

SLAC Computing Current and Future

Richard P. Mount

July 15, 1998

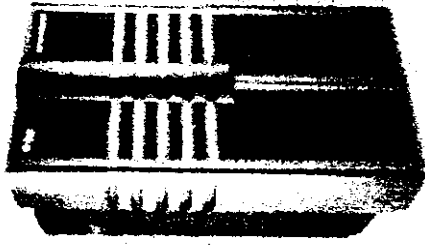
Le mainframe est (presque) mort

Vive le mainframe!

7/15/98

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Industry-leading
performance, plus
mainframe-like
reliability, for
large-scale and
mission-critical
applications



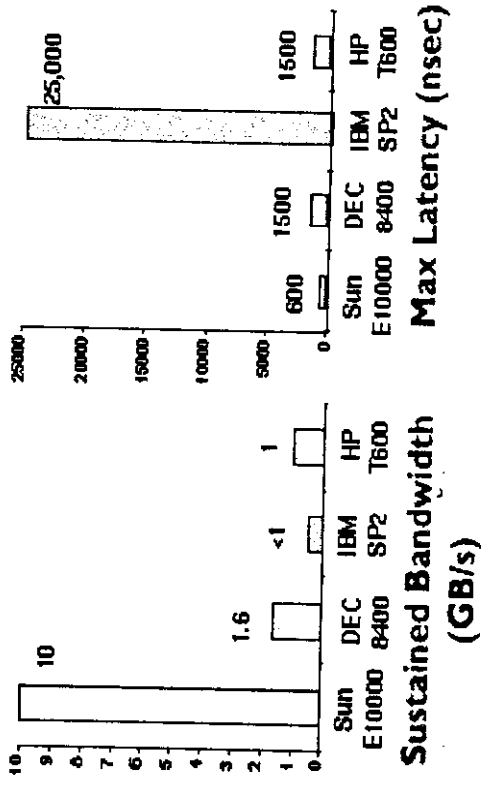
Sun (Cray) Enterprise 10000 Server

- 24 CPUs (expandable to 64)
- 12 GB memory (expandable to 32 GB and more)
- $n * 720$ GB disk arrays ($n = 1$ now)
($n = 16$ likely later)

WHY?

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Resulting from the advanced Gigaplane-XB™ crossbar interconnect design, the Enterprise 10000 server maintains the highest sustained bandwidth and lowest latency in its class:



- Physics analysis requires high-speed access to data
 - ⇒ Need directly attached disk arrays
 - ⇒ Need single (SMP?) system to allow all disk to be accessed by all CPUs.

SCS Scientific Computing (1)

- SLD
 - VAX cluster centered on AlphaServer 8400
 - Kludgy access to tape silos (old 3490 tapes only)
 - Needed for at least 2-3 years
 - Support (both hardware and software) worries me.

SCS Scientific Computing (2)

- BaBar and other SLAC experiments
 - Sun E10000 (Solaris) for data-intensive analysis
 - Objectivity + HPSS for data storage and retrieval
 - IBM F50 (4 CPUs) for HPSS control
 - $4 \times$ [Sun E4500 (4 CPUs) + 180 or 720 GB] for data movement and access
 - 5 STK tape silos with Redwood + ???? Drives
 - Sun Solaris + IBM AIX interactive service
 - Sun Solaris + IBM AIX batch service
 - Question: Expand Sun or IBM or both?

SCS Scientific Computing (3)

- Accelerator Research
 - PC farm being set up
(Looks like Linux, at least initially)

SCS Platform Directions

- Sun:** Unquestionable for 2-3 years at least
- PC:** Strategic direction (but Linux vs NT?)
- IBM:** Established at SLAC but:
 - poor product range (no large SMPs)
 - C++ environment worse than average
- Other:** Unlikely due to support costs.

N.B. Currently SCS supports Sun, IBM and NT desktops

Desktop Support

Not quite

“Everything that is not forbidden is compulsory”

but ...

Desktop Support

We all want:

- full support from SCS for all tasks we don't want to do ourselves;
- freedom to buy whatever we like;
- freedom to administer our own machines;
- transparent access to all SLAC resources;
- protection from any badly administered or malfunctioning machines.

The Real World

- The (support) cost of diversity is crippling;
- Unix desktops can threaten the security and stability of other systems;
- Windows (NT/95/98) desktops seriously threaten the security and stability of other systems;

We have no choice but to:

- minimize diversity;
- maximize coherence of system administration.

SCS Desktop Policy:

Good Cop

- NT, Sun and IBM desktops will receive priority support if:
 - hardware configuration is/was as recommended;
 - system is administered by SCS
e.g. NT installed with boot floppy and kept up-to-date by SMS.

SCS Desktop Policy: Bad Cop

- User administered desktops to which SCS has no access may be disconnected from the network without warning if they are suspected of threatening security or stability.

SCS Desktop Policy: Gray Areas

- At present, SCS does not offer support for the checking of Linux, BSD, etc. HP, SGI etc. desktops.
- Many NT/Win/OSM desktops are administered by their users and their owners.

- **“Policy” means:**

- How to maximize your chance of getting support;
- How to minimize your chance of being disconnected from the network.



Recommended Hardware

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[SLAC Home](#) [NT Home](#) [Hardware](#)

This page describes what we recommend that you purchase, how to purchase it, and how to get it configured.

It is expected that your local administrator will be making the purchase, and coordinating the necessary networking, software and installation requests. It is not advised that users go through these steps themselves.

What to Buy

Laptop system: Dell Latitude CPI Notebook (266 MHz Pentium II) because it has better network connectivity than the other Dell notebooks. For more information on the Latitude CPI models, see Dell DOE Discount Prices.

Workstation system--General Use: Dell OptiPlex GX1 (350 MHz or faster Pentium II with standard integrated 3COM 10/100 Ethernet Card). For more information on the OptiPlex models, see Dell DOE Discount Prices.

Workstation system--Engineering Use: Dell Workstation 410 (350 MHz or faster Pentium II with standard integrated 3COM 10/100 Ethernet Card).

For **Technical Division** contact John Davis to purchase the Intergraph bundle configuration (some people may purchase the Intergraph bundle configuration).

The following workstation configuration should be suitable for most users at SLAC and is met by the recommended hardware vendors.

- Intel Pentium II
- 300 MHz or greater CPU with 256KB cache or greater
- 3 or 4 PCI slots and 3 or 4 ISA slots
- 64 MB SDRAM memory
- 1.44 MB diskette drive
- ~ 3 GB EIDE hard drive or SCSI hard drive
- high speed CD-ROM drive

- PCI SVGA card with 4 MB memory with 1280x1024 True color (16.7 millions) support
- 104 Key enhanced keyboard
- mouse
- Intel or 3COM 10/100Base-T Ethernet

(Dell Optiplex GXa and Personal Workstation 400 should be purchased with standard Integrated 3COM 10/100 Ethernet Card)

- Microsoft Windows NT Workstation 4.0 or current release installed
- option for 21-inch monitor or 17-inch monitor

All components must be on the NT-compatibility list. You should assure that your vendor can provide adequate technical support and service for at least the first year.

If you are purchasing peripherals for an NT computer you already have, you should also check Microsoft's [Hardware Compatibility List](#) to see that *the exact model of the peripheral* is supported by *the exact version of NT you are running*.

You should also check with your [local administrator](#) to see if they have additional requirements.

Also check out:

- [Dell Computer Corporation's DOE Standard Configurations](#)
- [Intergraph Federal Systems GSA PC Promo](#)

How to Buy

Contact your [local administrator](#) to purchase your selected hardware.

How to Configure

We recommend that your [local administrator](#) send in your [configuration request](#) to SCS or John Davis (if Technical Division).

Owner: [Ilse Vinson & Desktop-Admin](#)
[Feedback](#)