TOP500 Supercomputer Sites

13th 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://www.top500.org 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} [Gflop/s]	N_{max} $N_{1/2}$
1	Intel ASCI Red	Sandia National Labs Albuquerque USA /1999	Research	9632	**2379.6** 3207	362880 75400
2	IBM ASCI Blue-Pacific SST, IBM SP 604e	Lawrence Livermore National Laboratory Livermore USA /1999	Research Energy	5808	**2144** 3868	431344 .
3	SGI ASCI Blue Mountain	Los Alamos National Laboratory Los Alamos USA /1998	Research	6144	**1608** 3072	374400 138000
4	IBM SP Power3 375 MHz	IBM/Naval Oceanographic Office (NAVOCEANO) Poughkeepsie USA /2000	Vendor Aerospace	1336	**1417** 2004	374000 .
5	Hitachi SR8000-F1/112	Leibniz Rechenzentrum Muenchen Germany /2000	Academic	112	**1035** 1344	120000 15160
6	Hitachi SR8000-F1/100	High Energy Accelerator Research Organization /KEK Tsukuba Japan /2000	Research	100	**917.2** 1200	115000 15000
7	Cray Inc. T3E1200	Government USA /1998	Classified	1084	**891.5** 1300.8	259200 26400
8	Cray Inc. T3E1200	US Army HPC Research Center at NCS Minneapolis USA /2000	Research	1084	**891.5** 1300.8	259200 26400
9	Hitachi SR8000/128	University of Tokyo Tokyo Japan /1999	Academic	128	**873.6** 1024	120000 16000
10	Cray Inc. T3E900	Government USA /1997	Classified	1324	**815.1** 1191.6	134400 26880
11	IBM SP Power3 375 MHz	Oak Ridge National Laboratory Oak Ridge USA /2000	Research	704	**723.4** 1056	187000 37500
12	SGI ORIGIN 2000 250 MHz	Los Alamos National Laboratory/ACL Los Alamos USA /1999	Research	2048	**690.9** 1024	229248 80640
13	Cray Inc. T3E900	Naval Oceanographic Office (NAVOCEANO) Bay Saint Louis USA /1999	Research Weather	1084	**675.7** 975.6	. .
14	Cray Inc. T3E1200	CSAR at the University of Manchester Manchester UK /2000	Academic	812	**671.2** 974.4	. .
15	Cray Inc. T3E1200	Deutscher Wetterdienst Offenbach Germany /1999	Research Weather	812	**671.2** 974.4	. .
16	IBM SP Power3 222 MHz	UCSD/San Diego Supercomputer Center San Diego USA /1999	Research	1152	**613.02** 102.3	170000 50000
17	Hitachi SR8000-F1/60	University of Tokyo/Institute for Solid State Physics Tokyo Japan /2000	Academic	60	**577.5** 720	89000 10000
18	Cray Inc. T3E900	United Kingdom Meteorological Office 4 Bracknell UK /1997	Research Weather	876	**552.92** 788.4	. .
19	IBM SP PC604e 332 MHz	Charles Schwab USA /1999	Industry Finance	2000	**547** 1328	. .
20	Cray Inc. T3E1200	United Kingdom Meteorological Office Bracknell UK /1999	Research Weather	636	**526.6** 763.2	. .

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N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	**R_{max}** R_{peak} [Gflop/s]	N_{max} $N_{1/2}$
21	IBM SP Power3 375 MHz	ERDC MSRC Vicksburg USA /2000	Research	512	**523** 768	. .
22	IBM SP Power3 375 MHz	IBM Poughkeepsie USA /2000	Vendor	512	**523** 768	. .
23	Compaq AlphaServer SC ES40/EV67	Compaq Computer Corporation Littleton USA /2000	Vendor Benchmarking	512	**507.6** 683	200000 30000
24	Compaq AlphaServer SC ES40/EV67	Lawrence Livermore National Laboratory Livermore USA /2000	Research	512	**507.6** 683	200000 30000
25	Fujitsu VPP5000/56	Nagoya University Nagoya Japan /1999	Academic	56	**492.4** 537.6	228480 12768
26	Fujitsu VPP800/63	Kyoto University Kyoto Japan /1999	Academic	63	**482.5** 504	234360 12852
27	IBM ASCI Blue-Pacific CTR, IBM SP 604e	Lawrence Livermore National Laboratory Livermore USA /1998	Research Energy	1344	**468.2** 892	205000 65000
28	Hitachi SR8000/64	Tsukuba Advanced Computing Center/AIST Tsukuba Japan /1999	Research	64	**449.7** 512	92000 9160
29	Cray Inc. T3E	NASA/Goddard Space Flight Center Greenbelt USA /2000	Research Weather	1356	**448.6** 650.4	119808 19008
30	Cray Inc. T3E1200	Cray Inc. Chippewa Falls USA /1998	Vendor	540	**447.8** 648	181440 17280
31	Cray Inc. T3E1200	ERDC MSRC Vicksburg USA /1999	Research Mechanics	540	**447.8** 648	181440 17280
32	Cray Inc. T3E1200	Forschungszentrum Juelich (FZJ) Juelich Germany /1999	Research	540	**447.8** 648	181440 17280
33	Cray Inc. T3E1200	Government USA /1998	Classified	540	**447.8** 648	181440 17280
34	Cray Inc. T3E900	NERSC/LBNL Berkeley USA /1997	Research	692	**444.2** 622.8	. .
35	Hitachi/Tsukuba CP-PACS/2048	Center for Computational Physics, Univ of Tsukuba Tsukuba Japan /1996	Academic	2048	**368.2** 614	103680 30720
36	Cray Inc. T3E	Max-Planck-Gesellschaft MPI/IPP Garching Germany /1997	Research	812	**355.1** 487.2	. .
37	IBM SP Power3 200 MHz	National Centers for Environmental Prediction Camp Spring USA /1999	Research Weather	768	**350.4** 614	113000 30000
38	Fujitsu VPP5000/38	ECMWF Reading UK /1999	Research Weather	38	**345** 364.8	. .
39	Cray Inc. T3E900	HWW/Universitaet Stuttgart Stuttgart Germany /1996	Industry	540	**341.3** 486	. .
40	Cray Inc. T3E900	Pittsburgh Supercomputer Center Pittsburgh USA /1998	Research	540	**341.3** 486	. .

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N $_{world}$	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Gflop/s]	N_{max} $N_{1/2}$
41	Cray Inc. T3E1200	Government USA /1999	Classified	404	**334.7** 484.8	. .
42	Cray Inc. T3E1200	Government USA /2000	Classified	396	**328** 475.2	. .
43	IBM SP Power3 375 MHz	University of Minnesota/Supercomputing Institute Minneapolis USA /2000	Academic	322	**326** 483	. .
44	Fujitsu VPP700/160E	Institute of Physical and Chemical Res. (RIKEN) Wako Japan /1999	Research	160	**319.4** 384	168000 24000
45	IBM SP Power3 200 MHz	NERSC/LBNL Berkeley USA /1999	Research	604	**310.3** 483.2	. .
46	Fujitsu VPP5000/31	Meteo-France Toulouse France /1999	Research Weather	31	**286.9** 297.6	. .
47	Cray Inc. T3E750	CSC (Center for Scientific Computing) Espoo Finland /2000	Academic	540	**284.1** 405	. .
48	NEC SX-5/38M3	CNRS/IDRIS Orsay France /2000	Academic	38	**280** 304	. .
49	Fujitsu VPP5000/30	National Inst. for Molecular Science Okazaki Japan /2000	Research	30	**277** 288	. .
50	Sun HPC 4500 Cluster	Sun Burlington USA /1998	Vendor	720	**272.1** 483.84	. .
51	Fujitsu VPP700/128E	Institute of Physical and Chemical Res. (RIKEN) Wako Japan /1999	Research	128	**268.9** 307.2	166400 23040
52	SGI ORIGIN 2000 195/250 MHz	NCSA Urbana-Champaign USA /1998	Research	1024	**264.9** 327.68	. .
53	Hitachi SR8000/36	Meteorological Research Institute Japan /1999	Research Weather	36	**255.9** 288	69000 5968
54	Cray Inc. T3E900	ZIB/Konrad Zuse-Zentrum fuer Informationstechnik Berlin Germany /1999	Academic	404	**253.8** 363.6	. .
55	Compaq AlphaServer SC ES40/EV67	Oak Ridge National Laboratory Oak Ridge USA /2000	Research	256	**245.4** 342	111000 20000
56	NEC SX-4/128H4	Tohoku University Aramaki Japan /1997	Academic	128	**244** 256	. .
57	NEC SX-5/32M2	Meteorological Service of Canada (MSC) Dorval Canada /1999	Research Weather	32	**243.2** 256	. .
58	NEC SX-5/32H2	National Research Institute for Metals Tsukuba Japan /2000	Research	32	**243.2** 256	. .
59	Cray Inc. T3E1200	Government USA /1999	Classified	284	**235** 340.8	. .
60	Cray Inc. T3E	Cray Inc. Eagan USA /1997	Vendor	540	**234.9** 324	86400 14400

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61	Cray Inc. T3E	Forschungszentrum Juelich (FZJ) Juelich Germany /1996	Research	540	**234.9** 324	86400 14400
62	Self-made CPlant Cluster	Sandia National Laboratories Albuquerque USA /1999	Research	580	**232.6** 580	. .
63	Hitachi SR2201/1024	University of Tokyo Tokyo Japan /1996	Academic	1024	**232.4** 307	155520 34560
64	Fujitsu Numerical Wind Tunnel	NAL Japan /1996	Research Aerospace	167	**229.7** 281	66132 18018
65	Hitachi SR8000/32	Hokkaido University Sapporo Japan /2000	Academic	32	**229.5** 256	65000 5632
66	Cray Inc. T3E1200	CINECA Bologna Italy /1999	Academic	268	**221.77** 321.6	. .
67	Cray Inc. T3E900	University of Edinburgh Edinburgh UK /1997	Academic	348	**218.9** 313.2	. .
68	Fujitsu VPP700/116	ECMWF Reading UK /1997	Research Weather	116	**213** 255.2	111360 18560
69	Compaq AlphaServer SC ES40/EV67	Commissariat a l'Energie Atomique (CEA) Grenoble France /1999	Research Energy	232	**211** 309.5	120000 .
70	SGI ORIGIN 2000 300 MHz	NASA/Ames Research Center/NAS Mountain View USA /1999	Research Aerospace	512	**195.6** 307.2	110592 23040
71	Hewlett-Packard V2600/HyperPlex	Hewlett-Packard Richardson USA /2000	Vendor Benchmarking	256	**185.1** 565.24	. .
72	IBM SP Power3 200 MHz	North Carolina Supercomputing Center (NCSC) USA /1999	Academic	320	**183.9** 256	. .
73	NEC SX-5/24M2	Korea Meteorological Administration (KMA) Korea /2000	Research whea	24	**181.6** 192	. .
74	IBM SP P2SC 120/135 MHz	Pacific Northwest National Laboratory Richland USA /1998	Research	512	**180.906** 248.32	62000 .
75	IBM SP Power3 375 MHz	Deutsche Telekom AG Darmstadt Germany /2000	Industry Telecomm	168	**171** 252	. .
76	IBM SP Power3 375 MHz	National Center for High Performance Computing HsinChu Taiwan /2000	Academic	168	**171** 252	. .
77	Cray Inc. T3E900	Network Computing Services, Inc. USA /1997	Industry	268	**169.07** 241.2	. .
78	Cray Inc. T3E900	University of Alaska - ARSC Fairbanks USA /1999	Academic	268	**169.07** 241.2	. .
79	IBM SP Power3 200 MHz	NCAR (National Center for Atmospheric Research) Boulder USA /1999	Research	288	**166.6** 230.5	. .
80	IBM SP Power3 375 MHz	Air Force Weather Agency USA /2000	Research	160	**164** 240	. .

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81	IBM SP Power3 375 MHz	Phillip Morris USA /2000	Industry	160	**164** 240	. .
82	IBM SP Power3 200 MHz	Wright-Patterson Air Force Base/DoD ASC USA /1999	Research Defense	264	**153.6** 211.3	. .
83	IBM SP Power3 375 MHz	Saudi ARAMCO Saudi Arabia /2000	Industry Geophysics	148	**152** 222	. .
84	SGI ORIGIN 2000	Wright-Patterson Air Force Base/DoD ASC USA /1999	Research	512	**152** 199.68	. .
85	IBM SP Power3 200 MHz	State Farm USA /1999	Industry Database	260	**151.5** 208.1	. .
86	IBM SP Power3 200 MHz	Tsukuba Advanced Computing Center/AIST Tsukuba Japan /1999	Research	256	**149.36** 205	100000 18500
87	IBM SP Power3 375 MHz	GWDG Goettingen Germany /2000	Academic	144	**148** 216	. .
88	IBM SP PC604e 332 MHz	Philips Lightning Netherlands /2000	Industry Electronics	476	**145** 316	. .
89	Hitachi SR8000/20	Institute of Statistical Mathematics Tokyo Japan /1999	Research	20	**144.5** 160	48000 4000
90	Fujitsu VPP5000/15	Commissariat a l'Energie Atomique (CEA) Grenoble France /1999	Research Energy	15	**139.8** 144	. .
91	Fujitsu VPP5000/15	Taiwan Central Weather Bureau Taipei Taiwan /1999	Research Weather	15	**139.8** 144	. .
92	IBM SP PC604e 332 MHz	DeTeCSM Bielefeld Germany /2000	Industry Telecomm	452	**138** 300	. .
93	Sun HPC 10000 400 MHz	Sun Portland USA /1999	Vendor	256	**137.1** 204.8	. .
94	IBM SP PC604e 332 MHz	Air Force Weather Agency USA /1999	Research	440	**134.9** 292	. .
95	IBM SP Power3 375 MHz	Paine Webber USA /2000	Industry	124	**128** 186	. .
96	IBM SP Power3 200 MHz	IBM - Thomas Watson Research Center Yorktown Heights USA /2000	Research	212	**124.4** 169.5	. .
97	IBM SP Power3 222 MHz	Maui High-Performance Computing Center (MHPCC) USA /1999	Research	200	**123.9** 177.6	. .
98	NEC SX-5/16A	Bureau of Meteorology / CSIRO HPCCC Melbourne Australia /2000	Research Weather	16	**123.3** 128	99840 1340
99	NEC SX-5/16A	Frontier Research System for Global Change Japan /1999	Research	16	**123.3** 128	99840 1340
100	NEC SX-5/16A	KMA Korea /1999	Research whea	16	**123.3** 128	99840 1340

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101	NEC SX-5/16A	NEC Fuchu Plant Tokyo Japan /1999	Vendor Benchmarking	16	**123.3** 128	99840 1340
102	NEC SX-5/16A	ONERA France /1999	Research Aerospace	16	**123.3** 128	99840 1340
103	NEC SX-5/16A	Tohoku University, Institute of Fluid Science Aramaki Japan /1999	Academic	16	**123.3** 128	99840 1340
104	NEC SX-5/16A	Tokyo Institute of Technology Tokyo Japan /1999	Academic	16	**123.3** 128	99840 1340
105	NEC SX-4/64M2	Meteorological Service of Canada (MSC) Dorval Canada /1999	Research Weather	64	**122.2** 128	30080 4352
106	NEC SX-4/64M2	National Institute of Fusion Science (NIFS) Japan /1997	Research	64	**122.2** 128	30080 4352
107	NEC SX-4/64M2	Osaka University Osaka Japan /1997	Academic	64	**122.2** 128	30080 4352
108	NEC SX-5/32Me2	HWW/Universitaet Stuttgart Stuttgart Germany /2000	Industry	32	**121.5** 128	. .
109	IBM SP PC604e 332 MHz	B.A.I. USA /2000	Industry	396	**121** 262.8	. .
110	IBM SP PC604e 332 MHz	BCDI USA /2000	Industry	392	**120** 260.2	. .
111	IBM SP PC604e 332 MHz	Metallurgical Industry Co. USA /2000	Industry	392	**120** 260.2	. .
112	IBM SP Power3 375 MHz	Bayer AG Germany /2000	Industry Chemistry	114	**118** 171	. .
113	Cray Inc. T3E	CNRS/IDRIS Orsay France /1996	Academic	268	**117.9** 160.8	. .
114	Cray Inc. T3E	Government USA /1997	Classified	268	**117.9** 160.8	. .
115	Cray Inc. T3E	National Supercomputer Centre (NSC) Linkoping Sweden /1997	Academic	268	**117.9** 160.8	. .
116	Cray Inc. T3E	UCSD/San Diego Supercomputer Center San Diego USA /1996	Academic	268	**117.9** 160.8	. .
117	IBM SP PC604e 332 MHz	France Telecom France /1999	Industry Telecomm	368	**113.1** 244.2	. .
118	IBM SP Power3 200 MHz	Volvo Gothenberg Sweden /1999	Industry Automotive	192	**113** 153.5	. .
119	Fujitsu VPP700/56	Kyushu University Fukuoka Japan /1996	Academic	56	**110.3** 123.2	109200 10752
120	IBM SP P2SC 160 MHz	Atomic Weapons Establishment Aldermaston UK /1999	Classified	252	**109.9** 161.2	. .

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N $_{world}$	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Gflop/s]	N_{max} $N_{1/2}$
121	Cray Inc. T3E1200	National Institute for Water and Atmospheric Resea Wellington New Zealand /1999	Research Weather	132	**109.3** 158.4	. .
122	IBM SP PC604e 332 MHz	FUNB USA /1999	Industry Finance	352	**108.2** 233.6	. .
123	Fujitsu VPP700/52	Leibniz Rechenzentrum Muenchen Germany /1998	Academic	52	**106.3** 114.4	. .
124	IBM SP P2SC 160 MHz	Maui High-Performance Computing Center (MHPCC) USA /1998	Research	243	**106.115** 155.52	. .
125	IBM SP PC604e 332 MHz	DeTeCSM Germany /1999	Industry Telecomm	342	**105.2** 227	. .
126	Intel XP/S-MP 125	Japan Atomic Energy Research Japan /1996	Research	2502	**103.5** 125.1	. .
127	SGI ORIGIN 2000 300 MHz	Centre Informatique National (CINES) France /1999	Research	256	**101.4** 153.6	86400 13248
128	SGI ORIGIN 2000 300 MHz	Tohoku University, Institute of Fluid Science Aramaki Japan /1999	Academic	256	**101.4** 153.6	86400 13248
129	SGI ORIGIN 2000 300 MHz	Tokyo Institute of Technology Tokyo Japan /2000	Academic	256	**101.4** 153.6	86400 13248
130	SGI ORIGIN 2000 250 MHz	NASA/Ames Research Center/NAS Mountain View USA /1998	Research Aerospace	256	**101.4** 128	86400 13248
131	IBM SP PC604e 332 MHz	Thyssen Germany /2000	Industry Mechanics	328	**101** 217.7	. .
132	Cray Inc. T3D MC1024-8	Government USA /1994	Classified	1024	**100.5** 152	81920 10224
133	IBM SP Power3 375 MHz	Manufacturer Japan /2000	Industry	96	**100** 144	. .
134	IBM SP PC604e 332 MHz	IBM - Thomas Watson Research Center Yorktown Heights USA /2000	Research	320	**98.5** 212.4	. .
135	Fujitsu VPP700/48E	ECMWF Reading UK /1998	Research Weather	48	**97.5** 115.2	. .
136	IBM SP PC604e 332 MHz	Banque National Paris France /1999	Industry Finance	316	**97.3** 209.7	. .
137	IBM SP P2SC 135 MHz	ERDC MSRC Vicksburg USA /1997	Research	256	**94.19** 138.24	. .
138	IBM SP P2SC 135 MHz	Wright-Patterson Air Force Base/DoD ASC USA /1997	Research	256	**94.19** 138.24	. .
139	IBM SP PC604e 332 MHz	British Airways UK /1999	Industry Transportation	302	**93.1** 200.4	. .
140	IBM SP Power3 375 MHz	Saudi ARAMCO Saudi Arabia /2000	Industry Geophysics	88	**92.1** 132	. .

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N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Gflop/s]
141	IBM SP PC604e 332 MHz	IBM Credit Corporation USA /2000	Industry	296	**91.2** 196.4
142	Cray Inc. T3E750	Government USA /1997	Classified	172	**89.8** 129
143	IBM SP PC604e 332 MHz	Vencor Hospital USA /2000	Research	280	**86.4** 185.8
144	IBM SP PC604e 332 MHz	Alcatel France /2000	Industry Telecomm	272	**84** 180.5
145	IBM SP Power3 375 MHz	University of Manchester Manchester UK /2000	Academic	80	**84** 120
146	IBM SP P2SC 160 MHz	Western Geophysical London UK /1999	Industry Geophysics	190	**83.5** 121.6
147	IBM SP PC604e 332 MHz	Sprint USA /1999	Industry Telecomm	268	**82.8** 177.8
148	Cray Inc. T3E900	KIST/System Engineering Research Institute (SSC) Korea /1997	Industry In.Pr. Service	132	**82.15** 118.8
149	Cray Inc. T3E900	NOAA/Geophysical Fluid Dynamics Laboratory (GFDL) Princeton USA /1997	Research Weather	132	**82.15** 118.8
150	IBM SP P2SC 160 MHz	State Farm USA /1998	Industry Database	186	**81.89** 119
151	Cray Inc. T3E	Commissariat a l'Energie Atomique (CEA) Bruyeres France /1997	Research	188	**81.36** 112.8
152	IBM SP Power3 222 MHz	Kyrus Corporation USA /2000	Industry	128	**80.83** 113.6
153	IBM ASCI White Nighthawk Prototype, SP Power3	Lawrence Livermore National Laboratory Livermore USA /1999	Research Energy	128	**80.83** 113.6
154	Sun HPC 10000 400 MHz	Clearstream Services Grande Duchesse Luxembourg /2000	Industry Finance	128	**79.36** 102.4
155	Sun HPC 10000 400 MHz	Deutsche Telekom AG Bamberg Germany /2000	Industry Telecomm	128	**79.36** 102.4
156	Sun HPC 10000 400 MHz	E-commerce Santa Clara USA /2000	Industry WWW	128	**79.36** 102.4
157	Sun HPC 10000 400 MHz	Motorola Schaumburg USA /2000	Industry Electronics	128	**79.36** 102.4
158	Sun HPC 10000 400 MHz	Rutgers University Piscataway USA /1999	Academic	128	**79.36** 102.4
159	Sun HPC 10000 400 MHz	Stanford University/High Energy Physics Palo Alto USA /2000	Academic	128	**79.36** 102.4
160	Sun HPC 10000 400 MHz	Telecommunications Mexico City Mexico /2000	Industry Telecomm	128	**79.36** 102.4

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N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Gflop/s]	N_{max} $N_{1/2}$
161	Sun HPC 10000 400 MHz	Telemar Belo Horizonte Brazil /2000	Industry Telecomm	128	**79.36** 102.4	57120 10752
162	Sun HPC 10000 400 MHz	eBay Santa Clara USA /2000	Industry WWW	128	**79.36** 102.4	57120 10752
163	IBM SP PC604e 332 MHz	BASF Ludwigshafen Germany /1998	Industry Chemistry	256	**79.17** 169.9	89000 18000
164	IBM SP PC604e 332 MHz	Bayer AG Germany /1999	Industry Chemistry	256	**79.17** 169.9	89000 18000
165	IBM SP PC604e 332 MHz	Bayer AG Germany /1999	Industry Chemistry	256	**79.17** 169.9	89000 18000
166	IBM SP PC604e 332 MHz	Japan Adv. Inst. of Science and Technology (JAIST) Hokuriku Japan /1999	Academic	256	**79.17** 169.9	89000 18000
167	IBM SP P2SC 160 MHz	Government UK /1999	Classified	178	**78.4** 113.9	. .
168	NEC SX-4/40H2	HWW/Universitaet Stuttgart Stuttgart Germany /1999	Industry	40	**77.2** 80	. .
169	SGI ORIGIN 2000	Naval Oceanographic Office (NAVOCEANO) Bay Saint Louis USA /1999	Research Aerospace	256	**76.9** 99.84	. .
170	IBM SP Power3 200 MHz	Deutsche Telekom AG Darmstadt Germany /1999	Industry Telecomm	128	**76.77** 102	89000 11500
171	IBM SP Power3 200 MHz	IBM Research Switzerland /1999	Research	128	**76.77** 102	89000 11500
172	IBM SP PC604e 332 MHz	Deere and Company USA /1999	Industry	246	**76.1** 163.2	. .
173	IBM SP Power3 375 MHz	Ensign Geophysics UK /2000	Industry Geophysics	72	**75.9** 108	. .
174	IBM SP PC604e 332 MHz	RWE Germany /1998	Industry	244	**75.5** 161.9	. .
175	IBM SP PC604e 332 MHz	Deutsche Telekom AG Darmstadt Germany /1999	Industry Telecomm	242	**74.9** 160.6	. .
176	Cray Inc. T3E	NRI for Earth Science and Disaster (NIED) Japan /1997	Research	172	**74.52** 103.2	. .
177	IBM SP Power3 200 MHz	Lockheed Martin USA /1999	Industry Aerospace	124	**74.4** 99.2	. .
178	IBM SP PC604e 332 MHz	Krupp Hoesch Info. Germany /2000	Industry Database	236	**73.1** 156.6	. .
179	IBM SP PC604e 332 MHz	Chase Manhattan New York USA /1999	Industry Finance	232	**71.9** 153	. .
180	IBM SP Power3 375 MHz	Adapco USA /2000	Industry Mechanics	68	**71.8** 102	. .

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N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Gflop/s]	N_{max} $N_{1/2}$
181	Cray Inc. T3E	Government USA /1997	Classified	164	**71.1** 98.4	. .
182	IBM SP Power3 222 MHz	Centre Informatique National (CINES) Montpellier France /1999	Academic	112	**71** 99.4	. .
183	Sun HPC 10000 400 MHz	Prudential Insurance Dudley UK /1999	Industry Database	112	**70.4** 89.6	. .
184	IBM SP PC604e 332 MHz	Deutsche Bank Germany /2000	Industry Finance	224	**69.5** 148	. .
185	NEC SX-4/36H2	National Institute for Environmental Studies Tsukuba Japan /1997	Research Environment	36	**69.4** 72	. .
186	IBM SP2/402	Chip Manufacturer (B) USA /1997	Industry Electronics	402	**69.33** 106.53	. .
187	Sun HPC 10000 400 MHz Cluster	KT Freetel Seoul Korea /1999	Industry Telecomm	110	**68.77** 88	. .
188	IBM SP P2SC 120 MHz	Centre Informatique National (CINES) Montpellier France /1999	Academic	207	**67.8** 99.36	. .
189	IBM SP Power3 375 MHz	ASCI USA /2000	Industry	64	**67.78** 96	76000 10400
190	IBM SP Power3 375 MHz	Dassault Aviation France /2000	Industry Aerospace	64	**67.78** 96	76000 10400
191	IBM SP Power3 375 MHz	Indiana University USA /2000	Academic	64	**67.78** 96	76000 10400
192	IBM SP Power3 375 MHz	National Cancer Institute USA /2000	Research	64	**67.78** 96	76000 10400
193	IBM SP Power3 375 MHz	Pitney Bowes USA /2000	Industry	64	**67.78** 96	76000 10400
194	Cray Inc. T3E900	Government USA /1998	Classified	108	**67.6** 97.2	. .
195	Sun HPC 10000 333 MHz	Telecommunications Kanagawa Japan /2000	Industry Telecomm	128	**66.93** 85.2	57120 10080
196	IBM SP PC604e 332 MHz	Whirlpool USA /1999	Industry Database	210	**65.3** 139.3	. .
197	IBM SP P2SC 160 MHz	KTH - Royal Institute of Technology Stockholm Sweden /1998	Research	146	**64.8** 93.44	. .
198	IBM SP PC604e 332 MHz	First USA USA /1999	Industry Finance	208	**64.7** 138	. .
199	IBM SP PC604e 332 MHz	State of Ohio USA /2000	Government	206	**64.1** 136.7	. .
200	Hewlett-Packard N4000 440 MHz/HyperPlex	DaimlerChrysler USA /2000	Industry Automotive	96	**63.8** 168.96	. .

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N $_{world}$	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Gflop/s]	N_{max} $N_{1/2}$
201	Hewlett-Packard N4000 440 MHz/HyperPlex	University of Kentucky Lexington USA /2000	Academic	96	**63.8** 168.96	. .
202	Hewlett-Packard N4000 440 MHz/HyperPlex	VW (Volkswagen AG) Wolfsburg Germany /2000	Industry Automotive	96	**63.8** 168.96	. .
203	IBM SP Power3 375 MHz	Soccer Lottery Japan /2000	Government	60	**63.6** 90	. .
204	SGI ORIGIN 2000	Sandia National Labs Albuquerque USA /1997	Research	208	**63.1** 81.12	. .
205	IBM SP Power3 200 MHz	Deutsche Telekom AG Darmstadt Germany /1999	Industry Telecomm	104	**62.9** 82.9	. .
206	Compaq AlphaServer SC ES40/EV67	Oak Ridge National Laboratory Oak Ridge USA /2000	Research	64	**62.8** 85.4	53000 9000
207	Self-made NT Supercluster	NCSA Urbana-Champaign USA /1999	Research	256	**62.59** 140.8	16384 1280
208	IBM SP PC604e 332 MHz	Aetna Life Insurance Middletown USA /1999	Industry Database	200	**62.32** 132.8	. .
209	IBM SP PC604e 332 MHz	Prudential Insurance USA /1999	Industry Finance	200	**62.32** 132.8	. .
210	IBM SP PC604e 332 MHz	Sobeys Canada /2000	Industry	200	**62.32** 132.8	. .
211	IBM SP PC604e 332 MHz	Sprint USA /1999	Industry Telecomm	200	**62.32** 132.8	. .
212	IBM SP PC604e 332 MHz	Sprint USA /1999	Industry Telecomm	200	**62.32** 132.8	. .
213	SGI ORIGIN 2000 300 MHz	CSC (Centre for Sientific Computing) Espoo Finland /1999	Academic	128	**62.25** 76.8	60032 9000
214	SGI ORIGIN 2000 300 MHz	DaimlerChrysler Detroit USA /1999	Industry Automotive	128	**62.25** 76.8	60032 9000
215	SGI ORIGIN 2000 300 MHz	DaimlerChrysler Detroit USA /1999	Industry Automotive	128	**62.25** 76.8	60032 9000
216	SGI ORIGIN 2000 300 MHz	Fleet Numerical Meteorology and Oceanography Center Monterey USA /1999	Research Weather	128	**62.25** 76.8	60032 9000
217	SGI ORIGIN 2000 300 MHz	Ford Motor Company USA /1999	Industry Automotive	128	**62.25** 76.8	60032 9000
218	SGI ORIGIN 2000 300 MHz	NASA/JPL Pasadena USA /1999	Research	128	**62.25** 76.8	60032 9000
219	SGI ORIGIN 2000 300 MHz	Princeton University Princeton USA /1999	Academic	128	**62.25** 76.8	60032 9000
220	SGI ORIGIN 2000 300 MHz	Silicon Graphics Eagan USA /1999	Vendor	128	**62.25** 76.8	60032 9000

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N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Gflop/s]	N_{max} $N_{1/2}$
221	SGI ORIGIN 2000 300 MHz	Silicon Graphics Eagan USA /1999	Vendor	128	**62.25** 76.8	60032 9000
222	SGI ORIGIN 2000 300 MHz	Silicon Graphics Eagan USA /1999	Vendor	128	**62.25** 76.8	60032 9000
223	SGI ORIGIN 2000 300 MHz	Silicon Graphics Mountain View USA /1999	Vendor	128	**62.25** 76.8	60032 9000
224	SGI ORIGIN 2000 300 MHz	Tohoku University, Institute of Fluid Science Aramaki Japan /1999	Academic	128	**62.25** 76.8	60032 9000
225	SGI ORIGIN 2000 300 MHz	Tohoku University, Institute of Fluid Science Aramaki Japan /1999	Academic	128	**62.25** 76.8	60032 9000
226	SGI ORIGIN 2000 300 MHz	Tohoku University, Institute of Fluid Science Aramaki Japan /1999	Academic	128	**62.25** 76.8	60032 9000
227	SGI ORIGIN 2000 300 MHz	US Army Research Laboratory (ARL) Aberdeen USA /1999	Research	128	**62.25** 76.8	60032 9000
228	SGI ORIGIN 2000 300 MHz	US Army Research Laboratory (ARL) Aberdeen USA /1999	Research	128	**62.25** 76.8	60032 9000
229	SGI ORIGIN 2000 300 MHz	University of Tokyo/Institute for Solid State Physics Tokyo Japan /1999	Academic	128	**62.25** 76.8	60032 9000
230	SGI ORIGIN 2000 300 MHz	University of Tokyo/Institute for Solid State Physics Tokyo Japan /1999	Academic	128	**62.25** 76.8	60032 9000
231	SGI ORIGIN 2000 300 MHz	University of Tokyo/Institute for Solid State Physics Tokyo Japan /1999	Academic	128	**62.25** 76.8	60032 9000
232	NEC SX-4/32	NEC Fuchu Plant Tokyo Japan /1995	Vendor Benchmarking	32	**61.77** 64	20480 1688
233	Sun HPC 10000 400 MHz	Deutsche Telekom AG Bamberg Germany /2000	Industry Telecomm	96	**61.5** 76.8	. .
234	Sun HPC 10000 400 MHz	Oil Company Paris France /1999	Industry	96	**61.5** 76.8	. .
235	Sun HPC 10000 400 MHz	Telecommunications Warsaw Poland /2000	Industry	96	**61.5** 76.8	. .
236	Sun HPC 10000 400 MHz	University of Queensland Queensland Australia /2000	Academic	96	**61.5** 76.8	. .
237	Compaq Alphleet Cluster	Institute of Physical and Chemical Res. (RIKEN) Wako Japan /1999	Research	140	**61.3** 140	56000 22000
238	IBM SP PC604e 332 MHz	ULC USA /2000	Industry	196	**61.1** 130.1	. .
239	IBM SP PC604e 332 MHz	NAC RE International USA /2000	Industry	194	**60.5** 128.7	. .
240	IBM SP PC604e 332 MHz	Autozone Memphis USA /1999	Industry Database	192	**59.92** 127.44	. .

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N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Gflop/s]	N_{max} $N_{1/2}$
241	NEC SX-5/8B	National Aerospace Laboratory (NLR) Noordoostpolder Netherlands /1999	Research Aerospace	8	**59.62** 64	. .
242	NEC SX-5/8A	Swiss Scientific Computing Center (CSCS) Manno Switzerland /1999	Research	8	**59.62** 64	. .
243	Fujitsu VPP500/42	Japan Atomic Energy Research Japan /1994	Research	42	**59.6** 67.2	. .
244	IBM SP Power3 375 MHz	Sherbrooke University Sherbrooke Canada /2000	Academic	56	**59.4** 84	. .
245	IBM SP PC604e 332 MHz	BMW AG Muenchen Germany /2000	Industry Automotive	188	**58.7** 124.7	. .
246	IBM SP PC604e 332 MHz	Deutsche Bank Frankfurt Germany /1999	Industry Finance	188	**58.7** 124.7	. .
247	Hitachi SR2201/256	Hitachi Mechanical Engineering Res. Lab. Japan /1998	Research	256	**58.68** 77	77760 13440
248	Hitachi SR2201/256	Real World Computing (RWCP) Tokyo Japan /1997	Research	256	**58.68** 77	77760 13440
249	Hitachi SR2201/256	University of Cambridge Cambridge UK /1998	Academic	256	**58.68** 77	77760 13440
250	Hitachi SR2201/256	University of Tokyo/Human Genome Center, IMS Tokyo Japan /1998	Academic	256	**58.68** 77	77760 13440
251	SGI ORIGIN 2000	Boston University Boston USA /1997	Academic	192	**58.6** 74.88	. .
252	Hewlett-Packard V2600/HyperPlex	Amazon.com USA /2000	Industry WWW	64	**58.4** 141.31	. .
253	IBM SP Power3 200 MHz	Geco-Prakla Gatwick UK /2000	Industry Geophysics	96	**58.3** 76.6	. .
254	Cray Inc. T3E	AWI (Alfred Wegener Institut) Bremerhaven Germany /1998	Research	134	**58.28** 80.4	. .
255	Cray Inc. T3E	Japan Adv. Inst. of Science and Technology (JAIST) Hokuriku Japan /1997	Academic	134	**58.28** 80.4	. .
256	Cray Inc. T3E	Technical University Delft (TUD) Delft Netherlands /1997	Academic	134	**58.28** 80.4	. .
257	Fujitsu VPP700/26E	Meteo-France Toulouse France /1997	Research Weather	26	**58** 62.4	74880 5200
258	IBM SP PC604e 332 MHz	ISSC UK /1999	Industry	184	**57.51** 122.13	. .
259	IBM SP PC604e 332 MHz	TELUS Communications Inc. Canada /1998	Industry Telecomm	184	**57.51** 122.13	. .
260	Cray Inc. T3E	Ohio Supercomputer Center Columbus USA /1997	Academic	132	**57.42** 79.2	. .

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N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Gflop/s]	N_{ma} $N_{1/}$
261	IBM SP P2SC 160 MHz	Oracle/IBM France /1998	Industry Database	128	**57.24** 81.92	3900 918
262	IBM SP P2SC 160 MHz	UCSD/San Diego Supercomputer Center San Diego USA /1997	Academic	128	**57.24** 81.92	3900 918
263	Fujitsu VPP500/40	National Institute of Genetics Mishima Japan /1995	Research	40	**56.9** 64	
264	IBM SP P2SC 160 MHz	ERDC MSRC Vicksburg USA /1998	Industry Defense	126	**56.37** 80.64	
265	Cray Inc. T3E1200	Environmental Protection Agency USA /1999	Research	68	**56.3** 81.6	
266	IBM SP Power3 200 MHz	Government UK /1998	Classified	92	**56** 73.4	
267	NEC sx5s/16h4	VW (Volkswagen AG) Wolfsburg Germany /2000	Industry Automotive	16	**56** 64	
268	IBM SP P2SC 160 MHz	Government France /1999	Classified	124	**55.5** 79.3	
269	IBM SP Power3 375 MHz	AP USA /2000	Industry	52	**55.3** 78	
270	IBM SP PC604e 332 MHz	Bayer AG Germany /1999	Industry Chemistry	176	**55.1** 116.8	
271	SGI ORIGIN 2000 250 MHz - Eth-Cluster	The Sabre Group Ft Worth USA /1999	Industry Transportation	448	**54.68** 224	9984 9984
272	SGI ORIGIN 2000 250 MHz - Eth-Cluster	America On Line (AOL) USA /1999	Industry WWW	320	**54.68** 160	9984 9984
273	SGI ORIGIN 2000 250 MHz - Eth-Cluster	Industrial Light Magic USA /1999	Industry Image Proc./Rendering	224	**54.68** 11.2	9984 9984
274	Cray Inc. T3E900	The Scripps Research Institute La Jolla USA /1997	Research	86	**54.6** 77.4	
275	Sun HPC 10000 333 MHz	Telecommunications Germany /2000	Industry Telecomm	104	**54.6** 69.2	
276	Sun HPC 10000 333 MHz	Telecommunications Merrifield USA /1999	Industry Telecomm	104	**54.6** 69.2	
277	IBM SP PC604e 332 MHz	2 The Mart USA /1999	Industry	174	**54.5** 115.5	
278	IBM SP P2SC 120 MHz	Cornell Theory Center Ithaca USA /1997	Academic	160	**52.96** 76.8	
279	Sun HPC 10000 400 MHz	Ameritrade Inc. Omaha USA /2000	Industry Finance	80	**52.7** 64	
280	Sun HPC 10000 400 MHz	Electronics Manufacturer Greenbelt USA /2000	Industry Electronics	80	**52.7** 64	

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N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Gflop/s]	N_{max} $N_{1/2}$
281	Sun HPC 10000 400 MHz	Motorola Bathgate UK /2000	Industry Electronics	80	**52.7** 64	. .
282	Sun HPC 10000 400 MHz	Motorola Tianjin China /2000	Industry Electronics	80	**52.7** 64	. .
283	Sun HPC 10000 400 MHz	Oil Company Cd del Carmen Mexico /2000	Industry Geophysics	80	**52.7** 64	. .
284	Sun HPC 10000 400 MHz	T-Online Weiterstadt Germany /2000	Industry Telecomm	80	**52.7** 64	. .
285	IBM SP PC604e 332 MHz	Deutsche Bank Switzerland /1999	Industry Finance	166	**52** 110.1	. .
286	IBM SP Power3 222 MHz	Ahold USA /2000	Industry	80	**51.5** 71	. .
287	IBM SP Power3 222 MHz	China Meteorological Administration Beijing China /2000	Research	80	**51.5** 71	. .
288	SGI ONYX2 250 MHz	Argonne National Laboratory USA /1998	Research	128	**51.44** 64	61000 10000
289	SGI ORIGIN 2000 250 MHz	Computer Sciences Corporation (CSC) Farnborough UK /1998	Industry Aerospace	128	**51.44** 64	61000 10000
290	SGI ORIGIN 2000 250 MHz	Government USA /1999	Classified	128	**51.44** 64	61000 10000
291	SGI ORIGIN 2000 250 MHz	Government USA /1999	Classified	128	**51.44** 64	61000 10000
292	SGI ORIGIN 2000 250 MHz	Government USA /1999	Classified	128	**51.44** 64	61000 10000
293	SGI ORIGIN 2000 250 MHz	Government USA /1999	Classified	128	**51.44** 64	61000 10000
294	SGI ORIGIN 2000 250 MHz	Government USA /1999	Classified	128	**51.44** 64	61000 10000
295	SGI ORIGIN 2000 250 MHz	Government USA /1999	Classified	128	**51.44** 64	61000 10000
296	SGI ORIGIN 2000 250 MHz	Government USA /1999	Classified	128	**51.44** 64	61000 10000
297	SGI ORIGIN 2000 250 MHz	Hospital For Sick Children Canada /1999	Research	128	**51.44** 64	61000 10000
298	SGI ORIGIN 2000 250 MHz	Lockheed Martin USA /1998	Industry Aerospace	128	**51.44** 64	61000 10000
299	SGI ORIGIN 2000 250 MHz	Lockheed Martin USA /1998	Industry Aerospace	128	**51.44** 64	61000 10000
300	SGI ORIGIN 2000 250 MHz	Lockheed Martin USA /1998	Industry Aerospace	128	**51.44** 64	61000 10000

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N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Gflop/s]	N_{max} $N_{1/2}$
301	SGI ORIGIN 2000 250 MHz	NCAR (National Center for Atmospheric Research) Boulder USA /1998	Research	128	**51.44** 64	61000 10000
302	SGI ORIGIN 2000 250 MHz	NCSA Urbana-Champaign USA /1999	Research	128	**51.44** 64	61000 10000
303	SGI ORIGIN 2000 250 MHz	NCSA Urbana-Champaign USA /1999	Research	128	**51.44** 64	61000 10000
304	SGI ORIGIN 2000 250 MHz	Naval Research Laboratory (NRL) Washington D.C. USA /1997	Research	128	**51.44** 64	61000 10000
305	SGI ORIGIN 2000 250 MHz	SUNY at Buffalo USA /1999	Academic	128	**51.44** 64	61000 10000
306	SGI ORIGIN 2000 250 MHz	Silicon Graphics Eagan USA /1999	Vendor	128	**51.44** 64	61000 10000
307	SGI ORIGIN 2000 250 MHz	Silicon Graphics Eagan USA /1999	Vendor	128	**51.44** 64	61000 10000
308	SGI ORIGIN 2000 250 MHz	UNITE Netherlands /1999	Academic	128	**51.44** 64	61000 10000
309	SGI ORIGIN 2000 250 MHz	US Army Research Laboratory (ARL) Aberdeen USA /1999	Research	128	**51.44** 64	61000 10000
310	SGI ORIGIN 2000 250 MHz	White Sands Missile Range National Directorate White Sands USA /1998	Classified	128	**51.44** 64	61000 10000
311	IBM SP PC604e 332 MHz	DeTeCSM Bonn Germany /1999	Industry In.Pr. Service	164	**51.4** 108.8	. .
312	Hewlett-Packard Exemplar X-Class	Caltech/JPL Pasadena USA /1997	Research	256	**51.3** 184.32	46128 .
313	Hewlett-Packard V2500/SCA	Advanced Technology Center Japan /1999	Research	64	**51.2** 112.64	. .
314	Hewlett-Packard V2500/SCA	Arnold Engineering Development Center (AEDC) Arnold AFB USA /2000	Research	64	**51.2** 112.64	. .
315	Hewlett-Packard V2500/SCA	Arnold Engineering Development Center (AEDC) Arnold AFB USA /2000	Research	64	**51.2** 112.64	. .
316	Hewlett-Packard V2500/SCA	Caltech/JPL Pasadena USA /1999	Research	64	**51.2** 112.64	. .
317	Hewlett-Packard V2500/SCA	Caltech/JPL Pasadena USA /1999	Research	64	**51.2** 112.64	. .
318	Hewlett-Packard V2500/HyperPlex	Amazon.com USA /2000	Industry WWW	64	**51.2** 112.64	. .
319	Hewlett-Packard V2500/HyperPlex	Amazon.com USA /2000	Industry WWW	64	**51.2** 112.64	. .
320	Hewlett-Packard V2500/HyperPlex	American Airlines USA /1999	Industry Transportation	64	**51.2** 112.64	. .

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N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Gflop/s]	N_{max} $N_{1/2}$
321	Hewlett-Packard V2500/HyperPlex	American Airlines USA /1999	Industry Transportation	64	**51.2** 112.64	. .
322	Hewlett-Packard V2500/HyperPlex	Artmedia Berlin Germany /1999	Industry	64	**51.2** 112.64	. .
323	Hewlett-Packard V2500/HyperPlex	Autonation USA /1999	Industry	64	**51.2** 112.64	. .
324	Hewlett-Packard V2500/HyperPlex	Autonation USA /1999	Industry	64	**51.2** 112.64	. .
325	Hewlett-Packard V2500/HyperPlex	BMW AG Muenchen Germany /2000	Industry Automotive	64	**51.2** 112.64	. .
326	Hewlett-Packard V2500/HyperPlex	BMW AG Muenchen Germany /2000	Industry Automotive	64	**51.2** 112.64	. .
327	Hewlett-Packard V2500/HyperPlex	BMW AG Muenchen Germany /2000	Industry Automotive	64	**51.2** 112.64	. .
328	Hewlett-Packard V2500/HyperPlex	BMW AG Muenchen Germany /2000	Industry Automotive	64	**51.2** 112.64	. .
329	Hewlett-Packard V2500/HyperPlex	BMW AG Muenchen Germany /2000	Industry Automotive	64	**51.2** 112.64	. .
330	Hewlett-Packard V2500/HyperPlex	Delta Airlines Atlanta USA /1999	Industry Transportation	64	**51.2** 112.64	. .
331	Hewlett-Packard V2500/HyperPlex	Deutsche Telekom AG Darmstadt Germany /1999	Industry Telecomm	64	**51.2** 112.64	. .
332	Hewlett-Packard V2500/HyperPlex	Deutsche Telekom AG Darmstadt Germany /1999	Industry Telecomm	64	**51.2** 112.64	. .
333	Hewlett-Packard V2500/HyperPlex	Deutsche Telekom AG Darmstadt Germany /1999	Industry Telecomm	64	**51.2** 112.64	. .
334	Hewlett-Packard V2500/HyperPlex	Honda of America USA /1999	Industry Automotive	64	**51.2** 112.64	. .
335	Hewlett-Packard V2500/HyperPlex	I2 Technologies Inc. USA /1999	Industry In.Pr. Service	64	**51.2** 112.64	. .
336	Hewlett-Packard V2500/HyperPlex	I2 Technologies Inc. USA /1999	Industry In.Pr. Service	64	**51.2** 112.64	. .
337	Hewlett-Packard V2500/HyperPlex	I2 Technologies Inc. USA /1999	Industry In.Pr. Service	64	**51.2** 112.64	. .
338	Hewlett-Packard V2500/HyperPlex	Lockheed Martin USA /1999	Industry Aerospace	64	**51.2** 112.64	. .
339	Hewlett-Packard V2500/HyperPlex	Lockheed Martin USA /1999	Industry Aerospace	64	**51.2** 112.64	. .
340	Hewlett-Packard V2500/HyperPlex	National Car Rental USA /1999	Industry Transportation	64	**51.2** 112.64	. .

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TOP500 **Supercomputers - Worldwide**

N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Gflop/s]	N_{max} $N_{1/2}$
341	Hewlett-Packard V2500/HyperPlex	Quest USA /1999	Industry Software	64	**51.2** 112.64	. .
342	Hewlett-Packard V2500/HyperPlex	Southwestern Bell USA /1999	Industry Telecomm	64	**51.2** 112.64	. .
343	Hewlett-Packard V2500/HyperPlex	US Office Products USA /1999	Industry Database	64	**51.2** 112.64	. .
344	Hewlett-Packard V2500/HyperPlex	United Airlines USA /1999	Industry Transportation	64	**51.2** 112.64	. .
345	Hewlett-Packard V2500/HyperPlex	Voicestream Wireless USA /1999	Industry Telecomm	64	**51.2** 112.64	. .
346	Hewlett-Packard V2500/HyperPlex	Volvo Gothenberg Sweden /1999	Industry Automotive	64	**51.2** 112.64	. .
347	IBM SP Power3 375 MHz	BASF Ludwigshafen Germany /2000	Industry Chemistry	48	**51.1** 72	. .
348	IBM SP Power3 375 MHz	Geco-Prakla Houston USA /2000	Industry Geophysics	48	**51.1** 72	. .
349	IBM SP Power3 375 MHz	Max-Planck-Gesellschaft MPI/Festkoerperforschung Stuttgart Germany /2000	Research	48	**51.1** 72	. .
350	IBM SP Power3 375 MHz	Telecom Denmark (Danadata) Denmark /2000	Industry Telecomm	48	**51.1** 72	. .
351	IBM SP Power3 375 MHz	UK Post Office UK /2000	Government	48	**51.1** 72	. .
352	Hewlett-Packard V2250/HyperPlex	Excel Communications USA /1998	Industry	128	**50.9** 122.88	. .
353	Hewlett-Packard V2250/HyperPlex	Excel Communications USA /1998	Industry	128	**50.9** 122.88	. .
354	IBM SP PC604e 332 MHz	BASF Ludwigshafen Germany /1999	Industry Chemistry	162	**50.8** 107.5	. .
355	IBM SP P2SC 120 MHz	Chip Manufacturer (A) USA /1997	Industry Electronics	152	**50.42** 72.96	. .
356	Hewlett-Packard N4000 440 MHz/HyperPlex	Government Germany /1999	Classified	80	**50.4** 140.8	. .
357	IBM SP PC604e 332 MHz	SOGEI Italy /1998	Government	160	**50.2** 106.2	. .
358	IBM SP PC604e 332 MHz	Telecom Italia Italy /1998	Industry Telecomm	160	**50.2** 106.2	. .
359	IBM SP PC604e 332 MHz	Dresdner Bank Germany /2000	Industry	158	**49.6** 104.89	. .
360	IBM SP PC604e 332 MHz	Government France /1999	Classified	158	**49.6** 104.89	. .

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TOP500 **Supercomputers - Worldwide**

N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Gflop/s]	N_{ma} $N_{1/}$
361	IBM SP Power3 200 MHz	Geco-Prakla Houston USA /1999	Industry Geophysics	80	**49.1** 63.9	
362	IBM SP PC604e 332 MHz	Federal Express USA /1999	Industry Database	156	**49** 103.5	
363	IBM SP PC604e 332 MHz	TRW Cleveland USA /1999	Industry Automotive	156	**49** 103.5	
364	Self-made Avalon Cluster	Los Alamos National Laboratory /CNLS Los Alamos USA /1998	Academic	140	**48.6** 149.4	6272 2520
365	NEC SX-4/25	NAL Japan /1997	Research	25	**48.35** 50	
366	SGI ORIGIN 2000 300 MHz - Eth-Cluster	Industrial Light Magic USA /1999	Industry Image Proc./Rendering	128	**48.33** 76.8	5760 950
367	SGI ORIGIN 2000 300 MHz - Eth-Cluster	Sikorsky Stratford USA /2000	Industry Aerospace	128	**48.33** 76.8	5760 950
368	SGI ORIGIN 2000 300 MHz - Eth-Cluster	Toshiba Tokyo Japan /2000	Industry Electronics	128	**48.33** 76.8	5760 950
369	Sun HPC 10000 400 MHz	Bank Zurich Switzerland /2000	Industry Finance	72	**48.2** 57.6	
370	Sun HPC 10000 400 MHz	E-Commerce Germany /1999	Industry Telecomm	72	**48.2** 57.6	
371	Sun HPC 10000 400 MHz	Manufacturing Mexico City Mexico /2000	Industry Manufacturing	72	**48.2** 57.6	
372	Sun HPC 10000 400 MHz	Telecommunications Orangeburg USA /2000	Industry Telecomm	72	**48.2** 57.6	
373	Sun HPC 10000 400 MHz	U.S. Navy San Diego USA /2000	Classified	72	**48.2** 57.6	
374	Cray Inc. T932/321024	Automotive Manufacturer (A) Tokyo Japan /1995	Industry Automotive	32	**47.85** 58	
375	Cray Inc. T932/321024	Government USA /1996	Classified	32	**47.85** 58	
376	Cray Inc. T932/321024	Government USA /1997	Classified	32	**47.85** 58	
377	Cray Inc. T932/321024	Government USA /1998	Classified	32	**47.85** 58	
378	Cray Inc. T932/321024	NRI for Earth Science and Disaster (NIED) Japan /1997	Research	32	**47.85** 58	
379	Cray Inc. T932/321024	Nippon Telegraph and Telephone (NTT) Tokyo Japan /1995	Industry Telecomm	32	**47.85** 58	
380	SGI ORIGIN 2000 300 MHz	Lunds Tekniska Hvgskola Sweden /1999	Academic	100	**47.7** 60	

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N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Gflop/s]	N_{max} $N_{1/2}$
381	Dell AC3 Velocity/MS NT4	Cornell Theory Center Ithaca USA /1999	Academic	256	**47.38** 126	982804 65520
382	Cray Inc. T3E	EXXON USA /1998	Industry Geophysics	108	**47.1** 64.8	. .
383	IBM SP Power3 375 MHz	INA Werk Schaffler Germany /2000	Industry	44	**46.9** 66	. .
384	IBM SP Power3 375 MHz	Kuoni AG Reisebuero Switzerland /2000	Industry	44	**46.9** 66	. .
385	IBM SP PC604e 332 MHz	Axone France /2000	Industry	148	**46.6** 98.25	. .
386	IBM SP PC604e 332 MHz	Bank of America USA /1999	Industry Finance	148	**46.6** 98.25	. .
387	IBM SP PC604e 332 MHz	Sony Data UK /1999	Industry	148	**46.6** 98.25	. .
388	NEC SX-5/6B	Veritas DGC Singapore /1999	Industry Geophysics	6	**46.2** 48	. .
389	NEC SX-5/6A	Veritas DGC Houston USA /1999	Industry Geophysics	6	**46.2** 48	. .
390	Hewlett-Packard V2250/HyperPlex	Excel Communications USA /1998	Industry	112	**46** 107.52	. .
391	IBM SP PC604e 332 MHz	Atraxis AG Switzerland /2000	Industry	146	**46** 96.9	. .
392	Fujitsu VPP700/22	National Astronomical Observatory of Japan (NAOJ) Hilo USA /1999	Research	22	**45.9** 48.4	67320 4840
393	SGI ORIGIN 2000 300 MHz	Ford Motor Company USA /1999	Industry Automotive	96	**45.7** 57.6	53248 8000
394	Sun HPC 10000 400 MHz Cluster	Boeing IDS Group Orange County USA /1999	Industry Aerospace	72	**45.46** 57.6	. .
395	IBM SP PC604e 332 MHz	APAC Hong Kong (EHU) Netherlands /1999	Industry	144	**45.4** 95.6	. .
396	IBM SP PC604e 332 MHz	EVE Bank Switzerland /1999	Industry Finance	144	**45.4** 95.6	. .
397	IBM SP PC604e 332 MHz	Merck Germany /1999	Industry Pharmaceutics	144	**45.4** 95.6	. .
398	IBM SP PC604e 332 MHz	Phillips Electronics USA /1999	Industry	144	**45.4** 95.6	. .
399	IBM SP PC604e 332 MHz	RABOBNK NED USA /2000	Industry	144	**45.4** 95.6	. .
400	IBM SP PC604e 332 MHz	UBS AG Switzerland /1999	Industry Finance	144	**45.4** 95.6	. .

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N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Gflop/s]	N_{max} $N_{1/2}$
401	Fujitsu VPP700/20E	The Angstrom Technology Partnership Tsukuba Japan /1999	Research	20	**45.04** 48	. .
402	Hewlett-Packard V2500/HyperPlex	Pepsi USA /1999	Industry	56	**45** 98.56	. .
403	IBM SP Power3 375 MHz	British Airways UK /2000	Industry Transportation	42	**44.9** 63	. .
404	Sun HPC 10000 400 MHz	Aerospace Company Cologne Germany /2000	Industry Aerospace	64	**44.57** 51.2	39936 4032
405	Sun HPC 10000 400 MHz	Aerospace Company Cologne Germany /2000	Industry Aerospace	64	**44.57** 51.2	39936 4032
406	Sun HPC 10000 400 MHz	Aerospace Company San Angelo USA /2000	Industry Aerospace	64	**44.57** 51.2	39936 4032
407	Sun HPC 10000 400 MHz	Ameritrade Inc. Omaha USA /2000	Industry Finance	64	**44.57** 51.2	39936 4032
408	Sun HPC 10000 400 MHz	Bank UK /2000	Industry Finance	64	**44.57** 51.2	39936 4032
409	Sun HPC 10000 400 MHz	Bank London UK /2000	Industry Finance	64	**44.57** 51.2	39936 4032
410	Sun HPC 10000 400 MHz	Bank London UK /2000	Industry Finance	64	**44.57** 51.2	39936 4032
411	Sun HPC 10000 400 MHz	Bank Milano Italy /2000	Industry Finance	64	**44.57** 51.2	39936 4032
412	Sun HPC 10000 400 MHz	Bank Milano Italy /2000	Industry Finance	64	**44.57** 51.2	39936 4032
413	Sun HPC 10000 400 MHz	Bank New York USA /2000	Industry Finance	64	**44.57** 51.2	39936 4032
414	Sun HPC 10000 400 MHz	Bank Westboro USA /2000	Industry Finance	64	**44.57** 51.2	39936 4032
415	Sun HPC 10000 400 MHz	Bank Westboro USA /2000	Industry Finance	64	**44.57** 51.2	39936 4032
416	Sun HPC 10000 400 MHz	Bank Westboro USA /2000	Industry Finance	64	**44.57** 51.2	39936 4032
417	Sun HPC 10000 400 MHz	Bank Westboro USA /2000	Industry Finance	64	**44.57** 51.2	39936 4032
418	Sun HPC 10000 400 MHz	Bank Westboro USA /2000	Industry Finance	64	**44.57** 51.2	39936 4032
419	Sun HPC 10000 400 MHz	Chiba University Inage-Ku Japan /2000	Academic	64	**44.57** 51.2	39936 4032
420	Sun HPC 10000 400 MHz	Clearstream Services Grande Duchesse Luxembourg /2000	Industry Finance	64	**44.57** 51.2	39936 4032

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N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Gflop/s]	N_{max} $N_{1/2}$
421	Sun HPC 10000 400 MHz	Clearstream Services Grande Duchesse Luxembourg /2000	Industry Finance	64	**44.57** 51.2	39936 4032
422	Sun HPC 10000 400 MHz	Computer Manufacturer Lakewood USA /2000	Industry Manufacturing	64	**44.57** 51.2	39936 4032
423	Sun HPC 10000 400 MHz	Computer Manufacturer Lakewood USA /2000	Industry Manufacturing	64	**44.57** 51.2	39936 4032
424	Sun HPC 10000 400 MHz	Computer Manufacturer Santa Ana USA /2000	Industry Manufacturing	64	**44.57** 51.2	39936 4032
425	Sun HPC 10000 400 MHz	Convergys Corporation Lake Mary USA /2000	Industry Finance	64	**44.57** 51.2	39936 4032
426	Sun HPC 10000 400 MHz	Convergys Corporation Lake Mary USA /2000	Industry Finance	64	**44.57** 51.2	39936 4032
427	Sun HPC 10000 400 MHz	EDS Plano USA /2000	Industry Finance	64	**44.57** 51.2	39936 4032
428	Sun HPC 10000 400 MHz	Finance Company Rockville USA /2000	Industry Finance	64	**44.57** 51.2	39936 4032
429	Sun HPC 10000 400 MHz	Fineco Milano Italy /2000	Industry Finance	64	**44.57** 51.2	39936 4032
430	Sun HPC 10000 400 MHz	Ford Motor Company Dearborn USA /2000	Industry Automotive	64	**44.57** 51.2	39936 4032
431	Sun HPC 10000 400 MHz	Ford Motor Company Dearborn USA /2000	Industry Automotive	64	**44.57** 51.2	39936 4032
432	Sun HPC 10000 400 MHz	Ford Motor Company Dearborn USA /2000	Industry Automotive	64	**44.57** 51.2	39936 4032
433	Sun HPC 10000 400 MHz	Ford Motor Company Detroit USA /2000	Industry Automotive	64	**44.57** 51.2	39936 4032
434	Sun HPC 10000 400 MHz	GTE Communications Irving USA /2000	Industry Telecomm	64	**44.57** 51.2	39936 4032
435	Sun HPC 10000 400 MHz	GTE Communications Sacramento USA /1999	Industry Telecomm	64	**44.57** 51.2	39936 4032
436	Sun HPC 10000 400 MHz	GTE Communications Sacramento USA /2000	Industry Telecomm	64	**44.57** 51.2	39936 4032
437	Sun HPC 10000 400 MHz	GTE Communications Sacramento USA /2000	Industry Telecomm	64	**44.57** 51.2	39936 4032
438	Sun HPC 10000 400 MHz	GTE Communications Sacramento USA /2000	Industry Telecomm	64	**44.57** 51.2	39936 4032
439	Sun HPC 10000 400 MHz	GTE Communications Sacramento USA /2000	Industry Telecomm	64	**44.57** 51.2	39936 4032
440	Sun HPC 10000 400 MHz	GTE Communications Temple Terrace USA /1999	Industry Telecomm	64	**44.57** 51.2	39936 4032

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N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	**R_{max}** R_{peak} [Gflop/s]	N_{max} $N_{1/2}$
441	Sun HPC 10000 400 MHz	GTE Communications Temple Terrace USA /1999	Industry Telecomm	64	**44.57** 51.2	39936 4032
442	Sun HPC 10000 400 MHz	GTE Communications Temple Terrace USA /2000	Industry Telecomm	64	**44.57** 51.2	39936 4032
443	Sun HPC 10000 400 MHz	GTE Communications Temple Terrace USA /2000	Industry Telecomm	64	**44.57** 51.2	39936 4032
444	Sun HPC 10000 400 MHz	GTE Communications Temple Terrace USA /2000	Industry Telecomm	64	**44.57** 51.2	39936 4032
445	Sun HPC 10000 400 MHz	GTE Communications Temple Terrace USA /2000	Industry Telecomm	64	**44.57** 51.2	39936 4032
446	Sun HPC 10000 400 MHz	Government USA /2000	Classified	64	**44.57** 51.2	39936 4032
447	Sun HPC 10000 400 MHz	Indiana University Bloomington USA /2000	Academic	64	**44.57** 51.2	39936 4032
448	Sun HPC 10000 400 MHz	Jside.Com Tokyo Japan /2000	Industry	64	**44.57** 51.2	39936 4032
449	Sun HPC 10000 400 MHz	Jside.Com Tokyo Japan /2000	Industry	64	**44.57** 51.2	39936 4032
450	Sun HPC 10000 400 MHz	Mannesmann Mobilfunk Duesseldorf Germany /2000	Industry Telecomm	64	**44.57** 51.2	39936 4032
451	Sun HPC 10000 400 MHz	New York City - Human Resources USA /1999	Government	64	**44.57** 51.2	39936 4032
452	Sun HPC 10000 400 MHz	Oil Company Calga Canada /2000	Industry Geophysics	64	**44.57** 51.2	39936 4032
453	Sun HPC 10000 400 MHz	Oil Company Calga Canada /2000	Industry Geophysics	64	**44.57** 51.2	39936 4032
454	Sun HPC 10000 400 MHz	Telcel Mexico City Mexico /2000	Industry Telecomm	64	**44.57** 51.2	39936 4032
455	Sun HPC 10000 400 MHz	Telecommunication Company Clinton USA /2000	Industry Telecomm	64	**44.57** 51.2	39936 4032
456	Sun HPC 10000 400 MHz	Telecommunication Company Madrid Spain /2000	Industry Telecomm	64	**44.57** 51.2	39936 4032
457	Sun HPC 10000 400 MHz	Telecommunication Company Madrid Spain /2000	Industry Telecomm	64	**44.57** 51.2	39936 4032
458	Sun HPC 10000 400 MHz	Telecommunication Company Norcross USA /2000	Industry Telecomm	64	**44.57** 51.2	39936 4032
459	Sun HPC 10000 400 MHz	Telecommunication Company Plano USA /2000	Industry Telecomm	64	**44.57** 51.2	39936 4032
460	Sun HPC 10000 400 MHz	Telecommunication Company Queensland Australia /2000	Industry Telecomm	64	**44.57** 51.2	39936 4032

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N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Gflop/s]	N_{max} $N_{1/2}$
461	Sun HPC 10000 400 MHz	Telecommunication Company Southfield USA /2000	Industry Telecomm	64	**44.57** 51.2	39936 4032
462	Sun HPC 10000 400 MHz	Telecommunication Company Tokyo Japan /2000	Industry Telecomm	64	**44.57** 51.2	39936 4032
463	Sun HPC 10000 400 MHz	Telefonica del Peru Peru /2000	Industry Telecomm	64	**44.57** 51.2	39936 4032
464	Sun HPC 10000 400 MHz	Universitaet Hannover Hannover Germany /2000	Academic	64	**44.57** 51.2	39936 4032
465	Sun HPC 10000 400 MHz	University for Industry London UK /2000	Academic	64	**44.57** 51.2	39936 4032
466	Sun HPC 10000 400 MHz	University of Georgia Atlanta USA /2000	Academic	64	**44.57** 51.2	39936 4032
467	Sun HPC 10000 400 MHz	University of Montreal Montreal Canada /2000	Academic	64	**44.57** 51.2	39936 4032
468	Sun HPC 10000 400 MHz	W.W. Grainger Niles USA /2000	Industry Database	64	**44.57** 51.2	39936 4032
469	Sun HPC 10000 400 MHz	Wiliams Energy and Trading Tulsa USA /2000	Industry Finance	64	**44.57** 51.2	39936 4032
470	Sun HPC 10000 400 MHz	debis Systemhaus Koeln USA /2000	Industry Automotive	64	**44.57** 51.2	39936 4032
471	IBM SP PC604e 332 MHz	Atomic Weapons Establishment Aldermaston UK /1998	Classified	140	**44.27** 92.95	. .
472	IBM SP PC604e 332 MHz	Sears USA /1998	Industry Database	140	**44.27** 92.95	. .
473	IBM SP2/256	Universitaet/Forschungszentrum Karlsruhe Karlsruhe Germany /1997	Academic	256	**44.2** 68	53000 13500
474	IBM SP Power3 222 MHz	University of Minnesota/Supercomputing Institute Minneapolis USA /2000	Academic	68	**44.2** 60.35	. .
475	Hewlett-Packard N4000 360 MHz/HyperPlex	Max-Planck-Gesellschaft MPI/Fritz-Haber-Institut Berlin Germany /1999	Research	80	**44.1** 115.2	. .
476	Hewlett-Packard V2600/SCA	University of Athens Athen Greece /2000	Academic	48	**44** 105.98	. .
477	Hitachi SR8000/6	Chiba University Japan /2000	Academic	6	**43.91** 48	28000 2000
478	Hitachi SR8000/6	Suzuki Motor Japan /1999	Industry Automotive	6	**43.91** 48	28000 2000
479	Sun HPC 10000 400 MHz	ATT Alpharetta USA /1999	Industry Telecomm	64	**43.82** 51.2	39936 4032
480	Sun HPC 10000 400 MHz	ATT Bamberg Germany /2000	Industry Telecomm	64	**43.82** 51.2	39936 4032

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N *world*	Manufacturer Computer	Installation Site Location/Year	Field of Application	# Proc.	$\mathbf{R_{max}}$ R_{peak} [Gflop/s]	N_{max} $N_{1/2}$
481	Sun HPC 10000 400 MHz	Access Graphics Bensenville USA /1999	Industry	64	**43.82** 51.2	39936 4032
482	Sun HPC 10000 400 MHz	Aerotek Hanover USA /1999	Industry Manufacturing	64	**43.82** 51.2	39936 4032
483	Sun HPC 10000 400 MHz	Aerotek Hanover USA /1999	Industry Manufacturing	64	**43.82** 51.2	39936 4032
484	Sun HPC 10000 400 MHz	Agency for Health Care Administration Tallahassee USA /1999	Government	64	**43.82** 51.2	39936 4032
485	Sun HPC 10000 400 MHz	Ameritrade Inc. Omaha USA /1999	Industry Finance	64	**43.82** 51.2	39936 4032
486	Sun HPC 10000 400 MHz	Baker Hughes Houston USA /1999	Industry Geophysics	64	**43.82** 51.2	39936 4032
487	Sun HPC 10000 400 MHz	Baker Hughes Houston USA /1999	Industry Geophysics	64	**43.82** 51.2	39936 4032
488	Sun HPC 10000 400 MHz	BellSouth Tucker USA /1999	Industry Telecomm	64	**43.82** 51.2	39936 4032
489	Sun HPC 10000 400 MHz	Chase GlobalNet USA /1999	Industry Finance	64	**43.82** 51.2	39936 4032
490	Sun HPC 10000 400 MHz	Cincinnati Bell Information Systems (CBIS) Lake Mary USA /1999	Industry Telecomm	64	**43.82** 51.2	39936 4032
491	Sun HPC 10000 400 MHz	Clearstream Services Grande Duchesse Luxembourg /2000	Industry Finance	64	**43.82** 51.2	39936 4032
492	Sun HPC 10000 400 MHz	Clearstream Services Grande Duchesse Luxembourg /2000	Industry Finance	64	**43.82** 51.2	39936 4032
493	Sun HPC 10000 400 MHz	Clearstream Services Grande Duchesse Luxembourg /2000	Industry Finance	64	**43.82** 51.2	39936 4032
494	Sun HPC 10000 400 MHz	Commerzbank Frankfurt Germany /1999	Industry Finance	64	**43.82** 51.2	39936 4032
495	Sun HPC 10000 400 MHz	Commerzbank Kelsterbach Germany /1999	Industry Finance	64	**43.82** 51.2	39936 4032
496	Sun HPC 10000 400 MHz	Deutsche Bank Frankfurt Germany /1999	Industry Finance	64	**43.82** 51.2	39936 4032
497	Sun HPC 10000 400 MHz	Deutsche Telekom AG Bamberg Germany /1999	Industry Telecomm	64	**43.82** 51.2	39936 4032
498	Sun HPC 10000 400 MHz	Deutsche Telekom AG Bamberg Germany /1999	Industry Telecomm	64	**43.82** 51.2	39936 4032
499	Sun HPC 10000 400 MHz	EDS Plano USA /2000	Industry Finance	64	**43.82** 51.2	39936 4032
500	Sun HPC 10000 400 MHz	EDS Plano USA /2000	Industry Finance	64	**43.82** 51.2	39936 4032

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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
IBM	74	62	4	4	144
Sun	71	35	5	10	121
SGI	48	5	9		62
Cray Inc.	30	17	5	2	54
Hewlett-Packard	32	14	1		47
NEC	3	7	11	4	25
Fujitsu	1	7	10	1	19
Hitachi		2	14		16
others	9	1	2		12
Total	268	150	61	21	500

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

TOP500 Statistics — Installed R_{max} [Gflop/s]					
	USA/Canada	Europe	Japan	others	Total
IBM	13228	4439.9	392.1	466.6	18527
Sun	3683.2	1733.0	245.2	576.3	6237.6
SGI	5345.0	314.2	624.6		6283.9
Cray Inc.	8328.0	5213.3	276.4	191.5	14009
Hewlett-Packard	1792.8	714.3	51.2		2558.3
NEC	411.6	777.2	1404.3	474.4	3067.6
Fujitsu	45.9	1246.5	2341.7	139.8	3773.9
Hitachi		1093.7	4312.4		5406.0
others	4094.2	211.0	164.8		4470.0
Total	36929	15743	9812.7	1848.6	64333

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

TOP500 Statistics — Installed R_{peak} [Gflop/s]					
	USA/Canada	Europe	Japan	others	Total
IBM	21434	7992.5	608.9	677.0	30712
Sun	4540.2	2066.0	290.0	708.8	7605.0
SGI	8186.4	418.4	844.8		9449.6
Cray Inc.	11973	7444.2	357.6	277.2	20052
Hewlett-Packard	4271.4	1657.3	112.6		6041.3
NEC	432.0	832.0	1466.0	496.0	3226.0
Fujitsu	48.4	1353.6	2604.2	144.0	4150.2
Hitachi		1421.0	5408.0		6829.0
others	5996.6	309.5	265.1		6571.2
Total	56882	23495	11957	2303.0	94637

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