

What's new

- New 1992 year-end financial information
- Updated software
- New hardware models
- Additional partners
- More quotes

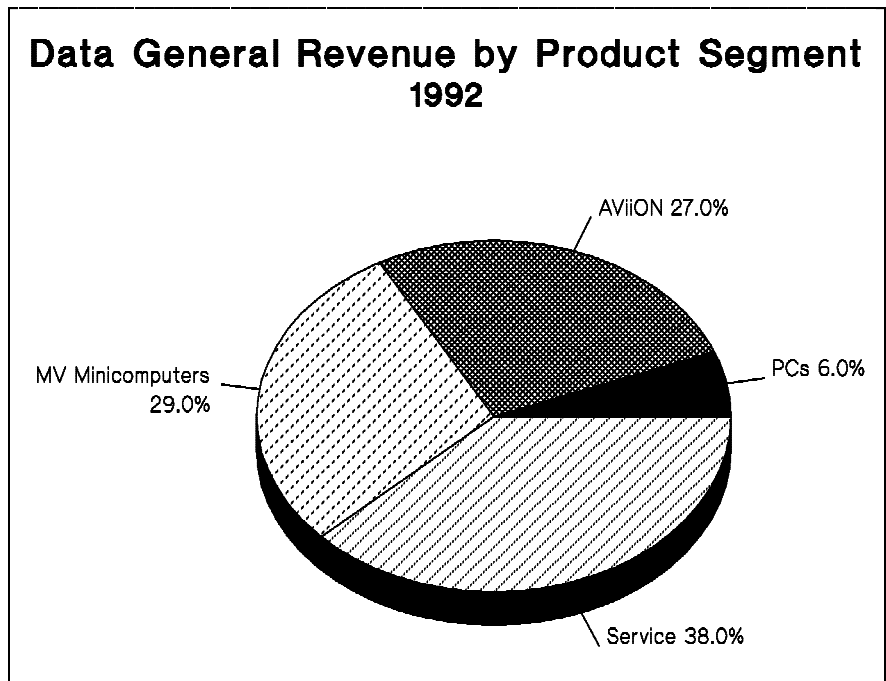
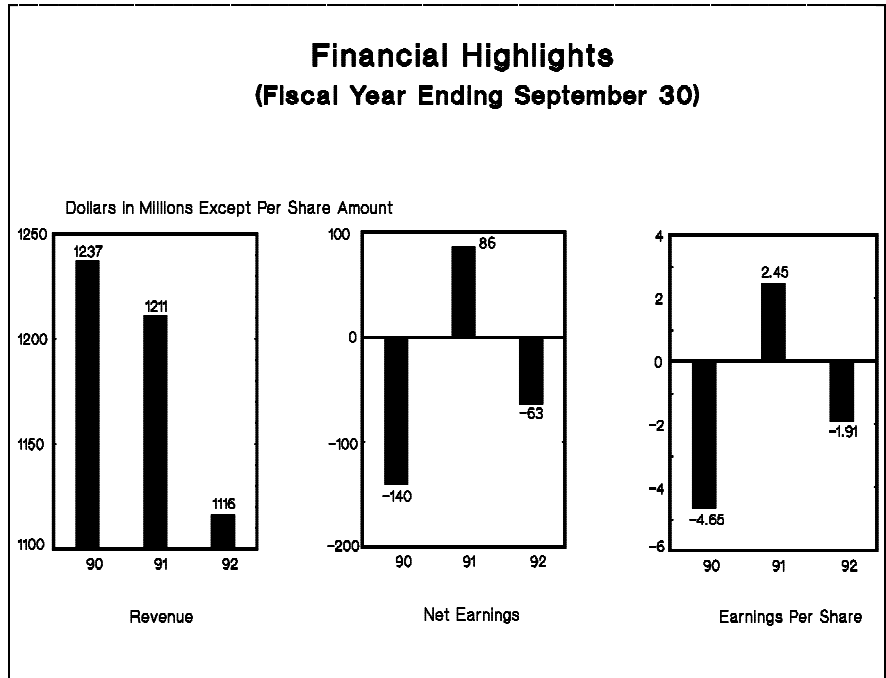
Corporate overview

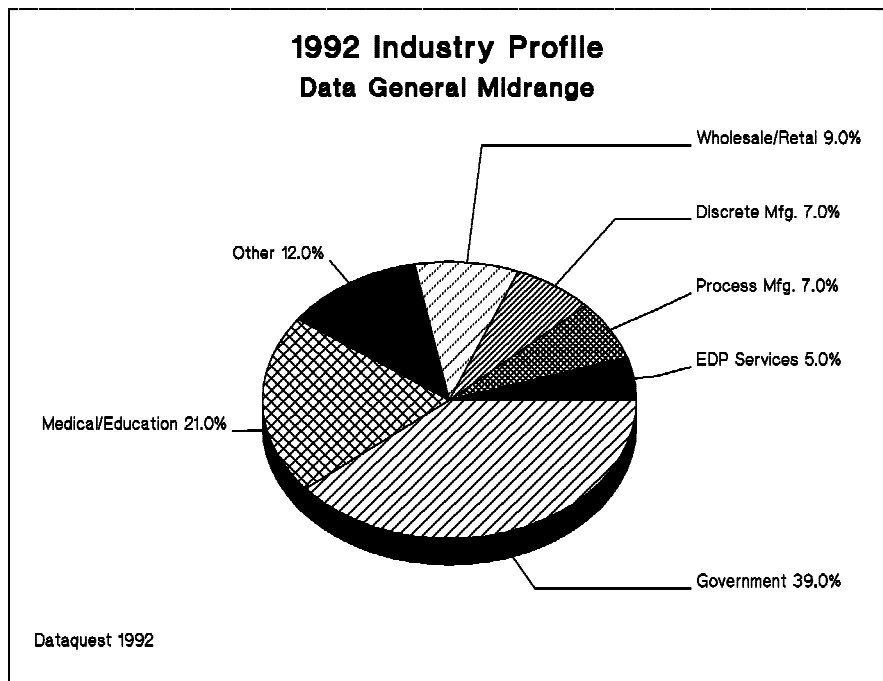
Data General, founded in 1968, is a worldwide company that designs, manufactures, sells, services, and supports multiuser computer systems and servers. Data General's range of products and services include database servers, communications, networking, workstations, desktop, and portable systems. These products are used in a variety of applications in business, government, health care, and scientific areas. Data General's systems are grouped into three product families: the 32-bit ECLIPSE MV family, the 32-bit AViiON systems and workstations, and the DASHER family of personal workstations. The AViiON series was introduced in February 1989. It employs the Motorola 88000 RISC microprocessor and runs under DG/UX, Data General's version of the UNIX[®] operating system. AViiONs were the first RISC-based computer systems that supported symmetric multiprocessing CPUs. Data General moved its focus away from the MV series towards the AViiON series whose sales have grown from \$200 million two years ago to \$300 million last year.

Over the last three years Data General reduced its cost structure considerably. But all the cost cutting and re-focusing hasn't helped to get Data General out of its financial trouble. For year end 1992, Data General reported a net loss of \$62.5 million. This loss includes a restructuring charge of \$48 million resulting from a workforce reduction. Also, Data General sold its Japan-based Nippon subsidiary in 1991, and revenues from the Japanese marketplace were reduced by \$53 million for 1992.

In September 1992, Data General established a business unit to market redundant arrays of inexpensive disks (RAID). The new unit markets Data General's CLARiiON family of open storage technology. During 1992, CLARiiON systems will ship to businesses that use IBM's RS/6000 and Sun's SPARC servers. In early 1993, CLARiiON systems will be available for UNIX-based systems from Unisys, HP, and ICL. Future plans include RAID systems for non-UNIX platforms such as IBM's AS/400 and mainframes.

Financial highlights





Data General has a large portion of their installed base in the government sector. In comparison, only 9 percent of HP's installed base is in the government sector. HP excels in the process and discrete manufacturing areas with 19 percent and 26 percent compared to Data General's 7 percent in each. All other sectors were similar for both companies.

Target markets

- government
- health care
- insurance
- retail
- manufacturing

Sales organization

Data General does business in more than 70 countries through direct sales, subsidiaries, distributors, and representatives. The company has 26 subsidiaries and almost 300 sales and service offices.

Data General's 21 year-old reseller program has a world-wide base of 1,000 VARs, 500 in the U.S. Data General does not designate vertical markets for its VARs. AViiON products may be purchased directly from Data General or VARs. VARs must purchase more than \$250,000 worth of equipment a year and discount levels are based on aggregate dollar volume at list price. Data General extends credit for VAR purchases including a comprehensive leasing program that can include the value-added by the VAR. Programs include a 40 percent discount on demonstration and development systems. For the first porting system, Data General offers a 50 percent discount with a 120-day money back guarantee. Master U.S. VARs include Western Microtechnology Inc., Hall-Mark Electronics Corp. and Gates F/A distributing and, in Canada, EMJ Data Systems.

VAR Market Development Services offer a menu of lead generation programs, seminars and trade show support. VARs that are eligible can participate in the VAR co-op program which provides funding of up to 100 percent for qualified advertising, direct mail, promotional literature, trade show participation, seminars and other promotions.

The greatest complaints voiced by Data General's VARs centered on lack of technical support, especially in the area of documentation.

VARBUSINESS 1992 Annual Report Card Review

The following reflects scores for multi-user platforms:

	HP	Data General
Products	7.87	6.99
Pricing	7.68	7.45
Support	7.16	6.41
Partnership	6.86	6.89
Overall Average	7.33	7.02

Strategic goals

- Establish a leading role as a supplier of industry-leading technology.
- Continue enhancement of the ECLIPSE MV family of computers.
- Gain market share for the AViiON series.
- Integrate customers' existing desktop systems and communication networks, regardless of vendor.
- Reduce cost by reducing headcount.

Major claims

- **Leading price/performance**
- **High-availability solutions for AViiON systems**
- **Superior disk array technology**
- **Supplier of standards-based UNIX**

Major product offerings

AViiON	
Customers	Commercial
Competition	HP, DEC, IBM, NCR, Sequent
Purchase Rationale	RISC-based symmetric multiprocessing, OLTP performance, disk array technology, low price

Product family positioning

Low-End Systems Performance Positioning

	Through 12-1-92				
HP 9000 Series 800	F10	F20 H20	F30,G30 H30,I30	G40 I40	G50 I50 I60
Data	4100	4600	4620	4320	5240
General	4300	4120		5225	6240
AViON	5200		6225	7000	8000
6200				8000	

Note: Transaction performance based on published benchmarks and OLTP estimates

Series 800 Entry-Level Performance Positioning

HP 9000 Series 800	F10	F20 H20	F30, G30 H30, I30	G40 I40	G50 H50 I50
Data	4300	4605	4625	5240	6280
General	5200		5225	6240	8000-8
AVIIION	6200		6225	7000 8000	

TPC Chart DG AVIIION Servers

Model	# CPUs	MHz	MIPS	TPS	\$/TPC-A	AIM III Users	Base Price
AV 4300	1	25	29		N/A	159	\$9,900
AV 4605	1	33	39		N/A		\$19,995
AV 4320	2	25	66		N/A	261	\$13,900
AV 4625	2	33	76	100.85 TPC-B	N/A	581	\$31,900
AV 5200+	1-4	25	29-117		\$11,498		
AV 5225+	2-4	25	58-117	50.8 TPC-A/75 TPC-B	N/A	476	\$43,500
AV 5240+	4	25	117		N/A	880	
AV 6200	1	25	29		N/A		
AV 6200-20	1-8	25	29-235		N/A		\$68,700
AV 6225-20	2-8	25	58-235		N/A		\$92,600
AV 6240-20	4-8	25	117-235		N/A	880	
AV 6280-20	8	25	235		N/A	1600	
AV 7000+	4	25	117		N/A		\$92,600
AV 8000	4-8	25	117-235		N/A		\$199,900
AV 8000-8	8	25	235		N/A		

Source: WorkGroup Technologies

Data General's installed base of AViiON systems as of April 1992 consisted of about 14,500 units, which included both workstations and

servers. More than 60 percent of them were systems under \$25,000. Analysts believe the AViiON series will grow about 30 percent to 35 percent over the next two years.

Hardware summary

Data General's AViiON product line consists of similar CPUs packaged in different housings. The current AViiON systems use the Motorola 88100 RISC 32-bit processor and the Motorola 88204 cache/memory management unit (CCMU); the top end of the product line can support up to 8 CPUs in a symmetric multiprocessing implementation.

Data General announced four new servers in July 1992. They are based on Motorola's 88100 RISC processor and are targeted at the UNIX midrange and high-end markets. The AV 6280 and AV 8000-8 incorporate eight-way symmetric multiprocessing. The AV 4605 and AV 4625, a dual processor, were also announced. All four systems can be delivered with Data General's new High Availability Disk Array (HADA) II subsystems.

The future beyond the 88110 is still uncertain. Motorola has not committed further enhancements to the 88000 chip and Data General might be forced to change to another core processor technology. Both HP's PA-RISC, Sun's SPARC, and the POWER PC chip are rumored to be likely candidates. If this processor technology switch occurs, Data General's AViiON customers will have no compatible growth path.

Data General's HADA II storage subsystem is the vendor's latest generation of RAID and runs on Data General's AViiON systems. It was introduced in July 1992 and is designed for uninterruptable performance during single disk drive failures and offering replace-under-power capabilities. It is packaged with five 500 M or 1 Gbyte 3.5 inch disk drives and holds up to 20 disks for a total capacity of 20 Gbytes. Multiple HADA II subsystems can be attached to Data General's AViiON systems. HADA II supports RAID levels 0, 1, 3, and 5 and also allows users to designate different levels to individual files. In Level 0, the data transfer from the host system is split up by the array controller and subsequently spread across each disk drive into segments whose size depends on the defined block length. Level 1 involves simple disk mirroring of data onto two disks. Level 3 writes information across several disks and stores parity information for data restoration. It is appropriate for large files that get moved into and out of the server frequently. Level 5, providing true fault tolerance, writes the data to several disks simultaneously, and provides a high level of security for applications involving large numbers of transactions.

Software summary

In July 1992, Data General released DG/UX 5.4.2, an enhanced version of Data General's Unix-based operating system. This latest version was primarily implemented to support eight-way symmetrical multiprocessing required by the AV 6280-20 and AV 8000-8, as well as the HADA II storage system.

DG/UX adheres to a variety of standards; FIPS 151-1 POSIX compliance, AT&T System V interface definition (SVID) issue 3 and Verification Suite (SVVD), X/Open XPG3, Sun's ONC/NFS 4.0, OSF/Motif 1.2, PEX 5.0, and IEEE POSIX 1003.1 specification. Also included is MIT X Window System Version 11 r 5.0.

Data General's Distributed Application Architecture (DAA) comprises open and transparent networks, distributed client/server applications and an object-oriented common user interface based on HP's NewWave environment.

Compilers include C, FORTRAN-77, and Pascal from Green Hills Software, Absoft's FORTRAN, Applied Logic System's ALPS Prolog, LISP from Franz, MBP COBOL 85, Micro Focus Cobol, and NKR BASIC.

AViiON Office Information Systems is a family of server-based office solutions. Currently, Data General's offering is based on Uniplex software and includes document processing, relation DBMS, group communication, time manager, personnel productivity, and presentation graphics for MS-DOS and UNIX devices. A new joint development and marketing agreement with Uniplex looks even more promising for AViiON. This involves Uniplex client-server office automation software, dubbed Medley. The AViiON system will be the first to offer this set of programs. It will support any standards-based microcomputer and UNIX workstation clients attached to AViiON servers, and will be incorporated into Data General's AV Office line of office automation software. It will also become the foundation of the company's AViiON Office Information Systems' client/server architecture.

In September 1992, Data General introduced MHS Gate Computer network software package which is LAN-based. It extends electronic mail capabilities by letting users of Novell's Message Handling System send mail to users on X.400 and TCP/IP networks. AV Object Office is a client office system built on HP's NewWave for DOS clients, Unix-based AViiON servers, and NetWare for AViiON. The September announcement also included AV Object Office release 2.

This is a Microsoft Windows based office application with the ability to access UNIX applications on an AViiON server, manage facsimile traffic and support alias message names and mailing lists for work with MHS Gate.

NeXT agreed to sell NeXT workstations with Data General's servers in order to better address customers' client/server needs. DG and NeXT say they will cooperate on client/server product developments, but did not elaborate on this. NeXT's NeXTSTEP object-oriented operating system will be useful to DG for prototyping multimedia applications. DG is porting NeXT's NetInfo network manager to manage resources on Unix networks.

According to analysts, Data General's office system for the AViiON is less sophisticated than HP's. It offers only a mail system and a platform for NewWave applications, but there are no next-generation object-oriented tools and no work flow automation applications included.

Data General licensed UNIX System Laboratories' Tuxedo System Transaction Manager Release 4.2, and its workstation extensions. Tuxedo is software that provides a framework for building OLTP applications on UNIX System V operating systems.

DG offers the following communication applications:

- LAN Manager incorporates LAN Manager/X and Microsoft's LAN Manager to connect MS-DOS and OS/2 based client PCs to AViiON servers.
- X.400 provides messaging capabilities in a multivendor environment using standard protocols.
- SDLC connects AViiON systems with systems using the SDLC link protocol in IBM SNA environments.
- SNA Token Ring enables AViiON servers to attach to an IBM SNA Token-Ring network and run 3270 or RJE emulators to access applications on IBM systems.
- SNA/3270 emulates 3270 terminals and 3286 and 3289 printers.
- API LU0, 1, 2, 3, 6.2 facilitates interactions between AViiON programs and programs that adhere to IBM standards.
- DG/UX also includes NFS 4.0 for Ethernet communications, TCP/IP and SNA/370, and SNA/RJE.

Data General's strategy is to pull away from software development and to focus on the basics. Data General enhances UNIX to make it stronger for the commercial customer. DG/UX 5.42 includes features like:

- Binary Compatibility Standard (BSC) established by the 88open consortium is maintained in DG/UX so that complete software portability will exist between the AViiON and all other BSC-compliant systems.
- Fast recovery file system on a per logical disk basis
- Auto boot after power and soft failures
- Auto restart of LAN, SYNC, and ASYNC controllers after controller-failure, without taking the system down
- Disk mirroring
- Optional support for high-availability disk arrays
- Dual-ported, high-availability disk arrays
- File systems that can span multiple disks (LVM)
- Software disk striping
- Dynamic tunable file system
- C2 and B1 security
- Support for TCP/IP, SNA SDLC, X.25, NFS, Token Ring, X.400, Novell's Portable NetWare, LAN Manager, DECnet, OSI, and Appletalk

For mission critical applications, Data General has announced a LAN support service designed to ensure high availability for networks. HealthNet provides LAN troubleshooting and management support. Included in this service are three modules: HelpNet provides a quarterly statistical report on network performance. WatchNet activates intelligent probes embedded in the network and tracks the activity around the clock. If a fault occurs, WatchNet alerts the customer to variances in preset thresholds. AdviseNet delivers monthly reports on network statistics from each network segment.

Data General is fast at implementing new, powerful operating system features, but new releases lack quality.

Competitive sales strategies

Parity	HP 9000 Strength (DG Weakness)	DG AViiON Strength (HP's Perceived Weakness)
<ul style="list-style-type: none"> -RISC computer family -Adherence to standards -NewWave PC support 	<ul style="list-style-type: none"> -Financially stable -Strong support and maintenance services -Breadth of product line -Strong third-party software support -Commercially oriented UNIX extensions -Leading OLTP performance -Reliability of systems -PA-RISC 	<ul style="list-style-type: none"> -Commitment to SVR4 UNIX -Price/performance -Excellent AIM benchmark numbers -Good disk array solution

The issues listed under parity reflect areas that may be important in sales situations, but both vendors offer equivalent products or services.

The HP 9000 strengths or Data General AViiON weaknesses reflect areas that HP should discuss and sell as being critical to the prospect's success. Being in the account first and discussing the importance of these items may set the criteria for a HP win.

Data General's strengths reflect what Data General will discuss. These may be HP's perceived weaknesses and HP can expect to be challenged on these issues. The "Handling objections" section discusses tactics to discount or turn these issues into an HP 9000 strength.

HP's strength against Data General

Financially stable

HP advantage:

HP is a \$16.4 billion company ranked 26 on the Fortune 500.

Customer benefit:

Data General ranks 295 of the Fortune 500 with 1992 revenues of \$1.12 billion. Net losses for the year were \$62.5 million and includes \$48 million restructuring costs associated with workforce reductions. Data General's future with the AViiON system is also dependent on the uncertainty of Motorola's 88K chip. HP offers a better investment as a long term partner both in the stability of HP and the products offered.

Support and maintenance

HP advantage:

HP has consistently been ranked number one in customer support by Datapro. The quality and reliability of HP equipment as well as the responsiveness and effectiveness of HP's service organization were major factors for being ranked number one.

Customer benefit:

Customers can be assured that they will receive quick and efficient response if they encounter software or hardware problems. These services are available around the world and around the clock. Data General does not have a network of response centers that guarantee person-to-person response, and they don't offer 24 x 7 operating system support. HP's customers can benefit from services like preventive diagnostics, which detect problems before they become serious and remote diagnostics that allow troubleshooting without a visit of HP personnel to the customer site. Data General does not offer these features.

Breadth of product line

HP advantage:

HP's Series 800 is the broadest RISC-based UNIX product line in the industry. The entry-level F10 is available for small work groups, while on the high-end HP offers the Corporate Business Server 890 for up to 4500 users.

Customer benefit:

The customer can choose a system that exactly fits his needs in terms of performance and connectivity. For growing business needs HP allows a smooth upgrade path. Our systems are binary-compatible and

many performance upgrades are just board swaps instead of box swaps. Data General's weakness is the high-end. As of this writing, Data General still doesn't offer products that could compete beyond systems like HP's 890 (2). The biggest advantage to the customer is HP's commitment to PA-RISC. This chip is being constantly improved and delivers strong performance gains. Data General will eventually move to a different chip set and that means that existing applications running on the AViiON systems will have to be ported to a new architecture.

Third-party software

HP advantage:

PA-RISC supports over 4500 applications today. It has thousands of applications across many industries in the commercial, manufacturing, engineering, and scientific markets.

Customer benefit:

Because many VABs, VARs, and ISVs choose PA-RISC as their development platform the customer will see new applications and updates to existing applications sooner than applications that will have to be ported to the AViiON series. And because we are the number one vendor of midrange UNIX systems, software companies want to be on the Series 800 platform, giving the customer the broadest set of functionality and applications to choose from.

Data General likes to say that all applications written for UNIX System V.4 will run on AViiON systems. But most of these applications are written for SCO UNIX and will have to be ported to DG-UX before they can run.

Commercial UNIX

HP advantage:

HP is ahead of Data General in enhancing the standard UNIX operating system to make it fit for the commercial customer.

Customer benefit:

When choosing HP-UX the customer can be assured of getting a robust, user-friendly operating system. HP adds features like a print spooling system, high OLTP performance, remote software maintenance tools, remote system maintenance, user-friendly system management tools, performance management tools, network monitoring tools, user-friendly and fast backup tools, high availability features, etc. Some of these additions are options to the standard operating system. Also, because of the popularity of the Series 800,

HP has a long list of software suppliers that offer data center management products for the Series 800. Data General offers some commercial UNIX features in the area of high-availability but they are not as robust and not as broad as HP's offerings. Data General does not have a long list, like HP, of software suppliers that sell commercial data center solutions for the AViiON systems.

Leading OLTP performance

HP advantage:

HP delivers excellent Online Transaction Processing Performance, as demonstrated in the industry-accepted benchmark for measuring commercial system performance, TPC-A.

Customer benefit:

Customers know how an HP system is going to perform in an OLTP environment, since we have published TPC-A numbers for nearly all of our Series 800 systems. Data General has only published one TPC-A number so far. Their TPC-A test ran in a client/server configuration (4320 client and 5225 server) and resulted in 50.89 TPC-A for \$11,498.

Reliable systems

HP advantage:

HP publishes mean time between failures (MTBF) and mean time to recover (MTTR) numbers for all of the Series 800 systems. HP is known for superior quality of systems and peripherals.

Customer benefit:

HP's reliability is outstanding and we can prove it. Data General does not publish MTBF or MTTR numbers, that leaves Data General's customers in the dark about the reliability of the AViiON systems. Single-processor systems are inherently more reliable than multiprocessor systems.

PA-RISC

HP advantage:

While HP systems are built around the stability and technological leadership of PA-RISC, Data General is dependent on Motorola's 88K chip. Motorola's R&D funding is focused on their new project with IBM and the PowerOpen chip.

Customer benefit:

The customer benefits by investing in technology that will continue to support their needs. Data General is now the only major system vendor to use the Motorola 88K chip leading many consultants to be concerned about Motorola's commitment to the 88K and consequently Data General's future architecture. Changing the core technology of AViiON systems may force Data General users into expensive and unproductive conversions.

Data General's perceived strength against HP

Handling objections

- Data General is a supplier of a true standards-based UNIX.

Counter with:

HP's leadership in technology innovation is substantiated by having a track record for having its technologies adopted as the base for standards (i.e. DCE, DME, Motif, NLS, etc.). With over 300 employees participating on various standards bodies, HP has the standards covered, and our technologies are setting the new standards.

- Data General has excellent price/performance for the AViiON systems.

Counter with:

It is true that HP can't beat the AViiON in price. It is Data General's goal to gain market share and they don't hesitate to give outrageous discounts. The list prices of their server systems are comparable with HP's and sometimes even higher, but the Data General sales teams will start giving 20 percent discounts without being asked for a price break. Don't try to win a deal on price, Data General will win this battle. Emphasize HP's strengths in the areas mentioned above.

- The AViiON systems show excellent benchmark results on the AIM performance benchmark.

Counter with:

HP as well as consultants like Gartner and Aberdeen agree that the TPC-A benchmark is the best way to measure commercial application performance for midrange computer systems. AIM is a company that maintains, executes and markets its own proprietary synthetic benchmark for UNIX systems. The synthetic benchmark simulates a multiuser environment by executing multiple background processes. No actual terminal I/O takes place. The benchmark burns CPU and performs dummy I/O. AIM does not use databases or indexed file systems. It is heavily oriented towards mathematical operations and simple file reads and writes, which are not the most significant factors in determining commercial system performance. The AIM benchmark programs are small and most likely fit into memory. A good example how misleading AIM benchmark results can be is the fact that the 835S outperformed the 850S. The 835S's faster clock and faster floating point processor and the nature of the benchmark, with programs that fit into memory caused the 850S to look bad. The tests showed that I/O and memory bandwidth are not stressed by the AIM benchmark.

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- Data General's disk array solution (RAID5) is better than HP's (RAID3).

Counter with:

The major difference between RAID3 and RAID5 is that the parity data in RAID3 is dedicated to one disk where in the RAID5 implementation it is spread over multiple disks. In the RAID3 implementation each data transfer is distributed on a byte-by-byte basis across all of the data disks. RAID5 executes reads and writes to the disk either in parallel or independently of each other, depending on the size of the transfer from the host system. The advantage that RAID3 has over RAID5 is the consistency of its performance. The RAID3 implementation is tuned for optimal performance for all applications, where the RAID5 implementation favors long data transfers over short data transfers. Performance predictability and consistency are very important for commercial applications.

Quotes

AViiON RISC processor

"But DG has a problem. When DG designed its RISC AViiON line, it chose the Motorola 88000 as its microprocessor. DG is the only major workstation vendor currently using the Motorola RISC chip. DG's choice of chips was a sound technical decision, but unpredictable market forces have left DG isolated."

Gary Andrew Poole
UNIX World
November 1991

"Its initial choice was wrong. DG is in a quandary."

Tom Kucharvy, president of
Summit Strategies
UNIX World
November 1991

"But to stay competitive, some analysts said, Data General needs to move beyond the Motorola 88000 platform. The 88K has attracted far less support than other RISC processors, and its future is uncertain."

Susan Fisher
PC Week
July 13, 1992

Data General's announcement to dissolve its integration business

"...,if the vendors and third parties want to prolong the lives of their proprietary products, they must aggressively investigate and execute strategies to integrate their old solutions into newer distributed and open environments. Networking and related services are mandatory. But I daresay the recent dissolution of DG's dedicated integration group, Data Solutions, is a troubling indication that the mission is far more difficult than originally anticipated."

Marianne Kolbasuk McGee
Systems & Network Integration
April 20, 1992

Open Systems Status

	DG	HP UX
INTEROPERABILITY:		
X.25 WAN	●	●
TCP/IP	●	●
NFS	●	●
OSI FTAM	●	●
MAP	○	●
X.400	●	●
X.500	○	●
OSI CMIP	●	●
Token Ring LAN Connect	●	●
Ethernet LAN Connect	●	●
PORTABILITY:		
Xti Transport Interface	○	●
POSIX 1003.1 Compliance	●	●
Standard Commands & Utilities	●	●
X/Open ISAM	●	●
X/Open Branding	●	●
C Language	●	●
COBOL Language	●	●
X Windows	●	●
X/Open NLS	●	●
SGL Database Access	●	●
TOTAL YES's (Out of 20)	17	20

● YES
○ NO

HP Systems have Robust Commercial Functionality

	Systems Management	High Availability	Office/Networking	CASE	Stds										
	Performance Tools	CD-ROM Program	Commercial Spooling	Network Backup	Powerfail AutoRestart	Disk Mirroring	SPU Recovery	Office Solutions	LMX	NetWare	X.400/UX Mail	X.500	GOSip	Comm. CASE	XPG3
HP 3000	●	●	●	○	●	●	●	●	●	●	●	●	●	○	○
HP 9000	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DG	○	○	○	○	●	●	●	○	●	●	○	○	○	○	○

● Complete ◐ Some ○ Nothing