ALLIANT
Vision in Supercomputing

NEWS

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Alliant Introduces the FX/2800 Supercomputer Family

A New Family of GFLOP Performance, Fully Integrated Supercomputers

On January 22, Alliant Computer Systems Corporation introduced the high-end, standards-based FX/2800™ supercomputer. The FX/2800 is the first family of supercomputers to combine RISC-based architecture with an open technical computing software standard. The new high-end systems provide a wide range of applications software and deliver incomparable performance to the technical computing market.

Available for delivery in April, the standards-based supercomputers are priced from $500,000 to $2 million. Running a mix of job sizes and applications, the FX/2800 family provides equivalent performance to a single processor CRAY Y-MP, twice the performance of a VAX™ 9000 model 440 and two and a half times the performance of a high-end Convex C-240. Running a single job, the FX/2800 family provides up to nine times the price/performance of a VAX 9000 model 440 and five times that of a high-end Convex 240. The FX/2800 delivers 10 times greater performance than the existing FX/80™.

(FX/2800: continued on page 6)

The Alliant FX/2800: Why It's Significant

Ronald H. Gruner,
President, Alliant Computer Systems Corporation

The Alliant FX/2800 is an exciting new development because it is the *only* supercomputer combining an open, industry-standard RISC architecture (Intel i860™) with an open technical computing software standard (the PAX standard).

This combination brings leading price/performance benefits, a guaranteed growth path, and a solid future of widespread, "shrink-wrapped" software availability to a market traditionally restricted by limited software and closed, expensive, proprietary hardware. The FX/2800 will ultimately represent the high-end of a unified, compatible world of multivendor, PAX-compliant UNIX® systems that run the same off-the-shelf software, from desktop workstations to supercomputers.

The FX/2800 dramatically "leapfrogs" all its closest competitors with peak performance exceeding 1GFLOPS and 1,000 VAX MIPS (Dhrystone). The systems use parallel processing to offer scientific and engineering users the widest range of computational resources available.

The FX/2800 offers a remarkable range of configurations that addresses the varied supercomputing needs of a multiuser environment, with models ranging from eight to 28 processors. It features an innovative design, called *Adaptive Supercomputing,* that enables the product to meet the needs of any application mix. The large number of processors available for both computation and graphics allows users to view and interact with a simulation as it is being calculated, or interactively view large data sets that have been previously calculated while generating additional data sets in the background.

Users can easily add processors for computation and graphics, or vary the allocation of processors based on changing requirements.

"...the only supercomputer combining an open, industry-standard RISC architecture (Intel i860) with an open technical computing software standard (the PAX standard)."

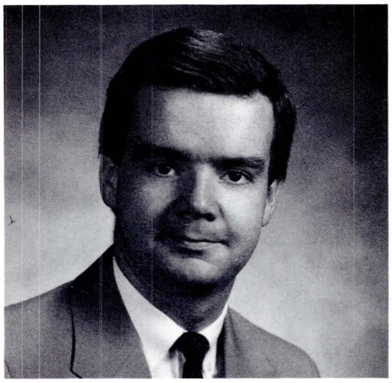
Processor clusters can solve large problems very fast in parallel, or separate to solve many smaller jobs. For example, the system can use as many as 14 processors in parallel executing one job, and the next minute it can execute seven jobs on seven clusters of two processors, or it can process 28 high-performance single-user jobs. Some FX/2800 processors focus on computationally-intensive tasks such as aerodynamics or structural analysis, while others handle the many individual tasks of a multiuser environment, such as compilations, 3-D graphics and visualization, editing, debugging and networking.

No other supercomputer has ever offered this level of dynamic, adaptive parallel and multiprocessing capabilities.

This remarkable adaptability fulfills all three levels of a standards-based environment to meet the supercomputing needs of the 1990s. It provides industry-standard connections to any computer on the network (via Ethernet™, DECnet™, UltraNet™, TCP/IP, NFS™, NCS®, NQS™ and X-Windows™). It provides a standard operating environment (Concentrix® and UNIX System V Release 4). And where most other supercomputer vendors remain closed, the FX/2800 offers an industry-standard hardware and software platform (RISC and PAX) which ensures any software purchased for any PAX-compliant computer will run unaltered on their FX/2800 system.

And that's why the Alliant FX/2800 is big news.

Alliant Appoints Patrick J. Scannell, Jr. CFO in Japan



Patrick Scannell becomes a member of Nihon Alliant's management team.

Patrick J. Scannell, Jr., 36, has been promoted to vice president of finance and administration and chief financial officer of Nihon Alliant K.K., Alliant's direct distributorship in Japan.

Scannell was formerly the controller for worldwide marketing and sales activities at Alliant's Littleton, Massachusetts headquarters. He became a member of Nihon Alliant's board of directors when he assumed his new post in Tokyo on December 1, 1989. Scannell's specific responsibilities in Japan and for other Alliant Asian ventures include the management of accounting, finance and control operations, banking relationships and off-shore distributors. He reports to Koji Kaneko, president of Nihon Alliant.

"Pat has done a superior job controlling Alliant's marketing and sales operations, and I know he will be invaluable to Nihon Alliant's management team," said Ronald H. Gruner, Alliant's president.

Scannell joined Alliant as the controller for marketing, sales and service in March of 1987. Prior to Alliant, he worked at Data General Corporation for six years and at Arthur Andersen & Co. for six years.

Alliant Reports Year-End Results

Financial Turnaround Continues, New High-End Standards-Based Product Generation Announced

Alliant Computer Systems Corporation announced February 21, 1990 a net income for the fourth quarter ended December 31, 1989, of $932,000, or $.07 per share.

Fourth quarter revenues were $18,518,000, compared to fourth quarter 1988 revenues of $15,687,000, an increase of 18%.

"Alliant has met its financial goals for 1989," said Ronald Gruner, president. "The company realized its plans for four quarters of increasing profitability, revenue growth and an improvement of gross margins. We signed an agreement with Intel to create a supercomputing standard, and the company has recently introduced the most advanced supercomputer in the marketplace today. We believe Alliant has all the elements in place for a good 1990."

International operations account for approximately 50% of Alliant's equipment revenues. Alliant has direct international subsidiaries in seven countries throughout Europe, an exclusive Japanese distributor (Nihon Alliant) and distribution partners in Australia, Taiwan, Korea and Hong Kong.

Alliant's worldwide customer base, originally made up of traditional research and university users, is now primarily composed of industrial and commercial accounts. More than 450 systems have been installed at more than 300 customer sites.

During 1989, Alliant installed systems in many companies around the world, such as Mitsubishi and Sanyo in Japan, Turbomeca and Aerospatiale in France, Glaxo and British Petroleum in the U.K., Hughes Aircraft Company, Rockwell and McDonnel Douglas in the U.S., and Messerschmitt-Bolkow-Blohn (MBB) in Germany.

Report Says: Alliant is the #1 Minisupercomputer Supplier in Japan

The Japan Electronic Industry Development Association (JEIDA) has ranked Alliant Computer Systems Corporation as the leading minisupercomputer supplier in Japan. JEIDA is an independent committee sponsored by the Japanese government's International Trade and Industry agency. According to the first objective survey of this market, Alliant owns a 32 percent share followed by Stardent and Convex Computer Systems.

JEIDA attributed Alliant's success in Japan to the superior price/performance of its products and excellent customer support. JEIDA polled 60 Japanese companies that use minisupercomputers and found that 78 percent of the systems were installed in 1989. The association reported that 75 percent of the users have plans to install one or more additional minisupercomputers within two years. The results were published in Japan's *Nikkei Industry News*.

Interview: Dr. Darrell Pepper

*former Chief Scientist, The Marquardt Company**

Dr. Darrell Pepper was interviewed during a visit to Alliant in 1989. He spoke with writer, Steve Hodgdon and Olimpio DeMarco, mechanical marketing manager from Alliant.

Pepper: Marquardt is a relatively small propulsion company founded in the mid-1940s by Roy Marquardt to develop technology for RAMJET jet engines. It matured over the years into the supersonic combustion SCRAMJET engines.

Marquardt has unique test cells that allow us to test and develop engines to about 120,000 foot simulation up to Mach 8.

During the aerospace slump, Marquardt reduced its size and let the test cells mothball. They gravitated to other areas, such as manufacturing. After the aerospace industry started to recover, Marquardt began to reactivate, upgrade and modernize their test cells. They also wanted to get involved in computing and computational fluid dynamics. That is my role at Marquardt.

Marquardt is trying to upgrade its testing facility capability and integrate the theory of computational fluid dynamics computing environment with its test cell arrangement. The computer can then take data and do the simulations and visualizations that go with the flow. It turns out that Alliant is the best machine for Marquardt's needs.

What do you have now for equipment?

Pepper: An FX/4™ and an FX/1™, a number of Sun workstations and an Iris, probably 250 PCs, some DEC equipment, and old Honeywell at least 20 years old.

I assume you studied the market carefully before buying?

Pepper: Marquardt looked at a number of systems ranging from a Cray to a high-end workstation to a hypercube – and benchmarked some codes. Cost vs. performance, the ease of code conversion, and service were all considered. Alliant turned out to be the best.

What were the key strengths?

Pepper: A reasonably priced machine with good performance, and the fact that the codes could be converted with little effort – its user-friendliness. Marquardt was converting from DEC to the Alliant, from VMS™ to UNIX, and I think we were up and running within a few hours.

I believe Marquardt is the only company in the valley that has everything UNIX-based. CAD is tied in with all our other codes through the Alliant system, as well as being able to do the structures and computational fluid dynamics problems and heat transfers. We can talk between codes and exchange information back and forth.

Olimpio DeMarco: That's a very important point - that they went from VMS code on the VAX to Alliant UNIX code within a couple of hours. That's critical to any big DEC VMS shop thinking of moving to UNIX.

That sounds almost unrealistic to me.

Pepper: Marquardt wrote the codes, so we knew what to expect. It was an absolutely smooth, quick transition. Almost too good to be true, because I've been through these before.

Marquardt was coming from an environment of build-and-bust. They built equipment, tested it, and it either breaks or doesn't break, then they'd get some number on it and find out what happened. This business of CFD and theory was kind of new to them. We could actually do a simulation and run a bunch of cases and predict what's going to happen without having to go through these very elaborate, expensive experimentation processes. Marquardt had to be convinced that "yes, you can do this". Now it's indispensable. You couldn't blast that Alliant out of there. We went from an FX/4; now we want to go to an FX/40™.

What software do you use?

Pepper: A lot of it is Marquardt's own. We also have ANSYS and PATRAN and others.

The applications include: structural analysis, CFD, heat transfer, SINDA, and a number of NASA codes which were brought down from the Cray.

Can you describe how your simulation worked, focusing on the need for an Alliant-level machine?

Pepper: Marquardt wanted to know what the flow field is within an engine. It's a 3-D problem. While these configurations might be somewhat simplistic, the physics is extremely difficult.

We needed a very compute-intensive machine; not the sort of thing you can put on your PC or IBM business machine, or even a VAX (it might fit on a VAX, but it would take forever to calculate). The Alliant provides the opportunity to do sophisticated graphics and look at the results once the numbers have been generated.

(Continued on page 5)

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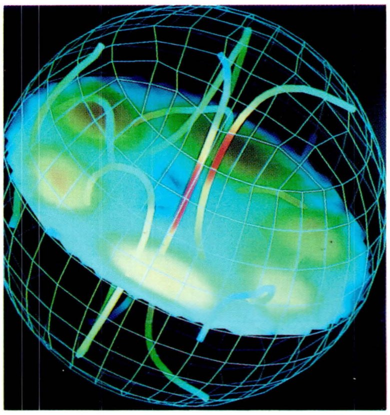
Did you use any interactive graphics?

Pepper: The FX/4 is used to run jobs and look at the graphics as the job grinds. Flow fields can be observed as they evolve and a lot of time isn't wasted waiting for the post-processing.

It takes a little longer on the Alliant than on the Cray to do a lot of runs, but they can get those back much faster. I was concerned with the time between inputting the problem and getting the results, versus running on the world's fastest machine and waiting days for the results.



Thermally driven convection of liquid in a sphere depicting temperatures in an unsteady ow. CFD courtesy of Marquardt Co. and APRI. Visualization (VIA–CL) courtesy of Visual Edge Software Ltd.

What would you would like see in the next generation machine?

Pepper: Well, no matter what machine you use, it's never big enough and never fast enough because we keep coming up with problems that are more difficult. I would like something that takes up less footprint, is dedicated to the user, yet gives him a tremendous amount of performance, so that the user can go after the problems that were intractable just a few years ago.

Knowing what you do of the Alliant architecture, their approach to parallelism and automatic compilers, is it a sound design philosophy?

Alliant is a coarsely grained system and is very friendly. It will try to do a lot of the parallelization for you. I find that very attractive because I don't want to have to eat and sleep massively parallel architectures. Ultimately Alliant will have to begin looking at more processors if they really want to get to super performance. (ed. note: see pages 6,7 for information on the Alliant FX/2800).

The Intel machine, for example, uses the 386 chip. The chip is slower, but you can go to hundreds of nodes there, where each node is a 386. Look at Ncube which gives you 1024. Guys can make careers just rewriting codes to work on those massively parallel machines. I like the idea that Alliant has built that into the system.

What role does networking play at Marquardt? Alliant's ability to integrate into a heterogenous network of Suns, Computervision CADD Stations, etc?

That was one of the key things we looked at – a system that would allow us to integrate with these various operating systems into an overall network.

How significant is 3-D visualization to Marquardt? Has it changed the way they work?

Yes it has. People don't want to look at tables of numbers any more. They want to look at graphical representations. They want to be able to scan through these images and rotate them and move them around so they can see what's going on.

What are the features that make Alliant systems easy to use?

One factor was their very good FORTRAN compiler. The debugging feature; it was relatively transparent from running the VAX software to executing on the Alliant. Just really no complaints at all.

Do you foresee an acceleration in this market? Will private industry adopt supercomputers?

I think if you interview, for example, aerospace companies that have Crays, you'll find that the guys in the various departments will likely be trying to justify a smaller machine dedicated to their division because that have to queue up to that Cray. Cray time is very expensive. They'd rather settle for something a little slower that is dedicated to their problem. You really need a Cray for the super big jobs, but you hate to have to wait.

I ultimately want to get into the VFX series to do real-time graphics as we're doing the calculations. I really want to get into this business of 3-D.

What's the VFX going to give you that you don't already have?

Graphical speed. The architecture; the relationship Alliant has worked out with Raster Tech. It's very good performance.

Why didn't Marquardt buy a Convex?

It's a good machine, but Convex didn't give very straightforward answers and the marketing wasn't very effective. While they make a good machine, I didn't see where they were trying to stay up with the state-of-the-art, where they going down the road. And when Marquardt tried to get back to their sales reps, they were unavailable. Not that Marquardt would've gone with them. It think we still would of ended up with an Alliant system.

* Darrell Pepper is now Chairman and CEO of Advanced Projects Research, Inc. (APRI) in Moorpark, CA. APRI specializes in highly accurate CFD software.

(Continued from page 1)

But, to be truly productive, scientific and technical computing requires systems with not only the computational power to handle the most challenging tasks, but:

- flexibility to handle shifting applications and needs,
- networking to other environments for information sharing,
- integrated graphics capabilities to accelerate time-to-solution and desktop software tools for ease-of-use and productivity.

The new FX/2800 supercomputer is designed to handle all of these requirements — and more.

The FX/2800 family of technical computing systems is built around the Intel i860™ 64-bit RISC processor. With the FX/2800, Alliant has combined the power of the Intel chip with our industry-leading parallel processing architecture. The result is a versatile, fully integrated system with superior functionality and performance.

The FX/2800 offers the best price/performance of any supercomputer in its class.

The FX/2800 is also the first system based upon PAX (Parallel Architecture eXtended), the new parallel computing standard developed jointly by Alliant and Intel Corporation. The FX/2800 not only helps maximize scientific computing productivity; it puts the industry's first hardware/software parallel processing standard at your fingertips.

A New Standard in Supercomputing

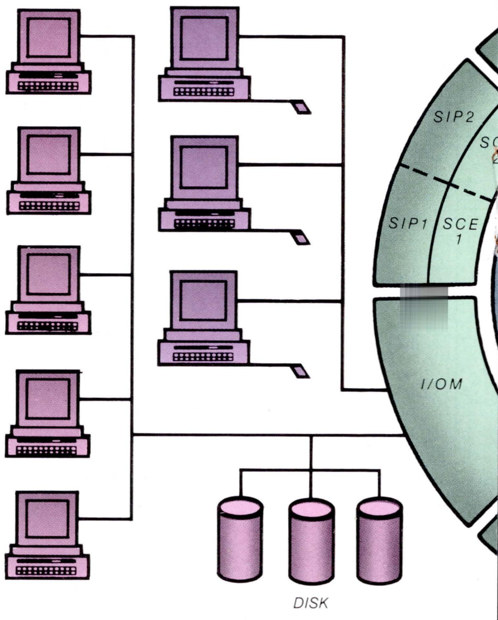
The FX/2800's superior performance is based upon an array of proven parallel technologies and industry standards.

Alliant began shipping its FX/Series™ of parallel processing supercomputers in 1985. Today, more than 450 FX/Series systems are providing high-performance scientific and technical computing solutions around the world.

The FX/2800, combines Alliant's field proven parallel processing architecture with the Intel i860 RISC-based processor to create even higher levels of performance and functionality.

The i860 processor is ideal for technical supercomputing applications. It's a true 64-bit chip With vector-style pipelining and a superscalar mode that provides multiple instructions per clock cycle. The single chip integrates both integer and floating point operations with cache and memory management.

The FX/2800, like all Alliant FX/Series solutions, utilizes the UNIX®-based Concentrix® operating system. Alliant is committed to UNIX standards and will support UNIX System V, Release 4 as part of the PAX standard.

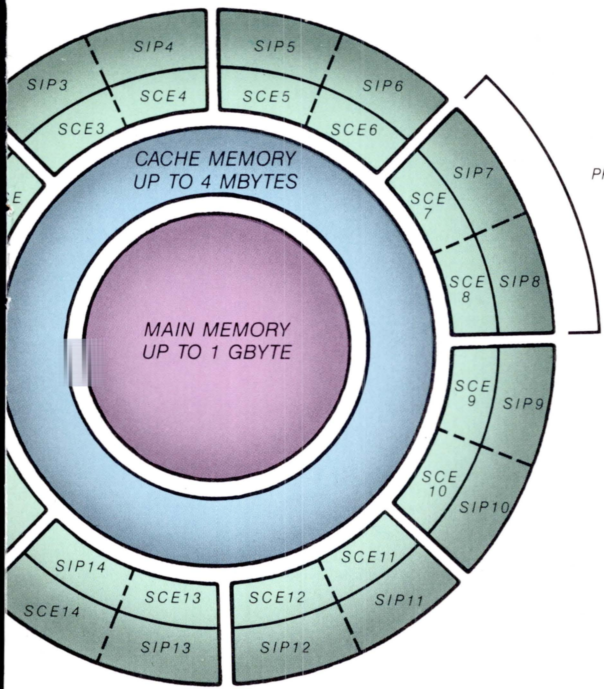


PAX: The Next Step

The FX/2800 is based upon the PAX standard. It is the *first unified hardware/software standard for parallel computing.*

As an extension to the binary standard for the i860, PAX is a set of hardware/software rules used by hardware and independent software vendors when developing products and software applications for i860-based machines. With PAX, software applications can run in parallel and unchanged in PAX-compliant systems ranging from uni-processor workstations to multi-processor shared-memory supercomputers.

Fully open at both the chip and compiler levels, PAX is embodied in hardware architecture, operating systems, libraries used by applications (for integer, graphics, and floating point operations), and compiler technologies.



A Standard for the Future

While Intel will ensure PAX compatibility in future generations of the i860 microprocessor, Alliant will employ future generations of the Intel i860 chip in all versions of its parallel processing and visualization supercomputers.

Integrated, Simultaneous Graphics and Computation

The FX/2800 provides superior integrated computation and PHIGS/PHIGS+ graphics capabilities. Since parallel graphics operations are executed by standard i860 processors, users can quickly and easily add or vary the allocation of processors for specific computation and graphics tasks.

For non-PHIGS/PHIGS+ compute-intensive graphics applications such as image processing, volume and photorealistic rendering, the user can configure clusters of processors to provide the high performance required to approach real-time image generation.

The FX/2800 Architecture:

- *14 Super Computational Elements (SCEs) can work in up to six different parallel processing clusters to tackle large computationally-intense applications.*
- *14 Super Interactive Processors (SIPs) can work as individual processors to handle individual user jobs including operating system tasks, networking, I/O, PHIGS/PHIGS+ graphics processing, X11 Window System, and more.*
- *One SIP is combined with two high-speed I/O channel interfaces to form an I/O Module (IOM)*

High Capacity, High Speed Processing System

- More than 1GFLOP of double-precision computational peak capacity (vector).
- Nearly 700 MIPS of double-precision operation floating point scalar performance (Whetstone).
- More than 1,000 VAX MIPS of integer performance (Dhrystone).
- 40MB of I/O bandwidth from a single I/O Module (number of I/O modules can be expanded).

High Capacity, High Speed Memory Subsystem

- All processors are linked via a high-speed 16x8 crossbar switch that operates at 1.28GB per second.
- Large high-speed cache memory can expand to 4MB.
- High-speed memory bus delivers 640MB per second.
- Large physical memory provides a minimum of 64MB, up to 1GB (physical) and 4GB (virtual).

An Easy Migration

Alliant FX/Series customers have been able to migrate from the first generation of systems to the second generation quickly and efficiently. Now, they can migrate to the powerful new third generation — the FX/2800 — with equal ease.

A simple recompilation is all that most FX/Series users will require to migrate their existing software from their current FX/Series systems to the new FX/2800. The FX/2800 is fully source-compatible with all FX/Series systems, including full support for Concentrix. FX/2800 compilers provide full compatibility at the source level and use the same calling conventions as FX/Series compilers. FX/Series programs based on FX/Fortran™, FX/C™, or FX/Ada™ can be ported to the FX/2800 system with a straightforward recompilation.

For FX/Series users who have written more specialized applications at the machine code level, Alliant provides a technical upgrade program that combines on-site help and telephone support to simplify the upgrade to FX/2800.

A Truly Integrated Supercomputer

The FX/2800 integrates a wide range of capabilities in a single system.

- Up to 28 high-performance processors deliver superior parallel technology.
- Double-precision computational capacity of more than 1GFLOP handles the most complex technical challenges.
- Scalar performance of more than 1,000 VAX MIPS ensures high multi-user, multi-job throughput.
- Automatic, dynamic allocation of processors adapts to changing user workloads.
- Integral PHIGS/PHIGS+ graphics helps users visualize and analyze results.
- Standard networking protocols link users to workstations and other computing environments.
- Easy and economical system expansion ensures smooth migration path.
- Industry standards ensure compatibility and excellent return-on-investment over the long term.

The Computer Supported Process Simulation Deep Drawing Project

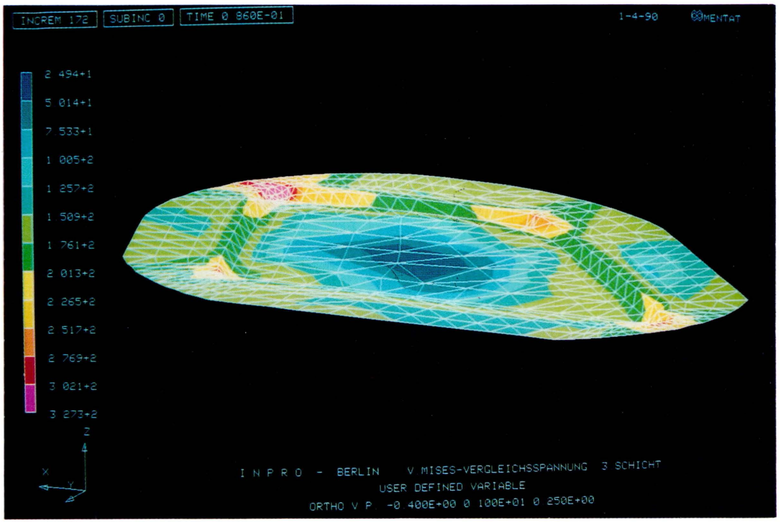
Ralf Sunkel, System Manager, INPRO

INPRO (Innovationsgesellschaft fuer fortgeschrittene Produktionssysteme in der Fahrzeugindustrie mbH) was founded in 1983 by the well-known companies BMW, Mercedes-Benz, Volkswagen, Siemens and the Berlin Senate. The aim of INPRO is to develop innovative production systems for its industrial shareholders.

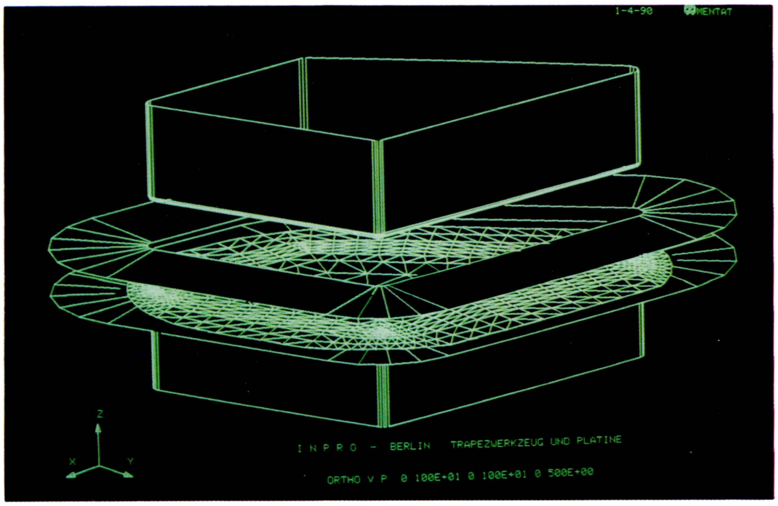
At present there are 105 employees who are working on 25 projects related to concrete assignments in areas of activity such as:

- expert systems
- intelligent sensory systems
- simulation of material flow
- laser welding
- CIM (Computer Integrated Manufacturing systems)
- off-line programming of varnishing robots and
- process simulation

Deformed structure with equivalent Mises Stress



Dies with element mesh



The following will describe the Computer Supported Process Simulation Deep-Drawing Project in detail.

In the car industry, the production of the metal parts of a new vehicle (fender, bonnet, etc.) must be optimized and guaranteed with numerous experimental tools in the prototype phase of the car body development before the appropriate dies for production can be designed and manufactured. The complexity associated with metal parts is increasing with every new development, as people are endeavoring to reduce the number of joining operations for the individual parts of the vehicle's body. The development of a simulation system of deep-drawing for the Computer Supported Process Simulation (CPS) commenced in 1986 to minimize the number of experimental tools and to provide effective support to the specialists in those cases in which typical deep-drawing failures (tears, wrinkles, and localization) have occurred even while using empirical methods of tool development.

The CPS project completed the first prototype of this type of simulation system (PROSIT) on the basis of the finite element method (FEM). In order to reduce the development time of the first practical application to the absolute minimum, the commercially available FEM-program MARC™ from Marc Analysis Research Corporation was used as the core program.

Under the leadership of Horst Cronjager and operating in close collaboration with numerous external partners, the 12-man CPS development team was able to complete PROSIT in the middle of 1989 and to hand it over to the shareholder Volkswagen AG for the pilot phase.

Within the framework of the PROSIT development Marc Analysis Research Corporation was commissioned to develop a 3-D contact algorithm for the treatment of the nonlinear conditions of deep-drawing. This is now available world-wide in the new MARC-K4 program.

Additional forms of non-linearity such as

- friction as a function of surface loading, relative velocity and lubrication
- anistropic material behavior also in the case of serious inelastic deformations and
- geometrical processing

are being re-examined, secured experimentally and put into operation in the PROSIT program.

Since April 1987, the CPS team used an Alliant FX/8 computer which was acquired specifically for the PROSIT development. At that time, it was designated as the first computer of this type in Europe.

The Alliant FX/8 is currently equipped as follows:

- 8 Computational Elements (CEs)
- 512 Kilobyte Cache Memory
- 3 Interactive Processors (IPs)
- 88 Megabyte Main Memory
- 2.2 Gigagbyte Disc Capacity
- 80/310 Megabytes Swap/Page Space
- 1 Raster Technologies Model One/80
- 1 Raster Technologies Model One/85
- 11 VT 220 terminals
- 2 Printers

With this configuration about 10 to 12 simulation jobs are calculated on the detached CEs simultaneously but without interrupting editing and other jobs. The FX/8™ at INPRO operates for 24 hours a day for seven days a week and for about 350 days a year. The access times of the equipment are very good. Ninety percent of the computing capacity is required for development test calculations (see photo).

No technical problems were experienced with the transfer of the software developed on the Alliant FX/8 to the Cray X/MP in operation with the shareholder Volkswagen AG. The user response times on the Cray X/MP are the same as those achieved by the CPS team on its Alliant FX/8.

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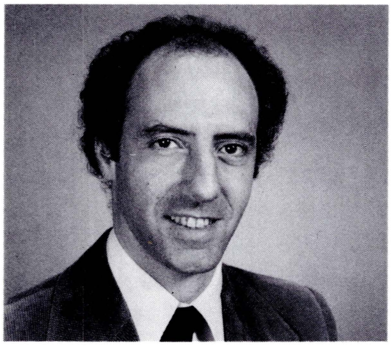
ALLUS President's Message

Dr. David A. Berkley presents challenges for ALLUS in 1990



I would like to thank the membership for this opportunity to serve as president of ALLUS. I have been associated with ALLUS since its founding in 1985 and, since that time, ALLUS has struggled with the continuing task of defining our role with respect to Alliant. This year, with you and the other members of your Board of Directors, I hope to make significant progress in that direction. I also want to thank Dr. Robert Haber, my predecessor in this post, for contributions as President of ALLUS over the past year and to thank Dr. Thomas Pierce for his work as Program Chairman in the organization of the 1989 annual meeting in Cambridge. I am the only previous member who continues on the Board this year and I look forward to working with the new members who have volunteered their services for the coming year.

ALLUS plays several roles. The most important is to provide user-to-user communication. Other roles include representing what the Board perceives to be users' interests directly to Alliant and creating an alternative route for user-to-Alliant communications. In an effort to further support these roles we have decided to apply some of ALLUS's funds to help make the dial-in computer bulletin board, proposed last year, a reality.

Of course, the annual meeting, planned for Halloween in New Orleans, continues to be our primary focus and we will work hard to have the meeting this year continue the tradition of fine technical papers combined with SIGS and interesting Alliant presentations. Your evaluation of the past meetings will be studied to find what can be done to make this coming meeting fit your expressed need even better than in the past.

This message marks the beginning of a new decade for ALLUS. Some will tell you that the decade really begins in 1991 but the excitement and the challenges of a new decade are certainly here today.

What is the cause for excitement? You are all aware that Alliant has announced a new machine. However, this is not just another machine, no matter how much better, in the line we already know. This is a major departure in new directions including an attempt to begin standardization of a parallel supercomputing architecture. In addition, Alliant's major thrusts into international markets are bearing healthy fruit and, as users, we are seeing growth of an important users' community outside North America.

The challenges are directly related to the causes for excitement. For us, as users, this new machine promises to become a tool in our varied enterprises. However, we must also be aware, as a community of current Alliant FX system users, that a major departure from the past requires that we be vigilant in protecting the health of our hard working current investment.

We must work with Alliant in deciding on the allocation of necessarily scarce resources between enhancement of the hundreds of systems already in the field and the critical commitment to the future. This will not be an easy set of choices and we must communicate amongst ourselves and with our friends and colleagues at Alliant to help create the best future.

Another challenge is created by a related distribution of resources required by Alliant's European expansion. I represented ALLUS (North America) at the first meeting of ALLUS Europe that took place in November, 1989 in Bordeaux, France. Europe has a dynamic, rapidly growing, supercomputing community (as does Japan). Happily, Alliant is growing along with it — at a rate difficult for the limited Alliant European resources to sustain. Here, I suspect, there is little conflict between what is best for us, in North America, and our colleagues in Europe. If anything we can benefit by attempts to understand areas where mutual support can be helpful.

"...as users, we are seeing growth of an important users' community outside North America."

In all, it promises to be an interesting year and I am looking forward to working with you to make ALLUS meet your needs. Please let me, or any of the other officers, know if there is anything you believe could make ALLUS better. Electronic mail can be sent to ALLUS directly via allus@alliant.com. nroff

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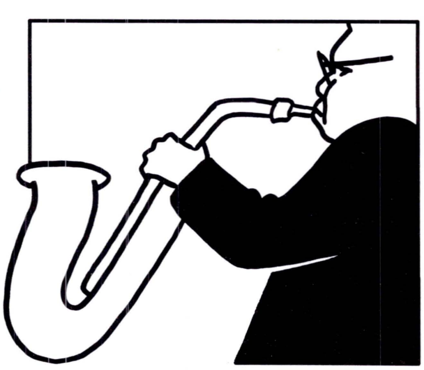
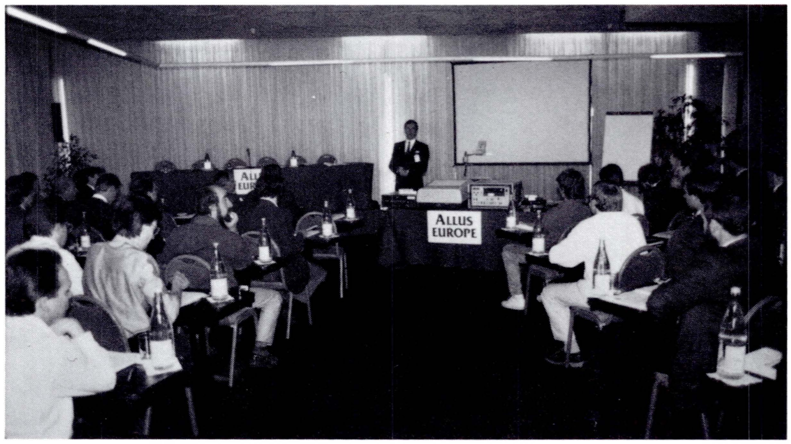


1990 ALLUS Meeting will be in New Orleans, LA October 29–November 2

Alliant Users from Europe Meet in Bordeaux



Alliant users from all over Europe gathered for the first annual user group meeting.

The first meeting of ALLUS Europe, in Bordeaux, France, brought together 67 users of Alliant supercomputers from 12 European countries on November 9–10, 1989.

A complete day was devoted to Alliant presentations on PAX, the new standard for parallel processing in the scientific and technical environment and on future developments in hardware, software and visualization. User application presentations, working groups, and panel discussions took place the second day.

"We are delighted to see so many of our European users at this our first ALLUS meeting in Europe," said Ken Murphy, Alliant's general manager of Northern Europe. "By all accounts, those present found the event a useful opportunity to make new contacts and discuss subjects of mutual interest."

Conference delegates agreed to set up five Special Interest Groups. These are:

Systems Administration:

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ALLIANT
Vision in Supercomputing
Computer Systems Corporation
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Be sure to see Alliant's new FX/2800 at:

NAECON
May 22–26
Dayton, OH

Supercomputer World
June 19–21
San Diego, CA

ASME
August 6–8
Boston, MA

SIGGRAPH
August 6–10
Dallas, TX

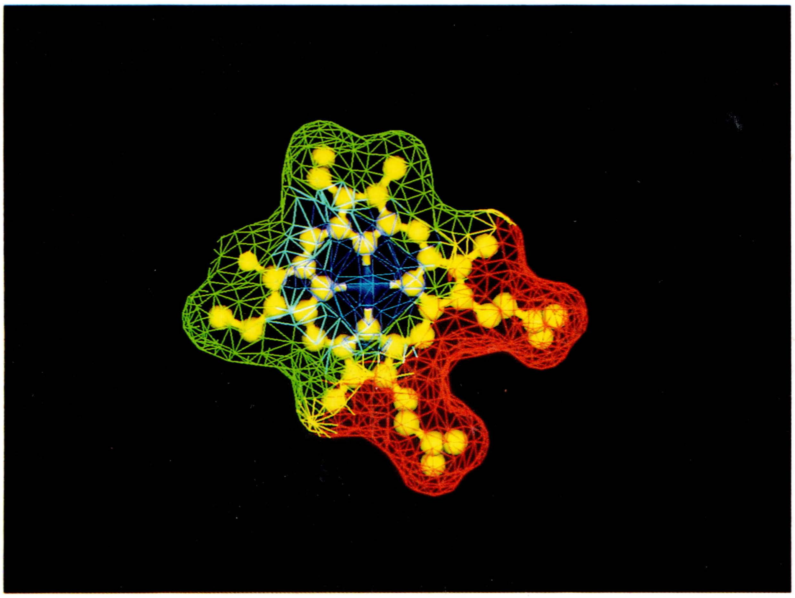
American Chemistry Society
August 26–31
Washington, DC

SEG
September 23–27
San Francisco

I/ITSC
November 5–8
Orlando, FL

IEEE Supercomputer
November 12–16
New York, NY

Autofact
November 13–15
Detroit, MI



Heme group with wire frame representation of the electrostatic potential energy surface that goes from blue (+) to green (neutral) to red (–). The representation uses the Molecular Surface Package, written by Dr. Michael Connolly and an electrostatic potential surfaces program written by Dr. Steve Gallion and Dr. Paul Weiner. The graphics display program was written at Alliant by Dr. Rosario Caltabiano and Jim Houskeeper. All software is available for the Alliant FX/Series family.

Please Send Me More Information About What I've Read in Alliant News:

- ☐ ALLUS Membership
- ☐ ALLUS Annual Meeting
- ☐ Computational Fluid Dynamics
- ☐ Visualization
- ☐ FX/2800
- ☐ Please add me to your mailing list
- ☐ Other: ____________

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COMPANY: ______________________________

ADDRESS: ______________________________

CITY, STATE, ZIP: ______________________________

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