COMPAQ



Ten reasons why you should choose Compaq for high-performance technical computing

 The Alpha[™] architecture, developed by Compaq, leads the overall HPTC market in revenue, while Compaq AlphaServer[™] systems are moving rapidly toward revenue leadership among HPTC midrange servers.

- Compaq supports the widest choice of operating systems Windows NT[®], DIGITAL UNIX[®], and OpenVMS[™] — with interoperability and connectivity programs to build seamless, heterogeneous computing environments.
 - Compaq VLM64 very large memory technology dramatically boosts database performance on AlphaServer systems.
 - 4. Compaq high-performance, affordable uniprocessor and multiprocessor Professional Workstation systems feature Alpha and Intel[®] CPUs and high-resolution PowerStorm[™] graphics for superior speed and 3-D imaging in CAE and visual computing.
 - 5. Compaq StorageWorks[™] products, with high-speed I/O interconnects (HiPPI, FibreChannel, UltraSCSI), offer the industry's best selection of high-performance, high-reliability magnetic and optical storage media.

6. Compaq system interconnect technologies, including ServerNet and Memory Channel[™], build powerful, clustered AlphaServer and ProLiant[™] systems with more than 100 Alpha and Intel processors to solve problems of any size or complexity.

7. Compaq GIGAswitch[™], MultiSwitch[™], and EtherWORKS[™] networking solutions deliver the highest-performance enterprise connectivity, integrating switched Ethernet, Fast Ethernet, FDDI, and ATM.

8. Compaq systems have the best price/performance, best reliability, and the lowest cost of ownership of all competing systems, as determined by industry analyst studies.

9. Compaq has one of the industry's largest networks of business, technology, software, and channels partners, dedicated to delivering the highest-quality customer solutions available.

10. Compaq Services, the world's largest and most respected computing service organization, and Compaq *Custom*Systems deliver, install, and support both off-the-shelf and special solutions around the world.

Answering the challenge

High-performance computing is insatiable. You can never have too many FLOPS, too much on-line data, too many megaHertz, or too short a response time. Whether you're simulating a combustion vortex in a diesel cylinder, mapping subsurface structures from seismic data, modeling protein functions in biochemical research, rendering thousands of special-effects frames for video or film production, or predicting international fund behavior in a global economy, you face the same challenges. The market continues to demand greater accuracy, better designs, shorter time-to-manufacture, and better returns on investment — while worldwide competition forces prices and margins ever lower.

In short, even as the complexity of your work spirals upward, you must produce more accurate results faster and for less cost.

To meet today's challenges, you cannot rely on mere promises of a bright future. You need systems now that deliver the highest performance and availability you can get at prices you can afford. You need applications that work today and that will continue to perform on tomorrow's platforms. You need to invest in hardware, software, services, and training that will pay off both now and as technology advances. You need the best there is and the best of what is to come.

Compaq and its partners give you both. Together, they provide the high-performance computing infrastructure, the software foundation, and the applications to address your most daunting tasks – today and tomorrow.

> "We recommend AlphaServer systems to our customers because Digital [now Compaq] provides robust systems and software. This gives users an easy transition to new upgrades of the Genetics Computer Group's Wisconsin Package for quicker access to new programs and enhanced functionality. Since Alpha is solidly 64-bit compliant, an investment made today will retain its value for a long time to come."

DNA fragment

rendered with

MOE - the

Molecular Operating Environment

Margaret Smith Vice President, Operations Genetics Computer Group, Inc., a subsidiary of Oxford Molecular Group



Compag gives users powerful platforms for high-end, compute-intensive

applications in mechanical design and analysis, simulation, and visualization.



Compaq systems: Driving high performance ever higher

Compaq widens your high-performance horizons with a choice of platforms that offer the highest scalability and broadest operating system flexibility in the industry. New Proliant 7000 and Proliant 8000 servers, with up to eight Intel Pentium II Xeon CPUs, handle most critical Windows NT applications with ease. Rack-mounted Compaq Professional Workstation clusters let you scale up the number of processors for demanding parallel computing jobs. And new AlphaServer systems and clusters, with the latest Alpha microprocessors, continue to raise the performance bar for both Windows NT and UNIX technical computing.

Image courtesy of Advanced Visual Systems, Inc.



Alpha systems' performance and PowerStorm graphics help engineers perform complex simulations quickly and easily. This image shows the flow of pressure around an impeller in a crystalliser.

"Our customers require the high-performance computing environment for our large analysis programs — as well as the high-end graphics/ visualization capabilities available with the Alpha platform."

David Clayworth, Visualization Developer AEA Technology In 1992, the Alpha architecture started a revolution in highperformance computing with the introduction of the industry's fastest microprocessors and its first 64-bit environment. Alpha microprocessors were immediately adopted as building blocks for the world's most powerful supercomputers. Across more than six years and three generations, Alpha systems have maintained a clear performance lead over competing architectures. Over the same period, Alpha software partners have amassed thousands of fast, 64-bit UNIX and 32-bit Windows NT applications, offering you the highest levels of speed and efficiency with the software that you know and trust.

Alpha 21264 — double your performance

The newest microprocessor from Compaq, the Alpha 21264, will keep you in the performance lead in the months and years to come. Four integer and two floating-point pipelines, out-of-order execution, improved branch prediction, highspeed data paths, and clock speeds of 575MHz combine to boost Alpha uniprocessor system performance to 30.3 SPECint95" and 47.7 SPECfp95" - as much as double the best marks from today's competing technologies. By the year 2000, Alpha speeds are expected to surpass 1,000MHz and performance to reach 100 SPECint95, extending Alpha ratings dominance.

Software choices fit your environment

Raw chip performance is only part of the story. The Compaq client/ server environments of Alpha and Intel workstations and servers offer the best turnaround, throughput, scalability, and operating system flexibility among today's highperformance architectures.

The rich software environments from Compaq include DIGITAL UNIX, the industry's most standards-compliant UNIX system; OpenVMS, the industry's most production-tested, missioncritical 64-bit platform; and Windows NT, the fastest-growing operating system for high-performance applications, supported by the Compaq and Microsoft* Alliance for Enterprise Computing. With Compaq, you enjoy not only the widest choice of software platforms of any manufacturer, but also, through the AllConnect and Affinity programs, the flexibility to deploy mixed environments of Alpha or Intel Windows NT clients and highly scalable AlphaServer systems running DIGITAL UNIX or OpenVMS software.

Analyze, simulate, visualize

Compaq Professional Workstation systems give you the most powerful platforms in their classes for highend, compute-intensive applications in design analysis, simulation, and digital content creation. The new Professional Workstation SP line, with one or two 450MHz Pentium II Xeon processors and the Compaq Highly Parallel System Architecture, delivers the highest Windows NT performance of all industrystandard workstations.

Compaq Alpha Personal and Ultimate Workstations, sporting 600MHz Alpha processors, consistently win in comparisons against competing UNIX or Windows NT platforms. A dual-processor Ultimate Workstation scored the top mark of 6,625 in HKSI's ABAQUS/ Explicit benchmark during a recent test of systems from five manufacturers. The Compaq Professional Workstation XP line, powered by the new Alpha 21264 chip, will soon extend Alpha workstations' undisputed industry performance leadership to new heights.

Image courtesy of Parametric Technology Corporation.



"With Alpha and Pro/ENGINEER, we're turning ideas into products in record time. We have a superb development environment for engineering development and 3D modeling."

Paul Ihn Senior VP of Engineering Automatic Products international (Api)



Fast and affordable PowerStorm graphics accelerators give creative and technical professionals the realtime graphics performance and features to solve complex 3-D analysis problems quickly. With patented anti-aliasing, overlapping transparency, and background reflection mapping, they guarantee superior clarity for model and scene realism. PowerStorm products are optimized for DIGITAL UNIX and Windows NT operating systems and accelerate all OpenGL applications, including mechanical design pre- and postprocessing, 3-D GIS, animation, simulation, and scientific visualization.

Reach for the stars

Perhaps nowhere else is the Compaq 64-bit advantage more evident than in AlphaServer technology. For all-out productivity in special effects creation and animated image rendering for today's video and film productions, AlphaServer RenderTower[™] and ImageTower[™] rackmount configurations from Compaq CustomSystems bring to bear the floating-point performance of multiple, 600MHz Alpha processors on the most power-hungry DIGITAL UNIX or Windows NT applications. Supporting up to 16 CPUs, 32 GB of memory, and 51.6 GB of disk storage,

RenderTower systems come with critical parameter monitoring and compiler optimization tools that maximize rendering speed and minimize response time. With up to four CPUs, 8 GB of memory, and sustained PCI I/O bandwidth of 400MB/sec, ImageTower systems take rendered images and composite them with the same speed-up, heightening both creativity and your ability to meet unforgiving production schedules.

Top performance — made easy

Top-of-the-line AlphaServer 8200 and 8400 systems now bring you blazing Alpha 21264 performance in highly scalable configurations containing from one to 14 processors, all of which can be applied to a single task to slash time to completion dramatically. In tests conducted using the ABAQUS Explicit design analysis application, an AlphaServer 8400 6/575 system delivered more than 2.2 times the performance of a similarly configured SGI Origin 2000 system.

Compaq also makes getting Alpha 21264 performance easy for current AlphaServer 8X00 customers. With a simple board upgrade, AlphaServer 8X00 systems gain computing speed and throughput immediately with real DIGITAL UNIX and Windows NT applications, without any porting or rewriting of code.



Multiprocessor Compaq ProLiant servers handle business critical Windows NT applications with ease. The Compaq 64-bit Alpha architecture pushes address capacity to four billion times that of prior systems, enabling AlphaServer systems to address directly the entire contents of multi-terabyte databases for spatial operations, financial modeling, and clinical trial applications. In addition, with VLM64 Very Large Memory technology, you can put an entire simulation dataset or an information database into main memory and execute simulation or inquiry applications hundreds or even thousands of times faster than applications that rely on disk access.

At NASA's Goddard Space Flight Center, NASA and European Space Agency researchers use Alpha workstations and servers to process data on the sun's behavior from the Solar and Heliospheric Observatory (SOHO) satellite. The Alpha systems decompress and reformat image data in a fraction of the required time and are used to construct time-lapse "movies" of solar flares and other activity, which are shared with solar scientists all over the world.

No-compromise power, high availability

If your computing needs outrun 14 Alpha CPUs, TruCluster and Memory Channel technologies enable you to cluster as many as eight high-end AlphaServer 8400 systems, putting up to 112 processors at your command. Memory Channel extends AlphaServer performance beyond the limits of a single, shared-memory system by implementing virtual shared memory across all connected SMP nodes. Memory Channel clusters can provide more than 100 GFLOPS of peak floating-point performance, while improving latency and bandwidth over standard clusters.

Further, if one system goes down, other clustered systems protect data integrity and maintain availability more securely than any standalone solution.

Compaq *CustomS*ystems experts can also provide "clusters in a box" – large multiprocessor configurations specifically tailored for floating-point-intensive, technical applications.

And that's not the end of Alpha scalability. The agreement between Compaq and Quadrics Supercomputers World Ltd. opens the way to use Quadrics' high-performance interconnect technology and parallel operating environment to implement massively parallel processing (MPP) on the AlphaServer UNIX platform. Up to 128 AlphaServer systems can be configured to deliver multi-teraFLOP performance to attack the world's most challenging computing tasks.

Storing and moving your data — fast

High-performance computing applications often generate massive amounts of data and require very large storage facilities to preserve, manage, and make data available. Compaq StorageWorks products employ magnetic and optical media in simple, modular RAID and jukebox systems that let you add "drawers" of storage capacity — up to 40 terabytes as your needs dictate. With the GigaSwitch high-speed interconnect and broad support of networking standards, Compaq also provides high-speed links among all your systems for database updates, sharing data among applications, and remote access in heavytraffic environments. Compaq also supports the 6400MB/sec Gigabyte System Network technology being developed under auspices of the U.S. Department of Energy. The new standard complements Compaq's arsenal of high-performance interconnect solutions, including Ultra-SCSI, HiPPI-800, Memory Channel, and FibreChannel. In addition, Compaq is a member of the Highperformance Networking Forum (HNF), an industry association dedicated to promoting high-performance networking technologies.



Premium performance – at prices you can afford

Compaq systems' industry-leading performance, up to three times that of the competition, comes at prices often lower especially over the long term — than competitors' comparably equipped systems. Compaq surrounds its world's-fastest Alpha engine with industry-standard buses and interconnects that accept low-cost, off-the-shelf peripheral devices, driving down system costs to commodity levels. Not only are initial purchase costs minimized, but sourcing and attaching lowcost I/O devices, additional memory, and greater storage are also easy and cost-effective.

The Spatial Sciences Research Center at Indiana University in Pennsylvania chose MapInfo Professional running on the Alpha Personal Workstation for both power and price/performance. Performance increased nearly four times that of x86-based systems in buffering and display operations, making the Alpha system ideal for modeling, spatial analysis, and facilities management applications.

Lower cost of ownership

A recent Answers Research, Inc. study showed that for a wide range of Alpha servers running DIGITAL UNIX, the total cost of ownership – an important factor in maximizing return on investment – was up to 63 percent less than that for the most popular competing RISC UNIX brands. The Alpha advantage was evident in each of the most significant phases of ownership – acquisition cost, service and maintenance, and expansion.

Compaq also achieves greater overall economy by enabling you to integrate low-cost Windows NT workstation and PC clients into your high-performance computing network for visualization, software development using Digital Visual Fortran, or office productivity. Alpha servers and workstations offer a common platform for both Windows NT and UNIX, and the Compaq AllConnect[™] family of integration, development, and migration tools simplifies application interoperability between UNIX and Windows NT environments.

"This [Alpha 8400] is the fastest SMP system we've run on, and we've run on almost all of them. This box screams."

Mark Seager Project Manager Lawrence Livermore National Labs Both Alpha and Intel Professional Workstation systems from Compaq can be configured with high-speed interconnects in modular, easily scalable "farms" at affordable prices. The industry's best uniprocessor floating-point capability enables clustered Alpha workstations to deliver multi-GFLOP performance for research, finite element analysis (FEA), 3-D animation, and other parallel applications.

"The power and price/performance of 64-bit Alpha computers simply blow away everyone else's systems. We chose Digital [now Compaq] for its true technology advantages and its readiness to fully partner with us. Our decision has paid off for us, our customers, and consumers."

David Zink Vice President, MIS Schering-Plough Company HCP Division

AlphaServer 8400

Building high-performance solutions

No one disputes the fact that applications are the sine qua non of a successful solution. Compaq has long recognized their central importance by working internally and with industry-leading third parties to deliver the application software, services, and development resources that complement Compaq systems and drive high-performance computing in major industries and market segments.

"The Alpha systems represent an excellent way to achieve multi-GFLOP performance."

Professor Matthew Bailes Director

Astrophysics and Supercomputing Group Department of Biophysical Sciences & Electrical Engineering Swinburne University of Technology, Melbourne, Australia Partnering with independent solution providers is a time-honored practice at Compaq. Whereas Compaq supplies the physical infrastructure, operating system foundation, and many development tools to build your solution, Compaq software partners design and implement the market-specific applications and the expert support that enable you to deliver on the promises of high-performance computing. Drawing on relationships that extend back in some cases for decades, Compaq and its partners provide leading solutions in all highperformance computing disciplines and market segments, including:

Bioinformatics: Compaq combines its industrial-strength, productionquality, scalable Alpha systems and clusters with a strong portfolio of bioinformatics applications that include offerings from partners such as Advance Visual Systems, Incyte Pharmaceuticals, Oxford Molecular/ GCG, and Southwest Parallel Software, along with over 60 optimized codes including BLAST, FASTA, SWAT, and PHRAP. Compaq Internet and networking applications are a key component of the total solution.



Alpha systems support power-hungry data visualization and analysis applications, and computational tools.

•

Cheminformatics: To address the needs for chemical data and information, which have exploded with the deployment of combinatorial chemistry and high-throughput screening techniques, Compaq teams with leading software firms like ChemDesign, Daylight Chemical Information Systems, MDL Information Systems, Oxford Molecular Group, and alliance partner Oracle®. Compaq offers well tested, robust, 64-bit Alpha and StorageWorks solutions to handle the growing volumes of data.

Clinical trials data management:

AlphaServer and TruCluster" systems running DIGITAL UNIX, OpenVMS, and Windows NT provide the large database performance and high reliability that are essential to capture and preserve test data in the regulated clinical science environment. Compaq works in concert with partners such as Domain Solutions, Oracle, and SAS Institute.

Computational chemistry:

Compaq works with application partners such as Gaussian, Oxford Molecular Group, SemiChem, Wavefunction, and others to provide the best computational performance needed to solve structures, properties, and reactions of small and large molecules. Compaq provides a full range of solutions from Alpha workstations to large Memory Channel clusters of symmetric multiprocessing AlphaServer systems. Digital content creation: Compaq offers its Alpha and Intel workstation clusters and farms, with industryleading price/performance, in conjunction with 3-D image rendering software from partners including Alias/Wavefront, Avid Technology, Kinetix, Newtek, and Pixar, plus compositing software from firms such as Eye-On Software, Adobe Systems, and Discreet Logic. Alpha workstation farms have been used by special effects studios for such blockbuster films as Titanic, Men in Black, Tomorrow Never Dies, and Spawn, as well as for many other films and television commercials.

Electronic design automation (EDA): For IC semiconductor and IC systems designers who manufacture or use integrated circuits, Compaq offers an IC Solution Set comprising superfast Alpha servers and workstations utilizing IC CAE, verification, and device/process simulation software from major industry partners including Avant!, Mentor Graphics, Synopsys, TMA, Silvaco, and Vector Technology.

"Compaq VAX and Alpha systems have been major players in Utilities Energy Management for the past fifteen years. In fact, our analysis shows that 65% of the world's power is controlled by systems from Compaq and its partners"

Chuck Newton President Newton-Evans Research, Inc.



The reliability and availability of Compaq Alpha systems offer the utility industry a sound investment for energy management and distribution.

Energy management: Working

with partners such as ABB, CAE, Cegelec ESCA, Elsag Bailey, and Landis & Gyr, Compaq has achieved the leading position in the Energy Management System/Supervisory Control and Data Acquisition (EMS/ SCADA) market. Compaq platforms are used in 65 percent of the world's energy management control centers installed since 1992.

Financial modeling/risk manage-

ment: Whether analyzing a global trading portfolio with analytics from Infinity or the risk profile of an entire financial enterprise with RADAR from Risk Management Technologies, financial managers have a distinct edge with Compaq Alpha platforms. The leading software in the financial services industry performs at record speeds no matter how large the database, how complex the analytics, or how demanding the visuals. Partners like Neovision Hypersystems, OMR, Quantitative Risk Management, TIBCO, Visual Numerics, and Wall Street Systems depend on Compaq systems' unsurpassed performance.

Geographic Information Systems

(GIS): Compaq and its software partners, including ERDAS, ESRI, MapInfo, and SmallWorld, enable customers to achieve better management of spatial data – economical production of maps, satellite imaging and classification analysis, accurate modeling of plumes of underground pollution, flood probability analysis of land parcels, and route planning for emergency response.

Engineering design and analysis:

The extreme performance required to conduct simulation in Virtual Product Development environments has made Compag a leader in the engineering design and analysis market. To shorten time-to-market and improve product fitness-for-use, leading mechanical computer-aided engineering applications optimized for Alpha include software from AEA Technology, ANSYS, Computation Dynamics, Fluent, Hibbitt Karlsson and Sorensen, Livermore Software Technology, MacNeal-Schwendler, MARC Analysis Research, Mecalog SARL, PAM Systems International, and more.

HPTC application development and

management tools: To develop customized applications in-house for UNIX systems, Compaq offers ANSI C developer's toolkit for DIGITAL UNIX, Fortran (OpenMP Directives), C++, Ada, KAP for Fortran and C, The Enterprise Tool Kit (UNIX application development from Windows NT desktops), PSE (includes PVM, MPI, HPF runtime), DXML, OpenGL, Performance Visualizer, TruCluster MEMORY CHANNEL" software, Digital CPI, and LSF. Compaq software partners offer math libraries (NAG, IMSL, FMS, CPLEX), TotalView, VAST, Linda, KAP/Pro Toolset, FORGExplorer, CacheVU, VAMPIR, CODINE, and GRD.

Compaq Professional Workstations can be assembled in rackmounted clusters to attack compute-intensive tasks such as 3-D animation and image rendering computer aided engineering, and financial analyses.

For Windows NT, Compaq offers Visual Fortran (with IMSL), Visual Batch, KAP for Fortran and C, Digital CPI, and OpenGL. Compaq software partners offer CacheVU, FMS, FORGExplorer, VAST, KAP/Pro Toolset, LSF, PaTENT MPI, Microsoft Visual C++, MPI/Pro, NAG, and PVM. Other complementary application development tools that include visualization and interactive mathematical tools can be obtained from other software partners for both UNIX and Windows NT.

"The rendering time for Werewolf was cut nearly in half by using the RenderTower system running 64-bit DIGITAL UNIX. No question about it: the Alpha Boxes are the fastest around for the money."

Bruce Jones Executive Producer and Vice President of Production Santa Barbara Studios Santa Barbara, CA



Investing in your future — safely

Compaq high-performance systems continue to gain new customers and increase market share. International Data Corporation reports that Compaq has moved into second place in the worldwide high-performance computing market, as the Alpha architecture took the top spot in overall highperformance system revenue for 1997 with a 26.4% share and Alpha sales swelled to account for 35.8% of highperformance midrange revenues.



Sustained leadership

Having already established six years of microprocessor performance leadership, Compaq has the products and the designs to sustain that leadership well into the 21st century, ensuring that you, too, stay on the leading edge.

Scalability

Unequaled Alpha scalability, from Windows NT workstations to clustered servers and MPP supercomputers at the high end, offers you virtually unlimited possibilities for growth.



The compute and graphics power of Windows NT on Alpha systems lets MultiGen-Paradigm's Vega^{*} visual simulation software run at unparalleled speed.

"Our new Alpha Personal Workstations enable us to build terrain models while decision-makers watch the screen. The entirely scalable Alpha environment enables us to do more with fewer personnel.We are building a whole new generation of GIS on our Alpha platform. It's a great move."

Frits C. Cattenstart GIS Systems Analyst Ministry of Agriculture Service for Land & Water Management, Utrecht, The Netherlands



Common UNIX development environment

DIGITAL UNIX software on Alpha offers you the most advanced, application-rich, standards-compliant 64-bit computing environment available today, plus compatibility with tomorrow's IA-64 architecture. Compaq is working with Intel and Sequent to design a common development environment for DIGITAL UNIX on Alpha and future IA-64 systems from a variety of vendors. DIGITAL UNIX thus offers a one-step, least-risk application development process for both Alpha and IA-64, ensuring that today's DIGITAL UNIX software investments pay dividends with tomorrow's high-performance technologies - and save you from future migration headaches.

Windows NT support

Both Alpha and Intel platforms from Compag give you access to a portfolio of thousands of Windows NT applications today, plus a uniform environment to develop and run 64-bit Windows NT applications on Alpha and IA-64 systems tomorrow. Many compute-intensive and database applications are available now on Windows NT and the number is growing rapidly, ensuring that Compag Alpha and Intel workstations and servers will continue to be your ticket to top performance. Compaq also actively supports mixed environments of Windows NT clients and UNIX servers.

Windows NT strength was a factor in the Indianapolis/Marion County (Indiana) government's choice of an Alpha and ESRI client/server GIS solution, which provides both the scalability to accommodate more users and the ability to switch operating systems without changing hardware for unmatched flexibility and investment protection.

Alpha Windows compatibility

Digital FX!32 translation software extends Alpha compatibility to all 32-bit Windows applications, including popular personal and office productivity suites. With Alpha, you can run Windows NT applications for simulation and visualization as well as write analytical studies and project reports — on the same system.

Custom solutions

Compag CustomSystems helps you solve your particular IT problems with a range of added-value offerings geared to emerging opportunities in communications, enterprise high-availability, Internet, manufacturing, and government/defense industries. CustomSystems tools to build ready-to-go systems for high performance, high-speed networking, high-speed backup, disaster recovery, and many other special needs encompass best-of-breed tools from Compaq, its partners, and more than 30 years of experience in delivering custom solutions.

Service

Compaq Services helps you plan, design, implement, and manage your hardware, software, and networks — from asset acquisition to product replacement or retirement. Seven-by-24 support from Compaq Services is available in more than 100 countries — not just for Compaq systems but for all your equipment, giving you a one-call service vendor. We stand behind our products, with a one-year warranty for AlphaServer systems and a three-year hardware warranty for Compaq workstations, which is unmatched in the industry.



The speed and scalability of Alpha systems helps geographic information systems users to improve management of spatial data and boost productivity. "Science seeks to reduce the time to discovery. Powerful computers and high performance graphics are critical to achieving this goal. Our institute uses Alpha graphics workstations and servers because they enable us to produce solutions in the shortest time possible."

Dr. Duilio Cascio Research Faculty Member Molecular Biology Institute University of California at Los Angeles ** We wanted to connect to a single server that had the processing power and memory capacity to access a terabyte of data or more under high stress, high volume Internet activity. You can put more memory and CPU power in a Compaq system than any other single CPU on the planet – that's what makes the Compaq story important." Tom Barcley, TerraServer Project Director, Microsoft[®] Corporation

"We are seeing a significant growth in Windows NT® installations of our products. It is increasingly common for engineers and designers to use a Windows NT desktop system for design and pre- and post-processing, while still using a large Alpha cluster for their large CFD simulations. Compaq, by offering both environments, makes it particularly easy to support the mixed Windows NT and UNIX® environment."

Dipankar Choudhury, Director of Development, Fluent, Inc.

"The large-scale migration to network computing is fueling demand for powerful servers. With the Alpha 21264 processor, our joint customers will be able to solve their most complex problems faster. Oracle's Alpha engineering organization has worked closely with the Alpha design team to optimize the performance and scalability of Oracle's products, including Oracle8", Oracle* Applications, and Oracle Video Server."

Gary Bloom, Senior Vice President, Systems Products, Oracle Corporation

The Compaq 3D Alpha system is an ideal platform for determining and displaying macromolecular structure. This structure of Thiaminase-I, an enzyme implicated in causing beri-beri, was refined using XPLOR (from Axel Brunger, Yale University) and displayed with Ribbons (developed by Mike Carson, University of Alabama).

Closing the loop

For more information about Compaq highperformance solutions, check the Compaq high-performance computing Web site at http://www.digital.com/info/hpc

For the name of your nearest Compaq sales representative or Authorized Compaq Business Partner in the U.S., call 1-800-DIGITAL. In other countries, locate your nearest contact at http://www.digital.com/info/hpc and click *"How to buy."*



"There is not a **workstation on the planet** – Silicon Graphics included – that can **keep up with Alpha** workstations. In our industry, the supremacy of Alpha workstation technology is **an established fact**." – **Gary Davis, President, Animation House, Inc.** This is a partial listing of Compaq partners. For a comprehensive listing, please see http://www.partner.digital.com/www-swdev

ABB ADVANT CADOPS IMS P&SS PMS Poolbase PTS SPIDER

ADINA R&D, Inc. The ADINA System

ADRA MATRIX

Advanced Visual Systems, Inc. Δ\/S5¹¹ AVS/Express®

AEA Technology CFX4[™] CFX5/TfC™ CFX/TASCFlow

uting Altair® Comp Hypermesh Optistruct® Optris™

ANSYS, Inc. ANSYS/ED™ ANSYS/EMAG ANSYS/FLOTRAN™ ANSYS/LinearPlus™ ANSYS/IS-DYNA™ ANSTS/LS-DTNA ANSYS/Mechanical™ ANSYS/Multiphysics™ ANSYS/PrepPost™ ANSYS/ProFEA® ANSYS/Structural ANSYS/Thermal™

ApoCom ApoCom GRAIL"

Applied Biosystems ABI PRISM Bio LIMS

Applied Parallel Research, Inc. CacheVU FORGExplorer

Applied Terravision ProdScan WellScar

Argonne National Labs MPICH

Aspect Development EXPLORER Explorer CIS VIP

Aspen Technology, Inc. ASPEN PLUS® SPEEDUP®

Autodesk, Inc. AutoCAD® Map™ Autodesk® MapGuide™ Autodesk® World™

Avant! Hercules[™] HSPICE MetaWaves PureSpeed[®] Star-R[™]

AVL List GmbH NIDYN

RRN

*See Domain Solutions Corp. Beilstein Information Systems Crossfire™

Bentley Systems, Inc. Enterprise Navigator MicroStation® 95 MicroStation® GeoGraphics[™] MicroStation® GeoGraphics[™] MicroStation® Modeler® MicroStation® MoldDesign MicroStation® SE MicroStation® TriForma ModelServer Continuum™ ModelServer Discovery™ ModelServer Publisher

BIOMOS GROMOS 96

Brookhaven National Lab Protein Data Bank Rasmol

CAE, Inc. EMS/DMS/SCADA Plant Simulation

Cambridge Data Centre Cambridge Structural Database

CambridgeSoft ChemOffice MOPAC

Cegelec/ESCA EMP OASIS TRAD-R

Centric Engineering, Inc. Spectrum Spectrum Visualizer

Century Computing, Inc. OpenELT™

CERN CERNIib

C-Flow, Inc. C-FLOW СНАМ Phoenics Chemical Computing Group MOE Environment

Chemical Design Limited Chem-X™

China National Petroleum Corp/ Globe Exploration Services GRIstation GRIsys

Compugen BioAccelerator Computation STAR-CD™ STAR-HPC al Dynamics, Ltd.

Computational Engineering, Inc.

Ensight Configured Energy Systems CrewMan Opmodel Outage Management SwitchMan TroubleMan

Connext Distribution Automation

Cooper & Chyan Technology IC Craftman SPECTRA

CPLEX Division of ILOG CPI FX" CSAR

CSA/NASTRAN Daresburg Laboratory/University of Toring CRYSTAL 95

Daylight Chemical Information Systems, Inc. SMARTS SMILES SMIRKS

Dolphin Interconnect Solutions TimeScan TotalView™

Domain Solutions Corporation Clintrace Clintrail™ IMPACT™ PROBE

Dynamic Research Visual Magi

RS/Series

Dynamic Software Optris[™] EDS-Energy Mgmt. Assoc. PROMOD/PROSCAN

Elsag Bailey EMS/SCADA SYMPHONY EMASS (Raytheon E-Systems)

Engineering Mechanics Research Corp. NISA Family

Engineering Technology Associates, Inc. Eta/VPG Solver™

Enterprise Software Products FEMAP

Environmental Systems Research Institute, Inc. ARC/INFO® ArcView[®] GIS Spatial Database Engine™

Epic Design Path Mill POWERMILL Time Mill

ERDAS, Inc. ERDAS IMAGINE® ERDAS MapSheets IMAGINE VirtualGIS

Flow Science, Inc. FLOW-3D[®]

Fluent, Inc. FIDAP™ FLUENT™ FLUENT™/UNS Geomesh lcepak NEKTON™ Polyflow

RAMPANT"

Tgrid™ Fraser Williams Systems IMPACT™ Gaussian, Inc. Gaussian® 94, 98

GaussView Genetek Earth Resources Earthworks Genetics Computer Group, Inc.

Wisconsin Package"

Genias CODINE® GRD™ Patent MPI Global Phasing Ltd. BUSTER

SHARP Harvard University CHARMM

Hauptman Woodward Medical Institute Shake N Bake Hibbitt, Karlsson & Sorensen ABAQUS®

Hypercube Hyperchem®

IBM Visualization Data Explorer ICEM CFD Engineering

ICEM CFD" Incyte Pharmaceuticals, Inc.

LifeSeg® Intelligent Light, Inc. FIELDVIEW™

Intes, GmbH PERMAS

Iowa State University GAMESS ITRON Automatic Meter Reading

Jozef Stefan Institute MAIN

KBS2, Inc. LS-DYNA (NT)

KHORAL Research, Inc. Khoros Pro Kuck and Associates, Inc. KAP/Pro Toolset™

Visual KAP Visual KAP for Open MP. C++ Landis & Gyr

Telegyr Landmark/Western Atlas OASIS

VIE Laser-Scan, Inc. Gothic ADE VTRAK™

Livermore Software Technology Corp. LS-DYNA™ LS-Taurus

Logica SCADA WMI

Los Alamos National Lab Sigma Lucent Technology Clover

MapInfo Corporation MapInfo Professional™ SpatialWare™

MARC Analysis Research Corp. MARC[®] MARC[®]/AutoForge[™]

Mentat[®] MathSoft S-PLUS®

Mathworks, Inc. MATLAB®

MDL Information Systems, Inc. Central Library Crossfire ISIS Host MDI Screen¹¹ Project Library

Mecalog Sarl RADIOSS Mechanical Dynamics, Inc. ADAMS®

Medical Research Council Staden Package

Mentor Graphics Calibre - IC Verification Merak Projects

Metaphase METAPHASE[®]

МІТ PV/3 MIT Whitehead Institute Gene Hunter Gene Hunter RHMapper STS Pipeline View

Moldflow, Inc. Dynamic Series Parts Advisor

SAIC, Inc. RELAP SAIPMS Molecular Applications Group GeneMine™ SAMTECH S.A. SAMCEF

Molecular Simulations, Inc. X-PLOR

MolSoft MPI Software Technology, Inc. MPI/Pro™

Sanger Center

SAS Institute Inc SAS/PH-Clinical™

Schrodinger, Inc.

Scientific Atlanta

Load Managemen

Scientific Computing Assoc Linda®

Scientific Software Intercomp Petroleum Workbench SIMEASE

Schlumberger/Intera FCLIPSE

SAP I/S-U

Jaqua

SCT, Inc. BANNER[®]

SEMA Plant Monitoring

Semichem, Inc. AMPAC™/Pro

Severn Trent, Ltd

Smallworld Systems Smallworld GIS™ Smallworld View™

Structural Research COSMOS/M®

Sybperl PerlScript Compiler

Syseca, Inc. SCADA

TerraSciences TerraStation

MSC/MVISION®

MSC/NASTRAN[®] MSC/PATRAN[®]

MSC/Supermodel

respective owners.

AutoDock

XtalView

TMA Medici

Tessera Market Intelligence

The MacNeil-Schwendler Corp. MSC/AIRIES® MSC/DYTRAN® MSC/FATIGUE

The Scripps Research Institute

SunGard Capital Markets

Synopsys, Inc. Design Compiler™ Series FPGA Compiler FPGA Express Synthesis - Design Compiler VSS™

Southwest Parallel Software SPS Crossmatch SPS PHRAP

products distributed by Oxford Mole-

Smithsonian

SPS SWAT

cular

SPSS

SPSS®

Panorama

Paup

CIS STORMS

Sherpa SHERPA

TNO Road Vehicles Research

TSW/The Indus Group, Inc. PASSPORT

Unified Information Systems Distribution Operations

University of Alabama

University of Birmingham MOLPRO

University of Erlangen VAMP

University of Gottingen SHELXL

University of Pittsburgh PHASES

University of Tennessee PVM

University of Texas

University of Uppsala

University of Virginia

University of Washington CROSSMATCH

DENZO MLPHARE

0

DENZO

FASTA

PHRAP

PHRFD PHYLIP Raster3D SWAT

Valmet OASYS

Vector Technology FAIM

Viewlogic Systems, Inc (A Synopsys Company) Motive Timing Analysis VCS Simulator

Vision International, Inc. SoftPlotter

Visual Numerics, Inc. FORGExplorer IMSL[™] Numerical Libraries PV-WAVE[®]

Wall Street Systems, Inc. Wall Street System

Westinghouse Systems Ltd. EMS/DMS SCADA

© Copyright 1998 Compaq Computer Corporation. All Rights Reserved.

10 xx xx ⁽

in U.S.A. EA-B9520-02 Rel.#xxx/98

Printed

Wolfram Research, Inc.

Mathematica

BOSS

CNS

Compag Computer Corporation believes the information in this publication is

accurate as of its publication date. Such information is subject to change with-

out notice. Compaq is not responsible for any inadvertent errors. Compaq con-

ducts business in a manner that conserves the environment and protects the

Compaq, the Compaq logo, Alpha, AlphaServer, Digital FXI32, EtherWORKS,

GIGAswitch, MultiSwitch, OpenVMS, PowerStorm, Proliant, StorageWorks,

TruCluster, VLM, and Tandem are registered in the U.S. Patent and Trademark

Eta/VPG is a trademark of Engineering Technology Associates, Inc. Intel is a reg-

istered trademark of Intel Corporation. ION is a trademark of Research Systems,

Inc. Memory Channel is a trademark of Encore Computer Corporation. Microsoft

is a registered trademark and Visual C++ and Windows NT are trademarks of

Microsoft Corporation. Oracle is a registered trademark and Oracle8 is a trade-

mark of Oracle Corporation. Silicon Graphics and OpenGL are registered trade-

Standard Performance Evaluation Corporation. UNIX is a registered trademark

in the United States and other countries, licensed exclusively through X/Open

Company, Ltd. All other company names, brand names, and product names used

in this document are trademarks, registered trademarks, or trade names of their

marks of Silicon Graphics, Inc. SPECint95 and SPECfp95 are trademarks of

safety and health of its employees, customers, and the community.

Office. DIGITAL UNIX is an X/Open UNIX 95 branded product.

MCPro

Yale University

Waterloo Maple, Inc. Maple V[®]

Wavefunction, Inc. SPARTAN™

University of Lund MOLCAS

University of CA, San Francisco AMBER™ Midas Plus

Institute MADYMO

Transvalo FORGE3 FORGE4

Ribbons

Multipath Corporation FMS™ NCAR MM5

NeoVista Software, Inc. Decision Series™

NIH/NCBI

Numerical Algorithms Group

AXIOM™ IRIS Explorer™ NAG® Fortran and C Libraries NAG® Fortran SMP Library NAG® Parallel Library

Oak Ridge National Lab GRAII

OMR Systems Trading Assistant Oracle Corporation

Oracle Clinical Oxford Molecular Group

RS3™ RS3™ HTS SPS CROSSMATCH SPS CROSSMATCH SPS PHRAP SPS SWAT Wisconsin Package™

Oxford University FAST-LINK Pacific Numerix

DIVA

SPICE VLSI Signal Integrity

Pacific Sierra Research Corp. VAST®/Parallel VAST® 77 to 90 VAST® - DPC VAST® - HPF

PALLAS VAMPIR PAM Systems Int I S.A. PAM-CAST / SIMULOR™ PAM-CEM[®] PAM-CEIN™ PAM-CRASH™ PAM-FLOW™ PAM-SAFE™ PAM-STAMP™ SYSWELD™

Pangea Systems, Inc. GeneWorld™

Paradigm Simulations, Inc. VEGA™

Parametric Technology Corp. CADDS5 DesignWave™ Medusa % Medusa NG Outroure®

Opteora®

Pro/MFG

QEI SCADA

Exchange MM2

MM3

MOPAC

Ouinda

REPAS

SCADA

ENVI®

Vectis

DMS/SCADA

Research Systems, Inc

Risk Management Technologies RMT Genesis™ The RADAR System™

IDL® ION™ Ricardo Software

Rolfe & Nolan Plc Lighthouse

Pro/DFSIGNER*

Pro/ENGINEER® Pro/FLY-THROUGH™ Pro/INTRALINK™ Pro/MECHANICA®

Pro/PHOTORENDER" Pro/WEB.LINK[™]

PCI Enterprises EASI/PACE

Platform Computing Corp.

Power Technologies, Inc. PSS/E Power Grid Planning

Prism Parallel Technologies PARSA™

Quantitative Risk Management QRM Risk Manager

Quantum Chemistry Program