



The Most Powerful Supercomputers and Sites (10 year retrospective)

Erich Strohmaier and Horst Simon
NERSC/LBNL

The Most Powerful Supercomputers 1993-2002

- We want to look at systems in the early and mid 1990s in perspective
- In order to account for the rapid performance growth, we need to normalize Rmax performance
- Define **normalized Rmax** for a system the ratio of its Rmax performance and the sum of all Rmax for all the systems on the list
- For each system on all twenty lists we recomputed the normalized Rmax in %
- The we added all the normalized Rmax values together

Systems – Aggregated Performance%

	Site	Company	System	sum% norm Rmax	Max Rank	Sum Rmax TF/s
1	Sandia	Intel	ASCI Red	49.0%	1	23.86
2	NAL	Fujitsu	Numerical Wind Tunnel	41.2%	1	3.68
3	ES Center	NEC	Earth-Simulator	28.4%	1	71.72
4	Sandia	Intel	XP/S140	26.9%	1	1.45
5	LLNL	IBM	ASCI White	23.6%	1	34.00
6	LANL	TMC	CM-5	19.8%	1	0.66
7	LANL	SGI	ASCI Blue Mountain	17.9%	2	13.55
8	U. Tsukuba	Hitachi	CP-PACS	16.1%	1	4.79
9	LLNL	IBM	ASCI Blue-Pacific	15.2%	2	15.01
10	Minnesota SC	TMC	CM-5	13.7%	2	0.48

Excluding Classified Sites

Systems – Max Performance%

	Site	Company	System	Edition	% Rmax	Rank
1	ES Center	NEC	Earth-Simulator	Jun-02	16.2%	1
2	NAL	Fujitsu	Numerical Wind Tunnel	Nov-93	8.5%	1
3	Sandia	Intel	ASCI Red	Jun-97	8.3%	1
4	LLNL	IBM	ASCI White	Jun-02	6.7%	1
5	Sandia	Intel	XP/S140	Jun-94	6.4%	1
6	LANL	TMC	CM-5	Jun-93	5.3%	1
7	U. Tsukuba	Hitachi	CP-PACS	Nov-96	4.6%	1
8	LLNL	IBM	ASCI Blue-Pacific	Nov-99	4.2%	2
9	LANL	SGI	ASCI Blue Mountain	Jun-99	4.1%	2
10	Government	Cray	T3E1200	Jun-98	3.9%	2

- In order to determine the most powerful sites we added the normalized Rmax values for all machines and all 20 lists



Sites – Aggregated Performance%

	Site	sum % norm. Rmax	Max Rank	Sum Rmax TF/s	Country
1	Sandia National Laboratories	83.8%	1	32.33	US
2	Los Alamos National Laboratory	74.8%	1	44.08	US
3	Lawrence Livermore National Lab.	59.3%	1	67.91	US
4	NAL	46.2%	1	5.12	Japan
5	University of Tokyo	33.9%	1	17.13	Japan
6	Pittsburgh Supercomputing Center	28.5%	2	18.77	US
7	Earth Simulator Center	28.4%	1	71.72	Japan
8	NERSC/LBNL	27.1%	2	17.68	US
9	Oak Ridge National Laboratory	27.0%	3	12.33	US
10	NASA/Ames Research Center	23.7%	17	8.20	US

Excluding Classified Sites