TOP500 Supercomputer Sites

11th Edition

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Abstract

To provide a better basis for statistics on high-performance computers, we list the sites that have the 500 most powerful computer systems installed. The best LINPACK benchmark performance achieved is used as a performance measure in ranking the computers.

1 Introduction and Objectives

Statistics on high-performance computers are of major interest to manufacturers, users, and potential users. These people wish to know not only the number of systems installed, but also the location of the various supercomputers within the high-performance computing community and the applications for which a computer system is being used. Such statistics can facilitate the establishment of collaborations, the exchange of data and software, and provide a better understanding of the high-performance computer market.

Statistical lists of supercomputers are not new. Every year since 1986 Hans Meuer [1] has published system counts of the major vector computer manufacturers, based principally on those at the Mannheim Supercomputer Seminar. Statistics based merely on the name of the manufacturer are no longer useful, however. New statistics are required that reflect the diversification of supercomputers, the enormous performance difference between low-end and high-end models, the increasing availability of massively parallel processing (MPP) systems, and the strong increase in computing power of the high-end models of workstation suppliers (SMP).

To provide this new statistical foundation, we have decided in 1993 to assemble and maintain a list of the 500 most powerful computer systems. Our list has been compiled twice a year since June 1993 with the help of high-performance computer experts, computational scientists, manufacturers, and the Internet community in general who responded to a questionnaire we sent out; we thank all the contributors for their cooperation.

In the present list (which we call the TOP500), we list computers ranked by their performance on the LINPACK Benchmark. While we make every attempt to verify the results obtained from users and vendors, errors are bound to exist and should be brought to our attention. We intend to continue to update this list half-yearly and, in this way, to keep track with the evolution of computers. Hence, we welcome any comments and information; please send electronic mail to *top500@rz.uni-mannheim.de*. The list is freely available by anonymous ftp to

ftp.uni-mannheim.de/top500/ or to www.netlib.org/benchmark/top500.ps. The interested reader can additionally create sublists out of the TOP500 database and can make statistics on his own by using the WWW interface at
http://parallel.rz.uni-mannheim.de/top500.html or
http://www.netlib.org/benchmark/top500.html.
Here you also have access to postscript versions of slides dealing with the interpretation of the present situation as well as with the evolution over time since we started this project.

2 The LINPACK Benchmark

As a yardstick of performance we are using the "best" performance as measured by the LINPACK Benchmark [2]. LINPACK was chosen because it is widely used and performance numbers are available for almost all relevant systems.

The LINPACK Benchmark was introduced by Jack Dongarra. A detailed description as well as a list of performance results on a wide variety of machines is available in postscript form from *netlib*. To retrieve a copy send electronic mail to *netlib@ornl.gov* and by typing the message *send performance from benchmark* or from any machine on the internet type:
rcp anon@netlib2.cs.utk.edu:benchmark/performance performance.

The benchmark used in the LINPACK Benchmark is to solve a dense system of linear equations. For the TOP500, we used that version of the benchmark that allows the user to scale the size of the problem and to optimize the software in order to achieve the best performance for a given machine. This performance does not reflect the *overall performance* of a given system, as no single number ever can. It does, however, reflect the *performance of a dedicated system for solving a dense system of linear equations.* Since the problem is very regular, the performance achieved is quite high, and the performance numbers give a good correction of peak performance.

By measuring the actual performance for different problem sizes n, a user can get not only the maximal achieved performance R_{max} for the problem size N_{max} but also the problem size $N_{1/2}$ where half of the performance R_{max} is achieved. These numbers together with the theoretical peak performance R_{peak} are the numbers given in the TOP500. In an attempt to obtain uniformity across all computers in performance reporting, the algorithm used in solving the system of equations in the benchmark procedure must confirm to the standard operation count for LU factorization with partial pivoting. In particular, the operation count for the algorithm must be $2/3n^3 + O(n^2)$ floating point operations. This excludes the use of a fast matrix multiply algorithm like "Strassian's Method". This is done to provide a comparable set of performance numbers across all computers. If in the future a more realistic metric finds widespread usage, so that numbers for all systems in question are available, we may convert to that performance measure.

3 The TOP500 List

Table 1 shows the 500 most powerful commercially available computer systems known to us. To keep the list as compact as possible, we show only a part of our information here:

• N_{world}	Position within the TOP500 ranking
• Manufacturer	Manufacturer or vendor
• Computer	Type indicated by manufacturer or vendor
• Installation Site	Customer
• Location	Location and country
• Year	Year of installation/last major update
• Field of Application	
• # Proc.	Number of processors[1]
• R_{max}	Maximal LINPACK performance achieved
• R_{peak}	Theoretical peak performance
• N_{max}	Problemsize for achieving R_{max}
• $N_{1/2}$	Problemsize for achieving half of R_{max}

If R_{max} from Table 3 of the LINPACK Report [2] is not available, we use the TPP performance given in Table 1 of the LINPACK Report [2] for solving a system of 1000 equations. To use a consistent yardstick for all systemwe we do not use results achieved by advanced parallel algorithm as defined in [2]. In case of the Cray T90, C90 and J90 systems we had to use older able 3 or Table 1 results. In a few cases we interpolated between two measured system sizes.

For models where we did not receive the requested data, the performance of the next smaller system measured is used.

If there should be any changes in the performances given in Table 1 we will update them.

In addition to cross checking different sources of information, we select randomly a statistical representative sample of the first 500 systems of our database. For these systems we ask the supplier of the information to establish direct contact between the installation site and us to verify the given information. This gives us basic information about the quality of the list in total.

As the TOP500 should provide a basis for statistics on the market of high-performance computers, we limit the number of systems installed at vendor sites. This is done for each vendor separately by limiting the accumulated performance of systems at vendor sites to a maximum of 5% of the total accumulated installed performance of this vendor. Rounding is done in favor of the vendor in question.

In Table 1, the computers are ordered first by their R_{max} value. In the case of equal performances (R_{max} value) for different computers, we have chosen to order by R_{peak}. For sites that have the same computer, the order is by memory size and then alphabetically.

TOP500 **Supercomputers - Worldwide**

N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
1	Intel ASCI Red	Sandia National Labs Albuquerque USA /1997	Research	9152	**1338000** 1830400	235000 63000
2	SGI T3E1200 LC1080-512	Government USA /1998	Classified	1080	**891500** 1296000	259200 26400
3	SGI T3E900 LC1248-128	Government USA /1997	Classified	1248	**634200** 1123200	. .
4	SGI T3E900 LC840-128	United Kingdom Meteorological Office Bracknell UK /1997	Research Weather	840	**450500** 756000	. .
5	SGI T3E LC1024-128	NASA/Goddard Space Flight Center Greenbelt USA /1998	Research Weather	1024	**448600** 614400	119808 19008
6	Hitachi/Tsukuba CP-PACS/2048	Center for Computational Physics, Univ of Tsukuba Tsukuba Japan /1996	Academic	2048	**368200** 614000	103680 30720
7	SGI T3E LC784-128	Max-Planck-Gesellschaft MPI/IPP Garching Germany /1997	Research	784	**342800** 470400	104832 17280
8	SGI T3E900 LC512-256	NERSC/LBNL Berkeley USA /1997	Research	512	**321100** 460800	122880 15360
9	SGI T3E900 LC512-256	Naval Oceanographic Office (NAVOCEANO) Bay Saint Louis USA /1997	Research Weather	512	**321100** 460800	122880 15360
10	SGI T3E900 LC512-128	Universitaet Stuttgart Stuttgart Germany /1996	Research	512	**321100** 460800	122880 15360
11	SGI T3E900 LC400-128	Deutscher Wetterdienst Offenbach Germany /1998	Research Weather	400	**251300** 360000	. .
12	NEC SX-4/128M4	Atmospheric Environment Service (AES) Dorval Canada /1998	Research Weather	128	**244000** 256000	. .
13	NEC SX-4/128H4	Tohoku University Aramaki Japan /1997	Academic	128	**244000** 256000	. .
14	Hitachi SR2201/1024	University of Tokyo Tokyo Japan /1996	Academic	1024	**232400** 307000	155520 34560
15	Fujitsu Numerical Wind Tunnel	NAL Japan /1996	Research Aerospace	167	**229700** 281000	66132 18018
16	SGI T3E LC512-128	Cray Research Eagan USA /1997	Vendor	512	**222300** 307200	84480 12480
17	SGI T3E LC512-128	Forschungszentrum Juelich (FZJ) Juelich Germany /1996	Research	512	**222300** 307200	84480 12480
18	SGI T3E LC512-128	Pittsburgh Supercomputer Center Pittsburgh USA /1996	Research	512	**222300** 307200	84480 12480
19	Fujitsu VPP700/116	ECMWF Reading UK /1997	Research Weather	116	**213000** 255200	111360 18560
20	SGI T3E1200 LC256-128	Government USA /1998	Classified	256	**211800** 307200	125952 11520

TOP500 Supercomputers - Worldwide

N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
21	SGI T3E1200 LC256-512	US Army HPC Research Center at NCS Minneapolis USA /1997	Research	256	**211800** 307200	125952 11520
22	SGI T3E900 LC312-256	DOD/CEWES Vicksburg USA /1997	Research Mechanics	312	**196490** 280800	. .
23	SGI T3E900 LC256-128	Forschungszentrum Juelich (FZJ) Juelich Germany /1997	Research	256	**161600** 230400	84480 10080
24	SGI T3E900 LC256-512	Minnesota Supercomputer Center USA /1997	Academic	256	**161600** 230400	84480 10080
25	SGI T3E900 LC256-128	University of Edinburgh Edinburgh UK /1997	Academic	256	**161600** 230400	84480 10080
26	IBM SP P2SC 120 MHz	Pacific Northwest National Laboratoriy Richland USA /1998	Research	512	**151800** 226560	61000 22600
27	SGI T3E750 LC280-128	Commissariat a l'Energie Atomique (CEA) Grenoble France /1997	Research Energy	280	**146000** 210000	. .
28	Intel XP/S140	Sandia National Labs Albuquerque USA /1993	Research	3680	**143400** 184000	55700 20500
29	SGI T3E1200 LC160-128	CINECA Bologna Italy /1998	Research	160	**132450** 192000	. .
30	Intel XP/S-MP 150	Oak Ridge National Laboratory Oak Ridge USA /1995	Research	3072	**127100** 154000	86000 17800
31	NEC SX-4/64M2	National Institute of Fusion Science (NIFS) Japan /1997	Research	64	**122200** 128000	30080 4352
32	NEC SX-4/64M2	Osaka University Osaka Japan /1997	Academic	64	**122200** 128000	30080 4352
33	SGI T3E750 LC224-128	CSC (Center for Scientific Computing) Espoo Finland /1997	Academic	224	**115300** 168000	. .
34	SGI T3E LC256-128	CNRS/IDRIS Orsay France /1996	Research	256	**112800** 153600	59904 8832
35	SGI T3E LC256-128	Government USA /1997	Classified	256	**112800** 153600	59904 8832
36	SGI T3E LC256-128	UCSD/San Diego Supercomputer Center San Diego USA /1996	Academic	256	**112800** 153600	59904 8832
37	Fujitsu VPP700/56	Kyushu University Fukuoka Japan /1996	Academic	56	**110300** 123200	109200 10752
38	Fujitsu VPP500/80	National Lab. for High Energy Physics Japan /1994	Research	80	**109800** 128000	46400 11030
39	Fujitsu/SNI VPP700/52	Leibniz Rechenzentrum Muenchen Germany /1998	Academic	52	**106300** 114400	. .
40	SGI T3E750 LC208-128	Government USA /1997	Classified	208	**105900** 156000	. .

TOP500 Supercomputers - Worldwide

N world	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	**R_{max}** R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
41	Intel XP/S-MP 125	Japan Atomic Energy Research Japan /1996	Research	2502	**103500** 125100	. .
42	SGI T3D MC1024-8	Government USA /1994	Classified	1024	**100500** 152000	81920 10224
43	Sun HPC 10000 Cluster	Sun San Diego USA /1998	Vendor	256	**100400** 128000	80640 22528
44	SGI T3E LC216-128	National Supercomputer Centre (NSC) Linkoping Sweden /1997	Academic	216	**94210** 129600	. .
45	SGI T3E LC200-128	ARPA USA /1997	Academic	200	**86780** 120000	. .
46	IBM SP P2SC 160 MHz	IBM/Poughkeepsie Poughkeepsie USA /1997	Vendor	256	**83370** 163840	. .
47	IBM SP P2SC 135 MHz	DOD/CEWES Vicksburg USA /1997	Industry	256	**83370** 138240	. .
48	IBM SP P2SC 135 MHz	Wright-Patterson Air Force Base USA /1997	Research	256	**83370** 138240	. .
49	SGI T3E900 LC136-128	ZIB/Konrad Zuse-Zentrum fuer Informationstechnik Berlin Germany /1997	Academic	136	**82330** 122400	. .
50	IBM SP P2SC 160 MHz	Maui High-Performance Computing Center (MHPCC) USA /1998	Research	243	**80710** 155520	. .
51	SGI T3E750 LC160-128	Government USA /1997	Classified	160	**80500** 120000	. .
52	SGI T3E900 LC128-128	KIST/System Engineering Research Institute (SSC) Korea /1997	Research	128	**77520** 115200	42240 6432
53	SGI T3E LC176-128	Commissariat a l'Energie Atomique (CEA) Limeil France /1997	Research	176	**76230** 105600	. .
54	SGI T3E LC160-128	NRI for Earth Science and Disaster (NIED) Japan /1997	Research	160	**69390** 96000	. .
55	IBM SP2/402	Chip Manufacturer (B) USA /1997	Industry	402	**69330** 106530	. .
56	NEC SX-4/32	Bureau of Meterology Melbourne Australia /1997	Research Weather	32	**61770** 64000	20480 1688
57	NEC SX-4/32	NEC Fuchu Plant Tokyo Japan /1995	Vendor Benchmarking	32	**61770** 64000	20480 1688
58	NEC SX-4/32	National Institute for Environmental Studies Tsukuba Japan /1997	Research Environment	32	**61770** 64000	20480 1688
59	NEC SX-4/32	Universitaet Stuttgart Stuttgart Germany /1996	Research	32	**61770** 64000	20480 1688
60	IBM SP P2SC 160 MHz	KTH - Royal Institute of Technology Stockholm Sweden /1998	Research	146	**60910** 93440	. .

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N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
61	TMC CM-5/1056	Los Alamos National Laboratory Los Alamos USA /1993	Research Energy	1056	**59700** 135100	52224 24064
62	Fujitsu VPP500/42	Japan Atomic Energy Research Japan /1994	Research	42	**59600** 67200	. .
63	Fujitsu VPP500/42	Nagoya University Nagoya Japan /1995	Academic	42	**59600** 67200	. .
64	SGI T3E LC136-128	Government USA /1997	Classified	136	**59130** 81800	. .
65	Hitachi SR2201/256	Real World Computing (RWCP) Tokyo Japan /1997	Research	256	**58680** 77000	77760 13440
66	Hitachi SR2201/256	Tokyo University - Human Genome Center/IMS Tokyo Japan /1998	Academic	256	**58680** 77000	77760 13440
67	SGI T3E900 LC96-128	University of Alaska - ARSC Fairbanks USA /1997	Academic	96	**58440** 86400	. .
68	Fujitsu VPP700/26E	Direction de la Meteorologie Nationale Toulouse France /1997	Research Weather	26	**58000** 62400	74880 5200
69	IBM SP P2SC 160 MHz	UCSD/San Diego Supercomputer Center San Diego USA /1997	Academic	128	**57240** 81920	39000 9180
70	Fujitsu VPP500/40	National Institute of Genetics Mishima Japan /1995	Research	40	**56900** 64000	. .
71	Fujitsu VPP500/40	Tokyo University - Inst. of Solid State Physics Tokyo Japan /1994	Academic	40	**56900** 64000	. .
72	IBM SP P2SC 160 MHz	Nichols Research Corp. USA /1998	Industry	126	**56370** 80640	. .
73	SGI T3E AC128-128	Computer Sciences Corporation (CSC) Farnborough UK /1997	Industry Aerospace	128	**55720** 76800	42240 5952
74	SGI T3E AC128-64	Japan Adv. Inst. of Science and Technology (JAIST) Hokuriku Japan /1997	Academic	128	**55720** 76800	42240 5952
75	SGI T3E LC128-128	Ohio Supercomputer Center Columbus USA /1997	Academic	128	**55720** 76800	42240 5952
76	IBM SP P2SC 120 MHz	Cornell Theory Center Ithaca USA /1997	Academic	160	**52960** 76800	. .
77	Hewlett-Packard Exemplar X-Class	Caltech/JPL Pasadena USA /1997	Research	128	**51300** 92160	46128 .
78	Hewlett-Packard Exemplar X-Class	Hewlett-Packard CXTC Richardson USA /1997	Vendor Benchmarking	128	**51300** 92160	46128 .
79	IBM SP P2SC 160 MHz	Chip Manufacturer (D) USA /1998	Industry	114	**51160** 72960	. .
80	Hitachi SR2201/224	University of Cambridge Cambridge UK /1997	Academic	224	**51130** 67200	. .

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N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	**R_{max}** R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
81	SGI T3D MC512-8	Los Alamos National Laboratory Los Alamos USA /1994	Research Energy	512	**50800** 76000	57856 7136
82	SGI T3D MC512-8	Minnesota Supercomputer Center USA /1995	Academic	512	**50800** 76000	57856 7136
83	SGI T3D MC512-8	Pittsburgh Supercomputing Center Pittsburgh USA /1994	Academic	512	**50800** 76000	57856 7136
84	SGI T3D MC512-8	University of Edinburgh Edinburgh UK /1996	Academic	512	**50800** 76000	57856 7136
85	IBM SP P2SC 120 MHz	Chip Manufacturer (A) USA /1997	Industry	152	**50420** 72960	. .
86	SGI T3E900 AC80-64	The Scripps Research Institute La Jolla USA /1997	Research	80	**48900** 72000	. .
87	NEC SX-4/25	NAL Japan /1997	Research	25	**48350** 50000	. .
88	Fujitsu VPP500/32	The Angstrom Technology Partnership Tsukuba Japan /1993	Research	32	**46100** 51200	29760 5350
89	IBM SP2/256	Universitaet/Forschungszentrum Karlsruhe Karlsruhe Germany /1997	Academic	256	**44200** 68000	53000 13500
90	SGI T3E LC96-128	NERSC/LBNL/Berkeley Labs Berkeley USA /1997	Research	96	**42010** 57600	. .
91	Fujitsu VPP500/28	Institute of Physical and Chemical Res. (RIKEN) Tokyo Japan /1993	Research	28	**40475** 44800	. .
92	IBM SP P2SC 160 MHz	Korean Telecom Korea /1998	Industry	89	**40300** 56960	. .
93	SGI ORIGIN 2000	Cray Research Eagan USA /1997	Vendor	128	**40250** 49920	60000 6000
94	SGI ORIGIN 2000	Cray Research Eagan USA /1998	Vendor	128	**40250** 49920	60000 6000
95	SGI ORIGIN 2000	DOD/CEWES Vicksburg USA /1998	Research	128	**40250** 49920	60000 6000
96	SGI ORIGIN 2000	Kyoto University Kyoto Japan /1997	Academic	128	**40250** 49920	60000 6000
97	SGI ORIGIN 2000	Los Alamos National Laboratory Los Alamos USA /1997	Research	128	**40250** 49920	60000 6000
98	SGI ORIGIN 2000	Los Alamos National Laboratory Los Alamos USA /1997	Research	128	**40250** 49920	60000 6000
99	SGI ORIGIN 2000	Los Alamos National Laboratory Los Alamos USA /1997	Research	128	**40250** 49920	60000 6000
100	SGI ORIGIN 2000	Los Alamos National Laboratory Los Alamos USA /1997	Research	128	**40250** 49920	60000 6000

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101	SGI ORIGIN 2000	Los Alamos National Laboratory Los Alamos USA /1997	Research	128	**40250** 49920	60000 6000
102	SGI ORIGIN 2000	Los Alamos National Laboratory Los Alamos USA /1997	Research	128	**40250** 49920	60000 6000
103	SGI ORIGIN 2000	Los Alamos National Laboratory Los Alamos USA /1997	Research	128	**40250** 49920	60000 6000
104	SGI ORIGIN 2000	Los Alamos National Laboratory Los Alamos USA /1997	Research	128	**40250** 49920	60000 6000
105	SGI ORIGIN 2000	Los Alamos National Laboratory Los Alamos USA /1997	Research	128	**40250** 49920	60000 6000
106	SGI ORIGIN 2000	Los Alamos National Laboratory Los Alamos USA /1997	Research	128	**40250** 49920	60000 6000
107	SGI ORIGIN 2000	Los Alamos National Laboratory Los Alamos USA /1997	Research	128	**40250** 49920	60000 6000
108	SGI ORIGIN 2000	Los Alamos National Laboratory Los Alamos USA /1997	Research	128	**40250** 49920	60000 6000
109	SGI ORIGIN 2000	Los Alamos National Laboratory Los Alamos USA /1997	Research	128	**40250** 49920	60000 6000
110	SGI ORIGIN 2000	Los Alamos National Laboratory Los Alamos USA /1997	Research	128	**40250** 49920	60000 6000
111	SGI ORIGIN 2000	NASA/Ames Research Center/NAS Mountain View USA /1998	Research Aerospace	128	**40250** 49920	60000 6000
112	SGI ORIGIN 2000	NASA/Ames Research Center/NAS Mountain View USA /1998	Research Aerospace	128	**40250** 49920	60000 6000
113	SGI ORIGIN 2000	NCSA Urbana-Champaign USA /1997	Research	128	**40250** 49920	60000 6000
114	SGI ORIGIN 2000	Naval Oceanographic Office (NAVOCEANO) Bay Saint Louis USA /1997	Research Aerospace	128	**40250** 49920	60000 6000
115	SGI ORIGIN 2000	Naval Research Laboratory (NRL) Washington D.C. USA /1997	Research	128	**40250** 49920	60000 6000
116	SGI ORIGIN 2000	Sandia National Labs Albuquerque USA /1997	Research	128	**40250** 49920	60000 6000
117	SGI ORIGIN 2000	US Army Research Laboratory (ARL) Aberdeen USA /1998	Research	128	**40250** 49920	60000 6000
118	SGI ORIGIN 2000	US Army Research Laboratory (ARL) Aberdeen USA /1998	Research	128	**40250** 49920	60000 6000
119	SGI ORIGIN 2000	US Army Space and Missile Defense Command Arlington USA /1998	Research	128	**40250** 49920	60000 6000
120	SGI ORIGIN 2000	University of Bergen Bergen Norway /1997	Academic	128	**40250** 49920	60000 6000

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N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
121	SGI ORIGIN 2000	University of Tokyo Tokyo Japan /1997	Academic	128	**40250** 49920	60000 6000
122	SGI ORIGIN 2000	University of Tokyo Tokyo Japan /1997	Academic	128	**40250** 49920	60000 6000
123	SGI ORIGIN 2000	Vertex Pharmaceuticals Cambridge USA /1997	Industry Chemistry	128	**40250** 49920	60000 6000
124	SGI ORIGIN 2000	White Sands Missile Range National Directorate White Sands USA /1998	Classified	128	**40250** 49920	60000 6000
125	SGI ORIGIN 2000	Wright-Patterson Air Force Base USA /1998	Research	128	**40250** 49920	60000 6000
126	SGI ORIGIN 2000	Wright-Patterson Air Force Base USA /1998	Research	128	**40250** 49920	60000 6000
127	SGI ORIGIN 2000 250 MHz	Computer Sciences Corporation (CSC) Farnborough UK /1998	Industry Aerospace	128	**40250** 32000	60000 6000
128	SGI ORIGIN 2000 250 MHz	NCAR (National Center for Atmospheric Research) Boulder USA /1998	Research	128	**40250** 32000	60000 6000
129	SGI T3E900 AC64-128	Phillips Petroleum Company Bartlesville USA /1997	Industry Geophysics	64	**39360** 57600	29952 4416
130	IBM SP2/224	Maui High-Performance Computing Center (MHPCC) USA /1994	Research	224	**39030** 59580	. .
131	NEC SX-4/20	Japan Marine Science and Technology Yokosuka Japan /1995	Research	20	**38760** 40000	. .
132	NEC SX-4/20	National Research Institute for Metals Tsukuba Japan /1996	Research	20	**38760** 40000	. .
133	NEC SX-4/20	Toyota Central Research Development Japan /1996	Industry Automotive	20	**38760** 40000	. .
134	SGI T3E LC88-128	EXXON USA /1998	Industry Geophysics	88	**38580** 52800	. .
135	SGI T3E AC88-128	Norwegian University of Science and Technology Trondheim Norway /1997	Academic	88	**38580** 52800	. .
136	Fujitsu VPP700/17E	Communications Res. Lab. (CRL) Tokyo Japan /1998	Research	17	**38560** 40800	. .
137	IBM SP P2SC 120 MHz	CNUSC Montpellier France /1997	Academic	107	**36170** 51360	. .
138	SGI T3E AC80-128	Technical University Delft (TUD) Delft Netherlands /1997	Academic	80	**35160** 48000	. .
139	IBM SP P2SC 160 MHz	SARA (Stichting Academisch Rekencentrum) Amsterdam Netherlands /1998	Research	76	**34660** 48640	. .
140	SGI T3E900 LC56-128	Government USA /1998	Classified	56	**34410** 50400	. .

TOP500 Supercomputers - Worldwide

N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
141	Sun HPC 10000 333 MHz	Commerzbank Germany /1998	Industry Finance	64	**34170** 42600	20352 3648
142	Sun HPC 10000 333 MHz	Commerzbank Germany /1998	Industry Finance	64	**34170** 42600	20352 3648
143	Sun HPC 10000 333 MHz	Commerzbank Germany /1998	Industry Finance	64	**34170** 42600	20352 3648
144	Sun HPC 10000 333 MHz	Commerzbank Germany /1998	Industry Finance	64	**34170** 42600	20352 3648
145	Sun HPC 10000 333 MHz	Commerzbank Germany /1998	Industry Finance	64	**34170** 42600	20352 3648
146	Sun HPC 10000 333 MHz	Owens Corning USA /1998	Industry	64	**34170** 42600	20352 3648
147	Fujitsu VPP300/16	Japan Atomic Energy Research Japan /1996	Research	16	**34100** 35200	59200 3520
148	Fujitsu VPP300/16	Japan Science and Technology Tokyo Japan /1996	Research	16	**34100** 35200	59200 3520
149	Fujitsu VPP300/16	Reactor Nuclear Fuel Development Japan /1996	Research	16	**34100** 35200	59200 3520
150	Fujitsu/SNI VPP300/16	Universitaet/Forschungszentrum Karlsruhe Karlsruhe Germany /1997	Academic	16	**34100** 35200	59200 3520
151	IBM SP PC604 332 MHz	Lawrence Livermore National Laboratory Livermore USA /1998	Research Energy	760	**34050** 504640	80000 10000
152	IBM SP PC604 332 MHz	Lawrence Livermore National Laboratory Livermore USA /1998	Research Energy	680	**34050** 451520	80000 10000
153	Intel XP/S-MP 41	Rome Laboratory USA /1995	Research	816	**33700** 40800	. .
154	IBM SP P2SC 120 MHz	Argonne National Laboratory USA /1996	Research	94	**32050** 45120	. .
155	NEC SX-4/16	Danish Meteorological Institute Copenhagen Denmark /1997	Research	16	**31100** 32000	20480 960
156	NEC SX-4/16	National Aerospace Laboratory (NLR) Noordoostpolder Netherlands /1996	Research Aerospace	16	**31100** 32000	20480 960
157	NEC SX-4/16	National Cardiovascular Center Japan /1996	Research	16	**31100** 32000	20480 960
158	NEC SX-4/16	Swiss Scientific Computing Center (CSCS) Manno Switzerland /1996	Research	16	**31100** 32000	20480 960
159	Digital AlphaServer 8400 Cluster	Sandia National Labs Albuquerque USA /1997	Research	84	**30900** 102900	30704 8360
160	Digital AlphaServer 8400 Cluster	Lawrence Livermore National Laboratory Livermore USA /1998	Research	80	**30900** 98000	30704 8360

TOP500 Supercomputers - Worldwide

N world	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	**R_{max}** R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
161	Digital AlphaServer 8400 Cluster	Digital Equipment Corporation Maynard USA /1997	Vendor Benchmarking	64	**30900** 78400	30704 8360
162	IBM SP P2SC 160 MHz	TRW USA /1998	Industry	66	**30310** 42240	. .
163	IBM SP PC604 332 MHz	Phillips Research Netherlands /1998	Industry	112	**29780** 74360	. .
164	Hitachi SR2201/128	Hitachi Mechanical Engineering Res. Lab. Japan /1998	Research	128	**29460** 38500	51840 7680
165	SGI Y-MP T932/321024	Government USA /1996	Classified	32	**29360** 58000	. .
166	SGI Y-MP T932/321024	Government USA /1997	Classified	32	**29360** 58000	. .
167	SGI Y-MP T932/321024	Government USA /1998	Classified	32	**29360** 58000	. .
168	SGI Y-MP T932/321024	NRI for Earth Science and Disaster (NIED) Japan /1997	Research	32	**29360** 58000	. .
169	SGI Y-MP T932/321024	Nippon Telegraph and Telephone (NTT) Tokyo Japan /1995	Industry Finance	32	**29360** 58000	. .
170	IBM SP P2SC 160 MHz	ETH Zuerich Switzerland /1998	Research	62	**28540** 39680	. .
171	IBM SP P2SC 160 MHz	Georgia Institute of Technology Atlanta USA /1997	Research	62	**28540** 39680	. .
172	Hitachi S-3800/480	Hitachi Ltd. GPCD Japan /1994	Vendor Software	4	**28400** 32000	15500 830
173	Hitachi S-3800/480	Japan Meteorological Agency Japan /1995	Research Weather	4	**28400** 32000	15500 830
174	Hitachi S-3800/480	University of Tokyo Tokyo Japan /1993	Academic	4	**28400** 32000	15500 830
175	Sun HPC 10000 333 MHz	Viag Interkom Germany /1998	Industry Telecomm	52	**28320** 34632	20352 3072
176	Sun HPC 10000 333 MHz	Viag Interkom Germany /1998	Industry Telecomm	52	**28320** 34632	20352 3072
177	SGI T3E AC64-128	EDS/General Motors Auburn Hills USA /1996	Industry Automotive	64	**28310** 38400	29952 4032
178	SGI T3E AC64-128	University of Texas Austin USA /1997	Academic	64	**28310** 38400	29952 4032
179	Digital AlphaServer 8400 Cluster	Sandia National Labs Albuquerque USA /1997	Research	60	**28145** 73500	. .
180	Fujitsu VPP300/13	Australian National University Canberra Australia /1996	Academic	13	**27720** 28600	. .

N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
181	Hewlett-Packard Exemplar X-Class	Caltech/JPL Pasadena USA /1997	Research	64	**27560** 46080	29956 4584
182	Hewlett-Packard Exemplar X-Class	Caltech/JPL Pasadena USA /1997	Research	64	**27560** 46080	29956 4584
183	Hewlett-Packard Exemplar X-Class	HTC Babelsberg Germany /1997	Industry Image Proc.	64	**27560** 46080	29956 4584
184	Hewlett-Packard Exemplar X-Class	NCSA Urbana-Champaign USA /1997	Academic	64	**27560** 46080	29956 4584
185	Hewlett-Packard Exemplar X-Class	Naval Research Laboratory (NRL) Washington D.C. USA /1997	Classified	64	**27560** 46080	29956 4584
186	Hewlett-Packard Exemplar X-Class	Samsung Korea /1998	Industry Electronics	64	**27560** 46080	29956 4584
187	Hewlett-Packard Exemplar X-Class	University of Kentucky Lexington USA /1998	Academic	64	**27560** 46080	29956 4584
188	SGI Y-MP T932/261024	NOAA/Geophysical Fluid Dynamics Laboratory (GFDL) Princeton USA /1997	Research Weather	26	**26960** 47120	. .
189	SGI Y-MP T932/261024	Naval Oceanographic Office (NAVOCEANO) Bay Saint Louis USA /1998	Research	26	**26960** 47120	. .
190	Sun HPC 10000	ATT USA /1997	Industry	64	**26450** 32000	19968 3072
191	Sun HPC 10000	ATT USA /1997	Industry	64	**26450** 32000	19968 3072
192	Sun HPC 10000	ATT USA /1997	Industry	64	**26450** 32000	19968 3072
193	Sun HPC 10000	Chalmers University of Technology Goteborg Sweden /1997	Academic	64	**26450** 32000	19968 3072
194	Sun HPC 10000	GTE Communications USA /1997	Industry Telecomm	64	**26450** 32000	19968 3072
195	Sun HPC 10000	Kawasaki Heavy Industrie Japan /1998	Industry Manufacturing	64	**26450** 32000	19968 3072
196	Sun HPC 10000	Motorola USA /1997	Industry	64	**26450** 32000	19968 3072
197	Sun HPC 10000	Sun San Diego USA /1997	Vendor	64	**26450** 32000	19968 3072
198	Sun HPC 10000	Tokyo Mitsubishi Bank London UK /1997	Industry	64	**26450** 32000	19968 3072
199	Sun HPC 10000	University of Tokyo Tokyo Japan /1997	Academic	64	**26450** 32000	19968 3072
200	Sun HPC 10000	Virginia Social USA /1997	Research Database	64	**26450** 32000	19968 3072

TOP500 **Supercomputers - Worldwide**

N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
201	SGI Y-MP T932/24512	Commissariat a l'Energie Atomique (CEA) Limeil France /1997	Research	24	**26170** 43500	. .
202	SGI Y-MP T932/241024	Ford Motor Company Dearborn USA /1996	Industry Automotive	24	**26170** 43500	. .
203	Fujitsu VPP300/12	Japan Atomic Energy Research Japan /1996	Research	12	**25600** 26400	. .
204	IBM SP2 77 MHz wide	Pacific Northwest National Laboratoriy Richland USA /1997	Research	128	**25420** 39420	. .
205	Sun HPC 10000 333 MHz	American Express Belgium /1998	Industry	46	**25370** 30630	. .
206	SGI T3D MC256-8/464	Bear Stearns USA /1996	Industry Finance	256	**25300** 38000	40960 4918
207	SGI T3D SC256-8/264	Caltech/JPL Pasadena USA /1994	Research	256	**25300** 38000	40960 4918
208	SGI T3D MC256-8	Defense Research Agency (DRA) Farnborough UK /1994	Classified	256	**25300** 38000	40960 4918
209	SGI T3D MC256-8	EXXON USA /1995	Industry Geophysics	256	**25300** 38000	40960 4918
210	SGI T3D MC256-8	Ecole Polytechnique Federale de Lausanne Lausanne Switzerland /1994	Academic	256	**25300** 38000	40960 4918
211	SGI T3D SC256-8/464	ZIB/Konrad Zuse-Zentrum fuer Informationstechnik Berlin Germany /1995	Academic	256	**25300** 38000	40960 4918
212	Digital AlphaServer 8400 Cluster	Lawrence Livermore National Laboratory Livermore USA /1997	Research	54	**24780** 66150	. .
213	SGI T3E900 AC40-128	NOAA/Geophysical Fluid Dynamics Laboratory (GFDL) Princeton USA /1997	Research Weather	40	**24510** 36000	. .
214	SGI T3E900 AC40-128	North Carolina Supercomputing Center (NCSC) USA /1997	Academic	40	**24510** 36000	. .
215	SGI T3E900 AC40-128	Universitaet Rostock Germany /1997	Academic	40	**24510** 36000	. .
216	Fujitsu VPP500/16	Reactor Nuclear Fuel Development Japan /1996	Research	16	**23600** 25600	21120 3360
217	Sun HPC 10000 333 MHz	Commerzbank Germany /1998	Industry Finance	42	**23310** 27970	. .
218	NEC SX-4/12A	Veritas DGC Crawley UK /1997	Industry Geophysics	12	**23260** 32000	. .
219	SGI ORIGIN 2000	Oxford University Oxford UK /1998	Academic	74	**23260** 28860	. .
220	NEC SX-3/44R	Tohoku University Aramaki Japan /1993	Academic	4	**23200** 26000	6400 830

TOP500 **Supercomputers - Worldwide**

N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
221	IBM SP P2SC 120 MHz	University of Umea / HPC2N Sweden /1997	Academic	66	**23180** 31680	. .
222	Fujitsu VPP300/10E	FDK Corporation Japan /1997	Industry	10	**23050** 24000	. .
223	SGI T3E AC52-128	AWI (Alfred Wegener Institut) Bremerhaven Germany /1996	Research	52	**22950** 31200	. .
224	IBM SP P2SC 120 MHz	University of Houston USA /1997	Academic	64	**22550** 30720	27400 6500
225	Hewlett-Packard Exemplar X-Class	Arnold Engineering Development Center (AEDC) Arnold AFB USA /1997	Classified	48	**22310** 34560	29956 .
226	Hewlett-Packard Exemplar X-Class	S. A. IT Korea /1998	Research	48	**22310** 34560	29956 .
227	Hewlett-Packard Exemplar X-Class	Tohoku University Aramaki Japan /1997	Academic	48	**22310** 34560	29956 .
228	Hewlett-Packard Exemplar X-Class	Universitaet Leipzig Leipzig Germany /1997	Academic	48	**22310** 34560	29956 .
229	Hewlett-Packard Exemplar X-Class	Universitaet Mainz Mainz Germany /1997	Academic	48	**22310** 34560	29956 .
230	Sun HPC 10000 333 MHz	Commerzbank Germany /1998	Industry Finance	40	**22270** 26640	20352 2496
231	IBM SP P2SC 160 MHz	Queen's University of Belfast Belfast UK /1998	Academic	48	**22190** 30720	. .
232	Fujitsu VPP500/15	Kyoto University Kyoto Japan /1994	Academic	15	**22150** 24000	. .
233	SGI T3E900 AC36-128	CIEMAT Spain /1998	Research	36	**22040** 32400	. .
234	Sun HPC 10000	INEM Spain /1997	Research	52	**21680** 26000	19968 2496
235	Sun HPC 10000	Micron Technology Boise USA /1997	Industry	52	**21680** 26000	19968 2496
236	Hitachi S-3800/380	Hokkaido University Sapporo Japan /1994	Academic	3	**21600** 24000	15680 760
237	Hitachi S-3800/380	Institute for Materials Research/Tohoku University Japan /1994	Academic	3	**21600** 24000	15680 760
238	SGI T3E AC48-128	Mobil / Technical Center Tulsa USA /1997	Industry Geophysics	48	**21170** 28800	. .
239	Sun HPC 10000	Allstate Insurance Chicago USA /1997	Industry Database	50	**21050** 25000	19968 2496
240	Sun HPC 10000	GTE Communications USA /1997	Industry Telecomm	50	**21050** 25000	19968 2496

N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
241	IBM SP2/110	National Center for High Performance Computing Hsinchu Taiwan /1998	Academic	110	**20370** 29210	. .
242	Sun HPC 10000	ATT BMD USA /1998	Industry Telecomm	48	**20300** 24000	19968 2496
243	Sun HPC 10000	American Airlines USA /1998	Industry	48	**20300** 24000	19968 2496
244	Sun HPC 10000	Cincinnati Bell Information Systems (CBIS) Cleveland USA /1997	Industry Telecomm	48	**20300** 24000	19968 2496
245	Sun HPC 10000	Daiei Information Japan /1997	Industry Database	48	**20300** 24000	19968 2496
246	Sun HPC 10000	Daiei Information Japan /1998	Industry Database	48	**20300** 24000	19968 2496
247	Sun HPC 10000	Kwiksave UK /1998	Industry Database	48	**20300** 24000	19968 2496
248	Sun HPC 10000	Lockheed Martin USA /1998	Industry Aerospace	48	**20300** 24000	19968 2496
249	Sun HPC 10000	Ministry of the Interior Seoul Korea /1997	Classified	48	**20300** 24000	19968 2496
250	Sun HPC 10000	Ministry of the Interior Seoul Korea /1997	Classified	48	**20300** 24000	19968 2496
251	Sun HPC 10000	National Reserve Bank Moscow Russian Federation/1997	Industry	48	**20300** 24000	19968 2496
252	Sun HPC 10000	Oracle Corporation Redwood Shores USA /1997	Industry Database	48	**20300** 24000	19968 2496
253	Sun HPC 10000	Oracle Corporation Redwood Shores USA /1997	Industry Database	48	**20300** 24000	19968 2496
254	Sun HPC 10000	Toshiba Tokyo Japan /1997	Industry	48	**20300** 24000	19968 2496
255	Sun HPC 10000 333 MHz	Daimler Benz Quis Germany /1998	Industry Automotive	36	**20110** 23900	20352 2304
256	SGI ORIGIN 2000	Boston University Boston USA /1997	Academic	64	**20100** 24960	40000 4000
257	SGI ORIGIN 2000	Boston University Boston USA /1997	Academic	64	**20100** 24960	40000 4000
258	SGI ORIGIN 2000	Boston University Boston USA /1997	Academic	64	**20100** 24960	40000 4000
259	SGI ORIGIN 2000	C4 / Centre Europeo del Parallelismo de Barcelona Barcelona Spain /1997	Academic	64	**20100** 24960	40000 4000
260	SGI ORIGIN 2000	Cambridge University Cambridge UK /1997	Academic	64	**20100** 24960	40000 4000

TOP500 Supercomputers - Worldwide

N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	**R_{max}** R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
261	SGI ORIGIN 2000	Centre de Res. Inform. de Haute Normandie (CRIHAN) Rouen France /1997	Research	64	**20100** 24960	40000 4000
262	SGI ORIGIN 2000	Chalmers University of Technology Goteborg Sweden /1997	Academic	64	**20100** 24960	40000 4000
263	SGI ORIGIN 2000	Compagnie Generale de Geophysique (CGG) Londres UK /1997	Industry Geophysics	64	**20100** 24960	40000 4000
264	SGI ORIGIN 2000	Denso Japan /1997	Industry	64	**20100** 24960	40000 4000
265	SGI ORIGIN 2000	Denso Japan /1998	Industry	64	**20100** 24960	40000 4000
266	SGI ORIGIN 2000	E-Systems/Raytheon Lexington USA /1997	Industry	64	**20100** 24960	40000 4000
267	SGI ORIGIN 2000	E-Systems/Raytheon Lexington USA /1998	Industry	64	**20100** 24960	40000 4000
268	SGI ORIGIN 2000	E-Systems/Raytheon Lexington USA /1998	Industry	64	**20100** 24960	40000 4000
269	SGI ORIGIN 2000	EDS USA /1997	Research	64	**20100** 24960	40000 4000
270	SGI ORIGIN 2000	Ecole Polytechnique Federale de Lausanne Lausanne Switzerland /1998	Academic	64	**20100** 24960	40000 4000
271	SGI ORIGIN 2000	Government USA /1997	Industry	64	**20100** 24960	40000 4000
272	SGI ORIGIN 2000	Government USA /1998	Classified	64	**20100** 24960	40000 4000
273	SGI ORIGIN 2000	Government USA /1998	Classified	64	**20100** 24960	40000 4000
274	SGI ORIGIN 2000	Government USA /1998	Classified	64	**20100** 24960	40000 4000
275	SGI ORIGIN 2000	Government USA /1998	Classified	64	**20100** 24960	40000 4000
276	SGI ORIGIN 2000	Government USA /1998	Classified	64	**20100** 24960	40000 4000
277	SGI ORIGIN 2000	INRIA-Lorraine/Centre Charles Hermite Nancy France /1997	Research	64	**20100** 24960	40000 4000
278	SGI ORIGIN 2000	Indiana University Bloomington USA /1997	Academic	64	**20100** 24960	40000 4000
279	SGI ORIGIN 2000	Lockheed Martin USA /1997	Research	64	**20100** 24960	40000 4000
280	SGI ORIGIN 2000	NASA USA /1997	Research	64	**20100** 24960	40000 4000

TOP500 **Supercomputers - Worldwide**

N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
281	SGI ORIGIN 2000	NASA USA /1997	Research	64	**20100** 24960	40000 4000
282	SGI ORIGIN 2000	NASA/Ames Research Center/NAS Mountain View USA /1997	Research Aerospace	64	**20100** 24960	40000 4000
283	SGI ORIGIN 2000	NASA/Ames Research Center/NAS Mountain View USA /1998	Research Aerospace	64	**20100** 24960	40000 4000
284	SGI ORIGIN 2000	NASA/Langley Research Center Langley USA /1997	Research	64	**20100** 24960	40000 4000
285	SGI ORIGIN 2000	NCSA Urbana-Champaign USA /1997	Research	64	**20100** 24960	40000 4000
286	SGI ORIGIN 2000	NCSA Urbana-Champaign USA /1997	Research	64	**20100** 24960	40000 4000
287	SGI ORIGIN 2000	NCSA Urbana-Champaign USA /1997	Research	64	**20100** 24960	40000 4000
288	SGI ORIGIN 2000	NCSA Urbana-Champaign USA /1997	Research	64	**20100** 24960	40000 4000
289	SGI ORIGIN 2000	NCSA Urbana-Champaign USA /1997	Research	64	**20100** 24960	40000 4000
290	SGI ORIGIN 2000	NCSA Urbana-Champaign USA /1997	Research	64	**20100** 24960	40000 4000
291	SGI ORIGIN 2000	NSWC USA /1997	Research	64	**20100** 24960	40000 4000
292	SGI ORIGIN 2000	Princeton University Princeton USA /1997	Academic	64	**20100** 24960	40000 4000
293	SGI ORIGIN 2000	Sandia National Labs Albuquerque USA /1997	Research	64	**20100** 24960	40000 4000
294	SGI ORIGIN 2000	Silicon Graphics Mountain View USA /1997	Vendor Software	64	**20100** 24960	40000 4000
295	SGI ORIGIN 2000	Sylvest Management Systems USA /1997	Industry	64	**20100** 24960	40000 4000
296	SGI ORIGIN 2000	US Air Force San Antonio USA /1997	Classified	64	**20100** 24960	40000 4000
297	SGI ORIGIN 2000	US Army Space and Missile Defense Command Arlington USA /1998	Research	64	**20100** 24960	40000 4000
298	SGI ORIGIN 2000	University of Queensland St Lucia Australia /1998	Academic	64	**20100** 24960	40000 4000
299	SGI ORIGIN 2000	University of Utah Salt Lake City USA /1997	Academic	64	**20100** 24960	40000 4000
300	SGI ORIGIN 2000	University of Valencia Valencia Spain /1997	Academic	64	**20100** 24960	40000 4000

TOP500 Supercomputers - Worldwide

N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	**R_{max}** R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
301	SGI ORIGIN 2000	Vastar Houston USA /1997	Industry Geophysics	64	**20100** 24960	40000 4000
302	SGI ORIGIN 2000	Wright-Patterson Air Force Base USA /1996	Research	64	**20100** 24960	40000 4000
303	SGI ORIGIN 2000	Wright-Patterson Air Force Base USA /1997	Research	64	**20100** 24960	40000 4000
304	SGI ORIGIN 2000	Wright-Patterson Air Force Base USA /1997	Research	64	**20100** 24960	40000 4000
305	SGI Y-MP T916/161024	Forschungszentrum Juelich (FZJ) Juelich Germany /1998	Research	16	**19980** 29000	. .
306	SGI Y-MP T916/16512	Nissan Motor Kanagawa Japan /1997	Industry Automotive	16	**19980** 29000	. .
307	Sun HPC 10000	ATT Solution Center USA /1997	Industry Telecomm	23	**19860** 11500	. .
308	IBM SP P2SC 120 MHz	Chase Manhattan New York USA /1997	Industry Finance	56	**19750** 26880	. .
309	SGI T3E900 AC32-64	MIT/Lincoln Laboratory Cambridge USA /1997	Academic	32	**19570** 28800	21120 3048
310	Sun HPC 10000 333 MHz	RAG Informatik Germany /1998	Industry	35	**19560** 23310	. .
311	Sun HPC 10000	American Express USA /1998	Industry Database	46	**19480** 23000	. .
312	IBM SP P2SC 160 MHz	Telecom Denmark (Danadata) Denmark /1997	Industry Database	42	**19460** 26880	. .
313	IBM SP2/104	MCI USA /1994	Industry Telecomm	104	**19340** 27620	. .
314	IBM SP2/104	NIH (National Institutes of Health) Bethesda USA /1997	Research	104	**19340** 27620	. .
315	Digital Avalon Cluster	Los Alamos National Laboratory /CNLS Los Alamos USA /1998	Academic	68	**19330** 72480	30464 14376
316	Fujitsu VPP300/9	ECMWF Reading UK /1997	Research Weather	9	**19225** 19800	. .
317	Sun HPC 10000	Ameritech USA /1998	Industry Telecomm	44	**18670** 22000	19968 2496
318	Sun HPC 10000	Worldcom USA /1998	Industry Telecomm	44	**18670** 22000	19968 2496
319	Fujitsu VPP300/8E	Kansai University Japan /1997	Academic	8	**18600** 19200	41600 2400
320	Fujitsu VPP300/8E	Osaka Gas., Ltd Osaka Japan /1998	Industry Chemistry	8	**18600** 19200	41600 2400

N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	**R_{max}** R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
321	SGI POWER CHALLENGEarray	US Army Research Laboratory (ARL) Aberdeen USA /1995	Research	96	**18455** 28800	53000 20000
322	IBM SP2/98	Citicorp USA /1996	Industry Finance	98	**18310** 26030	. .
323	SGI ORIGIN 2000 250 MHz	Lunds Tekniska Hvgskola Sweden /1998	Academic	46	**18180** 23000	. .
324	IBM SP2/96	Maui High-Performance Computing Center (MHPCC) USA /1994	Research	96	**17970** 25500	. .
325	Sun HPC 10000 333 MHz	DoD USA /1998	Classified	32	**17910** 21310	20352 2112
326	Sun HPC 10000 333 MHz	Mississippi State University Starkeville USA /1998	Academic	32	**17910** 21310	20352 2112
327	SGI/SNI ORIGIN 2000	Universitaet Dresden Dresden Germany /1997	Academic	56	**17800** 21840	. .
328	SGI Y-MP T916/14512	UCSD/San Diego Supercomputer Center San Diego USA /1997	Academic	14	**17700** 25370	. .
329	IBM SP P2SC 120 MHz	Western Geophysical Houston USA /1997	Industry Geophysics	50	**17660** 24000	. .
330	IBM SP P2SC 160 MHz	Western Geophysical Houston USA /1998	Industry Geophysics	38	**17650** 24320	. .
331	NEC SX-3/34R	National Inst. for Molecular Science Okazaki Japan /1993	Research	3	**17400** 19500	6144 691
332	NEC SX-3/34R	VW (Volkswagen AG) Wolfsburg Germany /1996	Industry Automotive	3	**17400** 19500	6144 691
333	Sun HPC 10000	ATT CDW USA /1998	Industry Telecomm	40	**17120** 20500	19968 2496
334	Sun HPC 10000	Enron Capital Houston USA /1997	Industry	40	**17120** 20500	19968 2496
335	Sun HPC 10000	Federal Express USA /1997	Industry Database	40	**17120** 20500	19968 2496
336	Sun HPC 10000	General Electric Supply USA /1997	Industry Database	40	**17120** 20500	19968 2496
337	Sun HPC 10000	Merril Lynch USA /1998	Industry Finance	40	**17120** 20500	19968 2496
338	Sun HPC 10000	National Semiconductors USA /1997	Industry Electronics	40	**17120** 20500	19968 2496
339	Sun HPC 10000	Origin/ Halliburton USA /1997	Industry Energy	40	**17120** 20500	19968 2496
340	Sun HPC 10000	Origin/ Halliburton USA /1997	Industry Energy	40	**17120** 20500	19968 2496

N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
341	Sun HPC 10000	Universitaet Koeln Koeln Germany /1997	Academic	40	**17120** 20500	19968 2496
342	Sun HPC 10000	WBSG/BB Data Germany /1997	Industry Database	40	**17120** 20500	19968 2496
343	Fujitsu VPP300/8	Nippon University Japan /1996	Academic	8	**17100** 17600	41600 2080
344	Fujitsu/SNI VPP300/8	Universitaet Aachen Aachen Germany /1996	Academic	8	**17100** 17600	41600 2080
345	Fujitsu VPP300/8	Western Geophysical Houston USA /1997	Industry Geophysics	8	**17100** 17600	41600 2080
346	IBM SP P2SC 160 MHz	Chip Manufacturer (F) Israel /1998	Industry	36	**16745** 23040	. .
347	Sun HPC 10000	Moore Corporation USA /1998	Industry	39	**16690** 19500	. .
348	IBM SP2/88	UNI-C Lyngby Denmark /1997	Academic	88	**16600** 23370	. .
349	IBM SP P2SC 135 MHz	Western Geophysical London UK /1997	Industry Geophysics	42	**16410** 22680	. .
350	Sun HPC 10000	Cincinnati Bell Information Systems (CBIS) Cleveland USA /1997	Industry Telecomm	38	**16270** 19000	. .
351	Sun HPC 10000	Cincinnati Bell Information Systems (CBIS) Cleveland USA /1997	Industry Telecomm	38	**16270** 19000	. .
352	IBM SP P2SC 135 MHz	Chip Manufacturer (E) USA /1998	Industry	41	**16030** 22140	. .
353	Sun HPC 10000 333 MHz	Allianz Germany /1998	Industry Finance	28	**15660** 18640	20352 1728
354	Sun HPC 10000 333 MHz	Waste Management USA /1998	Industry Database	28	**15660** 18640	20352 1728
355	SGI POWER CHALLENGEarray	NCSA Urbana-Champaign USA /1996	Research	64	**15598** 23040	37000 8500
356	IBM SP P2SC 120 MHz	Centre de Supercomputacio de Catalunya Barcelona Spain /1997	Academic	44	**15560** 21120	. .
357	SGI ORIGIN 2000	Chrysler Motors Company Detroit USA /1998	Industry Automotive	48	**15500** 18720	. .
358	SGI ORIGIN 2000	Instituto Mexicano del Petroleo Mexico /1997	Industry Geophysics	48	**15500** 18720	. .
359	SGI ORIGIN 2000	MS Financing USA /1997	Research	48	**15500** 18720	. .
360	SGI Y-MP T932/121024	EDS/General Motors Auburn Hills USA /1997	Industry Automotive	12	**15430** 21750	. .

N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
361	SGI Y-MP T916/121024	US Army Research Laboratory (ARL) Aberdeen USA /1997	Research	12	**15430** 21750	. .
362	SGI Y-MP T916/12512	US Army Research Laboratory (ARL) Aberdeen USA /1997	Research	12	**15430** 21750	. .
363	NEC SX-4/8	ATR Optical Communication Lab Japan /1996	Research	8	**15430** 16000	9984 860
364	NEC SX-4/8	German Aerospace Laboratory (DLR) Goettingen Germany /1996	Research Aerospace	8	**15430** 16000	9984 860
365	NEC SX-4/8A	NEC Research Laboratories Japan /1997	Research	8	**15430** 16000	9984 860
366	NEC SX-4/8A	NEC Research Laboratories Japan /1997	Research	8	**15430** 16000	9984 860
367	NEC SX-4/8	National Geographic Agency Japan /1996	Research	8	**15430** 16000	9984 860
368	Sun HPC 10000	Allstate Insurance Chicago USA /1998	Industry Database	36	**15420** 18000	19968 2112
369	Sun HPC 10000	Enron Capital Houston USA /1997	Industry	36	**15420** 18000	19968 2112
370	Sun HPC 10000	GTE Communications USA /1997	Industry Telecomm	36	**15420** 18000	19968 2112
371	Sun HPC 10000	KT Freetel Seoul Korea /1997	Industry	36	**15420** 18000	19968 2112
372	Sun HPC 10000	Kwiksave UK /1997	Industry Database	36	**15420** 18000	19968 2112
373	Sun HPC 10000	Kwiksave UK /1997	Industry Database	36	**15420** 18000	19968 2112
374	Sun HPC 10000	Rubbermaid USA /1998	Industry	36	**15420** 18000	19968 2112
375	Sun HPC 10000	Rubbermaid USA /1998	Industry	36	**15420** 18000	19968 2112
376	Sun HPC 10000	Texas Instruments USA /1998	Industry Electronics	36	**15420** 18000	19968 2112
377	Intel XP/S35	Caltech Pasadena USA /1994	Research	512	**15200** 26000	23000 9000
378	Intel XP/S35	Oak Ridge National Laboratory Oak Ridge USA /1992	Research	512	**15200** 26000	23000 9000
379	TMC CM-5/256	Geco-Prakla Houston USA /1994	Industry Geophysics	256	**15100** 33000	26112 12032
380	TMC CM-5/256	Geco-Prakla Houston USA /1995	Industry Geophysics	256	**15100** 33000	26112 12032

N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
381	TMC CM-5/256	Naval Research Laboratory (NRL) Washington D.C. USA /1992	Research	256	**15100** 33000	26112 12032
382	Hewlett-Packard Exemplar X-Class	Arnold Engineering Development Center (AEDC) Arnold AFB USA /1997	Classified	32	**15010** 23040	26848 1840
383	Hewlett-Packard Exemplar X-Class	CILEA Milano Italy /1997	Research	32	**15010** 23040	26848 1840
384	Hewlett-Packard Exemplar X-Class	DoD Classified USA /1997	Classified	32	**15010** 23040	26848 1840
385	Hewlett-Packard Exemplar X-Class	ETH Zuerich Switzerland /1997	Research	32	**15010** 23040	26848 1840
386	Hewlett-Packard Exemplar X-Class	Hilti Schaan Liechtenstein /1997	Industry	32	**15010** 23040	26848 1840
387	Hewlett-Packard Exemplar X-Class	Martin-Luther Universitaet Halle-Wittenberg Halle Germany /1997	Academic	32	**15010** 23040	26848 1840
388	Hewlett-Packard Exemplar X-Class	Ritzumeikan Japan /1997	Research	32	**15010** 23040	26848 1840
389	Hewlett-Packard Exemplar X-Class	Tokyo University Tokyo Japan /1997	Academic	32	**15010** 23040	26848 1840
390	Hewlett-Packard Exemplar X-Class	Yukawa Institute for Theoretical Physics (YITP) Japan /1997	Academic	32	**15010** 23040	26848 1840
391	Hewlett-Packard Exemplar X-Class	Zydeco Energy USA /1997	Research	32	**15010** 23040	26848 1840
392	Hewlett-Packard Exemplar X-Class	Zydeco Energy USA /1997	Research	32	**15010** 23040	26848 1840
393	Sun HPC 10000	Tokyo Mitsubishi Bank London UK /1998	Industry	35	**15000** 17500	. .
394	IBM SP P2SC 160 MHz	EP Company (A) UK /1998	Industry Geophysics	32	**14930** 20480	20000 3840
395	IBM SP P2SC 160 MHz	EP Company (A) UK /1998	Industry Geophysics	32	**14930** 20480	20000 3840
396	IBM SP P2SC 160 MHz	EP Company (A) UK /1998	Industry Geophysics	32	**14930** 20480	20000 3840
397	IBM SP P2SC 160 MHz	EP Company (A) USA /1998	Industry Geophysics	32	**14930** 20480	20000 3840
398	IBM SP P2SC 160 MHz	EP Company (A) USA /1998	Industry Geophysics	32	**14930** 20480	20000 3840
399	IBM SP P2SC 160 MHz	EP Company (A) USA /1998	Industry Geophysics	32	**14930** 20480	20000 3840
400	IBM SP P2SC 160 MHz	EP Company (A) USA /1998	Industry Geophysics	32	**14930** 20480	20000 3840

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N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
401	IBM SP P2SC 160 MHz	EP Company (A) USA /1998	Industry Geophysics	32	**14930** 20480	20000 3840
402	IBM SP P2SC 160 MHz	EP Company (A) USA /1998	Industry Geophysics	32	**14930** 20480	20000 3840
403	IBM SP P2SC 160 MHz	EP Company (A) USA /1998	Industry Geophysics	32	**14930** 20480	20000 3840
404	IBM SP P2SC 160 MHz	EP Company (A) USA /1998	Industry Geophysics	32	**14930** 20480	20000 3840
405	IBM SP P2SC 160 MHz	EP Company (A) USA /1998	Industry Geophysics	32	**14930** 20480	20000 3840
406	IBM SP P2SC 160 MHz	EP Company (A) USA /1998	Industry Geophysics	32	**14930** 20480	20000 3840
407	IBM SP P2SC 160 MHz	EP Company (A) USA /1998	Industry Geophysics	32	**14930** 20480	20000 3840
408	IBM SP P2SC 160 MHz	EP Company (A) USA /1998	Industry Geophysics	32	**14930** 20480	20000 3840
409	IBM SP P2SC 160 MHz	EP Company (A) USA /1998	Industry Geophysics	32	**14930** 20480	20000 3840
410	IBM SP P2SC 160 MHz	EP Company (A) USA /1998	Industry Geophysics	32	**14930** 20480	20000 3840
411	IBM SP P2SC 160 MHz	EP Company (A) USA /1998	Industry Geophysics	32	**14930** 20480	20000 3840
412	IBM SP P2SC 160 MHz	EP Company (A) USA /1998	Industry Geophysics	32	**14930** 20480	20000 3840
413	IBM SP P2SC 160 MHz	EP Company (A) USA /1998	Industry Geophysics	32	**14930** 20480	20000 3840
414	IBM SP P2SC 160 MHz	EP Company (A) USA /1998	Industry Geophysics	32	**14930** 20480	20000 3840
415	IBM SP P2SC 160 MHz	EP Company (A) USA /1998	Industry Geophysics	32	**14930** 20480	20000 3840
416	IBM SP2/78	DKFZ Heidelberg Germany /1996	Research	78	**14890** 20710	. .
417	Hitachi SR2201/64	Central Res. Inst. of Electric Power Ind./CRIEPI Japan /1997	Research	64	**14890** 19000	38880 6720
418	Hitachi SR2201/64	Hitachi RCS Ebina Japan /1996	Vendor	64	**14890** 19000	38880 6720
419	Hitachi SR2201/64	Japan Atomic Energy Research Japan /1996	Research	64	**14890** 19000	38880 6720
420	Hitachi SR2201/64	Suzuki Motor Japan /1997	Industry Automotive	64	**14890** 19000	38880 6720

N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
421	IBM SP P2SC 120 MHz	Otelo Essen Germany /1997	Industry	42	**14860** 20160	. .
422	SGI T3E900 AC24-128	TU Berlin Berlin Germany /1997	Academic	24	**14750** 21600	. .
423	SGI T3E900 AC24-128	Technische Universitaet Braunschweig Braunschweig Germany /1997	Academic	24	**14750** 21600	. .
424	IBM SP2/77	Leibniz Rechenzentrum Muenchen Germany /1995	Academic	77	**14720** 20450	. .
425	IBM SP2/77	PIK Potsdam Germany /1996	Research	77	**14720** 20450	. .
426	IBM SP2/77	Sears Product Service Group USA /1996	Industry Database	77	**14720** 20450	. .
427	IBM SP2/77	Sears Roebuck USA /1996	Industry Database	77	**14720** 20450	. .
428	Hitachi S-3800/280	Central Res. Inst. of Electric Power Ind./CRIEPI Japan /1996	Research	2	**14600** 16000	15680 570
429	Sun HPC 10000	RAG Informatik Germany /1997	Industry	34	**14590** 17000	. .
430	Sun HPC 10000	Worldcom USA /1997	Industry Telecomm	34	**14590** 17000	. .
431	IBM SP2/75	Atomic Weapons Establishment Aldermaston UK /1996	Classified	75	**14380** 19920	. .
432	IBM SP2/75	Pennsylvania State University USA /1997	Academic	75	**14380** 19920	. .
433	Digital AlphaServer 4100 Cluster	MIT, Lab for Computer Science Cambridge USA /1997	Research	28	**14200** 26096	15344 3208
434	IBM SP P2SC 120 MHz	CENAPAD-MG/CO Belo Horizonte Brazil /1997	Research	40	**14160** 19200	. .
435	SGI T3E AC32-128	ICM2/KBN Warsaw Poland /1997	Academic	32	**14030** 19200	21120 2832
436	SGI T3E AC32-128	Max-Planck-Gesellschaft MPI/Klimarechenzentrum Hamburg Germany /1997	Research	32	**14030** 19200	21120 2832
437	IBM SP P2SC 160 MHz	EP Company (D) USA /1998	Industry Geophysics	30	**14010** 19200	. .
438	Intel Delta	Caltech Pasadena USA /1991	Academic	512	**13900** 20480	25000 7500
439	IBM SP2/72	Nuclear Power Engineering Japan /1995	Industry Energy	72	**13860** 19120	. .
440	Sun HPC 10000	ATT USA /1997	Industry	32	**13770** 16000	19968 1920

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N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
441	Sun HPC 10000	American Airlines USA /1997	Industry	32	**13770** 16000	19968 1920
442	Sun HPC 10000	American Airlines USA /1997	Industry	32	**13770** 16000	19968 1920
443	Sun HPC 10000	American Airlines USA /1997	Industry	32	**13770** 16000	19968 1920
444	Sun HPC 10000	American Airlines USA /1998	Industry	32	**13770** 16000	19968 1920
445	Sun HPC 10000	CENAPAD-MG/CO Belo Horizonte Brazil /1997	Research	32	**13770** 16000	19968 1920
446	Sun HPC 10000	Cleveland State University USA /1998	Academic	32	**13770** 16000	19968 1920
447	Sun HPC 10000	Daiei Information Japan /1997	Industry Database	32	**13770** 16000	19968 1920
448	Sun HPC 10000	Deutsche Telekom AG Darmstadt Germany /1997	Industry	32	**13770** 16000	19968 1920
449	Sun HPC 10000	EDS Australia /1998	Industry Finance	32	**13770** 16000	19968 1920
450	Sun HPC 10000	Ecole Normale Superieure France /1997	Research	32	**13770** 16000	19968 1920
451	Sun HPC 10000	GE Capital USA /1997	Industry Finance	32	**13770** 16000	19968 1920
452	Sun HPC 10000	GE Capital USA /1997	Industry Finance	32	**13770** 16000	19968 1920
453	Sun HPC 10000	General Motors/Hughes Missile Systems Company Tuscon USA /1997	Industry Aerospace	32	**13770** 16000	19968 1920
454	Sun HPC 10000	General Motors/Hughes Missile Systems Company Tuscon USA /1997	Industry Aerospace	32	**13770** 16000	19968 1920
455	Sun HPC 10000	Incyte Pharma USA /1997	Industry Pharmaceutics	32	**13770** 16000	19968 1920
456	Sun HPC 10000	Informix Menlo Park USA /1997	Industry Database	32	**13770** 16000	19968 1920
457	Sun HPC 10000	Itochu Techno-Science Japan /1997	Industry Electronics	32	**13770** 16000	19968 1920
458	Sun HPC 10000	Japan Adv. Inst. of Science and Technology (JAIST) Hokuriku Japan /1997	Research	32	**13770** 16000	19968 1920
459	Sun HPC 10000	MCI USA /1997	Industry Telecomm	32	**13770** 16000	19968 1920
460	Sun HPC 10000	Micron Technology Boise USA /1997	Industry	32	**13770** 16000	19968 1920

TOP500 Supercomputers - Worldwide

N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	**R_{max}** R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
461	Sun HPC 10000	NHK Japan /1997	Industry Electronics	32	**13770** 16000	19968 1920
462	Sun HPC 10000	Nippon Telegraph and Telephone (NTT) Tokyo Japan /1997	Industry	32	**13770** 16000	19968 1920
463	Sun HPC 10000	Nippon Telegraph and Telephone (NTT) Tokyo Japan /1997	Industry	32	**13770** 16000	19968 1920
464	Sun HPC 10000	Nippon Telegraph and Telephone (NTT) Tokyo Japan /1997	Industry	32	**13770** 16000	19968 1920
465	Sun HPC 10000	Nippon Telegraph and Telephone (NTT) Tokyo Japan /1998	Industry	32	**13770** 16000	19968 1920
466	Sun HPC 10000	Oracle Tokyo Japan /1997	Industry Database	32	**13770** 16000	19968 1920
467	Sun HPC 10000	PGS Tensor USA /1998	Industry Geophysics	32	**13770** 16000	19968 1920
468	Sun HPC 10000	Sears Canada /1998	Industry Database	32	**13770** 16000	19968 1920
469	Sun HPC 10000	Southwestern Bell Dallas USA /1997	Industry Telecomm	32	**13770** 16000	19968 1920
470	Sun HPC 10000	Telecom Italia Mobile Italy /1997	Industry Telecomm	32	**13770** 16000	19968 1920
471	Sun HPC 10000	Worldcom USA /1997	Industry Telecomm	32	**13770** 16000	19968 1920
472	Digital AlphaServer 8400 Cluster	Institut de Physique du Globe de Paris (IPG) Paris France /1998	Research	32	**13700** 28150	19176 4584
473	SGI Y-MP C916/16256	DKRZ Hamburg Germany /1995	Research Weather	16	**13700** 15238	10000 650
474	SGI Y-MP C916/161024	DOD/CEWES Vicksburg USA /1994	Research Mechanics	16	**13700** 15238	10000 650
475	SGI Y-MP C916/16256	DOE/Bettis Atomic Power Laboratory USA /1993	Research	16	**13700** 15238	10000 650
476	SGI Y-MP C916/16256	DOE/Knolls Atomic Power Laboratory USA /1993	Research	16	**13700** 15238	10000 650
477	SGI Y-MP C916/16256	Fleet Numerical Meteorology and Oceanography Cente Monterey USA /1994	Research Weather	16	**13700** 15238	10000 650
478	SGI Y-MP C916/16512	Ford Motor Company Dearborn USA /1993	Industry Automotive	16	**13700** 15238	10000 650
479	SGI Y-MP C916/16512	Ford Motor Company Dearborn USA /1995	Industry Automotive	16	**13700** 15238	10000 650
480	SGI Y-MP C916/161024	Government USA /1992	Classified	16	**13700** 15238	10000 650

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N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	**R_{max}** R_{peak} [Mflop/s]	N_{max} $N_{1/2}$
481	SGI Y-MP C916/161024	Government USA /1992	Classified	16	**13700** 15238	10000 650
482	SGI Y-MP C916/161024	Government USA /1992	Classified	16	**13700** 15238	10000 650
483	SGI Y-MP C916/161024	Government USA /1992	Classified	16	**13700** 15238	10000 650
484	SGI Y-MP C916/16512	Government USA /1994	Classified	16	**13700** 15238	10000 650
485	SGI Y-MP C916/16256	Government Communications Headquarters Benhall UK /1994	Classified	16	**13700** 15238	10000 650
486	SGI Y-MP C916/16512	KIST/System Engineering Research Institute (SSC) Korea /1993	Academic	16	**13700** 15238	10000 650
487	SGI Y-MP C916/161024	MITI - AIST - RIPS Tsukuba Japan /1994	Research	16	**13700** 15238	10000 650
488	SGI Y-MP C916/161024	NASA/Ames Research Center/NAS Moffett Field USA /1993	Research	16	**13700** 15238	10000 650
489	SGI Y-MP C916/16256	NERSC/LBNL Berkeley USA /1992	Research	16	**13700** 15238	10000 650
490	SGI Y-MP C916/16256	NOAA/National Centers for Environment Prediction Suitland USA /1994	Research	16	**13700** 15238	10000 650
491	SGI Y-MP C916/16512	National Security Agency USA /1994	Classified	16	**13700** 15238	10000 650
492	SGI Y-MP C916/161024	Naval Oceanographic Office (NAVOCEANO) Bay Saint Louis USA /1994	Research Weather	16	**13700** 15238	10000 650
493	SGI Y-MP C916/16512	Pittsburgh Supercomputing Center Pittsburgh USA /1994	Academic	16	**13700** 15238	10000 650
494	SGI Y-MP C916/161024	Tohoku University, Institute of Fluid Science Aramaki Japan /1994	Academic	16	**13700** 15238	10000 650
495	SGI Y-MP C916/161024	Wright-Patterson Air Force Base USA /1996	Research	16	**13700** 15238	10000 650
496	SGI T3E1200 AC16-128	Cray Research Eagan USA /1997	Vendor	16	**13410** 19200	31680 2304
497	Sun HPC 10000 333 MHz	Lucent Technologies USA /1998	Industry	24	**13390** 15900	20352 1728
498	Sun HPC 10000 333 MHz	NVIDIA Corporation USA /1998	Industry Electronics	24	**13390** 15900	20352 1728
499	Sun HPC 10000 333 MHz	Southwest Gas USA /1998	Industry	24	**13390** 15900	20352 1728
500	Sun HPC 10000 333 MHz	Walgreens Company USA /1998	Industry Database	24	**13390** 15900	20352 1728

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4 Statistics on Manufacturers and Continents

As basic statistics of the complete list, we give the number of systems installed with respect to the different manufacturers in the different countries or continents (Table 2) as well as the accumulated R_{max} values (Table 3) and R_{peak} values (Table 4) for those systems. More extensive analyses of the situation and its evolution over time can be found in the series of TOP500Reports (TOP500Report 1993 [3], 1994 [4], 1995 [5] and, 1996 [6]). Customized statistics can be obtained by using WWW at http://www.top500.org or http://www.netlib.org/benchmark/top500.html.

Table 2: Number of Systems Installed

TOP500 Statistics — Number of Systems Installed					
	USA/Canada	Europe	Japan	others	Total
SGI	139	45	12	4	200
Sun	65	27	14	5	111
IBM	50	20	1	4	75
Fujitsu	1	6	20	1	28
Hewlett-Packard	12	7	4	2	25
NEC	1	7	16	1	25
Hitachi		1	15		16
others	18	1	1		20
Total	286	114	83	17	500

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Table 3: Installed $\mathbf{R_{max}}$

TOP500 Statistics — Installed R_{max} [Gflop/s]					
	USA/Canada	Europe	Japan	others	Total
SGI	7762.1	3427.8	392.2	126.8	11708.9
Sun	1228.2	604.9	237.7	83.6	2154.4
IBM	1553.7	466.0	13.9	91.6	2125.1
Fujitsu	17.1	447.7	1058.9	27.7	1551.5
Hewlett-Packard	322.8	132.2	67.3	49.9	572.2
NEC	244.0	211.2	910.0	61.8	1426.9
Hitachi		51.1	950.0		1001.1
others	1970.7	13.7	103.5		2087.9
Total	13098	5354.7	3733.5	441.3	22628.0

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Table 4: Installed $\mathbf{R_{peak}}$

TOP500 Statistics — Installed R_{peak} [Gflop/s]					
	USA/Canada	Europe	Japan	others	Total
SGI	10897.4	4903.5	548.0	174.1	16523.0
Sun	1452.5	730.9	280.0	98.0	2561.3
IBM	3200.4	695.1	19.1	128.4	4043.0
Fujitsu	17.6	504.6	1193.0	28.6	1743.8
Hewlett-Packard	541.4	207.4	103.7	80.6	933.1
NEC	256.0	227.5	951.5	64.0	1499.0
Hitachi		67.2	1349.5		1416.7
others	3033.3	28.2	125.1		3186.6
Total	19399	7364.2	4569.9	573.8	31906.0

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