

Semiconductor and Related Device Manufacturing: 2002

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2002 Economic Census

Manufacturing

Industry Series



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U.S. Department of Commerce
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CONTENTS

Introduction to the Economic Census	v
Manufacturing	ix
Tables	
1. Historical Statistics for the Industry: 2002 and Earlier Years ...	1
2. Industry Statistics for Selected States: 2002	2
3. Detailed Statistics by Industry: 2002	3
4. Industry Statistics by Employment Size: 2002.....	4
5. Industry Statistics by Primary Product Class Specialization: 2002	5
6a. Products Statistics: 2002 and 1997	6
6b. Product Class Shipments for Selected States: 2002 and 1997 .	7
7. Materials Consumed by Kind: 2002 and 1997.....	8
Appendixes	
A. Explanation of Terms	A-1
B. NAICS Codes, Titles, and Descriptions	B-1
C. Methodology.....	C-1
D. Geographic Notes	--
E. Metropolitan and Micropolitan Statistical Areas	--
F. Comparability of Product Classes and Product Codes: 2002 to 1997.....	F-1

-- Not applicable for this report.

Table 1. Historical Statistics for the Industry: 2002 and Earlier Years

[Data based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). For information on confidentiality protection, sampling error, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Industry and year ¹	Com-panies ²	All estab-lish-ments ³	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)	
			Number ⁴	Payroll (\$1,000)	Number ⁴	Hours (1,000)	Wages (\$1,000)					
334413, Semiconductor and related device manufacturing	2002..	898	1 032	169 622	9 882 113	86 115	168 491	3 811 267	47 264 036	16 560 847	63 658 697	4 779 241
	2001..	N	N	216 210	11 697 339	118 256	233 759	4 528 668	46 499 371	16 322 202	63 108 760	12 159 637
	2000..	N	N	229 535	12 976 631	124 279	253 241	4 727 153	67 896 581	23 715 092	90 880 105	14 583 636
	1999..	N	N	214 667	11 651 290	116 583	237 394	4 310 458	68 021 675	15 853 489	83 535 638	9 155 459
	1998..	N	N	203 058	10 449 335	108 248	213 704	3 714 467	59 977 245	15 303 115	75 048 378	9 267 530
	1997..	993	1 097	199 037	10 101 783	106 484	216 061	3 531 168	64 135 313	15 055 008	78 479 496	11 531 803

¹Statistics presented for years ending in 2 and 7 are census data. Interim census years are derived in a representative sample of manufacturing establishments canvassed in the Annual Survey of Manufactures (ASM).

²For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

³Includes establishments with payroll at any time during the year.

⁴Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain sampling errors and nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

Table 2. Industry Statistics for Selected States: 2002

[States that are a disclosure or with less than 100 employees are not shown. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, explanation of terms, and geographical definitions, see note at end of table. For information on geographic areas followed by *, see Appendix D. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments ²		All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number ³	Payroll (\$1,000)	Number ³	Hours (1,000)	Wages (\$1,000)				
334413, Semiconductor and related device manufacturing												
United States	-	1 032	480	169 622	9 882 113	86 115	168 491	3 811 267	47 264 036	16 560 847	63 658 697	14 779 241
Arizona	-	45	24	13 385	779 098	6 332	12 405	272 341	8 793 989	1 364 315	10 226 211	1 105 350
California	-	388	182	42 924	2 659 204	20 005	37 794	851 074	9 078 079	2 914 436	11 936 938	1 198 039
Florida	-	26	13	3 703	224 867	1 568	3 146	74 576	725 553	198 181	926 901	170 957
Indiana	1	7	1	201	7 199	104	245	1 770	13 074	5 092	17 727	1 297
Massachusetts	-	67	38	7 998	451 897	4 745	9 084	193 328	3 249 475	1 244 484	4 336 735	1 152 834
Michigan	3	16	6	354	17 159	195	370	5 674	38 061	16 844	55 661	1 037
Minnesota	1	17	7	1 730	109 832	1 011	1 907	52 237	224 943	106 169	339 790	130 034
Nevada	2	4	1	137	4 595	89	196	2 389	7 988	6 061	14 594	1 245
New Hampshire	2	19	7	749	35 230	419	809	14 705	74 473	33 291	107 646	1 889
New Jersey	1	35	19	1 827	112 772	1 143	2 436	54 784	254 143	127 153	376 926	112 089
New York	-	37	16	9 333	575 941	3 726	7 440	130 263	1 050 035	290 295	1 297 734	1 227 718
North Carolina	-	17	8	2 607	163 935	2 057	4 287	122 026	430 787	312 536	729 693	1 195 244
Ohio	3	12	6	1 009	46 887	604	1 282	23 368	84 952	44 473	136 151	135 126
Oregon	-	27	17	6 999	411 388	4 419	8 579	212 013	8 254 813	1 042 666	9 184 906	1 118 299
Pennsylvania	-	44	19	5 242	302 539	2 561	5 748	143 096	391 418	238 274	643 749	174 416
Texas	-	78	41	29 530	1 862 705	10 804	22 300	476 820	4 215 297	4 960 197	9 166 974	1 977 229
Washington	-	24	12	3 484	165 904	2 084	4 289	86 049	497 780	344 094	866 776	138 905

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

²Includes establishments with payroll at any time during the year.

³Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C. For geographical definitions, see Appendix D.

Table 3. Detailed Statistics by Industry: 2002

[Data based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). For information on confidentiality protection, sampling error, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Item	Value
334413, Semiconductor and related device manufacturing	
Companies ¹	number.. 898
All establishments ²	number.. 1 032
Establishments with 1 to 19 employees	number.. 552
Establishments with 20 to 99 employees	number.. 270
Establishments with 100 employees or more	number.. 210
All employees ³	number.. 169 622
Total compensation	\$1,000.. 12 153 401
Annual payroll	\$1,000.. 9 882 113
Total fringe benefits	\$1,000.. 2 271 288
Production workers, average for year	number.. 86 115
Production workers on March 12	number.. 87 316
Production workers on May 12	number.. 87 350
Production workers on August 12	number.. 86 672
Production workers on November 12	number.. 83 052
Production worker hours	1,000.. 168 491
Production worker wages	\$1,000.. 3 811 267
Total cost of materials	\$1,000.. 16 560 847
Materials, parts, containers, packaging, etc., used	\$1,000.. 13 220 181
Resales	\$1,000.. 1 089 129
Purchased fuels	\$1,000.. 98 910
Purchased electricity	\$1,000.. 705 593
Contract work	\$1,000.. 1 447 034
Quantity of electricity purchased for heat and power	1,000 kWh.. 12 870 290
Quantity of electricity generated less sold for heat and power	1,000 kWh.. -
Total value of shipments	\$1,000.. 63 658 697
Primary products value of shipments	\$1,000.. 61 025 566
Secondary products value of shipments	\$1,000.. 1 299 249
Total miscellaneous receipts	\$1,000.. 1 333 882
Value of resales	\$1,000.. 1 182 062
Contract receipts	\$1,000.. 66 657
Other miscellaneous receipts	\$1,000.. 85 163
Primary products specialization ratio	percent.. 98
Value of primary products shipments made in all industries	\$1,000.. 61 545 843
Value of primary products shipments made in this industry	\$1,000.. 61 025 566
Value of primary products shipments made in other industries	\$1,000.. 520 277
Coverage ratio	percent.. 99
Value added	\$1,000.. 47 264 036
Total inventories, beginning of year	\$1,000.. 5 494 103
Finished goods inventories	\$1,000.. 1 160 893
Work-in-process inventories	\$1,000.. 3 339 996
Materials and supplies inventories	\$1,000.. 993 214
Total inventories, end of year	\$1,000.. 5 688 197
Finished goods inventories	\$1,000.. 1 117 743
Work-in-process inventories	\$1,000.. 3 549 332
Materials and supplies inventories	\$1,000.. 1 021 122
Gross value of depreciable assets (acquisition costs) at beginning of year	\$1,000.. ⁵ 4 468 554
Total capital expenditures (new and used)	\$1,000.. ⁴ 779 241
Buildings and other structures (new and used)	\$1,000.. 692 998
Machinery and equipment (new and used)	\$1,000.. ⁴ 086 243
Automobiles, trucks, etc., for highway use	\$1,000.. ² 262
Computers and peripheral data processing equipment	\$1,000.. ³ 224 993
All other expenditures for machinery and equipment	\$1,000.. ³ 834 988
Total retirements	\$1,000.. ⁴ 984 466
Gross value of depreciable assets at end of year	\$1,000.. ⁵ 4 263 329
Depreciation charges during year	\$1,000.. ⁵ 572 695
Total rental payments	\$1,000.. 826 043
Buildings and other structures	\$1,000.. 286 768
Machinery and equipment	\$1,000.. 539 275
Total other expenses ⁴	\$1,000.. 4 438 652
Response coverage ratio ⁵	percent.. 75
Repair and maintenance services of buildings and/or machinery ⁴	\$1,000.. 556 893
Communications services ⁴	\$1,000.. 146 463
Legal services ⁴	\$1,000.. 191 637
Accounting, auditing, and bookkeeping services ⁴	\$1,000.. 24 571
Advertising and promotional services ⁴	\$1,000.. 186 419
Expensed computer hardware and supplies and purchased computer services ⁴	\$1,000.. 380 763
Refuse removal (including hazardous waste) services ⁴	\$1,000.. 46 662
Management consulting and administrative services ⁴	\$1,000.. 280 176
Taxes and license fees ⁴	\$1,000.. 267 525
All other expenses ⁴	\$1,000.. 2 357 541

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during the year.

³Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

⁴Based on 2002 Annual Survey of Manufactures (ASM) sample data.

⁵A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those Annual Survey of Manufactures (ASM) establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note 1: The amounts shown for other expenses reflect only those services that establishments purchase from other companies.

Note 2: The data in this table are based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain sampling errors and nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

Table 4. Industry Statistics by Employment Size: 2002

[Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Employment size class	E ¹	All establishments ²	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number ³	Payroll (\$1,000)	Number ³	Hours (1,000)	Wages (\$1,000)				
334413. Semiconductor and related device manufacturing											
All establishments	—	1 032	169 622	9 882 113	86 115	168 491	3 811 267	47 264 036	16 560 847	63 658 697	'4 779 241
Establishments with—											
1 to 4 employees	9	298	579	26 757	352	589	9 742	81 022	23 346	104 341	'2 658
5 to 9 employees	8	132	904	51 149	485	928	17 357	148 917	49 295	199 987	'4 064
10 to 19 employees	8	122	1 687	95 709	907	1 767	34 030	270 073	114 270	384 359	'10 653
20 to 49 employees	5	166	5 210	284 102	2 626	5 085	101 360	789 833	319 903	1 103 062	'58 464
50 to 99 employees	3	104	7 544	414 402	3 909	7 591	142 374	1 211 107	601 671	1 795 440	'87 096
100 to 249 employees	2	85	13 030	664 475	7 047	13 908	273 619	1 339 099	703 098	2 078 709	'170 373
250 to 499 employees	—	43	15 329	849 467	8 708	17 389	378 382	1 740 275	894 384	2 736 501	'319 744
500 to 999 employees	—	42	31 095	1 754 547	19 411	36 953	886 927	13 366 463	3 362 514	16 617 618	'696 216
1,000 to 2,499 employees	—	33	47 473	2 869 043	24 316	50 238	1 104 145	16 610 816	4 940 033	21 390 130	'1 483 137
2,500 employees or more	—	7	46 771	2 872 462	18 354	34 043	863 331	11 706 431	5 552 333	17 248 550	'1 946 836
Administrative records ⁴	9	436	2 272	120 708	1 296	2 519	43 399	369 683	108 367	478 048	'8 604

¹Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data account for 10 percent or more of the figures shown: 1—10 to 19 percent; 2—20 to 29 percent; 3—30 to 39 percent; 4—40 to 49 percent; 5—50 to 59 percent; 6—60 to 69 percent; 7—70 to 79 percent; 8—80 to 89 percent; 9—90 percent or more.

²Includes establishments with payroll at any time during the year.

³Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

⁴Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

Table 5. Industry Statistics by Primary Product Class Specialization: 2002

[Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Industry or product class code	Industry or primary product class	All establishments ¹	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number ²	Payroll (\$1,000)	Number ²	Hours (1,000)	Wages (\$1,000)				
334413	Semiconductor and related device manufacturing	1 032	169 622	9 882 113	86 115	168 491	3 811 267	47 264 036	16 560 847	63 658 697	'4 779 241
3344131	Integrated microcircuits, including semiconductor networks, microprocessors, and MOS memories	194	115 503	6 997 092	55 681	107 811	2 562 382	40 981 583	13 071 856	53 772 756	'4 187 121
3344134	Transistors	18	3 897	233 680	2 038	3 803	84 271	471 477	187 648	647 930	'65 217
3344137	Diodes and rectifiers	25	2 735	89 527	1 301	2 464	37 050	214 494	122 162	344 884	'13 216
334413A	Other semiconductor devices, including semiconductor parts such as chips, wafers, and heat sinks ...	134	36 933	1 962 496	21 576	43 565	914 889	3 924 847	2 692 236	6 731 520	'443 884

¹Includes establishments with payroll at any time during the year.

²Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

Table 6a. Products Statistics: 2002 and 1997

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)
334413	Semiconductor and related device manufacturing	2002.. N 1997.. N	X X	X X	61 545 843 76 185 822
3344131	Integrated microcircuits, including semiconductor networks, microprocessors, and MOS memories	2002.. N 1997.. N	X X	X X	51 381 890 60 277 163
33441311	Integrated microcircuits, including semiconductor networks, microprocessors, and MOS memories	2002.. N 1997.. N	X X	X X	51 381 890 60 277 163
3344131100	Integrated microcircuits, including semiconductor networks, microprocessors, and MOS memories ¹	2002.. 182 1997.. 191	X X	X X	51 381 890 60 277 163
3344134	Transistors	2002.. N 1997.. N	X X	X X	857 780 1 661 296
33441341	Transistors	2002.. N 1997.. N	X X	X X	857 780 1 661 296
3344134100	Transistors ¹	2002.. 32 1997.. 34	X X	X X	857 780 1 661 296
3344137	Diodes and rectifiers	2002.. N 1997.. N	X X	X X	396 428 1 200 564
33441371	Diodes and rectifiers	2002.. N 1997.. N	X X	X X	396 428 1 200 564
3344137100	Diodes and rectifiers ¹	2002.. 40 1997.. 47	X X	X X	396 428 1 200 564
334413A	Other semiconductor devices, including semiconductor parts such as chips, wafers, and heat sinks	2002.. N 1997.. N	X X	X X	6 870 559 11 202 336
334413A1	Other semiconductor devices, including semiconductor parts such as chips, wafers, and heat sinks	2002.. N 1997.. N	X X	X X	6 870 559 11 202 336
334413A100	Other semiconductor devices, including semiconductor parts such as chips, wafers, and heat sinks ¹	2002.. 164 1997.. 166	X X	X X	6 870 559 11 202 336
334413W	Semiconductor and related device manufacturing, nsk, total	2002.. N 1997.. N	X X	X X	2 039 186 1 844 463
334413WY	Semiconductor and related device manufacturing, nsk, total	2002.. N 1997.. N	X X	X X	2 039 186 1 844 463
334413WYWW	Semiconductor and related device manufacturing, nsk, for nonadministrative-record establishments	2002.. N 1997.. N	X X	X X	1 568 850 1 332 527
334413WYWY	Semiconductor and related device manufacturing, nsk, for administrative-record establishments	2002.. N 1997.. N	X X	X X	470 336 511 936

¹For additional detail, see Current Industrial Report MA334Q, Semiconductors and Electronic Components.

Note 1: For some establishments, data have been estimated from central unit values that are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: p-10 to 19 percent estimated; q-20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Note 2: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

Table 6b. Product Class Shipments for Selected States: 2002 and 1997

[Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in Table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some states are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 2002. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, explanation of terms, and geographic definitions, see note at end of table. For information on geographic areas followed by *, see Appendix D. For meaning of abbreviations and symbols, see introductory text]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)
3344131	Integrated microcircuits, including semiconductor networks, microprocessors, and MOS memories	
	United States	2002.. 51 381 890
	Arizona	1997.. 60 277 163
	California	2002.. 9 387 903
	Colorado	1997.. 6 524 241
	Massachusetts	2002.. 8 148 426
	Minnesota	1997.. 11 104 563
	New Jersey	2002.. 1 078 012
	Oregon	1997.. 1 256 309
	Pennsylvania	2002.. 3 890 438
	Texas	1997.. 1 107 022
	Washington	2002.. 251 396
	N	N
	N	99 314
	N	N
	N	8 487 784
	N	N
N	19 138	
N	N	
N	7 492 440	
N	11 517 288	
N	476 357	
N	191 232	
3344134	Transistors	
	United States	2002.. 857 780
	Arizona	1997.. 1 661 296
	California	2002.. 304 480
N	N	
N	174 607	
N	364 270	
3344137	Diodes and rectifiers	
	United States	2002.. 396 428
	Arizona	1997.. 1 200 564
	California	2002.. 70 084
	Massachusetts	1997.. N
	New York	2002.. 141 007
	N	124 604
N	55 352	
N	115 457	
N	29 568	
N	N	
334413A	Other semiconductor devices, including semiconductor parts such as chips, wafers, and heat sinks	
	United States	2002.. 6 870 559
	Arizona	1997.. 11 202 336
	California	2002.. 408 664
	Massachusetts	1997.. 1 859 109
	Michigan	2002.. 1 986 870
	New Jersey	1997.. 2 282 151
	New York	2002.. 153 273
	Ohio	1997.. N
	Oregon	2002.. 24 408
	Pennsylvania	1997.. N
	Texas	2002.. 162 275
	Washington	1997.. 84 003
	N	2002.. 353 327
	N	N
	N	65 540
	N	138 928
	N	474 168
	N	988 574
N	339 320	
N	751 695	
N	985 684	
N	1 543 307	
N	280 226	
N	N	

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C. For geographical definitions, see Appendix D.

Table 7. Materials Consumed by Kind: 2002 and 1997

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Material code	Material consumed	Quantity	Delivered cost (\$1,000)
334413	Semiconductor and related device manufacturing		
00900001	Total materials	X	13 220 181
	.....2002..	X	10 368 892
	.....1997..	X	2 105
32721203	Tube blanks	X	6 404
	.....2002..	X	219 157
	.....1997..	X	77 350
33441200	Printed circuit boards (without inserted components) for electronic circuitry	X	
	.....2002..	X	136 747
	.....1997..	X	62 872
001900C4	Printed circuit assemblies, loaded boards, and modules (printed circuit boards with inserted electronic components)	X	
	.....2002..	X	1 079 140
	.....1997..	X	1 550 393
33441300	Semiconductors (including transistors, diodes, rectifiers, and integrated circuits), for electronic circuitry	X	D
	.....2002..	X	D
	.....1997..	X	
33441400	Capacitors for electronic circuitry	X	12 351
	.....2002..	X	25 043
	.....1997..	X	238 699
33441500	Resistors for electronic circuitry	X	322 358
	.....2002..	X	2 203 992
	.....1997..	X	1 529 415
001900D3	All other miscellaneous components and accessories, for electronic circuitry (excluding tubes)	X	
	.....2002..	X	289 549
	.....1997..	X	267 963
32518835	Silicon, hyperpure	X	1 952 155
	.....2002..	X	349 933
	.....1997..	X	18 736
33141911	Gold and other precious metals, all forms (including ingot, sheet, strip, solder, plating, electrodes, etc.)	X	D
	.....2002..	X	
	.....1997..	X	
33141917	Doped chemicals and other doped materials for electronic use	X	17 385
	.....2002..	X	671
	.....1997..	X	24 094
33111107	Ferrites (powder and paste)	X	N
	.....2002..	X	D
	.....1997..	X	
331000AA	Metal powders	X	17 385
	.....2002..	X	671
	.....1997..	X	24 094
33411001	Electronic computer equipment	X	N
	.....2002..	X	D
	.....1997..	X	
33593101	Current-carrying wiring devices	X	D
	.....2002..	X	D
	.....1997..	X	
33422001	Electronic communication equipment	X	57 353
	.....2002..	X	22 295
	.....1997..	X	D
33451501	Electrical instrument mechanisms and meter movements (including instrument relays)	X	144 698
	.....2002..	X	5 115
	.....1997..	X	N
33451503	All other miscellaneous electrical measuring instruments and parts	X	
	.....2002..	X	
	.....1997..	X	
33531211	Fractional horsepower electric motors (less than 1 hp)	X	D
	.....2002..	X	N
	.....1997..	X	
001900B1	Electrical transmission, distribution, and control equipment	X	22 351
	.....2002..	X	N
	.....1997..	X	
33431005	Loudspeakers, microphones, and tuners (all types)	X	D
	.....2002..	X	N
	.....1997..	X	
32720003	Glass and glass products (excluding windows and mirrors)	X	114 111
	.....2002..	X	N
	.....1997..	X	
33331401	Optical instruments and lenses (excluding sighting, tracking, and fire control)	X	6 507
	.....2002..	X	8 462
	.....1997..	X	
32521105	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.	X	38 009
	.....2002..	X	30 065
	.....1997..	X	
32610011	Fabricated plastics products (excluding gaskets)	X	20 536
	.....2002..	X	56 003
	.....1997..	X	D
332000A9	Sheet metal products (excluding stampings)	X	7 775
	.....2002..	X	115 454
	.....1997..	X	33 807
332000AC	Metal stampings	X	
	.....2002..	X	5 412
	.....1997..	X	16 721
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	33 897
	.....2002..	X	40 460
	.....1997..	X	D
33200033	Other fabricated metal products (excluding forgings)	X	N
	.....2002..	X	
	.....1997..	X	
33210000	Forgings	X	D
	.....2002..	X	N
	.....1997..	X	
33100035	Castings, rough and semifinished	X	D
	.....2002..	X	
	.....1997..	X	2 172
33120001	Steel shapes and forms (excluding castings, forgings, and fabricated metal products)	X	3 715
	.....2002..	X	4 147
	.....1997..	X	
33142111	Copper and copper-base alloy shapes and forms (excluding castings, forgings, and fabricated metal products)	X	18 871
	.....2002..	X	15 564
	.....1997..	X	
33100038	Aluminum and aluminum-base alloy shapes and forms (excluding castings, forgings, and fabricated metal products)	X	37 238
	.....2002..	X	N
	.....1997..	X	
33100082	Other nonferrous metal shapes and forms (excluding aluminum and aluminum-base alloy and copper and copper-base alloy castings, forgings, and fabricated metal products)	X	11 674
	.....2002..	X	N
	.....1997..	X	
331000A7	Insulated wire and cable (including magnet wire)	X	27 599
	.....2002..	X	18 415
	.....1997..	X	
32220017	Paper and paperboard containers (including shipping sacks and other paper packaging supplies)	X	28 923
	.....2002..	X	47 389
	.....1997..	X	
32611305	Resists (photosensitive resin films applied to the surface of a wafer)	X	194 695
	.....2002..	X	59 289
	.....1997..	X	
32512005	Commodity gases	X	436 069
	.....2002..	X	539 420
	.....1997..	X	
32518843	Specialty gases	X	340 231
	.....2002..	X	107 983
	.....1997..	X	
32599217	Masks	X	386 782
	.....2002..	X	208 645
	.....1997..	X	
33141957	Silicon chips	X	1 310 188
	.....2002..	X	524 912
	.....1997..	X	

See footnotes at end of table.

Table 7. Materials Consumed by Kind: 2002 and 1997—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Material code	Material consumed	Quantity	Delivered cost (\$1,000)
334413	Semiconductor and related device manufacturing—Con.		
32510074	Solvents.....	X	34 612
		X	N
32561000	Cleaning compounds.....	X	D
		X	N
00970099	All other materials and components, parts, containers, and supplies.....	X	2 528 455
		X	2 719 209
00971000	Materials, ingredients, containers, and supplies, nsk.....	X	445 036
		X	790 370

Note 1: For some establishments, data have been estimated from central unit values that are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: p-10 to 19 percent estimated; q-20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Note 2: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.