DOCUMENT RESUME

ED 448 322 CE 081 094

AUTHOR Sargent, John
TITLE The Digital Workforce: Update, August 2000 [and] The Digital Work Force: State Data & Rankings, September 2000.
INSTITUTION Office of Technology Policy (DOC), Washington, DC.
PUB DATE 2000-00-00
NOTE 18p.; August 2000 report is an update of "The Digital Work Force: Building Infotech Skills at the Speed of Innovation"; see ED 441 150.
AVAILABLE FROM U.S. Department of Commerce, Office of Technology Policy, 14th Street and Constitution Avenue, NW, Washington, DC 20230; Tel: 202-482-3037; Web site: http://www.ta.doc.gov/otp.
PUB TYPE Numerical/Quantitative Data (110) -- Reports - Descriptive (141)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Adults; Comparative Analysis; *Computer Science; *Demand Occupations; Education Work Relationship; *Employment Patterns; *Employment Projections; Employment Qualifications; Futures (of Society); *Information Technology; *Labor Needs; National Surveys; Statewide Planning; Tables (Data)
IDENTIFIERS Bureau of Labor Statistics; Computer Occupations

ABSTRACT

The Office of Technology Policy analyzed Bureau of Labor Statistics' growth projections for the core occupational classifications of IT (information technology) workers to assess future demand in the United States. Classifications studied were computer engineers, systems analysts, computer programmers, database administrators, computer support specialists, and other computer scientists. The analysis indicates that there were 2,179,000 core IT workers in 1998 with projected growth to 3,891,000 by 2008. Additionally, the United States will need to replace 306,000 workers who are leaving these occupations as a result of retirement, change of profession, or other reasons. Therefore, the country will require more than 2 million new IT workers in these occupations during this 10-year period. Of these jobs, more than three-fourths will require at least a bachelor's degree. The five fastest growing occupations for the period are database administrators, systems analysts, computer support specialists, computer engineers, and all other computer scientists. The service sector is expected to absorb most of the increases in these core IT occupations, growing between 55 percent and 155 percent, depending on occupation. California, Texas, and New York lead the nation in the number of core IT workers, while Colorado, Virginia, and Massachusetts have the highest proportion of IT workers. (The documents include eight tables with state rankings based on size and intensity of its total core IT work; size, intensity, and annual average wages for each of the core IT occupations; and the states' ordinal rankings on those variables.) (KC)

Reproductions supplied by EDRS are the best that can be made from the original document.

ED 448 322

The Digital Workforce: Update
(August 2000)

and

The Digital Work Force: State Data and Rankings
(September 2000)

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

BEST COPY AVAILABLE

CE 081 094

ERIC

CE

Update

The Digital Workforce

OFFICE OF TECHNOLOGY POLICY U.S. DEPARTMENT OF COMMERCE

Rapid Expansion of U.S. Core IT Work Force to Continue

Latest Projections Bring Number to Nearly 4 Million by 2008

The Office of Technology Policy analyzed Bureau of Labor Statistics' growth projections for the core occupational classifications of IT workers—computer engineers, systems analysts, computer programmers, database administrators, computer support specialists and "all other computer scientists"—to assess future U.S. demand.

OTP analysis of BLS data indicates there were 2,179,000 core IT workers in 1998 with projected growth bringing the number to 3,891,000 by 2008. Additionally, the United States will need to replace 306,000 workers who are leaving these occupations as a result of retirement, change of profession or other reasons. Accordingly, the United States will require more than 2 million new IT workers in these occupations during this ten year period—an average of about 201,800 per year. [Figure 1] Of these jobs, more than three-fourths (1,552,000) are classified as requiring at least a bachelor's degree, while less than a fourth (466,000) require an associate's degree.

Figure 2 (next page) shows 1998-2008 employment projections for each of the core IT occupations. Overall, on a percentage basis, the new 2008 projections are not very different from the 2006 projections. Between 1998 and 2008, new jobs for all core IT workers are expected to increase 78.7 percent. Notably, the five fastest growing occupations for the 1998-2008 period are core IT occupations:

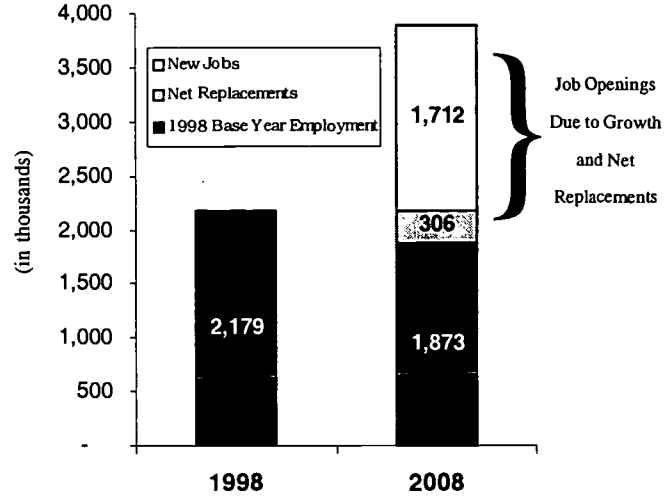
Database Administrators	77.2 %
Systems Analysts	93.6 %
Computer Support Specialists	102.3 %
Computer Engineers	107.9 %
All Other Computer Scientists	117.5 %

These growth rates compare to a projected increase of 14.4 percent for all occupations. Even the slowest growing core IT occupation, computer programmers, is expected to grow by 29.5 percent, more than twice the average for all occupations.

Systems analysts have the largest job growth of all occupations with a projected increase of 577,000, from 617,000 in 1998 to 1,194,000 in 2008, while the number of computer engineers is expected to grow 323,000 from 299,000 in 1998 to 622,000 in 2008. And though the number of computer programmers is expected to grow a comparatively modest 191,000 (from 649,000 in 1998 to 839,000 in 2008), 201,000 new computer programmers will be required to replace those exiting the occupation.

Figure 1

High Demand Projected For Core Information Technology Workers



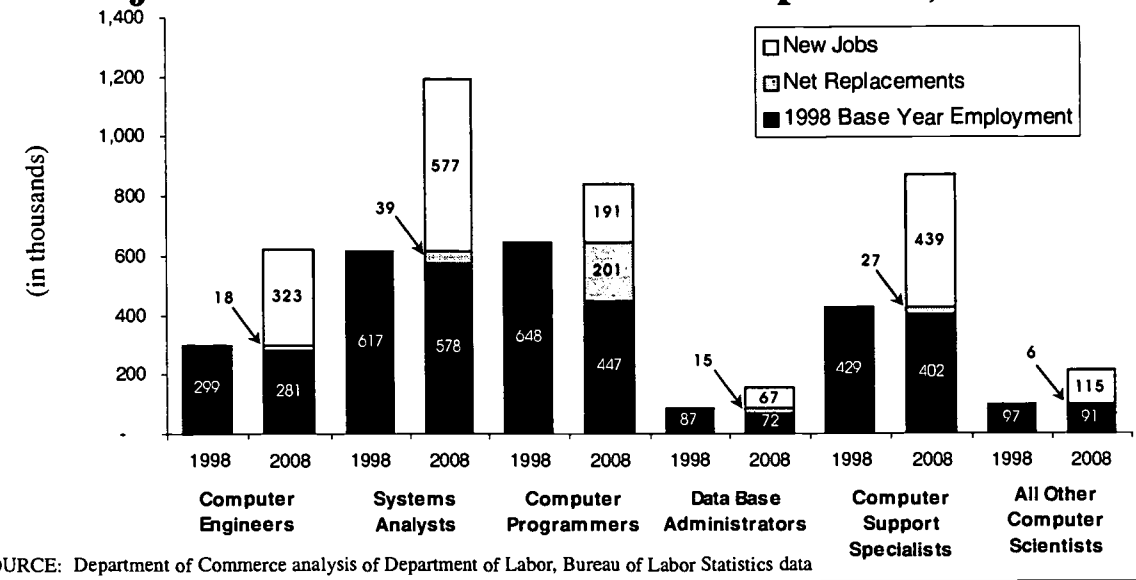
Source: U.S. Department of Commerce analysis of U.S. Department of Labor, Bureau of Labor Statistics data

NOTE: *The 1998-2008 projections incorporate survey coverage changes in the Occupational Employment Statistics (OES) Survey upon which BLS employment projections are based. As a result, the 1996-2006 and 1998-2008 employment projections are not strictly comparable for all categories of workers. Details on the changes and their impact on the current and projected counts of core IT workers can be found on page 4.*

Previously, BLS counted computer scientists in aggregate. Viewed this way, the 1998-2008 projections for computer scientists (including database administrators, computer support specialists, and "all other computer scientists") would have the largest growth in jobs of all occupations, rising from 613,000 in 1996 to 1,236,000 in 2008, an increase of 621,000. The vast majority (439,000) of the increase in computer scientists is in the subcategory of computer support specialists, which BLS classifies as requiring only an associates degree, whereas BLS classifies each of the other core IT occupations as requiring bachelors degrees. The number of computer support specialists is projected to rise from 429,000 in 1998 to 869,000 in 2008. The number of database administrators is projected to grow from 87,000 to 155,000 during this period, while the number of "all other computer scientists" is projected to grow from 97,000 to 212,000.

Figure 2

Projected Growth in Core IT Occupations, 1998-2008

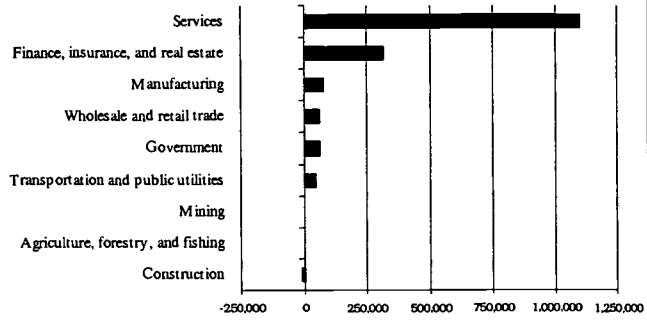


SOURCE: Department of Commerce analysis of Department of Labor, Bureau of Labor Statistics data

The service sector (not including transportation, public utilities, finance, insurance, real estate, and wholesale and retail trade) is expected to absorb the lion's share of all increases in these core information technology occupations. [Figure 3] By 2008, the service sector is expected to increase its employment of computer systems analysts, scientists, and engineers by 155 percent and computer programmers by 55 percent, or an overall core IT worker growth rate of 147 percent. In contrast, the number of computer scientists and engineers and systems analysts in the manufacturing sector is expected to grow much more slowly (32 percent), while the number of computer programmers is expected to decrease by about 21 percent.

Figure 3

Projected Core IT Occupation Growth by Industrial Sector, 1998-2008



SOURCE: Department of Commerce analysis of Department of Labor, Bureau of Labor Statistics data

Certain industries are more IT worker intensive than others and thus, would be more affected by tight IT labor markets [Figure 4]. And the IT worker intensity of each of these industries is projected to grow through 2008. In the most IT worker intensive industry—computer and data processing services—it is projected that, by 2008, 49.7 percent of the industry's employees will be computer programmers, systems analysts and computer scientists and engineers.

However, IT worker intensity does not tell the whole story. The size of an industry's IT work force is an important consideration. For example, while the wholesale trade industry is projected to be less IT worker-intensive in 2008 than many other industries, the sheer size of its IT work force (135,608) would make tight markets for computer programmers, systems analysts, and computer scientists and engineers a troubling problem. When IT worker intensity and size of IT work force are taken together, a picture emerges as to which industries' competitive performance would be most adversely affected by difficulties hiring highly skilled IT workers [Figure 5]. The computer and data processing services industry stands out starkly as an industry with much at stake in the supply of IT workers.

Figure 4

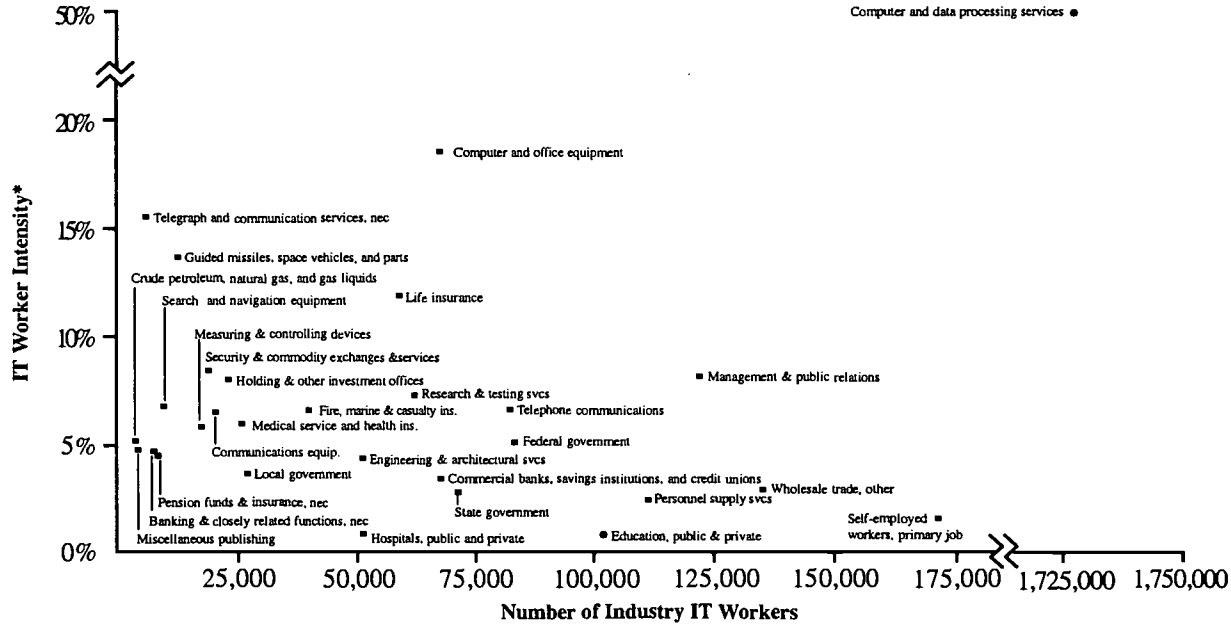
Industry IT Worker Intensity*

1998			2008		
Rank	**Industry**	**%**	**Rank**	**Industry**	**%**
1	Computer and data processing services	41.4%	1	Computer and data processing services	49.7%
2	Computer and office equipment	16.1%	2	Computer and office equipment	18.4%
3	Guided missiles, space vehicles, and parts	12.0%	3	Telegraph and communication services, nec	15.5%
4	Telegraph and communication services, nec	11.9%	4	Guided missiles, space vehicles, and parts	13.6%
5	Life insurance	9.4%	5	Life insurance	11.8%
6	Management and public relations	7.0%	6	Security & commodity exchanges & services	8.4%
7	Holding and other investment offices	6.0%	7	Management and public relations	8.1%
8	Security & commodity exchanges & services	6.0%	8	Holding and other investment offices	8.0%
9	Research and testing services	6.0%	9	Research and testing services	7.2%
10	Search and navigation equipment	6.0%	10	Search and navigation equipment	6.7%
11	Telephone communications	5.5%	11	Telephone communications	6.6%
12	Communications equipment	5.2%	12	Communications equipment	6.6%
13	Measuring and controlling devices	5.1%	13	Fire, marine, and casualty insurance	6.5%
14	Fire, marine, and casualty insurance	4.5%	14	Medical service and health insurance	6.0%
15	Medical service and health insurance	4.2%	15	Measuring and controlling devices	5.8%
16	Miscellaneous publishing	4.0%	16	Crude petroleum, natural gas, and gas liquids	5.2%
17	Pension funds and insurance, nec	3.8%	17	Federal government	5.1%
18	Engineering and architectural services	3.7%	18	Miscellaneous publishing	4.7%
19	Federal government	3.7%	19	Banking and closely related functions, nec	4.7%
20	Crude petroleum, natural gas, and gas liquids	3.7%	20	Engineering and architectural services	4.5%

* Percent of industry workers that are computer scientists, computer engineers, computer programmers and systems analysts. nec = not elsewhere classified
SOURCE: Department of Commerce analysis of Department of Labor, Bureau of Labor Statistics data

Figure 5

Projected 2008 IT Worker Intensity vs. Size of IT Work Force for Selected Industries



* "IT Worker Intensity" is the percentage of a given industry's workers that are computer scientists, computer engineers, computer programmers & systems analysts.
^ "Stategovernment" and "Local government" numbers do not include education or hospital employees.
SOURCE: Department of Commerce analysis of Department of Labor, Bureau of Labor Statistics data

BEST COPY AVAILABLE

How Do the States Stack Up in IT Employment?

The Office of Technology Policy will be releasing ***The Digital Work Force: State Data and Rankings*** in September 2000. This update* will provide state data and rankings for each of the core IT occupations, including: the number employed, the average annual wages and the IT worker intensity (the share an occupation comprises of a state's work force). Here is a sampling from this report:

	Rank	*Size of Work Force*	*Intensity*	*Average Annual Wages*
All Core IT Occupations	1	California	Colorado	N/A**
	2	Texas	Virginia	N/A**
	3	New York	Massachusetts	N/A**
Computer Engineers	1	California	Massachusetts	Massachusetts
	2	Texas	Colorado	District of Columbia
	3	Massacusetts	Virginia	Oregon
Computer Programmers	1	California	Virginia	New Jersey
	2	New York	Maryland	California
	3	Texas	New Jersey	Massachusetts
Systems Analysts	1	California	Virginia	New Jersey
	2	Texas	Maryland	Colorado
	3	New York	Delaware	Virginia
All Other Computer Scientists	1	California	Colorado	Maryland
	2	New York	Minnesota	Delaware
	3	Illinois	Delaware	Pennsylvania
Database Administrators	1	California	District of Columbia	New York
	2	Texas	Colorado	New Jersey
	3	New York	Virginia	California
Computer Support Specialists	1	California	North Dakota	New Jersey
	2	Texas	Colorado	Connecticut
	3	New York	Washington	New York

** Analysis based on 1998 Occupational Employment Statistics survey data from the U.S. Department of Labor, Bureau of Labor Statistics*
*** N/A => Data not available.*

For more information, please contact John Sargent, Senior Policy Analyst, Office of Technology Policy, U.S. Department of Commerce, at (202) 482-6033 or jsargent@ta.doc.gov

Methodological Changes Between the 1996-2006 Projection and the 1998-2008 Projection

In its 1998-2008 projections, the Bureau of Labor Statistics data reflect survey coverage changes in the Occupational Employment Statistics (OES) Survey upon which the agency's employment projections are based. Consequently, 1996-2006 and 1998-2008 employment projections are not strictly comparable for all categories of workers. In particular, the 1998-2008 employment projections contain changes that significantly affect current and projected counts of "core" IT workers.

First, unlike the 1996-2006 projections, BLS now provides subcategory counts for the three kinds of workers included in its "catchall" occupation category "database administrators, computer support specialists, and all other computer scientists." In our June 1999, The Digital Work Force: Building Infotech Skills at the Speed of Innovation, these subcategories were captured collectively as "computer scientists."

Second, growth in occupations between the two base years—1996 and 1998—reflects both real growth an methodological changes. The 1998-2008 projections substantially boost the number of workers included in the "catchall" occupation category from 212,000 in 1996 to 613,000 in 1998, an increase of nearly 190 percent. The newly available 1998 breakouts count 87,000 "database administrators," 429,000 "computer support specialists," and 97,000 "all other computer scientists." According to BLS, the vast bulk of the increase in the "catchall" category from 1996 to 1998 is due to the reclassification of workers as "computer support specialists" and only marginally due to actual growth in the numbers of workers in the three subcategories between 1996 and 1998. According to BLS, reclassified "computer support specialists" were likely previously categorized as other kinds of computer professionals, computer operators, or "all other professional workers." As a consequence of this reclassification, "computer support specialists" comprise 70 percent of the "catchall" category in the 1998-2008 projections, whereas they comprised only a minority of the category in the 1996-2006 projections.

CE

The Digital Work Force

STATE DATA & RANKINGS

OFFICE OF TECHNOLOGY POLICY U.S. DEPARTMENT OF COMMERCE

California, Texas and New York lead Nation in number of core IT workers; Colorado, Virginia and Massacusetts have highest proportion of IT workers

Information technology is reshaping the global economy—enhancing productivity, spurring economic growth and creating jobs. Two-thirds of recent productivity growth in the United States is attributed to information technology. Information technology's share of the U.S. economy nearly doubled between 1977 and 1998. The number of people working in core IT occupations grew six times faster from 1983 to 1998 than the overall U.S. work force. And highly-skilled information technology jobs are projected to be among the fastest growing of all occupations over the next decade.

These trends have significant implications for U.S. competitiveness, American companies and universities, and policy makers at all levels of government. State and local government policies have played an important role in fostering the development of the Nation's technical work force and it is likely that states will play an increasingly important role in the years ahead. In the New Economy, a state or region's ability to attract capital and companies is integrally linked to the quality of its work force. Thus, a state's ability to grow, attract and retain these workers will have a significant impact on its economic development and the standard of living and quality of life of its citizens.

To provide decision makers with timely and relevant information, the Office of Technology has conducted analysis, held town meetings across the country, and produced several reports shedding light on the composition of the Nation's information technology work force, identifying the unique challenges the United States faces in meeting the high demand for these workers, and developing policy responses to these challenges.

In this latest report, the Office of Technology Policy presents the findings of its analysis of the most recent state occupational data (1998) from the Department of Labor's Bureau of Labor Statistics to provide a snapshot of the current composition of the Nation's IT work force at the state level and to assess the relative position of the states' core IT occupations.

Several indicators are used in this assessment including:

- ***Size of the Work Force***—the number of workers employed in an occupation.
- ***Average Annual Wages***—the estimated mean hourly wage of an occupation multiplied by 2,080 hours.
- ***State Intensity***—the share an occupation comprises of a states' entire work force.
- ***State Index****—the ratio of the State Intensity to the U.S. Intensity for an occupation, where the U.S. score would be 100. A state with an Index score of 200 would have an IT Intensity twice that of the nation as a whole' a state with an Index score of 50 would have an IT Intensity half that of the nation.

For the purpose of this analysis, the Office of Technology Policy defines the core information technology work force as being comprised of six occupations: computer engineers, computer programmers, systems analysts, database administrators, computer support specialists and all other computer scientists.

This document includes seven tables with state rankings. Table 1 ranks the states based on the size and intensity of their total core information technology work. Tables 2 through 7 rank the states based on size, intensity and annual average wages for each of the core information technology occupations. Table 8 provides a list of states with their ordinal rankings in Tables 1 through 7.

TABLE OF CONTENTS

Table 1.	Total Core IT Employment	3
Table 2.	Compuer Engineers	4
Table 3.	Computer Programmers	5
Table 4.	Systems Analysts	6
Table 5.	All Other Computer Scientists	7
Table 6.	Database Administrators	8
Table 7.	Computer Support Specialists	9
Table 8.	Ordinal Rankings (Summary Table)	10

The Office of Technology Policy extends its thanks to the Software and Information Industry Association for its development and advocacy of the State Index applied in this analysis as a comparative tool.

Prepared by

John Sargent
Senior Policy Analyst/
Policy Advisor to the Assistant Secretary for Technology Policy
Office of Technology Policy
Technology Admnistration
U.S. Department of Commerce

This document is intended to provide additional information to decision makers, but it is important to note that the data in this report provides a snapshot of the information technology work force in the states in 1998. This document does not assess trends, nor does it provide a qualitative analysis of each state's core IT work force.

Additional information on the Nation's information technology work force and other technology policy issues can be found at http://www.ta.doc.gov/reports

Table 1. State Core Information Technology Employment

State Rankings by Size of Core IT Work Force		
Rank	State	Core IT Workers
1	California	275,420
2	Texas	150,150
3	New York	137,660
4	Illinois	114,800
5	Virginia	94,630
6	Florida	91,970
7	New Jersey	90,010
8	Massachusetts	84,630
9	Pennsylvania	79,200
10	Ohio	71,670
11	Georgia	64,930
12	Michigan	64,170
13	Maryland	61,560
14	Colorado	59,100
15	North Carolina	56,470
16	Minnesota	50,800
17	Washington	38,080
18	Missouri	37,560
19	Arizona	34,850
20	Wisconsin	33,180
21	Connecticut	33,100
22	Indiana	28,650
23	Tennessee	27,450
24	Oregon	24,390
25	Alabama	19,890
26	Utah	16,620
27	Oklahoma	16,600
28	Kentucky	16,360
29	Iowa	16,280
30	Kansas	14,740
31	Nebraska	14,730
32	South Carolina	14,540
33	Louisiana	12,120
34	District of Columbia	7,960
35	New Hampshire	7,890
36	Delaware	7,700
37	New Mexico	7,210
38	Arkansas	6,910
39	Mississippi	6,340
40	Nevada	6,060
41	Idaho	5,610
42	Puerto Rico	5,440
43	Rhode Island	5,420
44	Maine	4,770
45	Hawaii	4,530
46	North Dakota	4,280
47	Vermont	4,210
48	West Virginia	3,940
49	South Dakota	3,890
50	Alaska	2,750
51	Montana	2,620
52	Wyoming	1,120
53	Guam	310
54	Virgin Islands	40
Total U.S. Core IT Workers		2,045,310

State Rankings by Core IT Worker Intensity			
Rank	State	Intensity	State Index US=100
1	Colorado	2.94%	179
2	Virginia	2.93%	178
3	Massachusetts	2.71%	165
4	Maryland	2.69%	163
5	New Jersey	2.42%	147
6	Delaware	2.20%	133
7	Connecticut	2.04%	124
8	Minnesota	2.03%	123
9	California	2.00%	121
10	Illinois	1.98%	120
11	District of Columbia	1.97%	120
12	Georgia	1.77%	108
13	Nebraska	1.75%	106
14	Utah	1.71%	104
15	New York	1.70%	103
16	Arizona	1.70%	103
17	Texas	1.70%	103
18	Oregon	1.61%	98
19	Washington	1.60%	97
20	Vermont	1.58%	96
21	North Carolina	1.52%	92
22	Pennsylvania	1.47%	89
23	Michigan	1.46%	89
24	Missouri	1.45%	88
25	North Dakota	1.45%	88
26	New Hampshire	1.40%	85
27	Florida	1.40%	85
28	Ohio	1.32%	80
29	Wisconsin	1.26%	77
30	Rhode Island	1.24%	75
31	Oklahoma	1.21%	74
32	Iowa	1.16%	71
33	South Dakota	1.16%	70
34	Kansas	1.15%	70
35	Alaska	1.10%	67
36	Idaho	1.10%	67
37	Alabama	1.08%	66
38	New Mexico	1.08%	66
39	Tennessee	1.06%	64
40	Indiana	1.00%	61
41	Kentucky	0.97%	59
42	Hawaii	0.94%	57
43	Maine	0.86%	52
44	South Carolina	0.84%	51
45	Montana	0.74%	45
46	Louisiana	0.67%	40
47	Nevada	0.66%	40
48	Arkansas	0.63%	38
49	Guam	0.61%	37
50	Puerto Rico	0.60%	37
51	West Virginia	0.60%	36
52	Mississippi	0.58%	35
53	Wyoming	0.53%	32
54	Virgin Islands	0.15%	9
U.S. Core IT Worker Intensity		1.65%	100

SOURCE: Office of Technology Policy, U.S. Department of Commerce

Table 2. 1998 State Employment of Computer Engineers

State Rankings by Number Employed

Rank	State	Size of Work Force
1	California	54,090
2	Texas	23,070
3	Massachusetts	22,820
4	Virginia	15,890
5	Illinois	15,470
6	New York	13,710
7	New Jersey	12,580
8	Colorado	12,290
9	Pennsylvania	11,860
10	Florida	11,030
11	North Carolina	9,650
12	Maryland	9,420
13	Georgia	8,850
14	Michigan	8,250
15	Ohio	7,810
16	Minnesota	7,090
17	Washington	6,870
18	Connecticut	4,850
19	Arizona	4,800
20	Indiana	3,970
21	Oregon	3,830
22	Missouri	2,980
23	Alabama	2,970
24	Utah	2,650
25	Wisconsin	2,510
26	Iowa	2,200
27	Tennessee	1,880
28	Kentucky	1,850
29	District of Columbia	1,540
30	Nebraska	1,320
31	Oklahoma	1,310
32	Idaho	1,050
33	New Mexico	960
34	Kansas	930
35	Rhode Island	870
36	South Carolina	870
37	Mississippi	710
38	Louisiana	590
39	Arkansas	580
40	Vermont	510
41	Delaware	330
42	Hawaii	300
43	Maine	260
44	West Virginia	240
45	Nevada	230
46	North Dakota	200
47	South Dakota	180
48	Puerto Rico	140
49	Alaska	100
50	Montana	100
51	Wyoming	30
52	New Hampshire	(*)
53	Guam	(*)
54	Virgin Islands	(*)

State Rankings by Annual Average Wages

Rank	State	Annual Average Wages
1	Massachusetts	$ 66,680
2	District of Columbia	$ 66,040
3	Oregon	$ 65,330
4	Colorado	$ 64,460
5	California	$ 64,020
6	Arizona	$ 63,950
7	Rhode Island	$ 62,560
8	Connecticut	$ 62,230
9	Delaware	$ 62,120
10	New Jersey	$ 60,950
11	Washington	$ 60,540
12	New York	$ 59,730
13	North Dakota	$ 59,590
14	Florida	$ 59,250
15	North Carolina	$ 59,230
16	Nevada	$ 59,020
17	Pennsylvania	$ 58,860
18	Maryland	$ 58,460
19	Alaska	$ 58,350
20	Minnesota	$ 58,310
21	Texas	$ 58,210
22	Virginia	$ 58,070
23	Georgia	$ 57,960
24	Alabama	$ 57,700
25	New Mexico	$ 57,330
26	Utah	$ 57,180
27	Michigan	$ 56,070
28	Montana	$ 55,680
29	Hawaii	$ 55,590
30	Wisconsin	$ 55,530
31	Missouri	$ 55,010
32	Nebraska	$ 54,940
33	Vermont	$ 54,240
34	Maine	$ 53,470
35	Ohio	$ 53,200
36	West Virginia	$ 52,850
37	Idaho	$ 52,440
38	South Carolina	$ 52,320
39	Tennessee	$ 52,160
40	Illinois	$ 52,110
41	Indiana	$ 51,910
42	Iowa	$ 50,780
43	Oklahoma	$ 50,570
44	Kansas	$ 50,140
45	Mississippi	$ 50,020
46	Wyoming	$ 48,270
47	Kentucky	$ 48,080
48	Louisiana	$ 46,490
49	South Dakota	$ 45,560
50	Arkansas	$ 41,340
51	Puerto Rico	$ 38,170
52	New Hampshire	(*)
53	Guam	(*)
54	Virgin Islands	(*)

State Rankings by Intensity

Rank	State	Intensity	State Index US=100
1	Massachusetts	0.73%	304
2	Colorado	0.61%	254
3	Virginia	0.49%	204
4	Maryland	0.41%	171
5	California	0.39%	163
6	District of Columbia	0.38%	159
7	New Jersey	0.34%	141
8	Connecticut	0.30%	124
9	Washington	0.29%	120
10	Minnesota	0.28%	118
11	Utah	0.27%	113
12	Illinois	0.27%	111
13	Texas	0.26%	108
14	North Carolina	0.26%	108
15	Oregon	0.25%	105
16	Georgia	0.24%	100
17	Arizona	0.23%	97
18	Pennsylvania	0.22%	92
19	Idaho	0.21%	85
20	Rhode Island	0.20%	83
21	Vermont	0.19%	80
22	Michigan	0.19%	78
23	New York	0.17%	70
24	Florida	0.17%	70
25	Alabama	0.16%	67
26	Iowa	0.16%	65
27	Nebraska	0.16%	65
28	New Mexico	0.14%	60
29	Ohio	0.14%	60
30	Indiana	0.14%	57
31	Missouri	0.12%	48
32	Kentucky	0.11%	46
33	Wisconsin	0.10%	40
34	Oklahoma	0.10%	40
35	Delaware	0.09%	39
36	Kansas	0.07%	30
37	Tennessee	0.07%	30
38	North Dakota	0.07%	28
39	Mississippi	0.06%	27
40	Hawaii	0.06%	26
41	South Dakota	0.05%	22
42	Arkansas	0.05%	22
43	South Carolina	0.05%	21
44	Maine	0.05%	20
45	Alaska	0.04%	17
46	West Virginia	0.04%	15
47	Louisiana	0.03%	13
48	Montana	0.03%	12
49	Nevada	0.03%	10
50	Puerto Rico	0.02%	6
51	Wyoming	0.01%	6
52	New Hampshire	(*)	(*)
53	Guam	(*)	(*)
54	Virgin Islands	(*)	(*)

CE: Office of Technology Policy, U.S. Department of Commerce

a not available

Table 3. 1998 State Employment of Computer Programmers

State Rankings by Number Employed		
Rank	State	Size of Work Force
1	California	75,560
2	New York	45,500
3	Texas	38,520
4	Illinois	37,330
5	Virginia	26,960
6	New Jersey	26,770
7	Florida	24,780
8	Ohio	21,820
9	Massachusetts	19,490
10	Pennsylvania	19350
11	Michigan	18,780
12	Georgia	17,240
13	Maryland	16,550
14	North Carolina	16,070
15	Colorado	14,300
16	Missouri	13,370
17	Washington	12,990
18	Minnesota	11,750
19	Arizona	10,320
20	Wisconsin	10040
21	Connecticut	8,840
22	Tennessee	8,680
23	Indiana	7,090
24	Alabama	5,550
25	Oregon	5,450
26	Oklahoma	5,160
27	Nebraska	4,940
28	Iowa	4,850
29	South Carolina	4,690
30	Kansas	4,530
31	Louisiana	4,070
32	Utah	3,900
33	Kentucky	3300
34	New Hampshire	2,760
35	District of Columbia	2,560
36	Mississippi	2,230
37	Puerto Rico	2160
38	Nevada	1,980
39	Arkansas	1,860
40	Rhode Island	1,860
41	Delaware	1,730
42	New Mexico	1,330
43	Vermont	1,240
44	Hawaii	1,120
45	Maine	1,060
46	Alaska	1,000
47	West Virginia	970
48	Idaho	960
49	South Dakota	920
50	Montana	700
51	North Dakota	550
52	Wyoming	470
53	Guam	100
54	Virgin Islands	(*)

State Rankings by Annual Average Wages		
Rank	State	Annual Average Wages
1	New Jersey	$ 61,530
2	California	$ 60,720
3	Massachusetts	$ 59,890
4	Connecticut	$ 59,060
5	New York	$ 57,660
6	Maryland	$ 57,120
7	Georgia	$ 55,630
8	New Hampshire	$ 54,550
9	Arizona	$ 54,430
10	North Carolina	$ 54,070
11	Colorado	$ 53,970
12	Delaware	$ 53,680
13	Texas	$ 53,030
14	Washington	$ 52,970
15	Alaska	$ 51,860
16	Michigan	$ 51,740
17	Oregon	$ 51,610
18	Pennsylvania	$ 51,380
19	Tennessee	$ 51,210
20	Illinois	$ 51,010
21	Rhode Island	$ 50,140
22	District of Columbia	$ 50,100
23	Missouri	$ 49,920
24	Oklahoma	$ 49,610
25	Nevada	$ 49,270
26	Virginia	$ 49,130
27	Minnesota	$ 48,840
28	Ohio	$ 48,420
29	Florida	$ 47,970
30	Utah	$ 47,530
31	Kansas	$ 47,300
32	Wisconsin	$ 47,130
33	South Carolina	$ 46,860
34	Vermont	$ 46,200
35	Alabama	$ 46,180
36	Idaho	$ 46,180
37	Nebraska	$ 46,030
38	New Mexico	$ 45,030
39	Indiana	$ 44,910
40	Arkansas	$ 44,350
41	Louisiana	$ 43,730
42	Maine	$ 43,590
43	Iowa	$ 42,960
44	Hawaii	$ 42,710
45	Guam	$ 41,610
46	Kentucky	$ 41,220
47	Montana	$ 39,740
48	West Virginia	$ 39,180
49	Mississippi	$ 39,040
50	North Dakota	$ 39,040
51	South Dakota	$ 37,330
52	Wyoming	$ 34,670
53	Puerto Rico	$ 29,120
54	Virgin Islands	(*)

State Rankings by Intensity			
Rank	State	Intensity	State Index US=100
1	Virginia	0.83%	180
2	Maryland	0.72%	156
3	New Jersey	0.72%	155
4	Colorado	0.71%	153
5	Illinois	0.64%	138
6	District of Columbia	0.63%	137
7	Massachusetts	0.62%	135
8	Nebraska	0.59%	127
9	New York	0.56%	121
10	California	0.55%	118
11	Washington	0.55%	118
12	Connecticut	0.54%	117
13	Missouri	0.52%	111
14	Arizona	0.50%	108
15	Delaware	0.49%	106
16	New Hampshire	0.49%	106
17	Georgia	0.47%	101
18	Minnesota	0.47%	101
19	Vermont	0.47%	100
20	Texas	0.44%	94
21	North Carolina	0.43%	93
22	Michigan	0.43%	92
23	Rhode Island	0.43%	92
24	Ohio	0.40%	87
25	Alaska	0.40%	86
26	Utah	0.40%	86
27	Wisconsin	0.38%	82
28	Florida	0.38%	81
29	Oklahoma	0.38%	81
30	Oregon	0.36%	78
31	Pennsylvania	0.36%	77
32	Kansas	0.35%	76
33	Iowa	0.35%	75
34	Tennessee	0.34%	72
35	Alabama	0.30%	65
36	South Dakota	0.27%	59
37	South Carolina	0.27%	59
38	Indiana	0.25%	53
39	Puerto Rico	0.24%	52
40	Hawaii	0.23%	50
41	Louisiana	0.22%	48
42	Wyoming	0.22%	47
43	Nevada	0.22%	47
44	Mississippi	0.20%	44
45	New Mexico	0.20%	43
46	Guam	0.20%	42
47	Montana	0.20%	42
48	Kentucky	0.20%	42
49	Maine	0.19%	41
50	Idaho	0.19%	40
51	North Dakota	0.19%	40
52	Arkansas	0.17%	37
53	West Virginia	0.15%	32
54	Virgin Islands	(*)	(*)

RCE: Office of Technology Policy, U.S. Department of Commerce

ata not available

Table 4. 1998 State Employment of Systems Analysts

Ranking by Number Employed		
Rank	State	Number Employed
1	California	59,720
2	Texas	40,920
3	New York	34,880
4	Illinois	31,670
5	Virginia	29,890
6	New Jersey	26,110
7	Florida	25,320
8	Pennsylvania	21,980
9	Michigan	21,010
10	Ohio	18,890
11	Maryland	18,820
12	Georgia	18,110
13	Massachusetts	17,730
14	Minnesota	15,870
15	North Carolina	13,340
16	Colorado	11,880
17	Connecticut	10,280
18	Wisconsin	9610
19	Missouri	9,140
20	Arizona	8,500
21	Indiana	8,460
22	Tennessee	7,660
23	Alabama	5,890
24	Kentucky	5,680
25	Oregon	4,790
26	South Carolina	4,690
27	Oklahoma	4,090
28	Nebraska	4,070
29	Louisiana	3,810
30	Iowa	3,590
31	Kansas	3,510
32	Utah	3,250
33	Delaware	2,530
34	New Hampshire	2,340
35	New Mexico	2,270
36	Arkansas	1,750
37	Mississippi	1,710
38	Hawaii	1,620
39	Puerto Rico	1470
40	West Virginia	1,460
41	Maine	1,380
42	Idaho	1,270
43	Nevada	1,190
44	Rhode Island	1,180
45	Vermont	730
46	Alaska	710
47	Montana	700
48	South Dakota	680
49	North Dakota	470
50	Wyoming	210
51	Guam	130
52	District of Columbia	(*)
53	Washington	(*)
54	Virgin Islands	(*)

Ranking by Annual Average Wages		
Rank	State	Annual Average Wages
1	New Jersey	61,880
2	Colorado	60,750
3	Virginia	59,350
4	New York	58,990
5	Connecticut	58,860
6	Minnesota	57,860
7	Massachusetts	57,020
8	California	56,280
9	Maryland	55,950
10	Missouri	55,400
11	Georgia	54,100
12	Alaska	53,950
13	Oregon	53,950
14	Delaware	53,720
15	Rhode Island	53,260
16	New Hampshire	52,640
17	Illinois	52,450
18	Texas	51,710
19	Maine	51,570
20	Kansas	51,540
21	North Carolina	51,450
22	Pennsylvania	51,420
23	Arizona	51,370
24	South Dakota	50,870
25	Indiana	50,830
26	New Mexico	50,580
27	Florida	50,440
28	Vermont	50,230
29	Nevada	50,190
30	Oklahoma	50,100
31	Ohio	49,930
32	Alabama	49,860
33	Kentucky	49,720
34	Wisconsin	49550
35	Nebraska	48,940
36	Michigan	48,750
37	Idaho	48,590
38	Utah	48,250
39	Hawaii	47,880
40	West Virginia	47,760
41	Iowa	47,340
42	South Carolina	47,030
43	Tennessee	46,660
44	Louisiana	45,920
45	Mississippi	44,390
46	Montana	40,740
47	Guam	40730
48	Wyoming	40630
49	Arkansas	39,360
50	North Dakota	35,750
51	Puerto Rico	34630
52	District of Columbia	(*)
53	Washington	(*)
54	Virgin Islands	(*)

Ranking by Intensity			
Rank	State	Intensity	State Index US=100
1	Virginia	0.93%	218
2	Maryland	0.82%	194
3	Delaware	0.72%	170
4	New Jersey	0.70%	166
5	Minnesota	0.64%	150
6	Connecticut	0.63%	149
7	Colorado	0.59%	139
8	Massachusetts	0.57%	134
9	Illinois	0.54%	128
10	Georgia	0.49%	116
11	Nebraska	0.48%	114
12	Michigan	0.48%	113
13	Texas	0.46%	109
14	California	0.43%	102
15	New York	0.43%	102
16	New Hampshire	0.42%	98
17	Arizona	0.41%	98
18	Pennsylvania	0.41%	96
19	Florida	0.38%	91
20	Wisconsin	0.37%	86
21	North Carolina	0.36%	85
22	Missouri	0.35%	83
23	Ohio	0.35%	82
24	New Mexico	0.34%	80
25	Kentucky	0.34%	79
26	Hawaii	0.34%	79
27	Utah	0.33%	79
28	Alabama	0.32%	76
29	Oregon	0.32%	75
30	Oklahoma	0.30%	70
31	Tennessee	0.30%	70
32	Indiana	0.29%	69
33	Alaska	0.28%	67
34	Vermont	0.27%	65
35	Kansas	0.27%	65
36	South Carolina	0.27%	64
37	Rhode Island	0.27%	64
38	Iowa	0.26%	60
39	Guam	0.26%	60
40	Maine	0.25%	59
41	Idaho	0.25%	59
42	West Virginia	0.22%	52
43	Louisiana	0.21%	49
44	South Dakota	0.20%	48
45	Montana	0.20%	46
46	Puerto Rico	0.16%	38
47	Arkansas	0.16%	38
48	North Dakota	0.16%	37
49	Mississippi	0.16%	37
50	Nevada	0.13%	31
51	Wyoming	0.10%	23
52	District of Columbia	(*)	(*)
53	Washington	(*)	(*)
54	Virgin Islands	(*)	(*)

:E: Office of Technology Policy, U.S. Department of Commerce

not available

Table 5. 1998 State Employment of All Other Computer Scientists

Ranking by Number Employed		
Rank	State	Number Employed
1	California	15,740
2	New York	6,710
3	Illinois	6,420
4	Florida	5,740
5	Texas	4,910
6	Georgia	4,320
7	Colorado	4,300
8	Minnesota	4,160
9	Maryland	3,480
10	Pennsylvania	3,350
11	Massachusetts	3,270
12	Virginia	3,030
13	New Jersey	2,990
14	Michigan	2,960
15	Ohio	2,960
16	Oregon	2,210
17	Washington	2,130
18	North Carolina	1,880
19	Missouri	1,760
20	Arizona	1,420
21	Tennessee	1,390
22	Connecticut	1,280
23	Indiana	1,220
24	Wisconsin	1,200
25	Oklahoma	1,030
26	Utah	950
27	Iowa	840
28	Alabama	670
29	Kentucky	560
30	Delaware	550
31	New Hampshire	540
32	Idaho	530
33	District of Columbia	480
34	Kansas	480
35	New Mexico	470
36	Nebraska	420
37	Louisiana	410
38	South Carolina	350
39	Arkansas	230
40	Maine	190
41	Mississippi	180
42	West Virginia	180
43	Nevada	160
44	Hawaii	140
45	Puerto Rico	90
46	Alaska	80
47	Wyoming	60
48	Montana	50
49	Vermont	30
50	North Dakota	(*)
51	Rhode Island	(*)
52	South Dakota	(*)
53	Guam	(*)
54	Virgin Islands	(*)

Ranking by Annual Average Wages		
Rank	State	Annual Average Wages
1	Maryland	$ 60,930
2	Delaware	$ 58,700
3	Pennsylvania	$ 57,300
4	New Jersey	$ 57,210
5	Connecticut	$ 55,990
6	Colorado	$ 55,600
7	California	$ 54,590
8	Virginia	$ 54,010
9	New York	$ 53,620
10	District of Columbia	$ 52,800
11	Alaska	$ 51,530
12	Massachusetts	$ 51,110
13	North Carolina	$ 50,590
14	Hawaii	$ 50,530
15	Minnesota	$ 50,500
16	Washington	$ 49,250
17	Florida	$ 48,870
18	Alabama	$ 47,910
19	South Carolina	$ 47,710
20	Ohio	$ 47,600
21	Utah	$ 47,450
22	Oregon	$ 47,340
23	Mississippi	$ 47,030
24	Missouri	$ 46,990
25	Texas	$ 46,730
26	Kansas	$ 46,490
27	Arizona	$ 46,170
28	Illinois	$ 46,030
29	West Virginia	$ 45,990
30	Nebraska	$ 45,710
31	Vermont	$ 44,610
32	Michigan	$ 44,090
33	Iowa	$ 43,470
34	Oklahoma	$ 43,270
35	Louisiana	$ 43,020
36	Indiana	$ 42,950
37	New Mexico	$ 42,760
38	Georgia	$ 42,340
39	Maine	$ 41,920
40	New Hampshire	$ 41,910
41	Nevada	$ 41,720
42	Wisconsin	$ 41,140
43	Tennessee	$ 40,960
44	Idaho	$ 39,710
45	Kentucky	$ 38,940
46	Arkansas	$ 33,450
47	Montana	$ 32,860
48	Puerto Rico	$ 31,020
49	Wyoming	$ 29,700
50	North Dakota	(*)
51	Rhode Island	(*)
52	South Dakota	(*)
53	Guam	(*)
54	Virgin Islands	(*)

Ranking by Intensity			
Rank	State	Intensity	State Index US=100
1	Colorado	0.21%	270
2	Minnesota	0.17%	210
3	Delaware	0.16%	198
4	Maryland	0.15%	192
5	Oregon	0.15%	184
6	District of Columbia	0.12%	150
7	Georgia	0.12%	149
8	California	0.11%	144
9	Illinois	0.11%	139
10	Massachusetts	0.10%	132
11	Idaho	0.10%	131
12	Utah	0.10%	123
13	New Hampshire	0.10%	121
14	Virginia	0.09%	118
15	Washington	0.09%	113
16	Florida	0.09%	110
17	New York	0.08%	105
18	New Jersey	0.08%	101
19	Connecticut	0.08%	99
20	Oklahoma	0.08%	95
21	New Mexico	0.07%	89
22	Arizona	0.07%	87
23	Missouri	0.07%	86
24	Michigan	0.07%	85
25	Pennsylvania	0.06%	78
26	Iowa	0.06%	76
27	Texas	0.06%	70
28	Ohio	0.05%	69
29	Tennessee	0.05%	68
30	North Carolina	0.05%	64
31	Nebraska	0.05%	63
32	Wisconsin	0.05%	58
33	Indiana	0.04%	54
34	Kansas	0.04%	47
35	Alabama	0.04%	46
36	Maine	0.03%	43
37	Kentucky	0.03%	42
38	Alaska	0.03%	40
39	Hawaii	0.03%	37
40	Wyoming	0.03%	35
41	West Virginia	0.03%	34
42	Louisiana	0.02%	28
43	Arkansas	0.02%	27
44	South Carolina	0.02%	26
45	Nevada	0.02%	22
46	Mississippi	0.02%	21
47	Montana	0.01%	18
48	Vermont	0.01%	14
49	Puerto Rico	0.01%	13
50	North Dakota	(*)	(*)
51	Rhode Island	(*)	(*)
52	South Dakota	(*)	(*)
53	Guam	(*)	(*)
54	Virgin Islands	(*)	(*)

SOURCE: Office of Technology Policy, U.S. Department of Commerce

(*) data not available

Table 6. 1998 State Employment of Database Administrators

Ranking by Number Employed

Rank	State	Number Employed
1	California	12,370
2	Texas	7,270
3	New York	6,570
4	Illinois	4,610
5	Ohio	4,230
6	Pennsylvania	3,790
7	Florida	3,720
8	Virginia	3,690
9	New Jersey	3,480
10	Georgia	2,960
11	Massachusetts	2,890
12	North Carolina	2,480
13	Colorado	2,360
14	Michigan	2,040
15	Maryland	2,010
16	Indiana	1,760
17	Missouri	1,710
18	Arizona	1,650
19	Wisconsin	1590
20	Connecticut	1,450
21	Minnesota	1,430
22	Tennessee	1,180
23	Oklahoma	1,030
24	Kansas	900
25	Arkansas	790
26	District of Columbia	770
27	Iowa	770
28	Alabama	760
29	Oregon	660
30	South Carolina	660
31	Utah	610
32	Nebraska	590
33	Kentucky	580
34	Louisiana	510
35	New Mexico	440
36	Rhode Island	410
37	Mississippi	330
38	Hawaii	310
39	New Hampshire	300
40	Puerto Rico	290
41	Delaware	280
42	Nevada	250
43	Vermont	240
44	Maine	220
45	Idaho	170
46	West Virginia	170
47	Alaska	130
48	Montana	100
49	North Dakota	100
50	South Dakota	70
51	Wyoming	40
52	Washington	(*)
53	Guam	(*)
54	Virgin Islands	(*)

Ranking by Annual Average Wages

Rank	State	Annual Average Wages
1	New York	$ 56,110
2	New Jersey	$ 55,780
3	California	$ 55,100
4	Connecticut	$ 53,160
5	Arizona	$ 52,850
6	Massachusetts	$ 52,420
7	Rhode Island	$ 52,290
8	Alaska	$ 52,260
9	Colorado	$ 52,180
10	Missouri	$ 52,100
11	Illinois	$ 51,600
12	Delaware	$ 51,350
13	Hawaii	$ 51,340
14	Virginia	$ 51,250
15	New Hampshire	$ 51,140
16	Maryland	$ 50,720
17	Minnesota	$ 50,450
18	Arkansas	$ 49,830
19	Pennsylvania	$ 49,820
20	Oregon	$ 49,810
21	Utah	$ 49,560
22	Idaho	$ 49,550
23	Texas	$ 49,310
24	North Carolina	$ 49,000
25	Tennessee	$ 47,950
26	Kentucky	$ 47,850
27	District of Columbia	$ 47,810
28	Ohio	$ 47,640
29	Michigan	$ 47,120
30	Florida	$ 46,890
31	Nebraska	$ 46,630
32	Iowa	$ 46,460
33	Alabama	$ 46,230
34	Wisconsin	$ 45,720
35	Vermont	$ 45,630
36	Montana	$ 45,420
37	Nevada	$ 45,240
38	West Virginia	$ 45,110
39	New Mexico	$ 43,570
40	Kansas	$ 43,560
41	Indiana	$ 43,430
42	South Carolina	$ 43,230
43	Louisiana	$ 43,120
44	North Dakota	$ 42,820
45	South Dakota	$ 42,810
46	Georgia	$ 42,590
47	Wyoming	$ 42,120
48	Oklahoma	$ 41,250
49	Maine	$ 40,730
50	Mississippi	$ 40,510
51	Puerto Rico	$ 40,100
52	Washington	(*)
53	Guam	(*)
54	Virgin Islands	(*)

Ranking by Intensity

Rank	State	Intensity	State Index US=100
1	District of Columbia	0.19%	270
2	Colorado	0.12%	166
3	Virginia	0.11%	162
4	Rhode Island	0.09%	133
5	New Jersey	0.09%	133
6	Massachusetts	0.09%	131
7	Vermont	0.09%	128
8	California	0.09%	127
9	Connecticut	0.09%	126
10	Maryland	0.09%	124
11	Texas	0.08%	116
12	New York	0.08%	115
13	Georgia	0.08%	114
14	Arizona	0.08%	114
15	Delaware	0.08%	113
16	Illinois	0.08%	112
17	Ohio	0.08%	110
18	Oklahoma	0.08%	106
19	Arkansas	0.07%	103
20	Pennsylvania	0.07%	100
21	Kansas	0.07%	99
22	Nebraska	0.07%	99
23	North Carolina	0.07%	95
24	New Mexico	0.07%	94
25	Missouri	0.07%	93
26	Hawaii	0.06%	91
27	Utah	0.06%	89
28	Indiana	0.06%	87
29	Wisconsin	0.06%	86
30	Minnesota	0.06%	81
31	Florida	0.06%	80
32	Iowa	0.06%	78
33	New Hampshire	0.05%	75
34	Alaska	0.05%	74
35	Michigan	0.05%	66
36	Tennessee	0.05%	64
37	Oregon	0.04%	62
38	Alabama	0.04%	59
39	Maine	0.04%	56
40	South Carolina	0.04%	54
41	Kentucky	0.03%	49
42	North Dakota	0.03%	48
43	Idaho	0.03%	47
44	Puerto Rico	0.03%	46
45	Mississippi	0.03%	43
46	Montana	0.03%	40
47	Louisiana	0.03%	40
48	Nevada	0.03%	39
49	West Virginia	0.03%	37
50	South Dakota	0.02%	30
51	Wyoming	0.02%	27
52	Washington	0.00%	-
53	Guam	0.00%	-
54	Virgin Islands	0.00%	-

RCE: Office of Technology Policy, U.S. Department of Commerce

ta not available

Table 7. 1998 State Employment of Computer Support Specialists

Ranking by Number Employed		
Rank	State	Number Employed
1	California	57,940
2	Texas	35,460
3	New York	30,290
4	Florida	21,380
5	Illinois	19,300
6	Pennsylvania	18,870
7	Massachusetts	18,430
8	New Jersey	18,080
9	Washington	16,090
10	Ohio	15,960
11	Virginia	15,170
12	Colorado	13,970
13	Georgia	13,450
14	North Carolina	13,050
15	Maryland	11,280
16	Michigan	11,130
17	Minnesota	10,500
18	Missouri	8,600
19	Wisconsin	8,230
20	Arizona	8,160
21	Oregon	7,450
22	Tennessee	6,660
23	Connecticut	6,400
24	Indiana	6,150
25	Utah	5,260
26	Kansas	4,390
27	Kentucky	4,390
28	Alabama	4,050
29	Iowa	4,030
30	Oklahoma	3,980
31	Nebraska	3,390
32	South Carolina	3,280
33	North Dakota	2,960
34	Louisiana	2730
35	District of Columbia	2,610
36	Delaware	2,280
37	Nevada	2,250
38	South Dakota	2,040
39	New Hampshire	1,950
40	New Mexico	1,740
41	Arkansas	1,700
42	Maine	1,660
43	Idaho	1,630
44	Vermont	1,460
45	Puerto Rico	1290
46	Mississippi	1,180
47	Rhode Island	1100
48	Hawaii	1,040
49	Montana	970
50	West Virginia	920
51	Alaska	730
52	Wyoming	310
53	Guam	80
54	Virgin Islands	40

Ranking by Annual Average Wages		
Rank	State	Annual Average Wages
1	New Jersey	$ 47,100
2	Connecticut	$ 46,990
3	New York	$ 46,970
4	California	$ 46,830
5	Massachusetts	$ 46,370
6	Delaware	$ 44,250
7	Illinois	$ 43,420
8	Alaska	$ 42,330
9	Maryland	$ 41,560
10	Michigan	$ 41,480
11	District of Columbia	$ 41,170
12	Texas	$ 40,840
13	Hawaii	$ 40,310
14	Minnesota	$ 40,250
15	Rhode Island	$ 40,230
16	New Hampshire	$ 39,830
17	North Carolina	$ 39,320
18	Missouri	$ 38,830
19	Arizona	$ 38,730
20	Pennsylvania	$ 38,600
21	Kansas	$ 38,430
22	Washington	$ 37,920
23	Virginia	$ 37,830
24	Georgia	$ 37,510
25	Ohio	$ 37,480
26	Wisconsin	$ 37,440
27	Colorado	$ 37,350
28	Florida	$ 37,130
29	Vermont	$ 37,020
30	Tennessee	$ 36,940
31	Indiana	$ 36,200
32	Nevada	$ 35,870
33	Alabama	$ 35,670
34	Oregon	$ 35,490
35	New Mexico	$ 35,400
36	Iowa	$ 34,870
37	Kentucky	$ 34,810
38	South Carolina	$ 34,640
39	Virgin Islands	$ 33,860
40	Louisiana	$ 33,700
41	Mississippi	$ 33,050
42	Utah	$ 32,870
43	Nebraska	$ 32,660
44	West Virginia	$ 32,510
45	Idaho	$ 32,270
46	Arkansas	$ 31,850
47	Montana	$ 31,180
48	Wyoming	$ 31,170
49	Maine	$ 30,570
50	Guam	$ 29,970
51	Puerto Rico	$ 29,350
52	Oklahoma	$ 27,920
53	South Dakota	$ 25,350
54	North Dakota	$ 23,570

Ranking by Intensity			
Rank	State	Intensity	State Index US=100
1	North Dakota	1.00%	272
2	Colorado	0.70%	189
3	Washington	0.68%	183
4	Delaware	0.65%	176
5	District of Columbia	0.65%	176
6	South Dakota	0.61%	165
7	Massachusetts	0.59%	160
8	Vermont	0.55%	149
9	Utah	0.54%	147
10	Maryland	0.49%	134
11	Oregon	0.49%	134
12	New Jersey	0.49%	132
13	Virginia	0.47%	127
14	Minnesota	0.42%	114
15	California	0.42%	114
16	Nebraska	0.40%	110
17	Texas	0.40%	109
18	Arizona	0.40%	108
19	Connecticut	0.39%	107
20	New York	0.37%	102
21	Georgia	0.37%	100
22	North Carolina	0.35%	96
23	Pennsylvania	0.35%	95
24	New Hampshire	0.35%	94
25	Kansas	0.34%	93
26	Illinois	0.33%	90
27	Missouri	0.33%	90
28	Florida	0.32%	88
29	Idaho	0.32%	87
30	Wisconsin	0.31%	85
31	Maine	0.30%	81
32	Ohio	0.29%	80
33	Alaska	0.29%	79
34	Oklahoma	0.29%	79
35	Iowa	0.29%	78
36	Montana	0.27%	74
37	New Mexico	0.26%	71
38	Kentucky	0.26%	71
39	Tennessee	0.26%	70
40	Michigan	0.25%	69
41	Rhode Island	0.25%	68
42	Nevada	0.25%	67
43	Alabama	0.22%	60
44	Hawaii	0.22%	58
45	Indiana	0.21%	58
46	South Carolina	0.19%	52
47	Guam	0.16%	43
48	Arkansas	0.16%	42
49	Virgin Islands	0.15%	41
50	Louisiana	0.15%	41
51	Wyoming	0.15%	39
52	Puerto Rico	0.14%	39
53	West Virginia	0.14%	38
54	Mississippi	0.11%	29

ICE: Office of Technology Policy, U.S. Department of Commerce

a not available

Table 8. State Ordinal Rankings of Core IT Work Force Occupations

All Core IT Occupations			Computer Engineers			Computer Programmers			Systems Analysts		
Size of Work Force	Intensity		Size of Work Force	Annual Average Wages	Intensity	Size of Work Force	Annual Average Wages	Intensity	Size of Work Force	Annual Average Wages	Intensity
25	37	Alabama	23	24	25	24	35	35	23	32	28
50	35	Alaska	49	19	45	46	15	25	46	12	33
19	16	Arizona	19	6	17	19	9	14	20	23	17
38	48	Arkansas	39	50	42	39	40	52	36	49	47
1	9	California	1	5	5	1	2	10	1	8	14
14	1	Colorado	8	4	2	15	11	4	16	2	7
21	7	Connecticut	18	8	8	21	4	12	17	5	6
36	6	Delaware	41	9	35	41	12	15	33	14	3
34	11	District of Columbia	29	2	6	35	22	6	52	52	52
6	27	Florida	10	14	24	7	29	28	7	27	19
11	12	Georgia	13	23	16	12	7	17	12	11	10
53	49	Guam	53	53	53	53	45	46	51	47	39
45	42	Hawaii	42	29	40	44	44	40	38	39	26
41	36	Idaho	32	37	19	48	36	50	42	37	41
4	10	Illinois	5	40	12	4	20	5	4	17	9
22	40	Indiana	20	41	30	23	39	38	21	25	32
29	32	Iowa	26	42	26	28	43	33	30	41	38
30	34	Kansas	34	44	36	30	31	32	31	20	35
28	41	Kentucky	28	47	32	33	46	48	24	33	25
33	46	Louisiana	38	48	47	31	41	41	29	44	43
44	43	Maine	43	34	44	45	42	49	41	19	40
13	4	Maryland	12	18	4	13	6	2	11	9	2
8	3	Massachusetts	3	1	1	9	3	7	13	7	8
12	23	Michigan	14	27	22	11	16	22	9	36	12
16	8	Minnesota	16	20	10	18	27	18	14	6	5
39	52	Mississippi	37	45	39	36	49	44	37	45	49
18	24	Missouri	22	31	31	16	23	13	19	10	22
51	45	Montana	50	28	48	50	47	47	47	46	45
31	13	Nebraska	30	32	27	27	37	8	28	35	11
40	47	Nevada	45	16	49	38	25	43	43	29	50
35	26	New Hampshire	52	52	52	34	8	16	34	16	16
7	5	New Jersey	7	10	7	6	1	3	6	1	4
37	38	New Mexico	33	25	28	42	38	45	35	26	24
3	15	New York	6	12	23	2	5	9	3	4	15
15	21	North Carolina	11	15	14	14	10	21	15	21	21
46	25	North Dakota	46	13	38	51	50	51	49	50	48
10	28	Ohio	15	35	29	8	28	24	10	31	23
27	31	Oklahoma	31	43	34	26	24	29	27	30	30
24	18	Oregon	21	3	15	25	17	30	25	13	29
9	22	Pennsylvania	9	17	18	10	18	31	8	22	18
42	50	Puerto Rico	48	51	50	37	53	39	39	51	46
43	30	Rhode Island	35	7	20	40	21	23	44	15	37
32	44	South Carolina	36	38	43	29	33	37	26	42	36
49	33	South Dakota	47	49	41	49	51	36	48	24	44
23	39	Tennessee	27	39	37	22	19	34	22	43	31
2	17	Texas	2	21	13	3	13	20	2	18	13
26	14	Utah	24	26	11	32	30	26	32	38	27
47	20	Vermont	40	33	21	43	34	19	45	28	34
54	54	Virgin Islands	54	54	54	54	54	54	54	54	54
5	2	Virginia	4	22	3	5	26	1	5	3	1
17	19	Washington	17	11	9	17	14	11	53	53	53
48	51	West Virginia	44	36	46	47	48	53	40	40	42
20	29	Wisconsin	25	30	33	20	32	27	18	34	20
52	53	Wyoming	51	46	51	52	52	42	50	48	51

SOURCE: Office of Technology Policy, U.S. Department of Commerce

BEST COPY AVAILABLE

Table 8. Ordinal Rankings *(continued)*

	All Other Computer Scientists			Database Administrators			Computer Support Specialists		
	Size of Work Force	Annual Average Wages	Intensity	Size of Work Force	Annual Average Wages	Intensity	Size of Work Force	Annual Average Wages	Intensity
Alabama	28	18	35	28	33	38	28	33	43
Alaska	46	11	38	47	8	34	51	8	33
Arizona	20	27	22	18	5	14	20	19	18
Arkansas	39	46	43	25	18	19	41	46	48
California	1	7	8	1	3	8	1	4	15
Colorado	7	6	1	13	9	2	12	27	2
Connecticut	22	5	19	20	4	9	23	2	19
Delaware	30	2	3	41	12	15	36	6	4
District of Columbia	33	10	6	26	27	1	35	11	5
Florida	4	17	16	7	30	31	4	28	28
Georgia	6	38	7	10	46	13	13	24	21
Guam	53	53	53	53	53	53	53	50	47
Hawaii	44	14	39	38	13	26	48	13	44
Idaho	32	44	11	45	22	43	43	45	29
Illinois	3	28	9	4	11	16	5	7	26
Indiana	23	36	33	16	41	28	24	31	45
Iowa	27	33	26	27	32	32	29	36	35
Kansas	34	26	34	24	40	21	26	21	25
Kentucky	29	45	37	33	26	41	27	37	38
Louisiana	37	35	42	34	43	47	34	40	50
Maine	40	39	36	44	49	39	42	49	31
Maryland	9	1	4	15	16	10	15	9	10
Massachusetts	11	12	10	11	6	6	7	5	7
Michigan	14	32	24	14	29	35	16	10	40
Minnesota	8	15	2	21	17	30	17	14	14
Mississippi	41	23	46	37	50	45	46	41	54
Missouri	19	24	23	17	10	25	18	18	27
Montana	48	47	47	48	36	46	49	47	36
Nebraska	36	30	31	32	31	22	31	43	16
Nevada	43	41	45	42	37	48	37	32	42
New Hampshire	31	40	13	39	15	33	39	16	24
New Jersey	13	4	18	9	2	5	8	1	12
New Mexico	35	37	21	35	39	24	40	35	37
New York	2	9	17	3	1	12	3	3	20
North Carolina	18	13	30	12	24	23	14	17	22
North Dakota	50	50	50	49	44	42	33	54	1
Ohio	15	20	28	5	28	17	10	25	32
Oklahoma	25	34	20	23	48	18	30	52	34
Oregon	16	22	5	29	20	37	21	34	11
Pennsylvania	10	3	25	6	19	20	6	20	23
Puerto Rico	45	48	49	40	51	44	45	51	52
Rhode Island	51	51	51	36	7	4	47	15	41
South Carolina	38	19	44	30	42	40	32	38	46
South Dakota	52	52	52	50	45	50	38	53	6
Tennessee	21	43	29	22	25	36	22	30	39
Texas	5	25	27	2	23	11	2	12	17
Utah	26	21	12	31	21	27	25	42	9
Vermont	49	31	48	43	35	7	44	29	8
Virgin Islands	54	54	54	54	54	54	54	39	49
Virginia	12	8	14	8	14	3	11	23	13
Washington	17	16	15	52	52	52	9	22	3
West Virginia	42	29	41	46	38	49	50	44	53
Wisconsin	24	42	32	19	34	29	19	26	30
Wyoming	47	49	40	51	47	51	52	48	51

BEST COPY AVAILABLE

Kelly H. Carnes, Esq.
Assistant Secretary for Technology Policy
(202) 482-1403

John Sargent
Senior Policy Analyst
(202) 482-6033

U.S. Department of Commerce
Office of Technology Policy
14th Street and Constitution Avenue, NW
Washington, DC 20230
Phone: (202) 482-5687

For copies of OTP publications, please call: (202) 482-3037
Visit our website at www.ta.doc.gov/otp

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

NOTICE

REPRODUCTION BASIS

☐ This document is covered by a signed "Reproduction Release (Blanket) form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a "Specific Document" Release form.

☑ This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either "Specific Document" or "Blanket").