooperative testing and engineering, Compaq and Lotus provide proven solutions to your Internet and Intranet needs. Since 1993, the Compaq and Lotus partnership has offered exceptional compatibility, reliability, and performance with low TCO through fast, easy deployment, integration management, high availability, and scalability.

The Compaq and Lotus partnership offers several benefits to you, such as the following:

- Easy implementation and management of Internet and Intranet solutions
- Wide range of proven products to meet your unique requirements
- Seamless integration of hardware, operating systems, and application software
- Proven expertise in network design, development, systems integration, training, support, and consulting

- The Compaq and Lotus partnership delivers unparalleled performance and reliability as demonstrated in thousands of customer sites around the world.

Compaq and Avaya Inc. Partnership

Avaya Inc., the enterprise networking division of Lucent Technologies works closely with Compaq to identify and meet the needs of its end-user customers by providing WLAN equipment to its business partners. The Avaya Unified Messenger software on industry-leading Compaq ProLiant servers provides a scalable solution that saves your business time and money while increasing both productivity and customer satisfaction. This solution consolidates voice, email, and fax messages into a single, unified mailbox. To access proven solutions for reducing the complexity and time required deploying an Avaya Unified Messenger eBusiness solution, visit Compaq *ActiveAnswers*.

Compaq and Netscape/iPlanet Partnership

Netscape, a pioneer and market leader in software for the Internet, provides proven solutions for Web hosting, email, and collaborative communications. Together with Compaq, they offer powerful, integrated Internet and Intranet solutions. This partnership fully leverages the power and flexibility of industry standards and delivers solutions that easily integrate into existing systems.

This partnership has produced the following solutions:

- Reduced costs through fast, easy deployment, management tools, high availability, minimal downtime, and protection of current investments
- Fast, transparent exchange of information between applications for users due to industry-standard solutions that easily integrate with existing systems and networks
- Seamless integration of hardware, operating systems, and application software through cooperative development and testing in dedicated labs
- Highest-quality service and support to you through expert field personnel

Together, Compaq and Netscape offer the most powerful integrated Internet and Intranet solutions for organizations of all sizes.

Compaq and Nortel Networks Partnership

The Compaq and Nortel Networks partnership helps you implement the next-generation networks, the foundation of eBusiness and Internet-based transactions. Customers can have mission-critical Unified Networks solutions composed of Nortel Networks and Compaq product and services.

Compaq and Nortel Networks deliver:

- WAN consolidation integrating voice, video, and data over a common IP infrastructure
- Virtual Private Network (VPN) security supporting tunneling, encryption, and authentication protocol standards
- Voice over IP (VoIP) confronting a wide range of voice/data convergence requirements
- Unified Messaging combining voice, fax, and email messages into one application

Assistance for deploying these solutions is available through Compaq Network and Systems Integration Services.

Compaq and Oracle Partnership

Compaq and Oracle together offer a complete set of Internet application services provided by Oracle9i, including clustering, data management, portal, wireless, and caching services which are optimized for Compaq servers. Compaq and Oracle are investing in a high level of joint engineering designed to take the guess work out of implementing complex e-business infrastructure by delivering a complete set of web application services and deployment flexibility in the middle tier and 7x24 environments on the back end. Oracle 9i, 9iRAC and 9iAS deliver a complete set of clustering, data management and web applications services for building dynamic, scalable websites, portals and applications.

Compaq offers certified configurations on Windows and Linux on ProLiant Intel-based platforms, and Tru64 UNIX on AlphaServer systems, combined with a complete set of worldwide service offerings that meet most customers' price/performance requirements and budgets. Compaq Certified Configurations for Oracle are fully integrated clusters inclusive of storage and Oracle software, then optimized, stress-tested, and certified by Oracle and Compaq. This certified approach is designed to reduce the complexity of implementing and managing our joint customer's e-business infrastructure environments, enabling faster time-to-solution and less risk in schedule and implementation.

The Compaq and Oracle alliance benefits you by delivering solutions with:

- Performance leadership
- Highly available
- Breakthrough scalability and ease of management
- The option to start small and grow globally
- Faster time to solution
- Lower TCO
- Reduced risk
- Clustered databases that are easier to manage
- Easy to maintain through jointly provided services

Compaq and PeopleSoft Partnership

Compaq and PeopleSoft offer the ideal combination of innovative thinking and enterprise experience to deliver solutions that improve business processes from distribution to finance and human resources to customer relationship management. The partnership wants to deliver the highest customer satisfaction and, toward that end, invests time, manpower, and resources to understand your evolving needs. We want to maximize the performance, availability, and reliability of your enterprise solution.

Benefits to you from this partnership include the following:

- Broadest range of PeopleSoft solution platforms and operating systems in the industry
- Reduced risk

- Enhanced reliability
- Innovative support tools

Compaq and PeopleSoft deliver solutions built on a solid foundation of years of enterprise experience and hundreds of successful implementations.

Compaq and Plumtree Software Partnership

Compaq delivers Plumtree Software corporate portal solutions to enterprise customers worldwide. With the Compaq global services capability, customers have worldwide access to integrated portal services, a new Enterprise Portal Rapid Implementation solution, and enhanced application integration through the development of Plumtree Portal Gadgets. Compaq opened solution centers in the United States and Europe to support customer and development projects and to further extend the reach of the Compaq global portal service strategy.

Compaq and Red Hat Interchange Partnership

Red Hat Interchange, an enterprise-class, Linux-based e-commerce application, is designed to support dynamic, online catalogs, hundreds of simultaneous users and thousands of e-commerce transactions. Certified to run on Compaq ProLiant servers that are optimized for Red Hat, this application is an e-commerce platform designed to leverage the open platform of Linux for all stages of e-commerce. Comprehensive support from Red Hat and Compaq is also available. Benefits of using Red Hat Interchange on Compaq ProLiant servers are included below:

- *Fully Integrated E-Commerce Solution for Range of Needs:* Red Hat Interchange offers a full range of e-commerce functions including store front, catalog, order tracking, tiered pricing, security, and online payment processing. This application can be deployed in phases or as a complete turnkey solution.
- *Fast Time-to-Market:* Red Hat Interchange can be deployed in under 90 days, presenting a distinct advantage for a company facing time-to-market pressure.
- *Red Hat-Optimized Servers Mean Fewer Problems:* Compaq ProLiant servers are tested and certified to run Red Hat Linux.
- *A Solution That Leverages Your Current Infrastructure:* Many companies have invested time, effort, and money in ERP, accounting, inventory and other back-end systems. Through modular and extensible architecture and open APIs, Red Hat Interchange seamlessly integrates with your existing infrastructure.
- *Comprehensive Support from Red Hat Software:* Setup, integration, and support services are available from Red Hat.
- *Worldwide Support from Compaq:* Red Hat Interchange on Compaq customers has a choice of support organizations. Compaq offers worldwide warranty support and optional service contracts.

Compaq and SAP Partnership

Compaq and SAP are committed to delivering new and better ways for businesses to use and profit from the Internet. This partnership now integrates the performance, reliability, scalability, and simplicity of Compaq eBusiness solutions with the innovative mySAP.com™ business environment. Compaq platforms consistently set new benchmarks for SAP performance on Microsoft Windows NT and Windows 2000 as well as UNIX systems.

Some of the benefits of this partnership include the following:

- Eleven state-of-the-art Competency Centers around the world
- Global service and support infrastructure
- Demonstrated leadership
- Faster time to solution

Compaq is the #1 SAP partner with over 8,000 joint implementations around the world. As the winner of the SAP Customer Satisfaction Award of Excellence over five years in a row, Compaq customers can deploy SAP with absolute confidence.

Compaq and SAS Institute Partnership

The Compaq and SAS Institute partnership supplies enterprise customers the broadest range of business intelligence solutions running on the hardware platform of their choice. Your organization generates, collects, and stores data necessary to do business. Compaq and SAS solutions help you harness and integrate your data, structuring it into useful information. You can rapidly and confidently bring together current data, historical data, and external data even from legacy systems.

The partnership enables you to use the integrated information in the following ways:

- Identify significant relationships and patterns
- Discover unexpected purchase correlation
- Gain insight into production efficiency
- Find new answers to old questions

The unique strengths of these partners help you maximize technology and achieve a competitive advantage.

Compaq and Siebel Partnership

Compaq and Siebel Systems, Inc. extended and fortified their relationship by signing as Global Strategic Alliance partners, the highest tier of joint commitment. The scope of the alliance includes co-development and solutions in engineering, worldwide marketing campaigns, and expansion of dedicated Professional Services resources. Compaq and Siebel collaborate to sell and deploy the Siebel eBusiness applications on a wide range of Compaq products including Aero palm-sized PCs, Deskpro PCs, and both ProLiant and Alpha Server platforms. Both companies deliver the right combination of eBusiness solutions and services to businesses looking to dramatically increase customer satisfaction, reduce the cost and risk of implementation, accelerate deployment, and improve return on investment when implementing an enterprise-wide business solution.

The Compaq specialized, pre-sales Solution Centers in Houston, San Mateo, and Munich have performed hundreds of customer configurations for Siebel solutions on Compaq ProLiant and Tru64Unix AlphaServer platforms at no charge since 1997.

These centers

- Conduct performance and benchmark tests,
- Offer you pre-sales system sizing,
- Provide integration and optimization services,
- Deliver post-sale service and support, and
- Test and integrate systems management software and utilities.

Compaq continues to be the only Siebel partner offering this service to customers and resellers. Compaq experience and expertise translates into quick assessment and implementation saving customers time, money, and personnel resources. 66% of the Siebel customer base is deployed on Compaq ProLiant servers, four times more than any other hardware platform.

Compaq and SteelEye Technology Partnership

Compaq enhances its clustering solutions on ProLiant servers and StorageWorks storage units by entering into a joint marketing agreement with SteelEye Technology to promote the SteelEye LifeKeeper for Linux cluster software on a range of ProLiant servers and StorageWorks storage options. This agreement provides customers new clustering options for application and data availability.

The LifeKeeper for Linux software running on ProLiant servers is targeted at users looking for a more cost-effective solution, or Linux customers who are interested in a scalable, high-availability application and data solution. Additional benefits of using LifeKeeper for Linux are as follows:

- *Proactive Protection:* With LifeKeeper for Linux, hardware components or application faults are detected in advance of a full system failure through multiple fault-detection mechanisms.
- *Transparent Failover:* LifeKeeper automatically moves the protected resources and application to another server in the cluster if an event creates an interruption in a server's availability.
- *Low-Cost Scalability:* LifeKeeper provides a cluster framework to allow the number of users supported by an application to be increased by simply adding nodes. Applications can also be shared among a number of servers, and pre-configured cluster configurations allow customers to build entry-level clusters for about $6000.
- *Data Access and Integrity:* All data is stored on a shared disk array, which allows data to be accessed regardless of which server is being used to host the application.
- *Data Recovery:* To support disaster recovery, LifeKeeper for Linux offers multi-directional recovery, shared data support, and cascading failover.
- *Application Recovery:* LifeKeeper Application Recovery Kits, which include tools and utilities to allow rapid set-up and deployment, give you the ability to manage the health of a software application and recover the application if it fails.
- *Uptime During Maintenance and Upgrades:* LifeKeeper enables continuous operations during planned downtime for maintenance or upgrades, as well as in the event of a system or application failure.

- *Common Tools for Mixed Environments:* Because there are LifeKeeper versions for Microsoft and Unix environments, customers with mixed operating environments get common user interfaces, common suites of functions, and common migration tools.

Compaq and VERITAS Partnership

Compaq and VERITAS provide storage solutions optimized for today's data storage and management requirements. This solution provides compatibility, ease-of-management and integration advantages not found in other products. You can be assured the Compaq and VERITAS solution dedicates itself to providing the following:

- World-class current and next-generation storage-management hardware and software based on a thorough understanding of enterprise storage requirements
- Well-tested, integrated, and highly reliable storage solutions from the exchange of dedicated resources and joint engineering efforts between the two companies
- Lower TCO resulting from the enhanced manageability, scalability, reliability, and performance integration of Compaq and VERITAS technologies
- Easy deployment and operability of the solution from the development of specific systems management tools and innovative product integration efforts with Microsoft Windows NT and Windows 2000, Novell NetWare, Tru64UNIX, and Sun Solaris
- Proficient expertise in storage management software and hardware solutions based on market leadership and knowledge

Compaq and VERITAS are committed to providing the best storage solutions for business-critical environments. Through their Global Storage Management Development Agreement, Compaq and VERITAS develop industry-leading solutions for information availability in accessing, protecting, and managing corporate enterprise wide data for client/server platforms.

Compaq and VMWare Partnerships

VMware server consolidation solutions for Linux, which are optimized and certified to run on Compaq ProLiant servers, enable enterprises and service providers to run multiple "virtual machines" on single multi-processor servers.

VMware software lets you configure multiple operating environments with almost any combination of operating systems, applications and networking into a virtual machine. It also allows you to run several virtual machines on a single large server. This means that Compaq customers can use VMware to ensure they're using the optimal number of ProLiant servers to meet their computing needs. Some of the benefits of using VMware on Compaq ProLiant servers are listed below:

- *Server Consolidation for Cost and Time Savings:* Instead of running 20 low-cost servers for 20 applications, service providers and data-center operators can consolidate them onto a single multi-processor server. VMware can save on capital costs, data-center expenses and staffing requirements.
- *Near-Native Performance VMware:* Virtual machines offer high-speed network and disk throughput so applications can run at near-native performance.
- *Better Disaster Recovery:* Mirror-image copies of each virtual machine can be stored on hot standby servers and separate physical servers, enabling fast disaster recovery if the virtual machine or physical server fails.

- *Compaq ProLiant Optimized for VMware on Linux:* Compaq ProLiant servers are tested and certified to run VMware software, allowing trouble-free application performance right out of the box.
- *Worldwide Support from Compaq:* Compaq customers can turn to Compaq for worldwide warranty support and optional service agreements that range from installation to ongoing support.

Systems Management Partners

Compaq continues to drive up the functionality curve, delivering more management capabilities to customers who downsize operations from proprietary midrange and mainframe environments. Compaq Systems Management Partnerships facilitate the optimum integration and use of Compaq systems event, performance, and configuration information into partners' tools. This information is available from Insight Agents installed on Compaq systems. Compaq has integrated this information into HP OpenView, IBM NetView, Sun NetManager, Microsoft SMS, and Novell ManageWise.

The systems management partnerships focus on meeting your most pressing need— enterprise event management for Compaq systems. Event management provides you proactive notification of problems when they happen or before they happen. Further integration with these partners and additional partner applications will provide a broad range of systems management functionality for Compaq systems in other areas that include performance management, change management, production control, help desk operations, and security.

Compaq and ABB Partnership

Compaq and ABB have been partners in providing energy management solutions to the utility industry for over fifteen years. Compaq and ABB solutions include applications addressing bulletproof security and ultra-high availability in distributed configurations. Compaq provides the systems, networks, and internetworking products and services to support ABB solutions.

The partnership includes optimizing ABB applications on Compaq platforms, consulting support on migration of applications, and extensive configuration design.

Compaq and ALSTOM Partnership

The Compaq and ALSTOM partnership offers high availability for real-time control solutions in the utility industry. The integrated solutions provided by this partnership include market, energy, distribution, substation, and generation management platforms. Compaq enhances the ALSTOM solution in a number of ways including optimizing applications, implementing high-availability technologies, consulting support on migration of applications, and collaborating on development.

Compaq and Axent Technologies

The partnership between Compaq and Axent Technologies, founded on the cooperative development of strategic client and server products, provides comprehensive, enterprise-wide security for organization networks with an emphasis on firewalls. The companies collaborate on product certification, channel development, integration engineering, performance optimization, sales and marketing, and service and support.

The partnership delivers solutions such as *ActiveAnswers* for Axent Raptor Firewalls and Secure Pack, a pre-tested and pre-configured firewall offering. The packaged solutions offered by both

companies allow customers to purchase and implement Internet security solutions easily and quickly in today's 24x7 marketplace.

Compaq and BMC Software Partnership

Compaq teams with BMC Software to transform your technology investments into a meaningful and manageable competitive advantage by increasing system uptime, accelerating diagnosis of application failures, and automating your IT support. The partnership creates a unique synergy of capabilities focused on integrating your IT solutions so that your investments do more while costing less.

The partnership offers extensive worldwide service featuring integration, installation, and outsourcing as well as 24/7 support resources. BMC Software provides the foundation to proactively manage operating systems and Compaq servers delivering heightened availability, performance, and service assurance.

Compaq and Check Point Software Technologies Ltd. Partnership

Compaq and Check Point Software Technologies Ltd. Jointly developed Virtual Private Network (VPN) primers, performance documents, solution sizes, and installation guides to help you implement a VPN solution on Compaq ProLiant servers. This partnership offers complete Internet security architecture including firewall protection through Check Point Firewall-1, anti-virus software, intrusion detection, and vulnerability assessment.

Compaq *ActiveAnswers* for Check Point VPN-1 provides your fast track to secure VPN for internal, partner, and vendor communications.

Compaq and Cisco Systems Partnership

The Compaq and Cisco Systems partnership enables both companies to leverage their strengths to deliver end-to-end computing solutions in the eBusiness economy. Compaq Services designs Next Generation Network Infrastructure (NGNI) solutions using Cisco technologies for LAN/WAN infrastructure and Internet traffic over an IP network to Web-enable the enterprise and service provider. Compaq Network and Systems Integration Telecommunication Management Information Platform (TeMIP), integrated with Cisco Systems Switch Technology, provides superior management capabilities for provisioning, performance management, connectivity and fault management.

You can have confidence in your next-generation infrastructure and applications because Compaq Network Systems Integration Services (NSIS) can help you plan, design, implement, and manage a wide range of services such as unified messaging, video conferencing, advanced Intranet-extranet services, local directories, security, and policy-based network management with Cisco Systems technology.

Compaq and CrossWorlds Software Partnership

Compaq was an early investor in CrossWorlds Software and partners with them to help customers integrate disparate applications to create unified eBusiness solutions. Compaq supports CrossWorlds United Applications Architecture (UAA) on all Compaq ProLiant servers. UAA offers a complete set of solutions within the enterprise and between trading partners via the Internet. These solutions work with the leading ERP solutions (SAO, Baan, PeopleSoft, Oracle), CRM solutions (Clarify, Siebel, Trilogy, Vantive), HRMS solutions (PeopleSoft), supply chain

solutions (IMI, Manugistics), telecommunications billing packages (Portal, Kenan, MetaSolv), and e-Commerce (Commerce One) applications.

Compaq and CrossWorlds Software deliver a combined solution for application integration allowing customers to form their own global value chains for competitive advantage.

Compaq and Dialogic Partnership

The combination of Compaq platforms, service, and support with Dialogic Computer Telephony (CT) technology allows customers worldwide to develop the tools required to build enhanced communications for eBusiness. Industry-leading performance, worldwide services, and high line count at a low price make this platform for interactive voice response (IVR) a winner. Compaq can integrate the industry leading Dialogic technology for voice, telephony, fax, and voice recognition into its ProLiant servers.

Cost-effective deployment of CT applications on an open-standards based CT server platform is the result of the Compaq and Dialogic collaboration.

Compaq and Entrust Technologies Partnership

Compaq and Entrust Technologies partner to develop eBusiness security solutions for encryption, digital signature, and electronic transaction authentication. Entrust products and services deliver secure eBusiness transactions and communications over wireless networks, Intranets, extranets, and the Internet. The collaborative efforts of Compaq and Entrust in this area resulted in new recommended configurations through Compaq *ActiveAnswers*.

This partnership offers best-in-class security, flexibility, and low cost operation with ease of use provided by *ActiveAnswers*.

Compaq and INS Partnership

Compaq and INS understand that availability and performance levels must be high for your eBusiness to succeed. The unique combination of services and products provided by this partnership proactively manage and monitor mission-critical applications supporting electronic business. Compaq will be the only provider to offer its eBusiness customers VitalSolution, a product providing real-time performance monitoring for enterprise network applications.

Businesses that rely on electronic transactions will appreciate the return on investment, lower total cost, and increased productivity this partnership brings.

Compaq and INTERSHOP Partnership

Compaq and INTERSHOP team together to create sizing, configuration, and installation content available on Compaq *ActiveAnswers*. An online interactive sizer provides custom recommendations based on the business needs of the customer. INTERSHOP has announced cross-platform compatibility for its enterprise solutions on Compaq Tru64 UNIX, Linux, and Microsoft Windows NT operating systems.

Compaq and Internet Security Systems (ISS) Partnership

The Compaq and Internet Security Systems (ISS) partnership brings you easy management of your network security. ISS RealSecure provides automated, real-time intrusion detection and response; Compaq *ActiveAnswers* simplifies your planning, deployment, and operation of the

software. The system automatically analyzes packets of information as they travel across a network, searching for hostile activity by interpreting network traffic patterns. The network administrator determines how to react to the attack once it is identified.

ISS Internet Scanner, running on Compaq servers, identifies network vulnerabilities prior to a security breach. Look to Compaq *ActiveAnswers* for information on planning, deploying, and operating these security solutions.

Compaq and J. D. Edwards Partnership

Compaq, partnering with J. D. Edwards, delivers industry-standard Enterprise Solutions to empower our customers to conduct business at Internet speed. J. D. Edwards delivers robust functionality that allows customers to collaborate with suppliers, customers, vendors, and employees. Compaq ProLiant platforms provide the perfect foundation for J. D. Edwards ActiveEra Solutions, delivering the scalability, high availability, and performance demanded in today's eBusiness economy.

Compaq ProLiant platforms consistently set new benchmarks for J. D. Edwards performance on both Microsoft Windows NT Server and Windows 2000. Compaq commands over 70% of J. D. Edwards OneWorld customers deployed in a Microsoft environment with unique tools and support to make planning, deploying, and operating your Compaq and J. D. Edwards environment easier. The Compaq Global Competency Centers deliver proven solutions to our customers. This partnership furnishes customers with an enterprise-proven solution that allows for faster time to implementation, faster realization of return on investment, and decreased costs of ownership.

Compaq and KnowledgeTrack Corporation Partnership

This partnership agreement allows KnowledgeTrack Corporation to work jointly with Compaq to provide customers with enterprise portal solutions. Compaq offers the KnowledgeTrack product with its suite of enterprise portal services and solutions. The Knowledge Center enables eBusiness communities to work across the enterprise allowing employees, partners, and customers to share information, collaborate in real time, and access key information personalized to individual roles and preferences.

Compaq and NetIQ Partnership

Compaq and NetIQ Corporation address the need for comprehensive management by joining Compaq Intelligent Manageability with AppManager Suite. This pushes performance analysis and monitoring beyond the operating system and applications into the hardware environment. This product provides a complete environment for correlating application and hardware tuning as well as proactive management. These tools reduce the time required to identify and diagnose performance issues and the cause of system alerts.

The Compaq and NetIQ partnership delivers efficient problem location and identification resulting in a positive impact on the availability and performance of your system.

Compaq and NextPoint Networks Partnership

Compaq and NextPoint Networks help make sure your customers are happy–leading to greater revenue opportunities and long-term business success. With this partnership solution, eBusiness managers can measure performance from the user’s perspective, application response time and availability, and benchmark against specific service-level management objectives.

Compaq Professional Services brings you complete solutions for audit, baseline, and assessment services by offering NextPoint S3e Commerce Manager with Compaq servers and services. Providing on-site consulting to deploy these solutions, Compaq is the only service provider to offer turnkey systems to measure user experience on a 24x7 basis.

Compaq and Tantau Software Partnership

Compaq and Tantau work in close partnership to deliver highly available, scalable, and secure solutions for the eBusiness enterprise. The Tantau Wireless Internet Platform (WIP) solution creates the link for a variety of wireless and wired devices - including smart phones, personal digital assistants, pagers, and Web browsers - to interact with back-end applications and data sources. Users can transact business, such as stock trades, Internet banking, or e-Commerce without a wired connection. This solution also provides security from the handset to the data center, seamless integration with existing systems, enterprise-class scalability and availability, and a single development platform for all wired and wireless Internet applications.

Running the Tantau WIP solution across Compaq business-critical servers platform provides a real-time, 24x7 environment for the mission-critical needs of the eBusiness enterprises. Compaq developed an e-Commerce strategy with Tantau as a primary partner; the solution is a vital component to e-Commerce architecture.

Compaq and Tivoli Partnership

Compaq partners with Tivoli Systems to provide you with a greater level of systems management capabilities. Tivoli links Compaq Insight Agents to TME 10 through its Tivoli/Sentry and Tivoli/Enterprise Console (T/EC) applications. The T/EC, a powerful automation application, provides rules-based event correlation for integrating network, systems, database, and applications management. Tivoli/Sentry manages distributed resources by configuring and monitoring parameters and automatically initiating corrective actions.

A Compaq oriented sentry monitoring collection has been developed to watch more than forty critical performance and system status parameters on each Compaq server managed. When a performance threshold is exceeded, an alert goes to the T/EC for action. Compaq and Tivoli offer

the ability to manage your distributed servers from a central point of automated command and control.

Compaq and Trend Micro Partnership

The Compaq and Trend Micro partnership enables centralized security management of the entire enterprise through the Trend Virus Control System (TVCS). Security for your Internet communications begins by stopping viruses at their main points of entry and dissemination–the firewall/gateway and file/application server. Compaq *ActiveAnswers* for Trend Micro server-based virus filtering is a powerful first line of defense.

Compaq and Trend Micro jointly developed guides for planning, deployment, and operations that speed the implementation of this bulletproof security solution on Compaq ProLiant servers.

Other Solution Partners

Compaq and **Banyan** ensure that Compaq servers and peripherals are supported and certified with Banyan VINES operating system products.

Compaq works closely with **Citrix** to provide the most robust and comprehensive thin client/server solution available. The advantages to you are lower costs of application ownership, accelerated application deployment, extended application availability, enhanced security, improved backup and recovery, and more effective user support.

Compaq partners with **Clarus Corporation** to develop e-procurement business-to-business solutions. Compaq offers Clarus eMarket, a comprehensive set of software and services allowing market makers to develop digital marketplaces.

Compaq works with **IBM** to support and certify Compaq servers with the IBM OS/2 Warp Server family of products. Compaq also offers extensive support of Compaq Insight Manager 7 and Insight Agents under OS/2.

Compaq and **Intel** work together on a variety of solutions. Compaq and Corollary, an Intel subsidiary, partnered to develop the ProFusion 8-way chipset architecture. Compaq developed PCI Hot Plug technology and licensed it to Intel making it available on all Intel based systems. Compaq and Intel collaborated on the VI Architecture specification providing a new class of scalable cluster products. Compaq and Intel also worked together to produce imaging and creativity solutions, DVD encryption, and DOS audio support.

Compaq Services offers custom planning, design, and implementation for the **KyberPASS Corporation** PKI-centric middleware product. This software PKI-enables any TCP/IP application automatically with no software changes.

Compaq tests and optimizes **OneSoft** products with Compaq enterprise server products. Their scalable One-Commerce solution combined with Compaq Distributed Internet Server Array (DISA) architecture lets customers optimize each step of online business.

Compaq servers are tested and certified on the **Sun** Solaris Intel Platform Edition.

Together, Compaq and **Sybase** deliver database and business intelligence solutions enabling enterprises around the world to better utilize their information assets. Substantial investments from both partners bring you leading edge solutions to meet the scalability and performance requirements of large-scale, Internet-enabled applications.

Compaq *ActiveAnswers* provides an integration and installation guide for the **TanData** Progistics Merchant, a shipping application for eBusiness.

Learn how to simplify your setup of the **Taxware** Internet Tax System in a Distributed Internet Server Array (DISA) through Compaq *ActiveAnswers*. Compaq and Taxware developed integration and installation guides for easy planning, deployment, and management of this invaluable e-Commerce solution.

Trintech provides secure payment software for electronic transactions including products for credit, debit, commercial, and procurement card applications. Compaq chose Trintech to be its first cross-platform secure Internet payment vendor to develop Compaq *ActiveAnswers* solutions.

Appendix B–Feature and Option Descriptions

In this section, features and options are listed alphabetically with detailed descriptions.

ACPI ready

The Advanced Configuration and Power Interface (ACPI), a cross-platform architecture for device control of system power, integrates power management features to reduce power consumption. The power-down controls can be configured in one of three ways:

- Secure mode – Power supply will not shut down if power switch is pressed.
- Delay mode – Power supply will shut down after a 10-second delay. This allows time to reactivate the switch if it was mistakenly pressed.
- Graceful shut down – A 10-second delay counter begins as a message warning of an imminent power-down goes to Compaq Insight Manager 7 and the IMD. Because of the communication between the ACPI controller and the OS, the OS can delay the power down until all running applications have properly closed. Should the OS not be running, the power would go down when the delay counter expired.

ActiveAnswers

ActiveAnswers is an online knowledge center available from Compaq via the Internet that enables customers, VARs, and resellers to plan, deploy, and operate eBusiness systems on Compaq platforms. Find it at http://www.compaq.com/activeanswers.

ActiveUpdate

Compaq ActiveUpdate is a web-based application that keeps IT administrators directly connected to Compaq for proactive notification and delivery of the latest software updates for Compaq commercial products. ActiveUpdate simplifies the entire software maintenance process when used in conjunction with the new Compaq Version Control Repository Manager or Compaq Insight Manager 7.

Software updates are available for most Compaq commercial products: including: **servers** (ProLiant, Prosignia, TaskSmart), **desktops** (Deskpro, iPAQ, Prosignia), **workstations** (Deskpro, Evo, Professional), **portables** (Armada, Evo), and **handhelds** (Aero, BlackBerry, C-Series, iPAQ).

Users create a customized subscription profile ensuring only those updates relevant to the desired environment are delivered. This free service is part of the Compaq Intelligent Manageability strategy to simplify the management of the IT infrastructure. ActiveUpdate is available on the Management CD included with the Server Setup and Management package distributed with every Compaq ProLiant server and is also available for download on the Compaq website at http://www.compaq.com/activeupdate.

Administrative password

An administrative password prevents changes to the configuration until you enter the password.

Advanced Network Control Utility (Windows NT Only)

The Advanced Network Control Utility provides the ability to merge two similar network controllers into a controller pair. In such a pair, one controller performs as the active controller and the other remains in standby mode. If the active controller fails, all network traffic switches to the backup controller. In systems that support PCI Hot Plug technology, a failed controller can be replaced and the controller pair restored to complete redundancy without shutting down the system.

Array Configuration Utility

The Array Configuration Utility simplifies array configuration and facilitates online capacity expansion as a graphical user interface. There are two versions of the Array Configuration Utility; one runs from bootable diskettes and the other runs online from the operating system. Each offers the ability to manage the arrays for any of the SMART, SMART-2, and Smart Array controllers.

Array Configuration Utility XE

The Compaq Array Configuration Utility XE (ACU-XE) software for Smart Array controllers and the StorageWorks RAID Array 4x00 family of products makes it easy to configure and expand your disk drive arrays remotely. This Web-based tool is very intuitive: by using its Configuration Wizards, your array controller is set-up and ready to use in minutes! Plus, ACU-XE is versatile: use it to locally or remotely configure your array controller, add additional disk drives to an existing configuration, or completely reconfigure your disk drive array. Additionally, innovative features such as Online Capacity Expansion, Logical Drive Capacity Extension, and RAID Level Migration allow you to change your array configuration and settings as your storage needs grow.

ASR

See Automatic Server Recovery.

ASR-2

See Automatic Server Recovery-2.

Asset Tag Number

The Asset Tag Number is used as a repository for storing company-specific asset numbers for easy tracking and is initially set equal to the system serial number. The Asset Tag is stored in a protected section of non-volatile memory, which can be accessed and modified with the System Configuration Utility.

Auto-default ROM

With auto-default ROM, the system ROM detects the non-configured state of the hardware and provides default configuration settings for most devices. With this initialization, the system can run Diagnostics and other software applications before running the normal SmartStart and System Configuration applications.

Automatic Revision Tracking

This feature helps you review recent changes to the server's configuration and creates the Revision History Table containing the hardware version of the system board and any other boards that are compatible with this feature.

Automatic Server Recovery (ASR)

In case of a critical hardware or software error, Automatic Server Recovery allows the server to reboot to either the operating system or Compaq utilities, call the administrator, or report the problem.

ASR offers a cost-effective means of minimizing unplanned downtime since automatic reboot of the server brings users back on line with minimal interruption of service. ASR consists of three elements:

- Hardware integrated onto the system board that, with the assistance of an operating system driver, detects when a server has malfunctioned and consequently resets the system.
- Server failure notifications that send a pager alert to notify your system administrator of a server malfunction.
- Capability to reboot to the operating system or to Compaq utilities in order to run diagnostics and reconfigure remotely.

Automatic Server Recovery-2 (ASR-2)

ASR-2, a superset of the functionality provided by ASR, adds the environmental recovery features: thermal shutdown and UPS shutdown.

Availability Agents

Compaq Availability Agents are intelligent Web-based Compaq server agents combining the advantages of Availant Manager from Availant Inc. with industry-leading Web-based management capabilities from Compaq. They increase Microsoft Windows server availability by effectively preventing common system failures. They enhance operational efficiency by automating responses to well-understood issues. You can access them directly from a browser for stand-alone use, or launch from Compaq Insight Manager 7.

Board release levers

Board release levers can be used to secure and release adapters allowing quick access to modular, removable components without the need for tools. When opened, the levers disable power to the associated slot.

Boot block ROM

Boot block ROM, a read-only section of the ROM, contains a failsafe code to make sure you can always boot a minimum system—even when the ROM code becomes corrupted. It ensures that you can always boot to a ROMPaq diskette to restore the ROM.

CD lock

The CD lock provides a means of disabling CD-ROM access. This enables the administrator to prohibit the use of the CD-ROM for unauthorized software loading.

CD-ROM boot

Many Compaq servers provide the option of booting from the CD-ROM drive greatly simplifying the process of initial software load by eliminating the need to use floppy diskettes.

Cluster Verification Utility

The Cluster Verification Utility aids administrators in diagnosing their setup to determine its suitability for use with the Microsoft Cluster Service (MSCS).

Compaq Health and Wellness Driver

The Compaq Health and Wellness Driver collects and monitors important operational data on your server to ensure that the system is operationally healthy. Any abnormal conditions are logged into a non-volatile Health Log and can be inspected by using certain **/proc** entries.

Compaq Insight Manager 7

Compaq Insight Manager 7 helps maximize system uptime and performance and reduces the cost of maintaining the IT infrastructure by providing proactive notification of problems before those problems result in costly downtime and reduced productivity. Compaq Insight Manager 7 is easy to set up and provides rapid access to detailed fault and performance information gathered by the Compaq Management Agents. One-click-access to the Remote Insight Lights Out Edition board allows systems administrators to take full graphical control of ProLiant servers in remote locations or lights-out data centers. This dramatically reduces the need to dispatch valuable IT resources to fix routine problems.

With the combination of Compaq Insight Manager 7, the Compaq Version Control Agent, and the Compaq Version Control Repository Manager, systems administrators are able to version manage their Compaq system software according to corporate system software baselines. Compaq Insight Manager 7 also allows them to quickly isolate ProLiant servers running specific versions of BIOS, drivers, or agents, and update those systems through a single operation.

Compaq Insight Manager 7 auto alerts

With Compaq Insight Manager 7, you can designate who will be *on call* for any Compaq server or subsystem performance issue. If Compaq Insight Manager detects an unacceptable operating parameter, it sends out pager alerts to those you specify; they, in turn, access the analysis capability of Compaq Insight Manager 7 to obtain a diagnosis and recommendation.

Your system administrators can respond to and resolve your server issue, even before you know it exists. Compaq Insight Manager 7 and later includes this feature.

Compaq PCI Hot Plug Utility

This utility configures PCI Hot Plug which allows new PCI devices to be added, unused PCI devices to be removed, or PCI devices to be replaced.

Compaq Proactive Remote Service

Compaq Proactive Remote Service is a monitoring and problem reporting capability enabling Compaq ProLiant servers to automatically and proactively report service problems directly to Customer Support Centers. This service is available at no extra charge with qualified Compaq service contracts. Compaq Proactive Remote Service provides detailed service event information

to Compaq service professionals allowing them to minimize potential problems and maximize service response.

Compaq Resource Partitioning Manager

Compaq Resource Partitioning Manager is an easy-to-use, GUI-enabled tool that extends the Windows 2000 operating system to give IT administrators the power to dynamically optimize their ProLiant servers. Resource Partitioning Manager increases server utilization by controlling system resources available to individual applications.

Resource Partitioning Manager provides easier management of complex environments, improving overall server utilization and enabling Windows 2000 customers to confidently deploy multiple applications on a ProLiant server. To acquire Resource Partitioning Manager, visit http://www.compaq.com/rpm.

Configurable boot order

Compaq servers provide the option of setting a System Configuration Parameter to determine which mass storage controller services the boot device. The Controller Order Parameter, available for every mass storage controller installed in a server, can be accessed through the Compaq System Configuration Utility.

Configuration (NVRAM) lock

When enabled, the configuration lock disallows configuration changes by not allowing non-volatile memory to be modified.

Correctable Memory Log

Now included with the Server Health Log or Integrated Management Log (IML), the Correctable Memory Log provided feedback on memory module thresholds and errors.

Corrected Error Log

The Corrected Error Log contains the date, time, frequency, and unique information about errors that were corrected automatically by various server subsystems. It allows quick determination of the type and frequency of corrected errors. For ProLiant 1500s, this log contains error information about corrected ECC memory errors, including which SIMM produced the errors. This log can be read through Compaq Insight Manager 7 and Compaq Diagnostics.

Critical error logging

Critical error logging records catastrophic errors, such as non-correctable memory, expansion board, and expansion-bus attribution errors. After a critical error occurs, the system ROM indicates on boot up that a critical error occurred and prompts you to run Compaq Utilities. The critical error log contains the time and date of the error. The critical error log allows quick correlation of server errors and their causes. The Critical Error Log is incorporated into the Server Health Log or Integrated Management Log (IML).

Diagnostic DIMM lighting (Internal Diagnostics Display)

Located on the peripheral board, the Internal Diagnostics Display (IDD) numerically indicates specific DIMM or processor failures reducing the time and effort needed to locate and replace parts in the server.

Digital linear tape (DLT)

Digital linear tape (DLT) technology uses multi-linear track recording. The DLT tape cartridge is a single spool cartridge that spools the tape to a second take-up spool located inside the drive. DLT places the data on the tape in longitudinal tracks, allowing the drive to read multiple data channels simultaneously.

Disk system tracking

Disk system tracking, an intelligent manageability feature, monitors the hard disk to predict problems and possible failures.

Diskette boot control

This security feature enables and disables the boot capabilities of the diskette drive on Compaq servers.

Diskette drive control

The diskette drive control enables and disables the diskette drive(s). No read, write, or boot functions are available when the diskette drive is disabled.

Diskette write control

Diskette write control enables and disables diskette-write functions. Boot and read functions are still available when diskette writing is disabled.

DOS CPR Utility

The DOS CPR Utility installs minimal MS-DOS on a FAT-formatted partition with Microsoft Windows NT already installed without disabling the Windows NT boot environment.

Drive Firmware Upgrades (ROMPaqs)

To keep drives operating at peak capabilities; Compaq introduced Drive Firmware Upgrades as a means of allowing your administrators to install the latest firmware revisions on Compaq disk drives. They are available through our website, http://www.compaq.com/support/files/server/us/index.html.

Drive parameter tracking

Drive parameter tracking predicts impending drive failures by monitoring more than 20 pre-defined operational parameters. It sends information through Compaq Insight Manager 7 and the Remote Insight Board to allow repair or replacement of a degraded drive before it fails.

Dynamic sector repair

This Compaq drive array controller feature provides background hardware diagnostics, scanning the hard drives and automatically re-mapping bad sectors. Since it performs in the background, dynamic sector repair does not affect disk subsystem performance.

ECC memory

Error Checking and Correcting (ECC) memory enables detection and correction of all single-bit, 2-bit, and 3-bit memory errors and most 4-adjacent-bit memory errors. This ensures that common

memory errors can be corrected without interrupting system operation. It quickly detects more severe errors, such as the loss of an entire 4-bit DRAM.

EISA bus utilization monitor

The EISA bus utilization monitor tracks and graphs utilization of the EISA bus.

Event Processor Subsystem (EPS)

The Event Processor Subsystem (EPS) collects and records cluster agent information and application events. Based on user-defined event matching criteria, EPS provides notification to a user-defined email location and/or executes user-defined commands.

Fan detect and shutdown

Fan detect and shutdown, a feature of ASR-2, allows the operating system to detect when the fan(s) of the system fails. In order to prevent a potentially serious degradation of thermally sensitive components, the server might shut down automatically. Accompanying data in the log indicates whether an auto-shutdown sequence was invoked by the operating system.

Fibre channel

Fibre channel storage technology combines the reliability and low latency of a serial channel with the flexibility and connectivity of a network. The result is a 1 GB per second storage network that supports simultaneous transfer of many different data protocols, including SCSI, IPI, and IP. Fibre channel supports up to 127 devices connected together known as a Fibre Channel Arbitrated Loop or FCAL.

Fibre Fault Isolation Utility

The Fibre Fault Isolation Utility verifies the installation and operation of a new or existing Fibre Channel Storage System (FCSS). The utility displays all of the devices properly logged onto the fibre channel arbitrated loop and tests for link errors within that loop.

Flashable ROM

Flashable ROMs, included in all of the newer Compaq servers, allow you to download and install the latest versions of firmware (ROMPaq) at no cost. This ensures that you have access to the latest enhancements without the need for service calls.

Front bezel key lock

This external key lock protects the removable media components of the server and provides an additional layer of security for the internal components, such as the memory and CPU(s).

Graphical remote

Graphical remote enables a graphical view of the Windows NT console to be displayed on a remote console when accessing the Remote Insight Board in a Windows NT server. This feature requires the use of graphical remote console software such as Carbon Copy or pcAnywhere32.

Hot-plug access security

The KeyLock system locks PCI Hot Plug and hot-plug fan access doors and power supplies to maintain physical security to the server.

Hot-plug drives

Many Compaq servers are equipped with hot-pluggable SCSI drive cages, which permit you to insert and remove SCSI drives from the system while the system continues to operate. This allows you to replace failed drives in RAID disk arrays without shutting down the server.

Hot-plug fans

Hot-plug fans offer you the ability to replace a fan without shutting down the system.

Hot-plug keyboard

Hot-plug keyboards provide the ability to add or replace a keyboard without the need to reboot.

IDD

See Internal Diagnostics Display.

Industry-standard components

This feature ensures that common components, such as memory and disks, are interchangeable between hardware platforms.

Insight Asynchronous Management

Insight Asynchronous Management provides access to Insight Manager and Insight Manager XE using an out-of-band connection through Point-to-Point Protocol (PPP). This gives remote access to all the alerting data and data collection of Compaq Insight Manager 7 as long as the OS functions.

Integrated Management Display (IMD)

Integrated Management Display (IMD) provides information about events stored in the Integrated Management Log that occur during Power-On Self Test (POST), as well as system events during normal operation. In addition to event-specific information, the system can be configured to display administrative contact information, as well as system name and address, which can be entered through the Integrated Management Display Utility.

Integrated Management Display Utility

This utility configures the Integrated Management Display to display events and information needed by the system administrator.

Integrated Management Log (IML)

For servers not supporting the Server Health Log, the Integrated Management Log (IML) replaces the Critical Error Log and Correctable Memory Log, recording system events and storing them in an easily viewable form. The IML marks each event with a time-stamp and categorizes events as one of four levels:

- Status (informational only)
- Repaired (corrective action taken)
- Caution (non-fatal error condition)
- Critical (component failure)

Integrated Management Log Viewer (IMLV)

The Integrated Management Log Viewer (IMLV) allows you to view the IML of any machine running the Compaq Remote Monitor Service.

Integrated Remote Console (IRC)

Compaq developed Integrated Remote Console (IRC) to allow out-of-band management capabilities—remote console and remote reset—independent of the state of the network operating system. With the IRC function, an administrator has the ability to access the server, perform diagnostics, reset the system, watch the reset process remotely, and view ASR reset sequences—regardless of whether the server OS is online or offline.

IRC complements Insight Asynchronous Management by providing an easy-to-use remote-console feature while the OS runs. IRC interfaces with Insight Asynchronous Management so that both capabilities are available to you in an out-of-band, online situation.

IRC gives you the ability to access remote servers, monitor and diagnose problems, and protect data with security features through its combination of hardware and firmware integrated onto the server motherboard. The seamless hardware-based remote console, hardware-based remote reset, and reset-sequence replay features are available to your administrator—whether the servers are in multiple remote locations or grouped in a centralized site, yet still away from your administrator.

However, you may need even more capabilities than those available with the IRC function. Compaq also offers the optional Compaq Remote Insight Board if you require access and alerts at all times, regardless of the state of the server hardware or OS.

Integration Maintenance Utility

The Compaq Integration Maintenance Utility for NetWare allows additions or updates of the latest revisions of software and Compaq utilities on a NetWare server without having to restart the server. The Integration Maintenance Utility eases the administrative task of keeping software on the server consistent across the network. It allows software installs and updates from the designated integration server on the network or from CD-ROMs provided by Compaq.

Intelligent Power Switch

The Intelligent Power Switch provides an advanced level of flexibility in powering down the server. You configure the Intelligent Power Switch using the Compaq Power Down Manager Utility; it can be configured to behave in one of three ways:

- Do nothing when the power switch turns off (power down lock)
- Power down as soon as the power switch turns off
- Shut down the operating system gracefully when the power switch turns off

The utility can also be used to set a delay in seconds between the time the power switch turns off and the time the configured action occurs.

Internal Diagnostics Display (IDD)

Located on the peripheral board, the Internal Diagnostics Display (IDD) numerically indicates specific DIMM or processor failures reducing the time and effort needed to locate and replace parts in the server.

Keyboard password

The keyboard password can be used to lock out the keyboard preventing unauthorized access to Compaq servers. This effectively prevents logins or commands until entry of the proper password.

Keyboard-mouse adapter cable

The keyboard-mouse adapter cable provides keyboard-mouse pass-through to a remote console using Remote Insight Lights-Out Edition.

Long operating system life support

Long operating system life support provides support for legacy and less recent versions of operating systems. Compaq understands that you cannot always upgrade all of your servers to the latest release of operating systems as soon as they become available. In support of this, Compaq continues to release support software and driver updates for less recent versions of operating systems, such as Windows NT 3.51, NetWare 4.x, or SCO operating systems, long after newer versions are released. This provides you with the assurance that they can take advantage of the most recent advances in the drivers, firmware, and support utilities released by Compaq.

Management Agents

The Compaq Management Agents form the foundation for Compaq's Intelligent Manageability strategy. These agents provide direct access to the in-depth instrumentation built into Compaq servers, workstations, desktops, and portables. The Compaq Management Agents monitor more than 1000 parameters on the device, and are simply the best in the business. They initiate alarms in case of faults and provide updated information, such as network interface or storage subsystem performance statistics. They can prevent problems even before they affect users, by instigating a Compaq Pre-Failure Warranty alert.

Memory deallocation

Memory deallocation keeps a bad memory block from being used again. For unattended recovery, ASR-2 logs the error information to the Critical Error Log, resets the server, tests all memory, and automatically deallocates any bad memory blocks that it finds.

Memory fault recovery tracking

Memory fault recovery tracking monitors the operations of the memory subsystem for uncorrectable errors and enables rapid recovery from actual memory failures.

Monitor Utility for Smart Array

Monitor Utility for Smart Array continuously displays the physical drive status for drives connected to one or more Compaq Array controllers. It also provides an audible notification when it detects a drive failure. The audible signal continues until you press a key on the keyboard. This utility works in conjunction with the NetWare Peripheral Architecture (NWPA) driver. The utility detects hot-plugged drives and other changes to array configurations.

Native Graphics Remote Console

This refers to the hardware-based graphics remote capability of Remote Insight Lights-Out Edition. It allows full view and control of a server in a browser, through all stages of server operation–shutting down, starting up, and loading the operating system. It is OS-independent and requires no additional software installation.

Network interface fault recovery tracking

Network interface fault recovery tracking monitors over 20 failure indication parameters, such as alignment errors, lost frames, and frame copy errors of Ethernet and Token Ring network interfaces. The information decreases downtime by enabling diagnosis of network interface failures and is available via Compaq Insight Manager 7.

Network Server Mode

Network Server Mode permits system startups from the hard disk or network server while the keyboard and pointing device are disabled. This provides security if the server operates unattended.

In Network Server Mode, the system starts without asking for the Power-On Password. The Power-On Password must be enabled before you can authorize Network Server Mode. The Power-On Password remains in effect until you delete or disable Network Server Mode. If you attempt to boot from a diskette while Network Server Mode is enabled, you must enter the Power-On Password.

NIC Fault Recovery Tracking

This utility tracks over twenty failure possibilities in Ethernet and Token Ring network interfaces.

NIC teaming

The Compaq redundant Netelligent NIC technology allows two similar NICs to share a single instance of device driver code. One NIC becomes the active network controller and the other NIC acts as a standby controller. If the active NIC fails, the network traffic is automatically switched to the standby NIC. This redundancy eliminates the NIC or cable as a single point of failure. With PCI Hot Plug technology, the failed NIC can be replaced without rebooting the system. Thus, the end user can have continuous service and the administrator can greatly reduce planned and unplanned downtime.

Offline backup processor

The offline backup processor reboots to a second processor if the first one fails. The system automatically tries different combinations of processors until a successful combination is found.

On-line Recovery Server

On-line Recovery Server, as an implementation of the Recovery Server Option (RSO), pairs two servers and connects them to a pair of independent storage environments. If one of the servers fails, the other server inherits the storage environment and workload of the failed server. For more information on On-line Recovery Server, refer to the white paper entitled *Compaq On-line Recovery Server* (document number ECG027/0598).

Online Configuration Utility for NetWare

The Online Configuration Utility for NetWare allows configuration of SMART-2 and Fibre Channel Array controllers without shutting down the system. You can prioritize, configure, or expand the array as well as monitor and configure redundant NICs with this utility.

Online Storage Controller Recovery Option (OSCRO)

Compaq Online Storage Controller Recovery Option, as an implementation of Recovery Server Option (RSO), provides mass storage controller redundancy by merging two matched SMART-2 controllers into a controller pair. In such a pair, one controller is active and the other remains in standby mode. Should a problem occur with the active controller, the I/O traffic switches to the standby controller without loss of data or interruption of service. Working in conjunction with RAID technology, OSCRO provides extended fault tolerance for mission critical servers. OSCRO is a natural partner for PCI Hot Plug technology. Together, OSCRO and PCI Hot Plug offer a means of keeping a server running and maintaining the fault tolerant status of the server without shutting down the server.

On-line Recovery Server cannot be implemented in conjunction with Online Storage Controller Recovery Option (OSCRO), as both utilize the same type of switched interfaces to the storage environment, and the cable configurations are not compatible.

PCI bus monitor

The PCI bus monitor tracks and graphs utilization of the PCI bus(es) as part of Compaq Insight Manager 7.

PCI Hot Plug

PCI Hot Plug defines the standard for high availability in Compaq servers by allowing new PCI controllers to be added, unused PCI controllers to be removed, and old or defective PCI controllers to be replaced without shutting down the system. PCI Hot Plug is an extension of the *PCI Local Bus Specification.* Compaq PCI Hot Plug hardware isolates each hot-plug slot from all other devices on the PCI bus. By offering slot-level control, Compaq provides great flexibility. Slot level isolation eliminates interruption to other components and applications using those components enabling the system to continue performing useful work throughout the hot replacement.

PCI Plug and Play

The Plug and Play standard for PCI devices offers a means of identifying a PCI device and the system resources it requires through the use of a ROM on the device.

PCI-X

PCI-X is an immediately available solution designed to meet the needs for increased I/O performance in the server environment. Developed as an extension to the PCI Local Bus, PCI-X is capable of operating at frequencies between 50 - 133 MHz and supports either 32- or 64-bit width adapter cards. PCI-X is capable of delivering over 1 gigabyte/second of bandwidth and maintains backward compatibility with the PCI Local Bus protocol. Compaq designed the PCI-X specification and is a key contributor to the development of PCI-X products. In addition to licensing PCI-X technology to industry-leading companies, Compaq has also provided multiple tools and programs to assist designers in the development of PCI-X products.

Power down lock

The power down lock disables the power switch to prevent the server from being shut down accidentally. The Intelligent Power Switch includes this functionality.

Power Down Manager

The Power Down Manager allows you to define the behavior of the I_2C power switch of a server locally or remotely. Options include disabling the power switch and imposing a fixed delay between the pressing of the power switch and actual shutdown of the server.

Power line monitoring

Power line monitoring provides information about voltage and current levels in Compaq power supplies.

Power-On Password

The Power-On Password prevents use of the computer until you enter the password. (See also Network Server Mode.) During Automatic Server Recovery (ASR), the system does not prompt for the Power-On Password allowing ASR to perform the necessary reboots in an unattended fashion.

Power-On Error Log

The Power-On Error Log records errors that occur during Power-On Self Test (POST). It allows quick determination of the cause of a server failure to reboot.

Power Safe Modules

Power Safe Modules (DC to DC converters) ensure delivery of proper voltage to critical operational components including the processors, the I/O boards, and the PCI buses. There are two types of power safe modules: CPU board converters and I/O system board converters.

Power safety interlock

Some ProLiant servers have a built-in power safety interlock switch that automatically turns system power off when you remove the case cover. In addition to protecting your safety by preventing access to high-energy components, this feature also protects thermally sensitive components by ensuring ideal airflow throughout the server. Although the interlock switch does prevent access to the power supply, CPU, memory, and some expansion slots, it does not prevent access to hot-pluggable devices.

Power Subsystem Utility

The Power Subsystem Utility, a system management driver user interface utility for NetWare, displays the redundant power subsystem status. In addition, the utility incorporates the Compaq Power Down Manager to allow configuration of the Intelligent Power Switch.

Power supply security bar

The security bar physically blocks access to the power supply.

Power supply viewer

The power supply viewer allows you to locally or remotely view redundancy information of I_2C power subsystems and statistics of individual power supplies.

Pre-Failure Warranty

The Compaq Pre-Failure Warranty covers Compaq Server products using Compaq Insight Manager 7 or greater. The Pre-Failure Warranty extends the advantage of the Compaq three-year limited warranty by providing coverage on many critical components.

This includes hard drives used in conjunction with SMART Array Controllers as well as Pentium Pro, Pentium II Xeon, and Pentium III Xeon processors before they actually fail. The Pre-Failure Warranty ensures that when you receive notification from your monitoring software that a critical server component might fail, Compaq replaces the component free of charge under the warranty. With the Pre-Failure Warranty, your system administrators can proactively schedule downtime for maintenance and not interrupt critical business operations relying on these servers.

Processor recovery

Processor recovery allows a reboot to a second processor if the first one fails. The system automatically tries different combinations of processors until a successful combination is found.

Product change notification service

Compaq offers its Product Change Notification program to notify you 30-60 days in advance of upcoming critical changes that may impact your computing environment. With PCN, you can plan to integrate software and hardware changes and spend less time and money reacting to unexpected change.

Protected power switch

The protected power switch prevents the server from accidental shutdown due to incidental contact with the power switch cover.

QuickLock

Using the QuickLock hot-key combination, **Ctrl+Alt+L**, disables the keyboard and pointing device without exiting the application. The application remains in view on the monitor screen but you cannot access it. You can change the QuickLock hot key combination if the default combination conflicts with application software.

Rack Builder/Rack Builder Pro

This Microsoft Windows based installation and configuration tool simplifies the process of generating and maintaining rack environments by helping customers plan and configure Compaq racks with rack-mountable products.

RAID Online Expansion

RAID Online Expansion, an integral function of the Array Configuration Utility, provides the ability to increase the size of a RAID array by adding a new disk to the array without destroying the data held in the array.

Redundant array controller

Servers with this feature offer a failover array controller if the primary array controller fails.

Redundant fans

Redundant fans are extra fans installed in the server to ensure proper airflow around temperature sensitive components in case of a single fan failure.

Redundant hot-plug power supply

Newer Compaq servers have the option of being equipped with redundant hot-pluggable power supplies. These servers can accept up to three power supply units. While all units function, the power supplies work together, balancing the load between the active units. If a power supply fails, the remaining unit(s) picks up the load and continues operating. Your system administrator can then replace the failed power supply without shutting down the server or impacting the other power supplies.

Redundant NICs/NIC teaming

The Compaq redundant Netelligent NIC technology allows two similar NICs to share a single instance of device driver code. One NIC becomes the active network controller and the other NIC acts as a standby controller. If the active NIC fails, the network traffic is automatically switched to the standby NIC. This redundancy eliminates the NIC or cable as a single point of failure. With PCI Hot Plug technology, the failed NIC can be replaced without rebooting the system. Thus, the end user can have continuous service and the administrator can greatly reduce planned and unplanned downtime.

Redundant power module

A redundant power module operates only when other converters fail. Up to three CPU board converters (Power Safe Modules) can be installed on each CPU board. This allows for two independent CPU board converters to service two independent CPUs, with the third acting as a redundant converter, which operates only when one or both of the other two converters fails.

Up to two I/O system board converters (Power Safe Modules) can be installed on the system board. Both converters should be installed at all times to provide redundancy.

Redundant power supply

Some Compaq servers are equipped with multiple power supplies to ensure that the server continues operating even when a power supply fails.

Remote alert

A remote alert goes out to a designated individual via Insight Manager or Insight Manager XE, ASR-2, or Remote Insight Board if Insight Manager or Insight Manager XE detects potential problems with a server.

Remote alpha/numeric paging

Remote alpha/numeric paging sends an alpha alert text if Insight Manager 7 detects problems with a server. You can program the designated pager number through Remote Insight/Insight Manager or Insight Manager XE.

Remote asset management

Remote asset management allows collection or setting of asset management information remotely by way of Compaq Insight Manager 7.

Remote Deployment Utility (RDU)

The Compaq Remote Deployment Utility (RDU) deploys driver and management agent updates out to servers on a network. This utility can be operated from an IT administrator's workstation, running Microsoft Windows NT or Microsoft Windows 2000, to target remote servers for software updates.

Remote diagnostics

Remote diagnostics allows analysis of the server remotely using Compaq Insight Manager 7 or Remote Insight Board.

Remote flash-redundant ROM

Remote-flash redundant ROM improves manageability by allowing administrators to flash the system ROMs for a wide range of Compaq servers, locally or across the network. The Remote ROM Flash Utility is a combination of components that allows administrators to upgrade the system ROMs on servers from a single point of execution. The ROM upgrades can either be flashed individually or batched together to perform multiple ROM upgrades in a single step.

The following components are used in the ROM flash process:

- User interface–A command-line driven allowing administrators to tailor functionality to a specific environment
- System ROM Flash Service–Allows the user interface to perform essential functionality on remote servers for the ROM upgrade process, including remote system shutdown, mounting, and dismounting the system partition
- Compaq System Configuration Utility–Integrates with the Compaq Remote ROM Flash Utility to allow flawless firmware upgrades
- ROMPaq Utility and image files–Generally, any version of the ROMPaq Utility and image files

All of these components work together to deliver an easy-to-manage solution for administrators who need to manage large-scale ROM upgrades.

Compaq remote flash-redundant ROM provides a unique redundancy feature to help ensure system availability by giving the system the ability to recover the last known good system ROM in the event that the current system ROM is corrupted.

Through subsequent boots of the server, if the boot block detects integrity errors, the system will automatically launch the redundant image and continue the POST process. If the redundant ROM is launched, the user sees an error message identifying the faulty system ROM.

Remote Insight Board

Remote Insight Board offers complete hardware independence from the server, as it is essentially a computer within a computer. Because the board has its own processor, memory, and battery

backup, it can continue operating should the server have a hardware fault or lose power. The on-board battery backup allows the enhanced alerting features of Remote Insight Board

(alphanumeric paging, Insight Manager alerts) to be available at all times, even in the case of power outages.

Remote Insight provides seamless PPP integration so that you can move between Insight Manager or Insight Manager XE/SNMP management and the resident remote-console application without any loss of connection regardless of server condition.

In addition, Remote Insight captures critical information through enhanced video sequence replay, which includes failure sequences as well as reset sequences. These enhanced abilities allow two generations of reset sequence data to be stored and preserved by the on-board battery during power outages.

The optional Remote Insight Board offers the most complete out-of-band server management solution. If a server goes down due to a hardware fault, software fault, or even a power outage, it alerts the administrator who then can access Remote Insight to bring the server back up.

Remote Insight Lights-Out Edition

Remote Insight Lights-Out Edition, designed and priced to provide remote server management in corporate data centers and remote sites, allows browser access to Compaq servers through a seamless, hardware-based, OS-independent graphical remote console. Hardware-based, it requires neither additional software nor any host server CPU cycles. The on-board graphical remote console capability turns the client browser into a virtual desktop, no matter what operating system the host server is running or what state it is in.

The Compaq Remote Insight Lights-Out Edition also includes additional features, such as a virtual power button, DNS/DHCP IP auto-configuration, and ROM-based configuration capability. It also continues to provide the rich suite of remote management features available with the Compaq Remote Insight Board/PCI.

Compaq Remote Insight Lights-Out Edition can be used to deploy headless servers that do not require a monitor, keyboard, or a mouse. If deployed in every server in a rack, it eliminates these devices on every server as well as the switchbox and associated cabling complexity.

Remote threshold setting

Remote threshold settings allow system administrators to remotely set the alert thresholds. Compaq Insight Manager 7 and ASR-2 to determine when to send alert messages indicating a problem with a server use these thresholds.

Resource Paqs (discontinued)

Compaq has produced Resource Paqs for Microsoft, Novell, and Linux operating systems. Each Resource Paq CD-ROM includes presentations, white papers, SoftPaqs, support software, utilities, and much more to support these operating systems and Compaq ProLiant servers.

Resource Paq CD-ROM	Latest Release Date	End of Life
Novell Resource Paq, v.4	09/01/00	10/31/01
Linux Resource Paq, v.2	08/01/01	12/31/01
Microsoft Resource Paq, v.8	05/01/01	06/30/02

Revision History Table

The Revision History Table stores board revision information in non-volatile memory. It logs the system board revision first, then logs other boards that support the Revision History Table, such as the SMART-2 Array Controller, Fast-Wide SCSI-2 Controller, and NetFlex-2 ENET-TR Controller. When you upgrade your server or add new expansion boards, the Revision History Table records this information. As you troubleshoot server problems, you can use this information to determine if a change to the server configuration might have caused the problem.

ROM-based setup

This feature allows the server to configure itself, circumventing the System Configuration Utility.

ROMPaq

ROMPaqs offer firmware/BIOS upgrade packages for differing features, such as video controllers, system processors, etc. on Compaq server products.

Serial/parallel interface control

Serial/parallel interface control blocks the unauthorized transfer of data through the integrated serial and parallel ports.

Server failure notification

Server failure notification, part of the ASR and ASR-2 functionality, sends a pager alert to notify your system administrator of a server malfunction.

Server Health Log

The Server Health Log contains information to help identify and correct any server failures and correlate hardware changes with server failure. These logs consist of the critical error log and the Revision History Table. The Server Health Log replaces the Integrated Management Display Log on newer ProLiant servers.

Server recovery notification

Server recovery notification, part of the ASR-2 functionality, sends a pager alert to notify your system administrator of a server malfunction recovery.

Smart Component

A wrapping of a component includes a single driver, ROM, agent or utility, with its installation logic into a single, installable (interactive or silent) executable file.

SmartStart Integration Maintenance Utility

With Integration Maintenance, system administrators set up a server to act as an integration server; then it services the production servers. The Compaq Integration Maintenance Utility applies software updates from the integration server to the production servers.

SmartStart Integration Management

This tool allows the manual upgrade or installation of Compaq products using an integration server or a CD-ROM.

SmartStart

Compaq SmartStart for Servers, the configuration and software integration tool from Compaq, aids in the installation of Compaq servers by simplifying the process of loading the operating system and installing any specialized device drivers and support utilities.

SmartStart Scripting Toolkit

Compaq SmartStart Scripting Toolkit simplifies high-volume server deployment for businesses that are faced with the need to deploy hundreds to thousands of servers quickly and reliably by delivering a hands-off, unattended installation and configuration solution. Using SmartStart technology, the Scripting Toolkit provides flexible ways to create standard server configuration scripts and are used to automate many of the manual steps in the server configuration process. This automated process cuts time from each server deployment, making it possible to scale servers to high volumes in rapid fashion. The Scripting Toolkit includes a modular set of utilities and important documentation that describe how to apply these new tools to build an automated server deployment process.

SoftPaq

A collection of bundled support software containing device drivers, configuration programs, flashable ROM images, utilities, agents, and more to keep your server performing at its best.

Software updates via Internet

Compaq offers updates of its software to you at no cost through easily navigated Web pages. These updates are available for all of the operating systems Compaq supports at http://www.compaq.com/support/files/server/us/index.html.

Regular updates to the Web pages ensure you always have access to the software and firmware needed to keep your Compaq systems running at peak effectiveness.

Standby Recovery Server

Standby Recovery Server, as an implementation of the Recovery Server Option (RSO), pairs two servers and connects them to a single storage environment. One of the servers is active while the other remains in standby mode. If the active server fails, the standby takes the place of the active server.

Standby Recovery Server cannot be implemented in conjunction with Online Storage Controller Recovery Option (OSCRO).

Storage Automatic Reconstruction

Storage Automatic Reconstruction automatically reconstructs data to an online spare drive or a replacement drive if a drive failure occurs. To use the reconstruction feature you must have your drive configured for Drive Mirroring (RAID 1) or Distributed Data Guarding (RAID 5). Reconstruction reduces downtime by allowing rapid recovery to full system operation if a drive fails.

Storage Fault Recovery Tracking

Storage Fault Recovery Tracking tracks over twelve failure parameters—timeouts, spin-up, and self-test errors—of the SMART-2 Array Controller, the Fast-Wide SCSI-2 Controller, and their attached hot-pluggable drives. The system uses these parameters to accurately pinpoint failed storage subsystem components to enable rapid recovery from controller or hard drive failures.

Support Paq

A Support Paq is a logical set of Smart Components, which have been tested together, along with a simple batch script and a simple installer utility

Support Software Update Utility

The Support Software Update Utility updates Compaq Support Software for Novell Products (Novell SSD) on a NetWare server as a client/server application. The utility has the ability to gather a list of Compaq drivers loaded on the server, the built-in intelligence to decide if those drivers are current, and the option to update those drivers, locally or remotely.

Survey Parameter Capture

This utility captures system parameters, compares the current capture to previous ones, and delivers a comprehensive view of the server and the differences, if any, of the captures.

Survey Utility

Compaq Survey Utility takes the comprehensive reporting functionality of Inspect and delivers it in an online format. This online capability means that servers running business-critical applications do not require shut down to collect the information required for a service call. Not only can Compaq Survey Utility be run while the server is online, but its initial install can be completed without ever having to restart the server. This makes it truly an online service tool.

Compaq Survey Utility not only captures most of the hardware information gathered today by Inspect, but also goes a step further and gathers details about the operating system parameters (including NetWare NLMs loaded, Windows 2000 Services running, and others). By combining hardware and software configuration captures, Compaq Survey Utility delivers a comprehensive view of the server with the ease and simplicity of a single tool.

Another important benefit of Compaq Survey Utility relates to its ability to identify recent configuration changes. It stores each configuration snapshot in a file on the server and compares the latest file to the baseline configuration at each snapshot interval. It then highlights any significant changes and automatically updates the output file to reflect the latest configuration as well as differences relative to the baseline. Recent configuration changes are often the source of the problems manifesting on the server. The ability to quickly generate comprehensive configuration snapshots and highlight specific changes enables problem resolution time to be significantly reduced.

The information gathered by Compaq Survey Utility can be accessed locally at the host server console. From the console, the administrator can initiate an updated snapshot, view the Survey Utility file online, and generate a new output file based on comparing different saved sessions. The output file can also be printed. In addition to user-initiated snapshots, the Survey Utility tool automatically generates and stores updated snapshots upon server restart as well as at user-specified time intervals. This automatic update mechanism helps to ensure that the latest information and change histories are always recorded and available when needed.

System Partition

The System Partition, a special partition created on Compaq disks by SmartStart, contains diagnostic tools and utilities, including the System Configuration Utility. The System Partition varies in size from 2 MB up to about 36 MB.

System Partition Administration Utility

The System Partition Administration Utility provides access to the System Partition without having to use SmartStart.

System serial number

Compaq designed the backplane of the computer with an additional serial EEPROM. When the factory builds the computer, it assigns and burns the serial number into the EEPROM. The system serial number can be obtained during asset queries, both locally and remotely.

System Uptime Monitor (SUM)

The System Uptime Monitor (SUM) tracks the availability statistics of the system.

Temp detect and shutdown

The temp detect and shutdown feature of ASR-2 allows the operating system to detect when the temperature of the system exceeds the caution level. Accompanying data in the log notes determines whether the operating system invokes an auto-shutdown sequence.

Temperature monitor via I_2C

This temperature monitor utilizes Inter-Integrated Circuit (I_2C) bus technology to report temperature events for critical components.

Tool-free design

This feature allows users easier access to and quicker maintenance for the interior parts of a Compaq server. Servers offer different tool-free components that could include chassis covers, PCI Hot Plug slots, power supplies, processor fans, and hard drives.

Virtual power button

The virtual power button allows remote control of the power to a managed server using Remote Insight Lights-Out Edition. Many current ProLiant and all future ProLiant servers support this feature.

Voltage/current monitoring

The voltage/current-monitoring feature tracks voltage and current changes with Compaq power supplies.

UnixWare NonStop Clustering

UnixWare NonStop Clustering enables a group of servers to operate as a single, robust computing resource in a highly scalable clustered operating environment. Its single system image (SSI) capability allows a cluster of servers to appear as one single system, greatly improving manageability by allowing transparent access to all cluster resources. SSI also significantly

reduces downtime as applications automatically migrate among nodes, without disruption, when a node failure occurs.

Wide Ultra2 SCSI

Wide Ultra2, a SCSI-3 protocol, features data transfer rates of up to 80 MB/s.

Wide Ultra3 SCSI

Wide Ultra3, a SCSI-3 protocol, boasts data transfer rates up to 160 MB/s.

Windows NT HAL recovery

The Compaq SSD for Microsoft Windows NT 4.0 includes—as one of its available features—the ability to retain a redundant copy of the Windows NT Hardware Abstraction Layer (HAL) to be used if the default HAL becomes corrupt. This provides a means of recovering from what would otherwise be a catastrophic corruption problem without the need to re-install the operating system.

Appendix C–Supported Features by Server

Most of the features described in this paper are operating system independent but not all features are available on every operating system. To verify that available features work with your operating system, check http://www.compaq.com/products/servers/platforms/. For the latest Compaq ProLiant Operating System (OS) information, check ftp://ftp.compaq.com/pub/products/servers/os-support-matrix-310.pdf.

Available ProLiant Servers	ProLiant CL380	ProLiant DL320	ProLiant DL360	ProLiant DL380	ProLiant DL380 G2	ProLiant DL580	ProLiant DL590/64	ProLiant DL760	ProLiant ML330 G2 (SCSI)	ProLiant ML330 G2 (ATA)	ProLiant ML330	ProLiant ML330e	ProLiant ML350 G2	ProLiant ML350	ProLiant ML370	ProLiant ML370 G2	ProLiant ML530	ProLiant ML570	ProLiant ML750	ProLiant 8000	ProLiant 8500
High Availability																					
Fault Management																					
Fault Advanced Network Control Utility	√	√	√	√		√			√	√	√		√	√	√		√	√		√	√
Cluster Verification Utility	√	√	√	√		√			√	√	√		√	√	√		√	√		√	√
On-line Recovery Server Option				√																√	√
Online Storage Controller Recovery Option	√	√	√	√		√			√	√	√		√	√	√		√	√		√	√
Redundant Array Controllers																					√
Redundant Fans	√			√	√	√	√	√							√	√	√	√	√	√	√
Redundant Hot-Plug Power Supply	*			√	√	√	√	√							√	√	√	√	√	√	√
Redundant NICs/NIC Teaming	√	√	√	√		√		√	√	√	√		√	√	√		√	√		√	√
Redundant Power Modules								√											√	√	√

Redundant Power Supply	√			√	√	√		√							√	√	√	√		√	√
Standby Recovery Server Option				√																√	√
Virtual Power-on Button	√	√	√	√		√			√	√	√		√	√	√		√	√		√	√
Fault Management																					
Dynamic Sector Repair	√	√	√	√	√	√			√	√	√		√	√	√	√	√	√		√	√
ECC Memory	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Offline Processor Recovery	√	√	√	√	√	√							√	√	√	√	√	√		√	√
Power Down Manager																				√	√
Power Safety Interlock																				√	√

Available ProLiant Servers	ProLiant CL380	ProLiant DL320	ProLiant DL360	ProLiant DL380	ProLiant DL380 G2	ProLiant DL580	ProLiant DL590/64	ProLiant DL760	ProLiant ML330 G2 (SCSI)	ProLiant ML330 G2 (ATA)	ProLiant ML330	ProLiant ML330e	ProLiant ML350 G2	ProLiant ML350	ProLiant ML370	ProLiant ML370 G2	ProLiant ML530	ProLiant ML570	ProLiant ML750	ProLiant 8000	ProLiant 8500
High Availability (continued)																					
Fault Tolerance																					
ASR		√			√				√	√	√	√	√	√	√	√					
ASR-2	√		√	√		√									√		√	√		√	√
Fan Detect and Shutdown	√	√	√	√		√			√	√	√		√	√	√		√	√		√	√
Hot-Plug Drives	√		√	√	√	√	√						√	√	√	√	√	√		√	√
Hot-Plug Fans					√	√	√									√	√	√		√	√
Hot-Plug Keyboard	√		√	√		√									√		√	√		√	√
Hot Spare Boot	√		√	√		√							√	√	√		√	√		√	√
PCI Hot Plug				√	√	√	√	√								√		√	√	√	√
Temperature Detect and Shutdown	√		√	√		√									√		√	√		√	√
Temperature Monitor	√	√	√	√		√			√	√	√		√	√	√		√	√		√	√
Voltage/Current Monitoring																				√	√
Windows NT HAL Recovery	√	√	√	√		√			√	√	√		√	√	√		√	√		√	√
Total Cost of Operation (TCO)																					
Server Maintenance																					

Asset Tag Number	√	√	√	√		√			√	√	√	√	√	√	√		√	√		√	√
Auto-default ROM																				√	√
Boot Block ROM	√	√	√	√		√			√	√	√	√	√	√	√		√	√		√	√
CD-ROM Boot	√	√	√	√		√			√	√	√	√	√	√	√		√	√		√	√
Configurable Boot Order	√	√	√	√		√			√	√	√	√	√	√	√		√	√		√	√
Critical Error Logging	√	√	√	√		√			√	√	√	√	√	√	√		√	√		√	√
DOS CPR	√	√	√	√		√			√	√	√	√	√	√	√		√	√		√	√
Drive Firmware Upgrade	√	√	√	√		√			√	√	√	√	√	√	√		√	√		√	√
Fibre Fault Isolation Utility	√	√	√	√		√			√	√	√	√	√	√	√		√	√		√	√
Flashable ROM	√	√	√	√		√			√	√	√	√	√	√	√		√	√		√	√
Intelligent Power Switch																				√	√
Internal Diagnostic Display (IDD)						√											√	√			√
Online Configuration Utility for NetWare	√		√	√		√			√	√	√	√	√	√	√		√	√		√	√
PCI Card Guide	√		√	√		√			√	√	√	√	√	√	√		√	√		√	√
Rack Builder/Rack Builder Pro	√	√	√	√	√	√	√				√	√	√	√	√	√	√	√		√	√
RAID Online Expansion	√	√	√	√		√			√	√	√	√	√	√	√		√	√		√	√

Available ProLiant Servers	ProLiant CL380	ProLiant DL320	ProLiant DL360	ProLiant DL380	ProLiant DL380 G2	ProLiant DL580	ProLiant DL590/64	ProLiant DL760	ProLiant ML330 G2 (SCSI)	ProLiant ML330 G2 (ATA)	ProLiant ML330	ProLiant ML330e	ProLiant ML350 G2	ProLiant ML350	ProLiant ML370	ProLiant ML370 G2	ProLiant ML530	ProLiant ML570	ProLiant ML750	ProLiant 8000	ProLiant 8500
Total Cost of Operation (TCO) (continued)																					
Server Maintenance (continued)																					
Remote Compaq Server Support Software for Windows NT Upgrade	√	√	√	√		√			√	√	√		√	√	√		√	√		√	√
Remote Flash-Redundant ROM				√	√			√							√	√			√	√	√
ROM-Based Setup					√		√	√	√	√	√		√	√		√			√		
Survey Parameter Capture	√	√	√	√		√			√	√	√		√	√	√		√	√		√	√
System Partition	√	√	√	√		√									√		√	√		√	√
System Partition Administration Utility	√		√	√		√									√		√	√		√	√
System Serial Number	√	√	√	√		√			√	√	√		√	√	√		√	√		√	√
Tool-free Design	√	√	√	√		√							√	√	√		√	√			√
Investment Protection																					
ACPI Ready	√	√	√	√		√			√	√	√		√	√	√		√	√		√	√
Industry Standard Components	√	√	√	√		√			√	√	√		√	√	√		√	√		√	√
Long Operating System Life Support	√	√	√	√		√			√	√	√		√	√	√		√	√		√	√
Pre-Failure Warranty	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√

Intelligent Manageability																				
Deployment																				
Array Configuration Utility	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√	√	√	√	√
SmartStart	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√	√	√	√	√
SmartStart Integration Management Utility	√	√	√	√		√			√	√	√		√	√	√		√	√		√	√
SmartStart Scripting Toolkit		√	√	√	√	√			√	√	√		√	√	√		√	√			√
Management																				
ActiveUpdate	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Automatic Revision Tracking	√	√	√	√		√							√	√		√	√			
Compaq Insight Manager 7	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Compaq Resource Partitioning Manager		√	√	√	√	√		√	√	√	√	√	√	√	√	√	√	√	√	√
Disk System Tracking	√	√	√	√		√			√	√	√			√	√		√	√		√	√
Drive Parameter Tracking	√	√	√	√	√	√			√	√	√	√		√	√	√	√	√		√	√
Insight Manager Alerts	√	√	√	√		√			√	√	√			√	√		√	√		√	√
Integrated Management Display															√		√			√	√
Integrated Management Log	√	√	√	√	√	√			√	√				√	√	√	√	√		√	√
Integrated Remote Console	√		√	√		√									√		√	√		√	√
Memory Fault Recovery Tracking	√	√	√	√		√			√	√				√	√		√	√		√	√

Available ProLiant Servers	ProLiant CL380	ProLiant DL320	ProLiant DL360	ProLiant DL380	ProLiant DL380 G2	ProLiant DL580	ProLiant DL590/64	ProLiant DL760	ProLiant ML330 G2 (SCSI)	ProLiant ML330 G2 (ATA)	ProLiant ML330	ProLiant ML330e	ProLiant ML350 G2	ProLiant ML350	ProLiant ML370	ProLiant ML370 G2	ProLiant ML530	ProLiant ML570	ProLiant ML750	ProLiant 8000	ProLiant 8500
Intelligent Manageability																					
Management (continued)																					
Monitor Utility for Smart Array	√	√	√	√		√			√	√	√		√	√	√		√	√		√	√
NIC Fault Recovery Tracking	√	√	√	√		√			√	√	√		√	√	√		√	√		√	√
PCI Plug and Play	√	√	√	√		√			√	√	√		√	√	√		√	√		√	√
Power On Error Log	√	√	√	√		√			√	√	√		√	√	√		√	√		√	√
Remote Alpha/Numeric Paging	√		√	√		√			√	√	√		√	√	√		√	√		√	√
Remote Diagnostics	√			√		√			√	√	√		√	√	√		√	√		√	√
Remote Insight	√	√	√	√		√			√	√	√	√	√	√	√		√	√		√	√
Remote Insight, Lights-Out Edition	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√
Remote Threshold Setting	√			√		√			√	√	√		√	√	√		√	√		√	√
Revision History Table	√	√	√	√		√			√	√	√		√	√	√		√	√		√	√
Server Health Log	√	√	√	√		√			√	√	√						√	√			
Smart Array Controller Family Support	√	√	√	√		√		√	√	√	√		√	√	√		√	√		√	√
Software Updates via Internet	√	√	√	√		√			√	√	√		√	√	√		√	√		√	√

Storage Fault Recovery Tracking	√	√	√	√		√			√	√	√		√	√	√		√	√		√	√
Survey Utility	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√	√	√	√	√	√
Security																					
Administrative Password	√	√	√	√	√	√		√	√	√	√		√	√	√	√	√	√	√	√	√
CD Lock	√		√	√		√			√	√	√		√	√	√		√	√		√	√
Configuration (NVRAM) Lock	√	√	√	√	√	√		√						√	√	√	√	√	√	√	√
Diskette Boot Control	√	√	√	√	√	√			√	√	√	√	√	√	√	√	√	√		√	√
Diskette Drive Control	√	√	√	√	√	√		√	√	√	√		√	√	√	√	√	√	√	√	√
Diskette Write Control	√		√	√		√			√	√	√		√	√	√		√	√		√	√
Front Bezel Keylock	√	√											√	√	√		√	√		√	
Hot-plug Access Security	√					√		√					√	√	√		√	√		√	√
Keyboard Password	√	√	√	√	√	√		√	√	√	√		√	√	√	√	√	√	√	√	√
Network Server Mode	√	√	√	√	√	√		√	√	√	√		√	√	√	√	√	√	√	√	√
Power On Password	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√	√	√	√	√	√
Power Supply Security Bar																	√	√	√	√	√
Protected Power Switch	√			√					√	√	√	√	√	√	√		√	√		√	√
QuickLock	√		√	√	√	√								√	√	√	√	√		√	√

Serial/Parallel Interface Control	√	√	√	√	√	√		√	√		√		√	√	√	√	√	√	√	√	√	√

√ Supported

Discontinued ProLiant Servers	ProLiant CL1850	ProLiant 400	ProLiant 800	ProLiant 850R	ProLiant 1000	ProLiant 1200	ProLiant 1500	ProLiant 1600	ProLiant 1850R	ProLiant 2000	ProLiant 2500	ProLiant 3000	ProLiant 4000	ProLiant 4500	ProLiant 5000	ProLiant 5500	ProLiant 6000	ProLiant 6400R	ProLiant 6500	ProLiant 7000	ProLiant ML770
High Availability																					
Fault Management																					
Advanced Network Control Utility	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Cluster Verification Utility	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
On-line Recovery Server Option	√		√			√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Online Storage Controller Recovery Option	√	√	√	√		√	√	√	√		√	√			√	√	√	√	√	√	
Redundant Fans	√											√				√	√	√	√	√	√
Redundant Hot-Plug Power Supplies	*							√	√			√				√		√			√
Redundant NICs/NIC Teaming	√	√	√					√	√			√				√	√	√	√	√	
Redundant Power Modules															√		√		√	√	
Redundant Power Supply	√					√	√	√	√			√		√	√	√	√	√	√	√	
Standby Recovery Server Option	√		√	√		√	√	√	√	√	√	√	√	√	√		√		√	√	
Fault Prevention																					
Dynamic Sector Repair	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	

ECC Memory	√	√	√	√		√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Offline Processor Recovery	√		√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Power Down Manager																√		√	√	
Power Safety Interlock				√	√	√	√			√	√	√	√	√	√	√	√		√	√	
Fault Tolerance																				
ASR		√			√					√			√							
ASR-2	√		√	√		√	√	√	√		√	√		√	√	√	√	√	√	√
Fan Detect and Shutdown	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Hot-Plug Drives	√			√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√
Hot-Plug Fans																		√	√	√
Hot-Plug Keyboard	√	√	√			√		√	√		√	√				√	√	√	√	√
Hot Spare Boot	√		√				√	√	√	√	√	√	√	√	√	√	√	√	√	√
PCI Hot Plug																√		√	√	√	√
Server Health Log	√		√	√	√	√	√	√	√	√	√	√	√	√	√		√		√	√
Temperature Detect and Shutdown	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Temperature Monitor	√	√	√					√	√			√				√	√	√	√	√
Voltage/Current Monitoring																√	√	√	√	√
Windows NT HAL Recovery																				

	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	

Discontinued ProLiant Servers	ProLiant CL1850R	ProLiant 400	ProLiant 800	ProLiant 850R	ProLiant 1000	ProLiant 1200	ProLiant 1500	ProLiant 1600	ProLiant 1850R	ProLiant 2000	ProLiant 2500	ProLiant 3000	ProLiant 4000	ProLiant 4500	ProLiant 5000	ProLiant 5500	ProLiant 6000	ProLiant 6400R	ProLiant 6500	ProLiant 7000	ProLiant ML770
Total Cost of Operation (TCO)																					
Maintenance																					
Asset Tag Number	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Boot Block ROM	√	√	√		√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
CD-ROM Boot	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Configurable Boot Order	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Critical Error Logging	√		√	√	√		√	√	√	√	√	√	√	√	√	√	√	√	√	√	
DOS CPR	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Drive Firmware Upgrade	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Fibre Fault Isolation Utility	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Flashable ROM	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Intelligent Power Switch																	√		√	√	
Online Configuration Utility for NetWare	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Rack Builder/Rack Builder Pro	√	√						√	√			√				√	√	√	√	√	
RAID Online Expansion	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	

Remote Compaq Server Support Software for Windows NT Upgrade	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Survey Parameter Capture	√		√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
System Partition	√		√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
System Partition Administration Utility	√		√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
System Serial Number	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Tool-free design								√								√				
Investment Protection																				
ACPI Ready		√									√					√				
Industry Standard Components	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Long Operating System Life Support	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Pre-Failure Warranty	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	

Discontinued ProLiant Servers	ProLiant CL1850R	ProLiant 400	ProLiant 800	ProLiant 850R	ProLiant 1000	ProLiant 1200	ProLiant 1500	ProLiant 1600	ProLiant 1850R	ProLiant 2000	ProLiant 2500	ProLiant 3000	ProLiant 4000	ProLiant 4500	ProLiant 5000	ProLiant 5500	ProLiant 6000	ProLiant 6400R	ProLiant 6500	ProLiant 7000	ProLiant ML770
Intelligent Manageability																					
Deployment																					
Array Configuration Utility	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
SmartStart	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
SmartStart Integration Management Utility	√	√	√		√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
SmartStart Scripting Toolkit									√									√			
Management																					
ActiveUpdate	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Automatic Revision Tracking		√						√	√			√				√		√			
Compaq Insight Manager 7	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Drive Parameter Tracking	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
EISA Bus Utilization Monitor					√	√				√	√		√	√	√						
Insight Manager Alerts	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Integrated Management Display						√		√			√	√				√	√		√	√	
Integrated Management Log	√		√			√		√	√		√	√				√	√	√	√	√	
Integrated Remote Console	√		√	√		√		√			√	√				√	√	√	√	√	

Memory Fault Recovery Tracking	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Monitor Utility for Smart Array	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
NIC Fault Recovery Tracking	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
PCI Bus Monitor	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
PCI Plug and Play	√	√	√	√		√	√	√	√		√	√			√	√	√	√	√	√	
Power On Error Log	√	√	√			√		√	√		√	√				√	√	√	√	√	
Remote Alpha/Numeric Paging	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Remote Diagnostics	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Remote Insight	√	√	√	√		√	√	√	√		√	√	√	√	√	√	√	√	√	√	
Remote Insight Lights-Out Edition	√	√	√	√		√	√	√	√		√	√	√	√	√	√	√	√	√	√	
Remote Threshold Setting	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Revision History Table	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Software Updates via Internet	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Storage Fault Recovery Tracking	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Survey Utility	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	

Discontinued ProLiant Servers	ProLiant CL1850	ProLiant 400	ProLiant 800	ProLiant 850R	ProLiant 1000	ProLiant 1200	ProLiant 1500	ProLiant 1600	ProLiant 1850R	ProLiant 2000	ProLiant 2500	ProLiant 3000	ProLiant 4000	ProLiant 4500	ProLiant 5000	ProLiant 5500	ProLiant 6000	ProLiant 6400R	ProLiant 6500	ProLiant 7000	ProLiant ML770
Security																					
Administrative Password	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
CD Lock	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Configuration (NVRAM) Lock	√		√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Diskette Boot Control	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Diskette Drive Control	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Diskette Write Control	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Front Bezel Keylock	√		√		√	√	√	√		√	√	√	√	√	√	√	√		√	√	
Hot-plug Access Security			√					√				√				√		√			
Keyboard Password	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Network Server Mode	√		√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Power On Password	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Power Down Lock																	√		√	√	
Power Supply Security Bar																√	√		√	√	
Protected Power Switch																					

	√	√	√	√	√			√	√			√				√		√			
QuickLock	√		√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Serial/Parallel Interface Control	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Operating Systems																					
IBM																					
OS/2 Warp Server 4			√	√		√		√	√		√	√				√	√	√	√	√	
OS/2 Warp Server Advanced 4			√	√		√	√	√	√		√	√				√	√	√	√	√	
OS/2 Warp Server Advanced 4 SMP			√	√		√	√	√	√		√	√				√	√	√	√	√	
OS/2 Warp Server for e-business			√					√	√			√				√		√			
Linux																					
Caldera Linux eServer 2.3.1								√	√			√				√		√			
Caldera Linux eServer 3.1																					
Red Hat Linux 6.1		√	√					√	√			√				√		√	√	√	
Red Hat Linux 7.0		√	√					√	√			√				√		√			
Red Hat Linux 7.1																					
SuSE Linux 7.0		√	√					√	√			√				√		√			
SuSE Linux 7.2			√						√			√				√		√			
SuSE Linux Enterprise Server 7																					
Turbolinux 6.0.5								√	√			√				√		√			

Discontinued ProLiant Servers	ProLiant CL1850	ProLiant 400	ProLiant 800	ProLiant 850R	ProLiant 1000	ProLiant 1200	ProLiant 1500	ProLiant 1600	ProLiant 1850R	ProLiant 2000	ProLiant 2500	ProLiant 3000	ProLiant 4000	ProLiant 4500	ProLiant 5000	ProLiant 5500	ProLiant 6000	ProLiant 6400R	ProLiant 6500	ProLiant 7000	ProLiant ML770
Operating Systems (continued)																					
Microsoft																					
BackOffice Small Business Server 4		√	√	√	√	√	√														
BackOffice Small Business Server 4.5		√	√	√	√	√	√														
Small Business Server 2000		√	√					√													
Windows NT Server 3.51			√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Windows NT Server 4.0		√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Windows NT Server, Enterprise Edition 4.0	√			√		√		√	√		√	√				√	√	√	√	√	
Windows NT Server 4.0, Terminal Server Edition		√	√	√				√	√		√	√				√	√	√	√	√	
Windows 2000 Server		√	√	√		√	√	√	√		√	√		√	√	√	√	√	√	√	
Windows 2000 Datacenter Server																					√
Windows 2000 Advanced Server	√			√		√	√	√	√		√	√		√	√	√	√	√	√	√	
Novell																					
NetWare 4.11, SMP (intraNetWare)		S	√	√		√	√			√	√		√	√	√		√		√	√	
NetWare 4.2, SMP	√	√	√	√			√	√	√	√		√				√	√	√	√	√	
NetWare 5		√	√	√		√	√	√	√	√	√	√		√	√	√	√	√	√	√	

NetWare 5.1	√	√	√	√		√	√	√	√	√	√	√		√	√	√	√	√	√	√	
NetWare 6	√		√	√		√	√	√	√	√	√	√		√	√	√	√	√	√	√	
NetWare Small Business Suite 4.2		√	√	√				√	√												
NetWare Small Business Suite 5.0		√	√	√				√	√												
NetWare Small Business Suite 5.1		√	√					√	√												
Sun																					
Solaris 2.6 Intel Platform Edition			√	√		√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Solaris 7 Intel Platform Edition			√			√	√	√	√		√	√				√	√	√	√	√	
Solaris 8 Intel Platform Edition			√					√	√			√				√	√	√	√	√	
UNIX																					
OpenServer 5.0.5, 5.0.6		5	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
UnixWare 2.1.2, 2.1.3			√	√		√	√	√	√		√	√	√	√	√	√	√	√	√	√	
UnixWare 7.1, 7.1.1			√	√				√	√		√	√			√	√	√	√	√	√	

√	Supported
*	Supported in shared storage
5	OpenServer 5.05 support only
S	No SMP support

Prosignia and Systempro Servers		Systempro LT	Systempro XL	ProSignia	ProSignia 200	ProSignia 300	ProSignia 500	Prosignia Server 720	Prosignia Server 740	ProSignia VS
High Availability										
Fault Management										
Advanced Network Control Utility				√	√	√	√			√
Cluster Verification Utility				√	√	√	√			√
Correctable Memory Log			√		√	√	√	√	√	
On-line Recovery Server Option					√	√	√	√	√	
Online Storage Controller Recovery Option					√	√	√	√	√	
Standby Recovery Server Option					√	√	√	√	√	
Fault Prevention										
ECC Memory			√		√	√	√	√	√	
Fault Tolerance										
ASR			√	√		√	√	√		
ASR-2 (Server Notification)					√				√	√
Fan Detect and Shutdown					√	√	√		√	
Hot Spare Boot			√							
Temperature Detect and Shutdown					√			√	√	
Windows NT HAL Recovery										

					√	√	√	√	√	√
Total Cost of Ownership (TCO)										
Maintenance										
Asset Tag Number			√	√	√	√	√	√	√	√
Boot Block ROM				√	√	√	√	√	√	√
CD-ROM Boot				√	√	√	√	√	√	√
Configurable Boot Order				√	√	√	√	√	√	√
Critical Error Logging			√	√	√	√	√	√	√	√
DOS CPR				√	√	√	√	√	√	√
Drive Firmware Upgrade				√	√	√	√			√
Fibre Fault Isolation Utility				√	√	√	√	√	√	√
Flashable ROM			√	√	√	√	√	√	√	√
Online Configuration Utility for NetWare				√	√	√	√	√	√	√
RAID Online Expansion	√	√	√	√	√	√	√	√	√	√
Remote Compaq Server Support Software for Windows NT Upgrade				√	√	√	√	√		
Survey Parameter Capture	√	√	√	√	√	√	√			√
System Partition	√	√	√	√	√	√	√	√	√	√
System Partition Administration Utility				√	√	√	√	√	√	√
System Serial Number										

		√	√	√	√	√	√	√	√	√

Prosignia and Systempro Servers	Systempro	Systempro LT	Systempro XL	ProSignia	ProSignia 200	ProSignia 300	ProSignia 500	Prosignia Server 720	Prosignia Server 740	ProSignia VS
TCO (continued)										
Investment Protection										
Industry Standard Components	√	√	√	√	√	√	√	√	√	√
Long Operating System Life Support	√	√	√	√	√	√	√	√	√	√
Pre-Failure Warranty					√	√	√	√	√	
Intelligent Manageability										
Deployment										
SmartStart	√	√	√	√	√	√	√	√	√	√
SmartStart Integration Management Utility				√	√	√	√	√	√	
Management										
ActiveUpdate	√	√	√	√	√	√	√	√	√	√
Compaq Insight Manager 7	√	√	√	√	√	√	√	√	√	√
Insight Manager Alerts	√	√	√	√	√	√	√	√	√	√
Integrated Management Display								√	√	
Integrated Remote Console					√					
Memory Fault Recovery Tracking					√	√	√	√	√	√
Monitor Utility for Smart Array				√	√	√	√	√	√	√

NIC Fault Recovery Tracking					√	√	√	√	√	√
Power On Error Log								√	√	
Remote Alpha/Numeric Paging			√	√	√	√	√	√	√	√
Remote Diagnostics	√	√	√	√	√	√	√	√	√	√
Remote Insight					√	√	√	√	√	
Remote Threshold Setting			√	√	√	√	√	√	√	√
Revision History Table					√	√	√	√	√	√
Software Updates via Internet	√	√	√	√	√	√	√	√	√	√
Storage Fault Recovery Tracking			√	√	√	√	√	√	√	√

Prosignia and Systempro Servers	Systempro	Systempro LT	Systempro XL	ProSignia	ProSignia 200	ProSignia 300	ProSignia 500	Prosignia Server 720	Prosignia Server 740	ProSignia VS
Security										
Administrative Password			√	√	√	√	√	√	√	√
CD Lock				√	√	√	√	√	√	√
Configuration (NVRAM) Lock	√	√	√	√	√	√	√	√	√	√
Diskette Drive Control	√	√	√	√	√	√	√	√	√	√
Diskette Write Control	√	√	√	√	√	√	√	√	√	√
Keyboard Password				√	√	√	√	√	√	√
Network Server Mode	√	√	√	√	√	√	√	√	√	√
Power On Password	√	√	√	√	√	√	√	√	√	√
Protected Power Switch					√					
QuickLock	√	√	√	√	√	√	√	√	√	√
Serial/Parallel Interface Control	√	√	√	√	√	√	√	√	√	√
Operating Systems										
IBM										
OS/2 Warp Server 4					√					
OS/2 Warp Server Advanced 4										

					√					
OS/2 Warp Server Advanced 4 SMP					√					
Linux										
Red Hat Linux 6.1								√	√	
Microsoft										
BackOffice Small Business Server 4					√			√	√	
BackOffice Small Business Server 4.5						√		√	√	
Small Business Server 2000								√	√	
Windows NT Server 3.51					√	√			√	
Windows NT Server 4.0			√	√	√	√		√	√	
Windows NT Server 4.0, Terminal Server Edition					√			√	√	
Windows 2000 Server					√			√	√	
Windows 2000 Advanced Server					√					

Prosignia and Systempro Servers	Systempro	Systempro LT	Systempro XL	ProSignia	ProSignia 200	ProSignia 300	ProSignia 500	Prosignia Server 720	Prosignia Server 740	ProSignia VS
Operating Systems (continued)										
Novell										
NetWare 3.2					√					
NetWare 4.11, SMP (intraNetWare)					√	√		S	√	
NetWare 4.2, SMP					√			√	√	
NetWare 5					√	√		√	√	
NetWare 5.1								√	√	
NetWare Small Business Suite 4.2					√			√	√	
NetWare Small Business Suite 5.0					√			√	√	
NetWare Small Business Suite 5.1								√		
Sun										
Solaris 2.5x Intel Platform Edition					√	√	√			
Solaris 2.6 Intel Platform Edition					√	√	√			
Solaris 7 Intel Platform Edition					√	√	√			
UNIX										
OpenServer 5.0.4, 5.05			√		√	√	√	5	5	√

UnixWare 2.1.2, 2.1.3					√	√	√			
UnixWare 7.0.1, 7.1					√					

√	Supported
5	OpenServer 5.05 support only
S	No SMP support

Appendix D–Video Controllers

In this section, embedded video controllers, processor speed ranges and types are listed by server.

Table 10. Video Controllers

Compaq Server	Processor Type	Processor Speed Range	Embedded Video Chipset
ProLiant DL320	Intel Pentium III	550 MHz – 1000 GHz	ATI Rage XL
ProLiant DL360	Intel Pentium III	933 MHz – 1260 GHz	ATI Rage IIC
ProLiant DL380	Intel Pentium III	1 GHz	ATI Rage XL
ProLiant DL380 G2	Intel Pentium III	1.26 -1.13 GHz	ATI Rage XL
ProLiant DL560	Not Yet Released	Not Yet Released	ATI Rage XL
ProLiant DL580	Intel Pentium III Xeon	700 MHz	ATI Rage XL
ProLiant DL590/64	Intel Itanium	733 - 800 MHz	ATI Rage XL
ProLiant DL760	Intel Pentium III Xeon	700 MHz	ATI Rage XL
ProLiant ML330 G2	Intel Pentium III	1000 GHz	ATI Rage XL
ProLiant ML330e	Intel Pentium III	800 MHz - 1.0 GHz	ATI Rage XL
ProLiant ML350	Intel Pentium III	1000 GHz	ATI Rage XL
ProLiant ML370	Intel Pentium III	1000 GHz	ATI Rage XL
ProLiant ML370 G2	Intel Pentium III	1.26 GHz	ATI Rage XL
ProLiant ML530	Intel Pentium III Xeon	1000 GHz	ATI Rage IIC
ProLiant ML570	Intel Pentium III Xeon	700 MHz	ATI Rage IIC
ProLiant ML750 G2	Intel Pentium III Xeon	700 MHz	ATI Rage XL
ProLiant ML770	Intel Pentium III Xeon	700 MHz	ATI Rage IIC
ProLiant 400	Intel Pentium II & Pentium III Xeon	350 – 450 MHz	ATI Rage IIC
ProLiant 800	Intel Pentium III	500 – 600 MHz	ATI Rage IIC
ProLiant 850R	Intel Pentium Pro	200 MHz	Cirrus 54M30
ProLiant 1200	Intel Pentium II	233 MHz	Cirrus 54M30
ProLiant 1500	Intel Pentium & Pentium Pro		Cirrus 54M30
ProLiant 1600	Intel Pentium III	500 – 600 MHz	Cirrus 54M30
ProLiant 1850R	Intel Pentium III	500 – 600 MHz	Cirrus 54M30
ProLiant 2500	Intel Pentium Pro	200 MHz	Cirrus 54M30
ProLiant 3000	Intel Pentium III	500 – 600 MHz	Cirrus 54M30
ProLiant 4500	Intel Pentium 5/133 or 5/166 processors	133 -166 MHz	Cirrus 54M30
ProLiant 5000	Intel Pentium	166-200 MHz	Cirrus 54M30
ProLiant 5500	Intel Pentium III Xeon	500 – 550 MHz	ATI Rage IIC
ProLiant 6000	Intel Pentium Pro & Pentium III Xeon	200 – 600 MHz	Cirrus 54M30

continued

Table 10. Video Controllers *(continued)*

Compaq Server	Processor Type	Processor Speed Range	Embedded Video Chipset
ProLiant 6400R	Intel Pentium III & Pentium III Xeon	500 – 550 MHz	ATI Rage IIC
ProLiant 6500	Intel Pentium Pro & Pentium III Xeon	200 – 600 MHz	Cirrus 54M30
ProLiant 7000	Intel Pentium Pro & Pentium III Xeon	200 – 600 MHz	Cirrus 54M30
ProLiant 8000	Intel Pentium III Xeon	700 MHz	ATI Rage IIC
ProLiant 8500	Intel Pentium III Xeon	700 MHz	ATI Rage IIC
ProSignia 200	Intel Pentium II	233 – 300 MHz	Cirrus 54M46
Prosignia Server 720	Intel Pentium III	500 – 600 MHz	ATI Rage IIC
Prosignia Server 740	Intel Pentium III	500 – 600 MHz	ATI Rage IIC
NeoServer 150	Celeron	500 MHz	N/A
Prosignia NeoServer	Celeron	500 MHz	N/A

Appendix E–Compaq Web Resources

In addition to hardware and software products, Compaq also provides information enabling you to stay current on the latest developments and assisting you in making deployment decisions. These information products range from those with no specific OS focus to those that address specific OS issues and answers.

The sites listed in Table 11 are described or referenced in this document.

Table 11. Compaq Web resources

Item	Web Location
Compaq *ActiveAnswers* gives you the benefit of our experience to help manage your system and reduce the time, risks, and complexity associated with deploying solutions.	http://www.compaq.com/activeanswers
Compaq ActiveUpdate offers proactive notification and delivery of the latest software updates. Do not waste time searching the web. Subscribe to Compaq ActiveUpdate for automatic delivery of software updates for your Compaq servers, desktops, workstations, and portables.	http://www.compaq.com/products/servers/management/activeupdate/index.html
Compaq Insight Manager 7 leverages the power of the Internet to provide web-based systems management for Compaq servers, and any HTTP, SNMP MIB2, or DMI v2.0 compliant device.	http://www.compaq.com/manage
Compaq SmartStart for Servers provides everything you need to get your servers up and running with full Compaq support.	http://www.compaq.com/products/servers/SmartStart/index.html
Compaq System ROMPaqs are available ROM families for Compaq industry-standard server products.	http://www.compaq.com/support/files/server/us/index.html
Customer Advisories inform you of any known problems and workarounds because of a Service Pack release.	http://www.compaq.com/support/techpubs/Customer_advisories/index.html
Press releases and Communiqués announce the availability of new products and versions.	http://www.compaq.com/newsroom/pr
Server Software Download Center allows downloading of the latest support software, drivers, utilities, and agents and provides information about software enhancements and fixes.	http://www.compaq.com/support/files/server/us/index.html
Survey Utility gathers critical hardware and software information to give comprehensive server configuration information. It allows resolution of problems and streamlines the service process without taking the server off-line.	http://www.compaq.com/support/files/server/us/index.html